INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Oak Ridge Drive Bridge Replacement Project

July 2015

Lead Agency:

311 Vernon Street
Roseville, CA 95678
Contact: Mark Morse
(916) 774-5334

Prepared by:

Kimley-Horn and Associates, Inc.
2720 Gateway Oaks Drive, Suite 310
Sacramento, CA 95833

NOTICE OF INTENT
TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR THE
PROPOSED OAK RIDGE DRIVE BRIDGE REPLACEMENT PROJECT

Public Notice is hereby given that an Initial Study/Mitigated Negative Declaration (IS/MND) (environmental report) is available for public review for the Oak Ridge Drive Bridge Replacement Project.

Project Description and Location: The City of Roseville (City) is proposing to replace the Oak Ridge Drive Bridge over Linda Creek and reconstruct Oak Ridge Drive, the bicycle pathway, and the floodwalls to conform to the new bridge. The project proposes to replace the narrow bridge to accommodate a standard width involving two travel lanes with standard shoulders (for bicycle lanes) and sidewalks. The new bridge and roadway profile would be elevated and lengthened to pass the design flood event in Linda Creek. The dimensions of the new bridge would be up to 80 feet long and up to 42 feet wide (two 1-foot rails, two 5-foot sidewalks, two 4-foot shoulders/bike lanes, and two 11-foot travel lanes).

The proposed project is located within the Infill Planning Area, north of Cirby Way, east of Sunrise Boulevard, and west of Rocky Ridge Road, within the City of Roseville, Placer County.

Document Review and Availability: The public comment period will extend **from July 20, 2015 to August 18, 2015**. Copies of the IS/MND are available for public review at the City of Roseville Permit Center, 311 Vernon Street, Roseville, CA 95678 (8:00 A.M. to 5:00 P.M., Monday through Friday).

The IS/MND can also be reviewed and/or downloaded from the City of Roseville website at the following link:
http://www.roseville.ca.us/gov/development_services/planning/environmental_documents_n_public_notices.asp

During the public review period written comments on the IS/MND may be provided to:

Mark Morse
Environmental Coordinator
Development and Operations Division
City of Roseville
311 Vernon Street
Roseville, CA 95678
(916) 774-5334

mmorse@roseville.ca.us

MITIGATED NEGATIVE DECLARATION

PROJECT TITLE: Oak Ridge Drive Bridge Replacement Project

PROJECT LOCATION: The proposed project is located within the Infill Planning Area, north of Cirby Way, east of Sunrise Boulevard, and west of Rocky Ridge Road, within the City of Roseville, Placer County.

DATE: July 20, 2015

PROJECT APPLICANT: City of Roseville, Public Works

LEAD AGENCY: City of Roseville

CONTACT PERSON: Mark Morse, Development and Operations Division, (916) 774-5334

PROJECT DESCRIPTION: The City of Roseville (City) is proposing to replace the Oak Ridge Drive Bridge over Linda Creek and reconstruct Oak Ridge Drive, the bicycle pathway, and the floodwalls to conform to the new bridge. The project proposes to replace the narrow bridge to accommodate a standard width involving two travel lanes with standard shoulders (for bicycle lanes) and sidewalks. The new bridge and roadway profile would be elevated and lengthened to pass the design flood event in Linda Creek. The dimensions of the new bridge would be up to 80 feet long and up to 42 feet wide (two 1-foot rails, two 5-foot sidewalks, two 4-foot shoulders/bike lanes, and two 11-foot travel lanes).

DECLARATION

The City of Roseville has determined that there is no substantial evidence that the above project, as mitigated, may have a significant effect on the environment and proposes that a Mitigated Negative Declaration be adopted. The determination is based on the attached Initial Study and the following findings:

a) The project will not degrade environmental quality, substantially reduce habitat, cause a wildlife population to drop below self-sustaining levels, reduce the number or restrict the range of special-status species, or eliminate important examples of California history or prehistory.
b) The project does not have the potential to achieve short-term, to the disadvantage of long-term, environmental goals.
c) The project will not have impacts that are individually limited, but cumulatively considerable.
d) The project will not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.
e) No substantial evidence exists that the project will have a negative or adverse effect on the environment.
f) The project incorporates all applicable mitigation measures identified in the Initial Study.
g) This Mitigated Negative Declaration reflects the independent judgment of the lead agency.

Written comments on the Initial Study and proposed Mitigated Negative Declaration shall be submitted no later than 5 PM **August 18, 2015**.

Submit comments to:
Mark Morse, Environmental Coordinator
Development and Operations Division
City of Roseville
311 Vernon Street
Roseville, CA 95678

Posting Period: July 20, 2015 to August 18, 2015

Initial Study approved by:

Mark Morse, Environmental Coordinator

Initial Study/Mitigated Negative Declaration
Oak Ridge Drive Bridge Replacement Project

Lead Agency: City of Roseville

City of Roseville
311 Vernon Street
Roseville, CA 95678

Prepared by:

Kimley-Horn and Associates, Inc.
2720 Gateway Oaks Drive, Suite 310
Sacramento, CA 95833

July 2015

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APPENDIX

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ACRONYMS AND ABBREVIATIONS

°F	Degrees Fahrenheit
AASHTO	American Association of State Highway and Transportation Officials
AB 32	Assembly Bill 32
AC	Asphalt Concrete
ACM	Asbestos Containing Material
ADL	Aerially Deposited Lead
ADT	Average Daily Trips
APE	Area of Potential Effects
BA	Biological Assessment
BMPs	Best Management Practices
B.P.	before present
BSA	Biological Study Area
CAAQS	California Ambient Air Quality Standards
California Register	California Register of Historical Resources
Cal/EPA	California Environmental Protection Agency
CalFire	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH_4	Methane
CIDH	cast-in-drilled-hole
CIP	Capital Improvement Program
City	City of Roseville
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society

CO	Carbon Monoxide
CO_2	Carbon Dioxide
CUPA	Certified Unified Program Agency
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
dB	Decibel
dBA	A-Weighted Decibel
dbh	diameter at breast height
DOT	U.S. Department of Transportation
DTSC	Department of Toxic Substance Control
EIR	Environmental Impact Report
FCAA	Federal Clean Air Act
FGC	California Fish and Game Code
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Authority
GIS	Global Information System
GHG	Greenhouse Gas
HBP	Highway Bridge Program
HCP	Habitat Conservation Plan
Hz	Hertz
I	Interstate
IS	Initial Study
IS/MND	Initial Study/Mitigated Negative Declaration
IPCC	Intergovernmental Panel on Climate Change
ISA	Phase I Initial Site Assessment
ITS	Intelligent Transportation System
L_{dn}	Day-Night Level
L_{eq}	Equivalent Continuous Sound Level
L_{max}	Maximum Sound Levels
L_{min}	Minimum Sound Level

L_n	Sound Level Percentiles
LOS	Level of Service
MAP-21	Moving Ahead for Progress in the 21st Century Act
MBTA	Migratory Bird Treaty Act
mg/L	milligrams per liter
MLD	Most Likely Descendent
MPO	Metropolitan Planning Organizaion
MSATs	Mobile Source Air Toxics
msl	mean sea level
MTIP	Metropolitan Transportation Improvement Program
N_2O	Nitrous Oxide
National Register	National Register of Historic Places
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NMFS	National Marine Fisheries Service
NO_2	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NO_X	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
O_3	Ozone
Pb	Lead
PCAPCD	Placer County Air Pollution Control District
PM_{10}	Particulate matter of less than 10 microns in diameter
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
ppv	peak particle velocity
PRC	Public Resources Code
proposed project	Industrial Avenue Bridge Replacement Project
ROG	Reactive Organic Gases
SACOG	Sacramento Area Council of Government
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Act: A Legacy for Users
SCH	State Clearinghouse

SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SPRR	Southern Pacific Railroad
SR	State Route
SVAB	Sacramento Valley Air Basin
SWMP	Storm Water Management Program
SWPPP	Stormwater Pollution Prevention Plan
TIP	Transportation Improvement Program
TMDL	Total Maximum Daily Loads
TSP	Total Suspended Particles
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound
WPWMA	Western Placer Waste Management Authority

1.0 INTRODUCTION

This project-level Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared for the Oak Ridge Drive Bridge Replacement Project (proposed project) to satisfy the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] 21000 et seq.) and State CEQA Guidelines (14 California Codes of Regulations [CCR] 15000 et seq.). The City of Roseville (City) is the lead agency for this proposed project under CEQA.

The proposed project is funded with Highway Bridge Program (HBP) and Toll Credit funds. Therefore, a Categorical Exclusion (CE) is being prepared under separate cover to satisfy the requirements of the National Environmental Policy Act (NEPA). The California Department of Transportation, District 3 Local Assistance (Caltrans), is the lead agency for this proposed project under NEPA, as assigned by the Federal Highway Administration (FHWA) through NEPA Delegation.

1.1 INITIAL STUDY PURPOSE

CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before acting on those projects. An Initial Study is a public document used by the decision-making lead agency to determine whether a project may have a significant impact on the environment. If the agency finds that the proposed project may have a significant impact on the environment, but that these impacts will be reduced to a less-than-significant level through implementation of specific mitigation measures, a Mitigated Negative Declaration shall be prepared.

This IS/MND is a public information document that describes the proposed project, existing environmental setting at the project site, and potential environmental impacts of construction and operation of the proposed project. It is intended to inform the public and decision-makers of the proposed project's compliance with CEQA and the State CEQA Guidelines.

1.2 REVIEW PROCESS

This IS/MND is being circulated for public and agency review as required by CEQA. Because state agencies will act as responsible or trustee agencies, the City will circulate the IS/MND to the State Clearinghouse of the Governor's Office of Planning and Research for distribution and a 30-day review period. Comments on the IS/MND will be evaluated, and responses will be prepared to address any substantive comments.

During the review period, written comments may be submitted to:

Mark Morse

Environmental Coordinator
Development and Operations Division
City of Roseville
311 Vernon Street
Roseville, CA 95678
mmorse@roseville.ca.us

2.0 Project Description

2.1 INTRODUCTION

The City of Roseville (City), in cooperation with the California Department of Transportation, District 3 Local Assistance (Caltrans), proposes to replace the Oak Ridge Drive Bridge over Linda Creek and reconstruct Oak Ridge Drive to conform to the new bridge. The Oak Ridge Drive Bridge Replacement Project (proposed project) would improve safety by providing a standard two-lane facility with standard shoulders and sidewalks, replace a bridge that is on the Highway Bridge Program (HBP) eligibility list, reduce the likelihood of hydraulic pressure flow against the bridge. The City is the lead agency under the California Environmental Quality Act (CEQA) while Caltrans is the lead agency for the National Environmental Policy Act (NEPA), as assigned by the Federal Highway Administration (FHWA) through NEPA Delegation.

The proposed project involves replacing a substandard bridge in an existing neighborhood. Doing so requires balancing the proposed project's environmental impacts and neighborhood interests with recently enacted Central Valley Flood Protection Board (CVFPB) bridge design criteria. The CVFPB bridge design criteria specify a 200-year design flood event plus three feet of freeboard. For comparison, the proposed project is designed to pass the 200-year design flood event but without the three-foot freeboard requirement. This would be accomplished by elevating the new bridge by approximately three feet on the south and approximately two feet on the north compared to existing conditions. To meet freeboard requirements, the new bridge would need to be elevated by approximately three feet on the south and approximately six feet on the north compared to existing conditions. While the new bridge could be designed to meet CVFPB freeboard requirements, the height increase required to do so would be out of character with the existing neighborhood and result in significant and unavoidable visual impacts (requiring preparation of an Environmental Impact Report [EIR]) and increased impacts to land use, noise, and utilities compared to the proposed design. The proposed design would preserve the visual privacy of adjacent residential back yards, maintain existing residential side yard parking/access, and reduce short- and long-term noise impacts and utility conflicts. For these reasons an exception to the CVFPB bridge design criteria is being requested for the proposed project. For further analysis of the environmental impacts of the proposed project compared to a design that meets the CVFPB 200-year design flood event and freeboard criteria, refer to Appendix B.

2.2 PROJECT FUNDING

Reconstruction of the bridge and roadway would be funded completely with Highway Bridge Program (HBP) and Toll Credit funds. The proposed project is considered a group project, Grouped Project for Bridge Rehabilitation and Reconstruction – HBP Program (VAR79008), in the Sacramento Area Council of Government's (SACOG) Metropolitan Transportation Improvement Program (MTIP). The proposed project is listed in both the 2011/2014 and 2013/2016 MTIPs (SACOG PLA25508).

The proposed project is also a component of the City's most recently updated transportation system Capital Improvement Program (CIP). The current CIP, adopted May 16, 2007, identified the transportation system improvements necessary to respond to roadway conditions, ensure adequate transportation system with the City, and be consistent with the City's level of service (LOS) policies through the year 2020. The City completed CEQA review for the *City of Roseville 2020 Transportation System CIP Subsequent Environmental Impact Report* (State Clearinghouse [SCH] No. 2006062086) in April 2007 for the following actions:

- adopting a new city-wide traffic model;
- adopting the proposed CIP program of transportation improvements (including the proposed project);
- making findings relative to the City's transportation system LOS Policy; and
- updating related traffic mitigation fees.

The analysis of the projects in the 2007 CIP Environmental Impact Report (EIR) was conducted based on the best available information and identified the broad environmental issues and cumulative effects associated with the collective improvements identified in the CIP and updates, as well as significant and unavoidable impacts and impacts associated with growth inducement and right-of-way expansion. The impacts and mitigation measures developed for the project-level analysis of the proposed project provided in this document are consistent with those identified in the 2007 CIP EIR.

The 2007 CIP and CIP EIR may be reviewed at the City of Roseville Permit Center front counter located at 311 Vernon Street in Roseville, Monday through Friday, between the hours of 8 AM and 5 PM.

2.3 PROJECT LOCATION

The proposed project is located within the City of Roseville, Placer County, California, on the eastern edge of the Sacramento Valley floor at the base of the Sierra Nevada foothills; refer to Figure 2-1, *Regional Location*. The proposed project is north of Cirby Way and east of Sunrise Boulevard; refer to Figure 2-2, *Project Location*. The City identifies the area as within the Infill Specific Planning Area. Primary access to the City is via Interstate 80 (I-80) and State Route 65 (SR-65). The Project area is within the United States Geological Survey (USGS) Citrus Heights Quadrangle, California, Township 10 North, Range 8 East, Section 12.

2.4 PROJECT SETTING

Oak Ridge Drive, classified as a "collector" roadway by the City of Roseville General Plan, carries approximately 4,200 average daily trips (ADT) through a neighborhood subdivision between two major arterials – Cirby Way to the south and Sunrise Boulevard to the north. This section of Oak Ridge Drive also provides direct access to Sierra Gardens Elementary School which is 1,700 feet north of the proposed project.

City land use designations for the area surrounding the Oak Ridge Drive bridge include LDR-3.5 (Low Density Residential, 3.5 units per acre) and MDR-8.7 (Medium Density Residential, 8.7 units per acre) to the south, LDR-3.7 (Low Density Residential, 3.7 units per acre) to the north, OS/PR/FP (Open Space/Parks and Recreation/Floodplain [Combining]) along Linda Creek to the east and west of the bridge. City land use designations for the area surrounding the potential staging area, north of the bridge at Coloma Way and Oak Ridge Drive, include LDR-3.7 (Low Density Residential, 3.7 units per acre) to the south, LDR-4.6 (Low Density Residential, 4.6 units per acre) to the north, OS/FP (Open Space/Floodplain [Combining]) immediately adjacent to the staging area, and P/QP (Public/Quasi-Public) to the east (Figure 2-3, *Existing General Plan Land Use Designations*). The area surrounding the proposed project is City zoned FW (Floodway); R1 (Single-Family Residential); P/QP (Public/Quasi-Public); PD19 #4454 (Planned Development 19 Zoning Ordinance Update #4454); and PD47 #1393 (Planned Development 47 Zoning Ordinance Update #1393) (Figure 2-4, *Existing City Zoning Classifications*).

The profile of Oak Ridge Drive leading to and over the bridge is on a relatively steep grade of approximately seven percent. The surrounding area is relatively flat, with topography ranging from approximately 140 feet above mean sea level (msl) to 160 feet above msl. The active Linda Creek channel is open water habitat. The stream banks, above the ordinary high water mark, consist of valley oak-interior live oak woodland and arroyo willow thicket, both are considered non-wetland habitats.

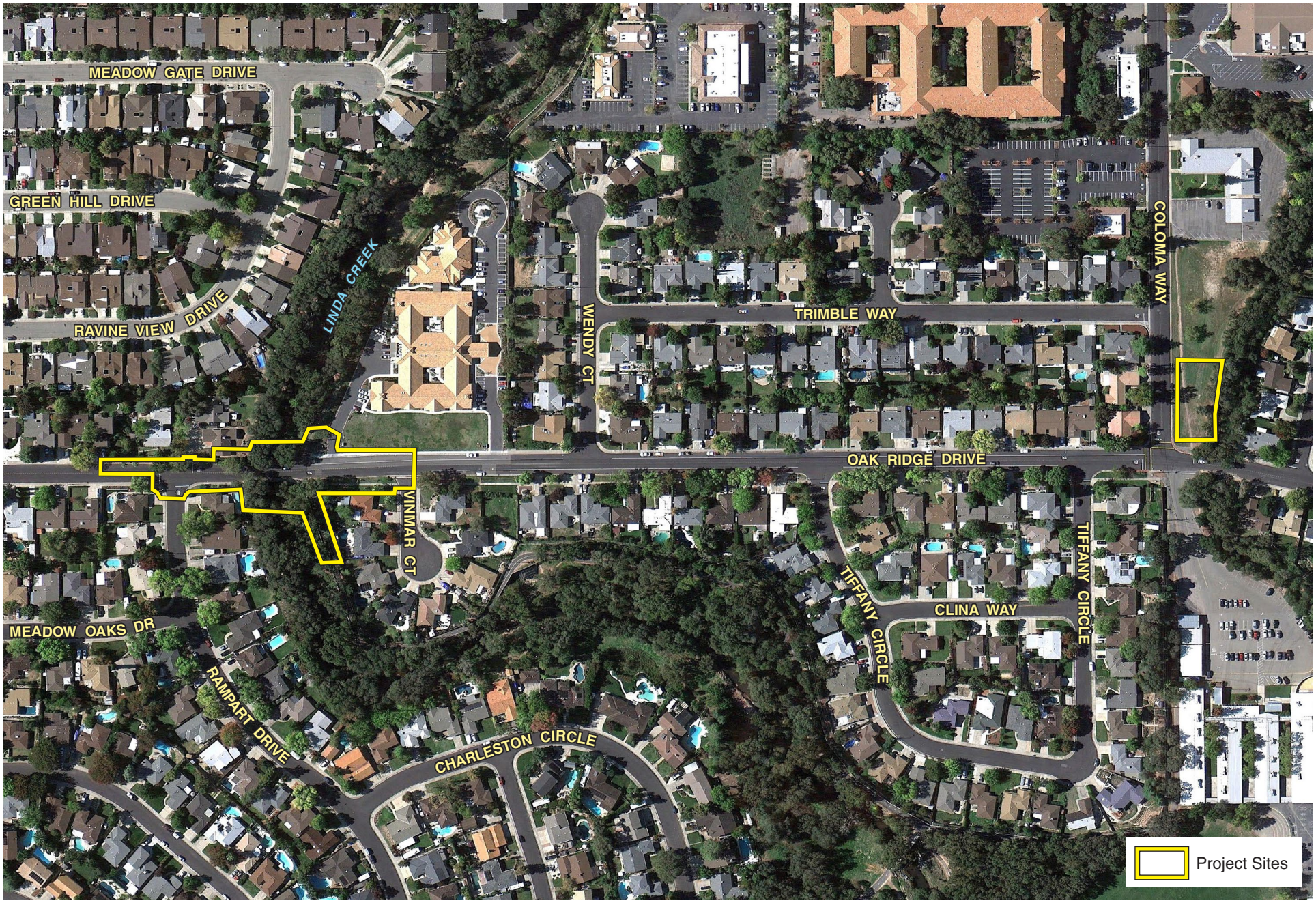
0 10 15 22 miles
APPROXIMATE

10/9/14 JN 134939-20517

OAK RIDGE DRIVE BRIDGE PROJECT • CEQA

Regional Location

Figure 2-1



Source: Google Pro Aerial

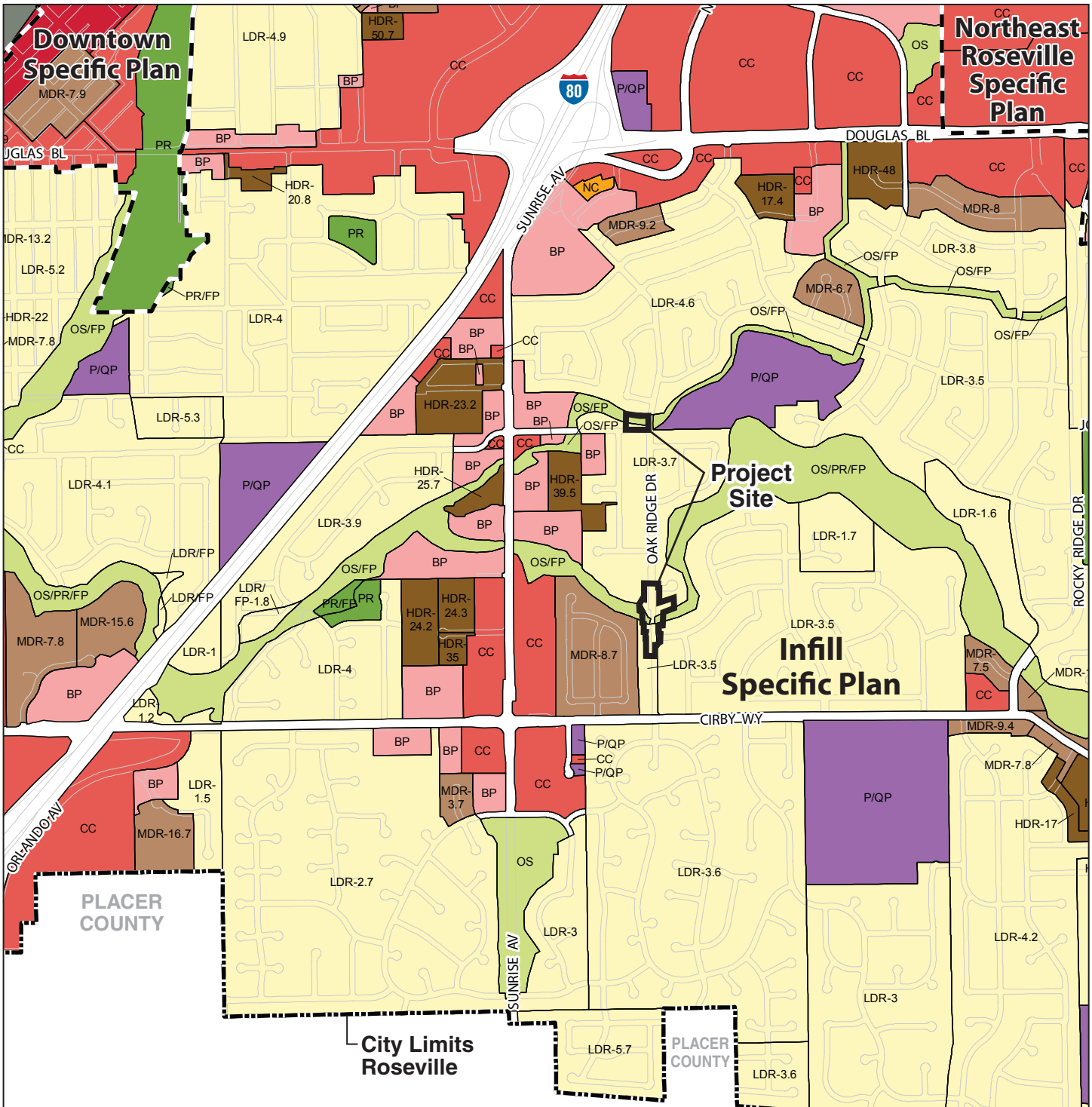
not to scale

OAK RIDGE DRIVE BRIDGE PROJECT • CEQA

Project Location

10/14/14 JN 134939-20517 MAS

Figure 2-2



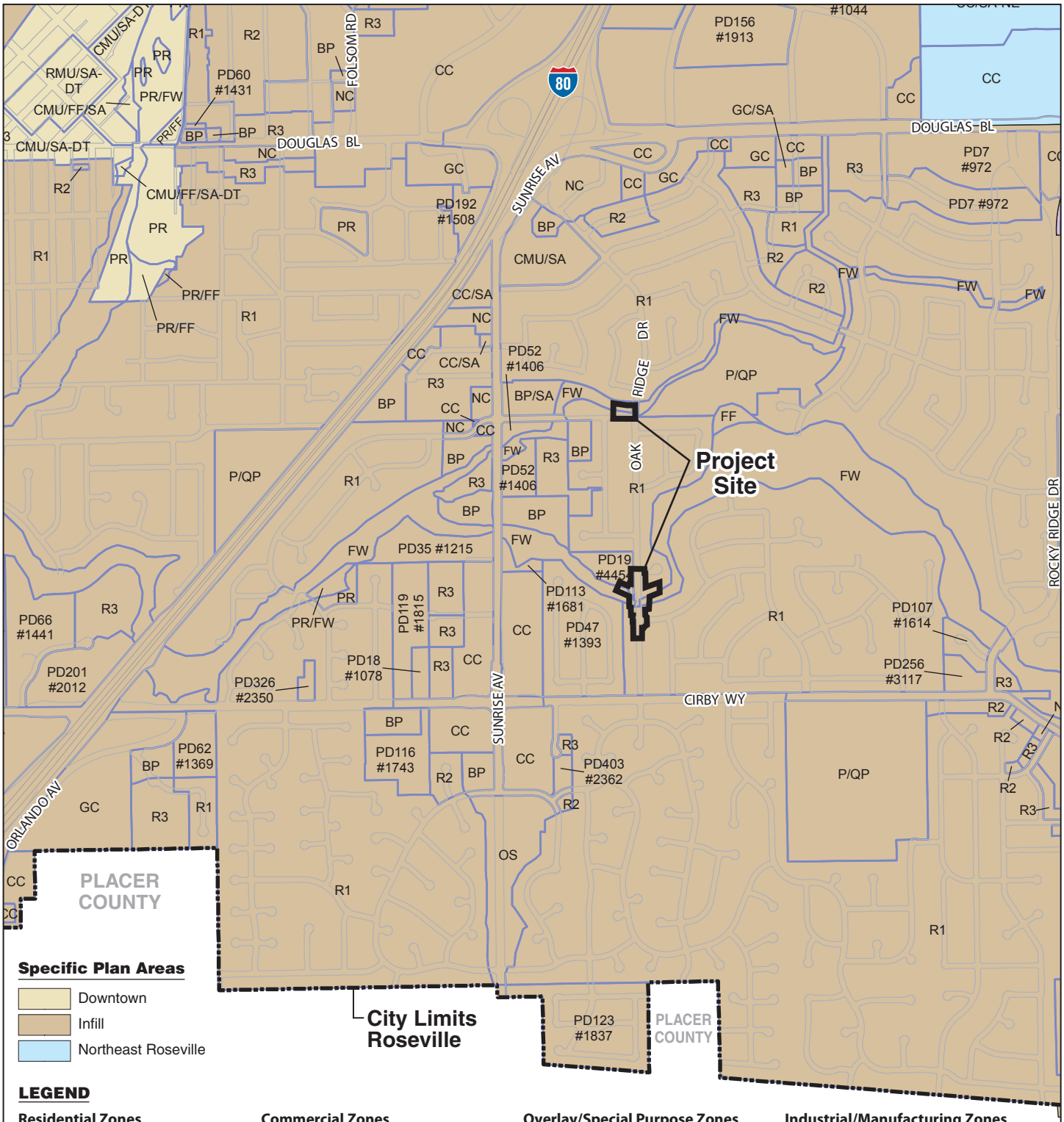
Source: City of Roseville, General Plan 2025, Land Use Map, Adopted May 5, 2012, Updated April 2013.

OAK RIDGE DRIVE BRIDGE PROJECT • CEQA

Existing General Plan Land Use Designations • Oak Ridge Drive

10/9/14 JN 134939-20517

Figure 2-3



Source: City of Roseville, Zoning Map,
Adopted July 26, 1996, Updated November 1, 2011.

0 0.1 0.2 0.25 miles

OAK RIDGE DRIVE BRIDGE PROJECT • CEQA

City Zoning Classifications • Oak Ridge Drive

10/9/14 JN 134939-20517

Figure 2-4

The existing Oak Ridge Drive Bridge is 56.5 feet long with two lanes, no shoulders and two, 1.3-foot-wide vehicular barrier rails. Oak Ridge Drive is a two-lane roadway to the south of the bridge. Oak Ridge Drive to the north of the bridge is a two-lane roadway with standard shoulders and sidewalks on either side; the standard shoulders accommodate parking and bicycle use.

2.5 PURPOSE AND OBJECTIVES

The City has identified the following purpose and objectives for the proposed project.

- To construct a safe and standard two-lane facility with standard shoulders and sidewalks consistent with City and American Association of State Highway and Transportation Officials (AASHTO) standards in order to accommodate vehicles, bicycles and pedestrians.
- To remove the bridge from the Highway Bridge Program (HBP) eligibility list for bridge replacements.
- To reduce hydraulic pressure flow against the bridge by raising the roadway/bridge profile and lengthening the bridge to the degree feasible.
- To improve the pedestrian accommodations by lessening the grade of the roadway across the bridge consistent with the Americans with Disabilities Act (ADA).
- To minimize adverse long term traffic noise and visual impacts that may result from raising the bridge profile.

2.6 PROJECT DESCRIPTION

2.6.1 PROPOSED PROJECT

Overall, the proposed project would entail the following activities:

- Remove the constricting earthen fill prism from the floodway;
- Remove the functionally obsolete, narrow two-lane bridge;
- Construct a longer, standard two-lane bridge with shoulders and sidewalks;
- Raise the roadway and bridge profile;
- Reconnect the floodwalls with transitions to the new bridge; and
- Relocate one sewer and one water line with the new bridge.

As part of the proposed project, roadway, bike trail and property access approaches would be reconstructed to accommodate the necessary profile adjustment. The roadway approaches would include approximately 220 feet on the south and 230 feet on the north to accommodate the relief of hydraulic pressure on the bridge and better accommodate ADA and pedestrian access. The slopes would be consistent with City standards and would be approximately 4.4 percent on the northbound approach to the bridge, approximately 8.2 percent on the western side of southbound Oak Ridge Drive, approximately 7.4 percent on the eastern side between the bridge and the multi-use trail, and approximately 4.7 percent from the multi-use trail to the north. The elevation on the north side of the bridge would be raised slightly, a maximum of approximately two feet at the northern bridge abutment and 1.5 feet at the multi-use trail; therefore, the adjacent flood walls that currently connect to the existing bridge would be modified to conform to the new bridge in order to provide the same level of flood protection.

The dimensions of the existing bridge are 56.5 feet long with two lanes, no shoulders (26.4 feet wide) and two, 1.3-foot wide vehicular barrier rails. The project proposes to replace the narrow bridge to accommodate a standard width involving two travel lanes with shoulders (for bike lanes) and sidewalks on each side. The new bridge and roadway profile would be elevated and the bridge lengthened to pass the 200-year design flood event in Linda Creek. As discussed above, this is less than the CVFPB requirement

for a 200-year design flood event plus three feet of freeboard and consequently a design exception is being requested from the CVFPB. The dimensions of the new bridge would be up to 80 feet long and up to 42 feet wide (two one-foot rails, two five-foot sidewalks, two four-foot shoulders/bike lanes, and two 11-foot travel lanes), refer to Figure 2-5, *Site Plan*.

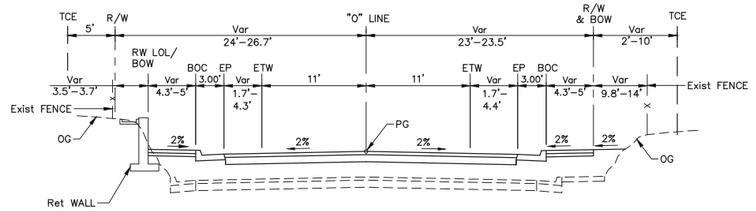
The existing bridge configuration behaves as a flow constrictor within the channel with the existing sloped banks and channel invert experiencing erosion over time. The proposed project would remove approximately 400 cubic yards of the northerly abutment fill prism restoring the native creek bank. The proposed grading at this abutment would not increase hydraulic conveyance beneath the bridge, as a large bypass culvert constructed in 2001 to convey flood waters around this bridge site would continue to function and the total flow through and around the bridge site would remain essentially unchanged.

The sloped creek banks and channel invert adjacent to the abutments would require erosion protection with rock slope protection or soft armoring. The limits of the erosion protection would extend above the high water surface elevation of the 200-year design flood event, would line the channel invert, and extend upstream and downstream within the high water velocity zone.

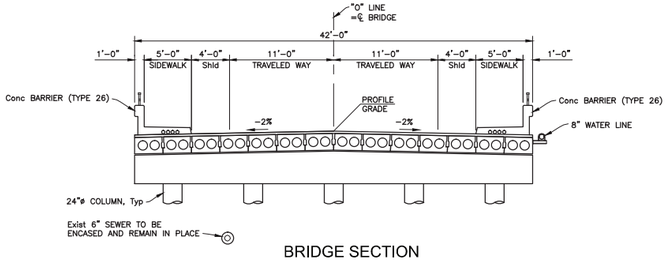
The existing bridge and roadway approaches currently lie in a low profile condition across Linda Creek, where overtopping often occurs during major storm events. The current bridge barrier post and railing has been converted to "solid" barriers with metal element retrofitting to emulate a water tight rail that ties into an adjacent floodwall. The new bridge would be raised compared to the existing bridge. As a result, the approach ramps would also be raised and the resulting approach ramp fill prisms would tie into the existing adjacent floodwall system to maintain pre-project levels of flood protection. The new bridge abutment foundations would be constructed outside the ordinary high watermark (OHWM) of Linda Creek and founded on cast-in-drilled-hole (CIDH) concrete piles. Additionally the pier foundation would be founded on CIDH concrete piles and constructed outside the low flow channel.

2.6.2 CONSTRUCTION ACTIVITIES

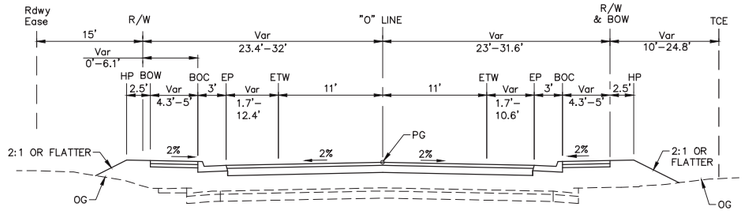
Table 2-1, *Construction Phase/Equipment*, lists the phases of construction for the proposed project along with the associated construction equipment that would be used during each construction phase. Some activities could overlap and be performed in parallel to accelerate the construction schedule.



SECTION B-B
NO SCALE



BRIDGE SECTION
NO SCALE



SECTION C-C
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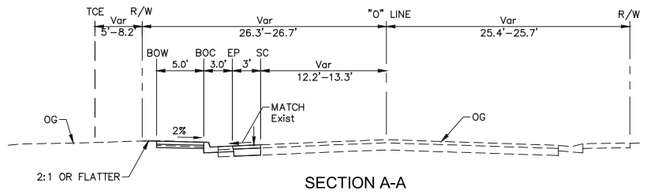


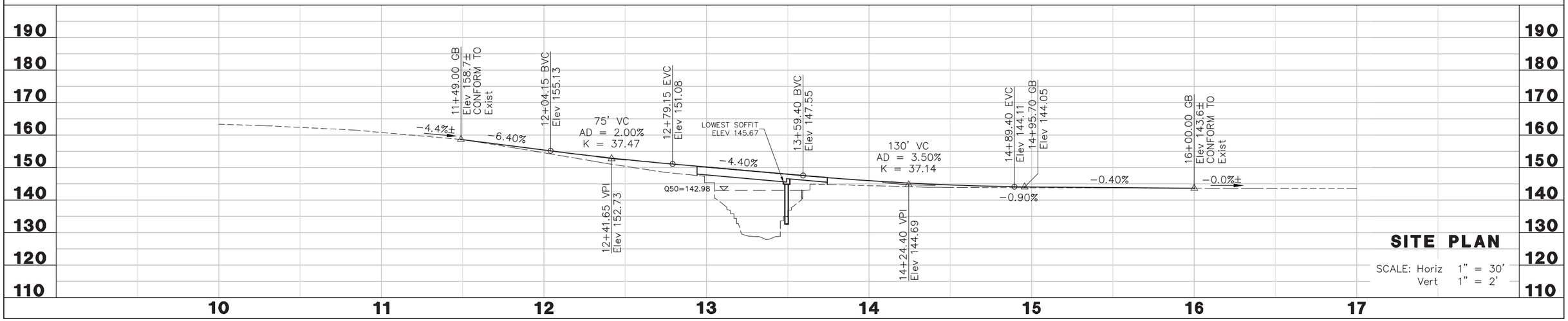
SECTION A-A
NO SCALE

DESIGN INFORMATION

- DESIGN SPEED = 30 MPH
- DESIGN FLOWS
  - Q50 = 142.98
  - Q100 = 144.07
  - Q200 = 144.84

ALIGNMENT CURVE DATA

NO.	R	Δ	T	L
C1	1000.00'	3.28	28.59	57.16
C2	1000.00'	3.05	26.65	53.30
C3	1000.00'	3.37	29.41	58.80
C4	1600.00'	3.22	44.96	89.89



SITE PLAN

SCALE: Horiz 1" = 30'
Vert 1" = 2'

Source: Drake Haglan and Associates, February 2014.

Table 2-1: Construction Phase/Equipment

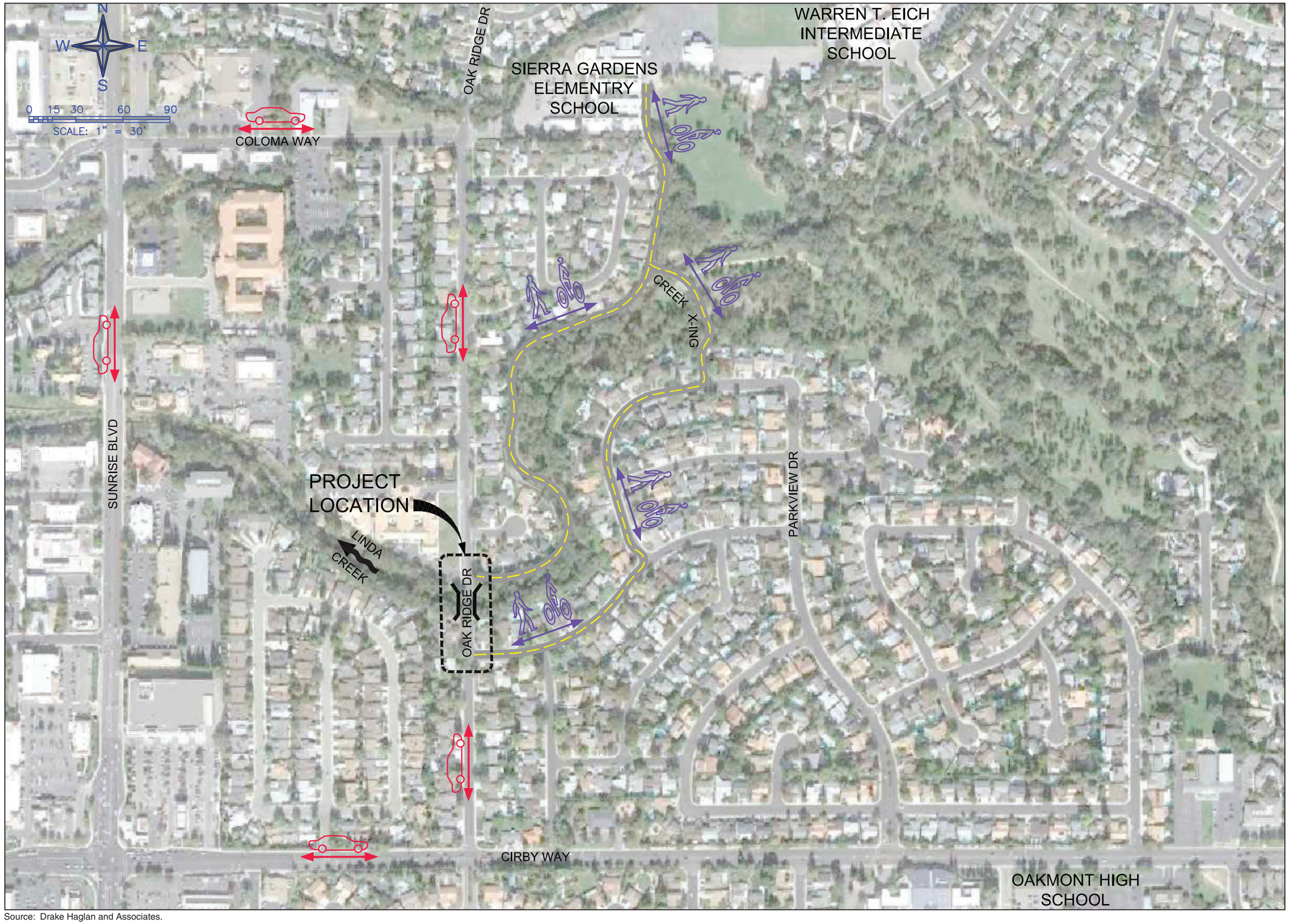
Clearing and Grubbing	
Backhoe	Dump Truck (2)
Excavator	Mulcher
Grader	
Construction of Bridge	
Backhoe	Excavator
Crane	Forklift
Boom Truck	Air Compressor
Cement Truck	
Construction of Roadway	
Backhoe/Loader	Asphalt Paver
Smooth Wheeled Roller	Striping Truck
Vibrating Roller	Excavator
Grader	
Clear Water Diversion	
Crane	Boom Truck
Remove Bridge	
Crane	Loader
Cutting Torch and Saw	Dump Truck
Chipping Gun	Air Compressor
Jackhammer	
Erosion Protection Installation	
Dump Truck	Excavator

Clearing and Grubbing

The banks of Linda Creek within the bridge improvement footprint would be cleared and grubbed to accommodate the new bridge, removal of the constricting northerly abutment fill prism, and widened roadway approaches. This work includes removing above ground material including all vegetation, non-salvageable trees and debris.

Detour

The road would be closed to through traffic to allow unencumbered construction to take place. Traffic would be diverted via established detour routes to permit the removal and construction of the bridge in one season. The detour would be approximately 1.5 miles in length and is depicted on Figure 2-6, *Preliminary Detour Route*. As shown, the vehicular detour route follows Cirby Way, Sunrise Boulevard and Coloma Way. The pedestrian and bicycle detour route follows Rampart Drive, Charleston Circle, the designated bicycle path for Linda Creek crossing to the designated multi-use trail on the north bank of Linda Creek. The roadway closures, and multi-use trail closure from Oak Ridge Drive to 100 feet east of Oak Ridge Drive, would be conducted in compliance with City traffic control standards and a traffic management plan to be implemented by the City. The signs within the construction zone would include "closed to thru traffic" and "local traffic only" notifications. This detour would likely remain in continuous affect for six to nine months, during the construction season.



Source: Drake Haglan and Associates.

0 60'

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OAK RIDGE DRIVE BRIDGE PROJECT • CEQA

Preliminary Detour Route

Figure 2-6

Clear Water Diversion

In order to remove the existing bridge, construct the new bridge pier, and to provide slope protection, it would be necessary to temporarily dewater the construction site and divert creek flows to a pipe for controlled enclosed conveyance through the construction zone (bridge site). A containment dam would be established in conformance with City specifications and regulations as required by the California Department of Fish and Wildlife (CDFW) and National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries or NMFS). The containment dam would be constructed within the channel banks in the project limits upstream, and possibly downstream, of the construction activities. The City would construct the creek diversion to isolate the work area from Linda Creek using one of four options (or equivalent as may be approved by the agencies): 1) 60 cubic yards of clean gravel material wrapped in a geofabric, 2) a k-rail that is wrapped in a geofabric and 60 cubic yards of clean gravel, 3) bladders that are filled with creek water and placed within the creek channel; or 4) similar diversion structures placed upstream and possibly downstream, however, creek flow though the bridge site would be piped rather than via an open, flowing channel. It is anticipated that the contractor would use backhoes and excavators from the upslope bank to install and remove the diversion.

Demolition of Existing Bridge

After the road is closed and a clear water diversion is in place, the bridge would be demolished. The demolition would begin by removing the bridge railing, then stripping the Asphalt Concrete (AC) overlay from the existing bridge deck. The channel flow below would be protected in the clear water diversion system as described above. This would be followed by removal of the reinforced concrete slab, then pier columns, then exposed abutment by means of jackhammering into manageable sections. The existing bridge would be tested for hazardous materials prior to demolition and the bridge would be dismantled and disposed of in proper landfill facilities based on the finding of the hazardous materials study.

Construction of New Bridge

A longer two-span bridge would replace the existing short two span bridge. CIDH concrete piles would be utilized for the abutment foundations. The type of structure constructed would depend on the desired construction schedule – single season in this case. Regardless, the bridge would require pile placement, abutment construction with wing walls (or installation if pre-cast), superstructure construction (or installation if pre-cast slab panels, in which case this would be followed by construction of the bridge deck), followed by construction of the bridge sidewalks and guardrails.

Construction of the Roadway Approach

The limits of the roadway would first be excavated and graded to the depth of subgrade based on the design profile grade for the roadway. Since the proposed project is being designed to maintain existing drainage flow patterns, the roadway surface would be designed to conform to the general slope and plane of the watersheds. The new bridge would be raised over Linda Creek by approximately three feet at the southern bridge abutment and by approximately two feet at the north bridge abutment, in order to pass the 200-year design flood event. Excavated soils would be used to construct the roadway approach fill prism so it conforms to the raised bridge deck. Some import soil may be required to complete the approach fill prism and tie into the adjacent flood wall system. Once the roadway is excavated and the fill prism is placed and graded, the roadbed would be constructed consisting of an AC-wearing surface on top of an aggregate base over compacted subgrade.

Installation of Erosion Protection

Rock slope protection and/or soft armoring would be installed in front of the bridge abutments on the sloped banks of the north side of Linda Creek to a point approximately 25 feet from the abutments, approximately

40 feet upstream and downstream of the bridge, and to a height on the sloped creek bank approximately three feet below the roadway surface.

Utility Relocation

An existing underground 6-inch water line and 6-inch sewer line are contained within the Oak Ridge Drive right-of-way and across the existing bridge. The water line is supported by the existing bridge deck and the sewer line is suspended beneath the deck within the floodway.

The water line is required to remain in service and would be protected in place as the new water line is constructed above and adjacent to the existing line on a new precast bridge deck element. This would be completed in two potential ways: 1) erect temporary pipeline saddle supports from beneath the water line that span the ordinary high water mark; or 2) construct the bridge abutment and pier with the existing bridge in place, place at least one precast deck panel (new edge of bridge deck) above the existing water line, install the new water line on the edge of the new bridge deck (precast panel). Once the new water line is in place and ready to be connected to the existing system, the existing pipeline would be isolated and the new pipeline would be connected to the existing system. This would require a brief disruption in the water supply of approximately four hours. Once the water line is reconnected, the system would be placed back in service.

The sewer line is attached beneath the existing bridge by multiple hangers. This line would be handled in one of three ways:

- Temporarily relocated: Temporarily relocating the sewer line would involve temporary supports spanning across the creek (a pipe bridge constructed of supports, anticipated to be timber) adjacent to the eastern side of the bridge site. This temporary relocation would be no more than 45 feet west of the existing bridge and supports would be placed at approximately 20-foot intervals. Once the bridge is reconstructed, the sewer line would be relocated in its final position as noted below.
- Plugging a manhole upstream for removal and replacement: Plugging a manhole would allow removing the sewer line from across the creek while periodically pumping and trucking the waste or while "manhole jumping" by pumping waste from one manhole into a nearby manhole of another waste water system. The sewer line would be restored to its original location.
- Protecting in place: Protecting the sewer line in place would involve temporarily supporting the sewer line in its current location (a pipe bridge constructed of timber supports) while the existing bridge is removed and the new bridge constructed. Following the construction of the new bridge, the sewer line would be supported in its final position as noted below.

All scenarios for this sewer line would involve encasing the sewer line across the creek. The encasement can be self-supporting (no supports to the bridge), or supported by the bridge and bridge piers, and or supported by hangers from the bridge deck above.

A stormwater outfall is located beneath the existing bridge. As part of the proposed project, a grate would be placed over this storm drain outlet to address neighborhood safety and security concerns.

Access and Staging

All equipment and materials would be stored at a temporary staging area. Staging is located within the project roadway approach limits with an additional potential staging area located on the northwest corner of Coloma Way and Oak Ridge Drive; refer to Figure 2-7, *Area of Direct Impact*. Construction access would be directly from the existing roadway and no specific temporary access roadways would be necessary.

Right-of-Way

No permanent right-of-way acquisition is required to implement the project. As shown in Figure 2-7, *Area of Direct Impact*, temporary construction easements may be required, particularly for the retaining wall in the southwest quadrant of the bridge site, adjacent to the property with assessor's parcel number (APN) 470-070-053. Temporary construction easements may also be required for construction of driveway conforms.

2.7 PROJECT SCHEDULE

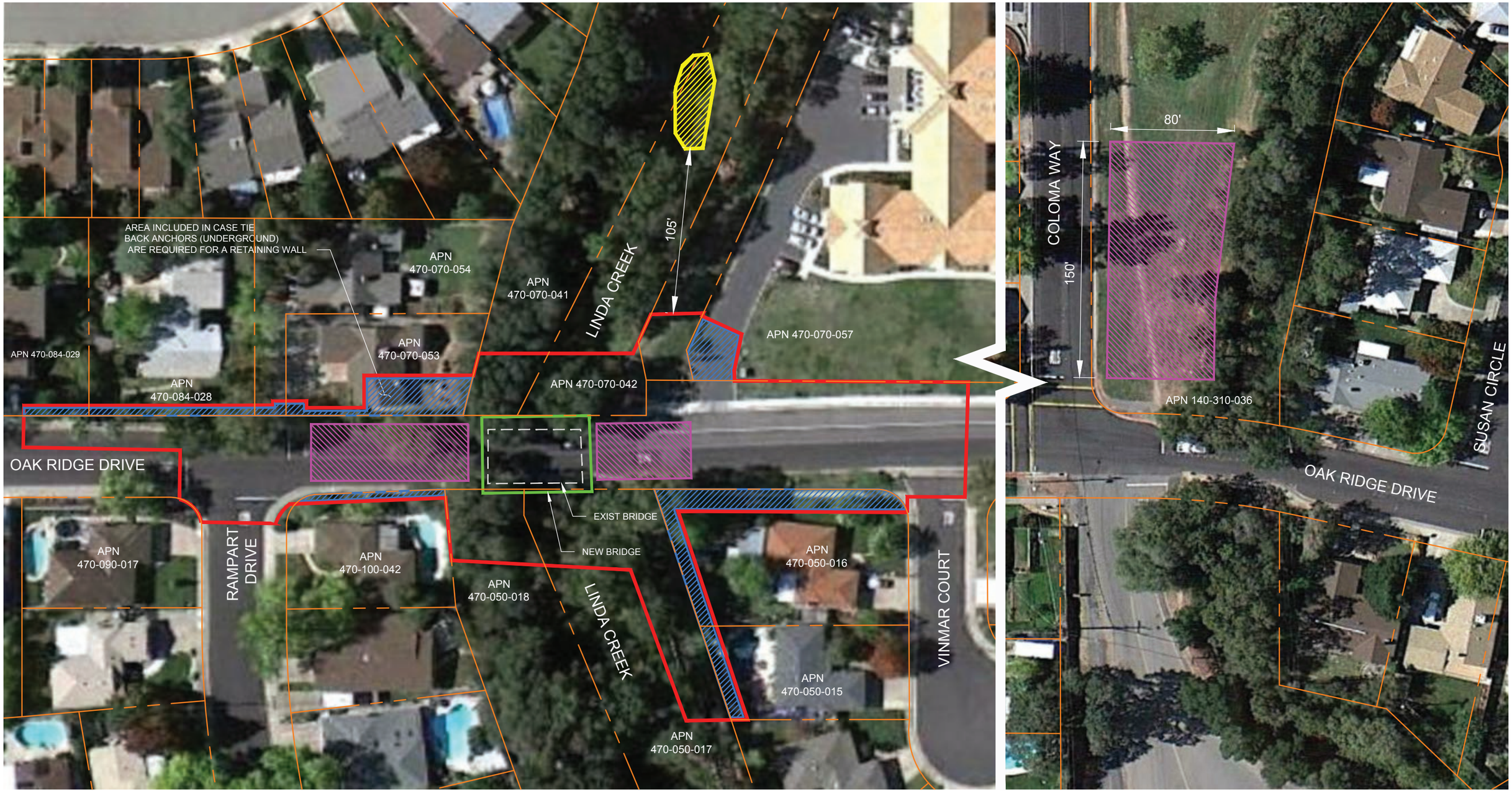
Construction of the proposed project would commence in summer 2016. Anticipated project duration is a single construction season. Given the hydraulic floodway sensitivity at this site, Oak Ridge Drive would be closed to traffic (as discussed above under *Detour*) to permit expedited construction to remove the existing bridge, construct the new bridge, conform the roadway and bicycle pathway, and reconnect the floodwall system to the new bridge in a single season. The CVFPB restricts work within the floodway on Linda Creek between November 1 and April 15. CDFW and NOAA Fisheries further restrict work within the Linda Creek channel to only occur between June 15 and October 15. Therefore, while work outside the floodway can commence as early as January, the proposed project would restrict work located within the floodway to occur between April 15 and October 15; work within the channel (clear water diversion and bridge pier demolition) would only be allowed between June 15 and October 15. If additional time is required, only construction activities outside of the floodway would be allowed before April 15 or after October 15. Construction activities would be permitted Monday through Friday between 7 AM and 7 PM with evening construction prohibited. However, extended work periods and weekend operations may be necessary to complete this project in one season. If extended work periods are necessary, work would be permitted on Saturdays and Sundays from 8 AM to 7 PM.

2.8 CITY OF ROSEVILLE MITIGATION ORDINANCES, GUIDELINES, AND STANDARDS

The City has adopted the following regulations and ordinances, which include standards and policies that are uniformly applied throughout the City, that substantially mitigate specified environmental effects of future projects:

- Noise Regulation (Roseville Municipal Code [RMC] Ch. 9.24)
- Flood Damage Prevention Ordinance (RMC Ch. 9.80)
- Urban Stormwater Quality Management and Discharge Control Ordinance (RMC Ch. 14.20)
- Stormwater Quality Design Manual (Resolution 07-42)
- City of Roseville Design and Construction Standards (Resolution 07-137)
- Community Design Guidelines (Resolution 95-347)
- Tree Preservation (RMC Ch. 19.66)

The City adopted CEQA Findings (Resolution 08-173) that the above ordinances, guidelines and regulations provide mitigation for certain environmental impacts. The City's mitigating ordinances, guidelines, and standards are referenced, where applicable, in the environmental checklist (Chapter 3 of this IS/MND), and would be implemented by the City as part of the proposed project to reduce potential impacts to a less-than-significant level.



TEMPORARY CONSTRUCTION EASEMENT (TCE)

POTENTIAL STAGING AREA

ELDERBERRY HABITAT

PROPOSED PROJECT AREA OF POTENTIAL EFFECTS (APE)

PARCEL BOUNDARIES

0 120'

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OAK RIDGE DRIVE BRIDGE PROJECT • CEQA

Area of Direct Impact

Figure 2-7

2.9 ENVIRONMENTAL COMMITTMENTS

In addition to the City of Roseville Mitigating Ordinances, Guidelines, and Standards discussed above, the proposed project would implement a variety of best management practices (BMPs) and other measures to avoid short- and long-term effects on the physical and human environment. These plans would be prepared before project activities are initiated, included in the contract specifications for contractors working on the proposed project, and implemented during project construction. The applicable measures are described below.

2.9.1 STORMWATER POLLUTION PREVENTION PLAN

The City shall prepare a Stormwater Pollution Prevention Plan (SWPPP), as part of the National Pollutant Discharge Elimination Systems (NPDES) Permit, which contains stormwater BMPs. The proposed project shall also comply with the City's design/construction standards and the City's Stormwater Quality BMP Guidance Manual for Construction (2007). The proposed project would also be required to obtain a Section 404 permit from the U.S. Army Corps of Engineers (USACE), a Section 401 water quality certification permit from the Central Valley Regional Water Quality Control Board (CVRWQCB), and a Lake and Streambed Alteration Agreement (Section 1600 permit) from the California Department of Fish and Wildlife (CDFW).

2.9.2 TRAFFIC MANAGEMENT PLAN

The City shall require the construction contractor to implement a traffic management plan, including a construction schedule and plan to meet the City's notice procedures, before construction activities begin. The City will ensure its contractor prepares the traffic management plan prior to construction to ensure local traffic is accommodated during construction and access to residences north and south of the bridge is maintained. This plan would identify general methods by which construction activities will be managed to minimize substantial delays to traffic.

These methods may include (but are not limited to):

- Appropriately sequencing activities (e.g., segment phasing, timing of grading, hours of construction) to minimize effects on traffic flow.
- Acquire appropriate approval for the road/bicycle pathway closure from the City Engineering Department.
- Provide appropriate detour information to residents, school districts, City Police and Fire Departments no less than 48 hours in advance of the road and/or bicycle pathway closures.
- Maintaining bicycle and pedestrian access until absolutely necessary to close, in order to reconnect with the new roadway profile.

2.9.3 NOISE CONTROL MEASURES

The following measure shall be incorporated into the construction specifications for the proposed project to reduce and control noise generated by construction-related activities, consistent with City ordinance and standards:

- All construction equipment will have sound-control devices no less effective than those provided on the original equipment. No equipment will have an unmuffled exhaust.

2.10 REQUIRED PERMITS AND APPROVALS

Table 2-2 lists the permits and approvals that shall be required to construct the proposed project.

Table 2-2. Potential Federal, State, and Local Permits Required

Agency	Entitlement/Permit	Activity
Federal		
U.S. Army Corps of Engineers	Section 404 – Nationwide Permit No. 14 Authorization	Required for placement of fill (permanent or temporary) into waters of the United States
National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries or NMFS)	Federal Endangered Species Act Section 7 Consultation and Incidental Take Authorization	Required to support the 404 Permit
Federal Emergency Management Agency (FEMA)	Conditional Letter of Map Revision (CLOMR)	To demonstrate that proposed project will provide the flood protection required to maintain the Zone X designations
State		
California Department of Fish and Wildlife	Section 1600 of the California Fish and Game Code – Lake and Streambed Alteration Agreement	Work in waters of the State
Central Valley Regional Water Quality Control Board	Section 401 – Water Quality Certification	Water quality certification required to support the Section 404 Nationwide Permit Authorization
State Water Resources Control Board	NPDES Stormwater Permit, 2012-0011-DWQ, CAS0000003 and General Activities Order No. 2009-009-DWQ (as amended by Order No. 2010-0014-DWQ and 2012-0016-DWQ), CAS0000002.	National Pollutant Discharge Elimination System Storm Water Permit and Stormwater Pollution Prevention Plan under Section 402 of the Clean Water Act
Central Valley Flood Protection Board	Encroachment Permit	Required to demonstrate no downstream impacts
Central Valley Flood Protection Board	Design Variance from freeboard requirement.	Justification for Variance approval from freeboard requirements
Local		
Roseville City Council	Adoption of the MND and Mitigation Monitoring and Reporting Plan	Required for Project approval

3.0 Environmental Checklist

3.1 EXPLANATION OF INITIAL STUDY CHECKLIST

The California Environmental Quality Act (CEQA) Guidelines Appendix G recommends that lead agencies use an Initial Study (IS) checklist to determine the potential impacts of the proposed project on the physical environment. The checklist provides a list of questions concerning a comprehensive array of environmental issue areas potentially affected by the proposed project. This section of the IS incorporates the Appendix G environmental checklist form, contained in the State CEQA Guidelines. Impact questions and responses are included in both tabular and narrative formats for each of the 17 environmental topic areas. There are four possible answers to the checklist questions on the following pages. Each possible answer is explained below:

- A *Potentially Significant Impact* is appropriate if there is enough relevant information, as well as reasonable inferences from that information, that a fair argument can be made to support a conclusion that a substantial or potentially substantial adverse change may occur to any of the physical conditions within the area affected by the proposed project. When one or more of these entries are made, an Environmental Impact Report (EIR) is required.
- A *Less-than-Significant Impact with Mitigation Incorporated* is appropriate when the lead agency incorporates mitigation measures to reduce an impact from a potentially significant level to a less-than-significant level. For example, floodwater impacts could be reduced from a potentially significant level to a less-than-significant level by relocating a building to an area outside the floodway. The lead agency must describe the mitigation measures and briefly explain how the measures would reduce the impact to a less-than-significant level.
- A *Less-than-Significant Impact* is appropriate if there is evidence that one or more environmental impacts may occur, but the impacts are determined to be less than significant or the application of development policies and standards to the project would reduce the impact(s) to a less-than-significant level. For example, the application of the City's stormwater improvement standards would reduce potential erosion impacts to a less-than-significant level.
- A *No Impact* is appropriate where it can be demonstrated that the impact does not have the potential to adversely affect the environment. For example, a proposed in the center of an urbanized area with no agricultural lands on or adjacent to the project area clearly would not have an adverse effect on agricultural resources or operations.

All answers must take into account the whole action involved, including potential off- and on-site, indirect, direct, construction, and operation, except as provided for under State CEQA Guidelines Section 15183 and State CEQA Statute Section 21083. The setting discussion under each resource section in this chapter is followed by a discussion of impacts and applicable mitigation measures.

AESTHETICS

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

SETTING

The project area is surrounded by low and medium density residential and open space/floodplain and public/quasi-public City land use designations (refer to Figure 2-3, *Existing General Plan Land Use Designations*). The existing built environment is characterized by residential uses that adjoin the project site to the northeast, southeast, and southwest; an assisted living community adjoins the project site to the northwest. The project bridge site crosses Linda Creek and the potential project staging area is adjacent to Cirby Creek. The proposed project activities would occur mainly within existing City right-of-way; however, a temporary construction easement may be required for the retaining wall in the southwest quadrant of the bridge site (refer to Figure 2-7, *Area of Direct Impact)*.

The City has not designated specific scenic vistas in the project area; however, the City encourages designs that provide a balance between the aesthetic resources and the development requirements (Community Design Policy 3).

There are no eligible or designated scenic highways within the City of Roseville. The nearest eligible scenic highway is State Route (SR) 49, located approximately 15 miles northeast of the proposed project.[1]

DISCUSSION

a.–b. The City has not designated any specific scenic vistas to be protected in Roseville; therefore, the proposed project would not affect a scenic vista. There is not a state-designated scenic highway in the project vicinity, thus, the proposed project would not damage scenic resources within a state scenic highway. In addition, the proposed project would replace the existing bridge with a new bridge. Visible project features would have a bulk, scale, and design that would be compatible with existing roadway development and would result in a similar character as the existing built

[1] California Department of Transportation. California Scenic Highway Mapping System. Available at: http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm. Accessed September 18, 2014.

environment. Therefore, the proposed project would not affect a scenic vista and would not damage a scenic resource. There are no impacts. No mitigation is required.

c. The proposed project would replace the Oak Ridge Drive Bridge over Linda Creek and reconstruct Oak Ridge Drive to conform to the new bridge. The proposed project would provide a standard two-lane facility with shoulders (for bike lanes) and sidewalks on each side. The proposed project would raise the bridge profile and lengthen the bridge to pass the 200-year design flood event of Linda Creek. To accommodate the proposed project, Linda Creek would be cleared and grubbed within the footprint of proposed improvements, including removal of all vegetation, non-salvageable trees, and debris. As shown in Figure 2-5, *Site Plan*, the proposed project would raise the bridge profile by slightly less than three feet compared to the existing road elevation. Oak Ridge Drive is a two-lane roadway to the south of the bridge. Oak Ridge Drive to the north of the bridge is a two-lane roadway with standard shoulders and sidewalks on either side; the standard shoulders accommodate parking and bicycle use. The widening of the bridge to provide for the standard shoulders and sidewalks, would conform to the existing roadway to the north and south.

Sensitive viewers of the proposed project include residents, motorists, bicyclists, and pedestrians. Residential viewers currently have limited views of Oak Ridge Drive and Linda Creek due to topography and vegetation along Linda Creek. Residential viewers currently have views of the existing bridge structure, Linda Creek, vegetation, existing roadways and the surrounding residential uses. Views of the proposed bridge structure would be similar to the existing conditions upon the completion of the proposed project. The proposed project would result in the removal of a total of ten trees; however, three trees were identified for potential relocation. An additional seven trees have been recommended by the arborist for removal as a result of the Arborist Report. In addition, two trees are recommended to be retained and five trees are recommended for protection. Because of the elevation difference between the south end and the north end of the project area, the views from Oak Ridge Drive and views of Oak Ridge Drive would be similar to existing conditions on the southend of the project area. Oak Ridge Drive would be one foot above existing conditions at the center line and would continue to conform back to existing conditions at approximately Vinmar Court. The removal of vegetation could provide a less obstructed view of Oak Ridge Drive; however, the tree canopy and backyard vegetation would remain. Thus, residential viewers would have views similar to the existing conditions. Upon completion of the proposed project, the new bridge structure would be similar in character to the existing bridge. Residential viewers would have views of construction activities. These construction activities would be temporary in nature, and would cease upon completion of the proposed project. Construction staging would occur along Oak Ridge Drive or within the proposed staging area. Staging areas would be returned to their existing conditions upon project completion.

Viewers that use the project area (motorists, bicyclists and pedestrians) currently have views of the existing facilities. During construction, these views would be limited, as the project area would be closed to through traffic. However, upon completion of the proposed project, the new bridge structure would be similar in character to the existing bridge. The primary difference would be the elevated bridge and road approaches. The Project Development Team (PDT) determined that the multi-use trail should not be raised more than approximately two feet at its intersection with Oak Ridge Drive, in order to maintain the backyard privacy of the residences adjacent to the multi-use trail.[2] Therefore, the proposed bridge would be elevated approximately three feet at the southern

[2] The PDT meets once a month to discuss the Oak Ridge Drive Bridge Replacement Project. During these meetings, the requirement of the CVFPB to design a bridge that passes a 200-year design flood event plus three feet of freeboard, would raise the multi-use trail to the point that multi-use trail users would see over the fence lines of adjacent residences. Therefore, the PDT determined that the proposed bridge would need to pass the 200-year design flood event, provide some freeboard, and maintain resident's

bridge abutment, approximately two feet at the northern bridge abutment, and approximately 1.5 feet at the intersection of Oak Ridge Drive and the multi-use trail, compared to existing conditions. The road approaches and existing multi-use trail would also be regraded to conform to the raised bridge deck (refer to Figure 2-5, *Site Plan*). Because of the existing elevation difference between the south and north end of the project area, as well as existing riparian vegetation and private landscaping that would remain after proposed project completion, the views from Oak Ridge Drive and views of Oak Ridge Drive would not be altered significantly and would remain similar to existing views. Near the multi-use trail head, Oak Ridge Drive would be one foot above existing conditions at the center line and would continue to conform back to existing conditions at approximately Vinmar Court. The new line of sight, however, would continue to preserve residential privacy and no new views of residences would occur. Thus, users of Oak Ridge Drive would have similar views as those under the existing conditions.

The multi-use trail would be 1.5 feet above existing conditions at its intersection with Oak Ridge Drive and would conform to existing conditions within 100 feet of Oak Ridge Drive. As a result, the views from the multi-use trail would not change. The sightline of the multi-use trail users would remain blocked by residential fences and backyard vegetation. Therefore, the new elevation sight lines would preserve backyard privacy as viewed from the multi-use trail and Oak Ridge Drive. Vegetation removal would occur at the project site; however, this vegetation removal would occur in areas immediately adjacent to the existing bridge to accommodate the proposed project. Therefore views of the project area from Oak Ridge Drive and the multi-use trail would be similar to the existing conditions upon the completion of the proposed project.

The proposed project would comply with the City's 2013 Street Design and Construction Standards, as well as American Association of State Highway and Transportation Officials (AASHTO) standards, to ensure that the proposed project would maintain existing visual character and would maintain design elements consistent with the surrounding community. Thus, visible project features would have a bulk, scale, and design that would be compatible with existing roadway development. The impact is less than significant. No mitigation is required.

d. No nighttime construction would occur as part of the proposed project. The proposed project is within a residential area, which has specific City regulations regarding construction. There would be no impacts in this regard. Paved surfaces would be minimally increased as a result of the replacement of the bridge and the addition of standard shoulders and sidewalks. Ultimately, the project area would conform to the existing roadway north and south of the bridge. Therefore, additional glare as a result of the completed proposed bridge replacement project is minimal. The impact is less than significant. No mitigation is required.

privacy. As a result, the PDT determined that an average bicyclist's line of sight would remain blocked by existing fences as long as the elevation change of the multi-use trail was not greater than two feet above existing grade.

AGRICULTURE AND FOREST RESOURCES

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

SETTING

The project site is not designated for agricultural use by either the City's General Plan or its Zoning Ordinance, and it is not currently used for any agricultural purposes. The area is not designated as Prime or Unique Farmland, or Farmland of Statewide Importance by the state's Farmland Mapping and Monitoring Program (FMMP). The area is not designated as Farmlands of Local Importance, as designated by the FMMP. The project area is designated Urban or Built-Up Land. There are no lands under a Williamson Act contract in the project area (California Department of Conservation 2010).

DISCUSSION

a.–e. The project site contains no Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or active agricultural operations. The proposed project would not involve the loss of any forest land or timberland. The project site is not zoned for agricultural use or designated for agricultural use by the City's General Plan or Zoning Ordinance. No agricultural operations exist in the vicinity of the proposed project. The proposed project would not involve any changes that could result in conversion of any farmland to a non-agricultural use or forestland to non-forest land use. Therefore, there are no impacts related to agricultural and forest resources. No mitigation is required.

AIR QUALITY AND GREENHOUSE GASES

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐
f) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
g) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

SETTING

The proposed project is located in the Sacramento Valley Air Basin (SVAB), which is bounded by the Sacramento Valley extending from the Sacramento River Delta north to Shasta County. The Placer County portion of the SVAB is situated along the eastern edge of the Sacramento Valley and the lower slopes of the Sierra Nevada. Temperatures in the SVAB can exceed 100 degrees Fahrenheit (°F), caused by airflow from sub-tropical high-pressure areas that bring light winds and humidity below 20 percent. In the winter months, the SVAB experiences a higher percentage of days with calm atmospheric conditions, which result in stagnation of air and increased air pollution. The temperature inversions limit atmospheric mixing and trap pollutants, resulting in high pollutant concentrations near the ground surface. Thus, the SVAB's climate and topography contribute to the formation and transport of pollutants that contain ozone or other chemicals that react with sunlight throughout the region.

AIR QUALITY MANAGEMENT

The air quality management agencies of direct importance in Placer County are the U.S. Environmental Protection Agency (USEPA), the California Air Resources Board (CARB), and the Placer County Air Pollution Control District (PCAPCD). The USEPA has established National Ambient Air Quality Standards (NAAQS) for which CARB and the PCAPCD have primary implementation responsibility. CARB and the PCAPCD are also responsible for ensuring that the California Ambient Air Quality Standards (CAAQS)

are met. PCAPCD manages air quality in the Placer County portion of the SVAB; it has jurisdiction over air quality issues in the County and administers air quality regulations developed at the federal, state, and local levels. It is also responsible for implementing strategies for air quality improvement and recommending mitigation measures for new growth and development.

State and federal criteria pollutant emission standards have been established for the following pollutants: carbon monoxide (CO), ozone (O_3), particulate matter (particulate matter of less than 10 microns in diameter [PM_{10}] and particulate matter less than 2.5 microns in diameter [$PM_{2.5}$]), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb). These pollutants are referred to as criteria pollutants because numerical criteria have been established for each pollutant, which define acceptable levels of exposure.

States with air quality that did not achieve NAAQS were required to develop and maintain a State Implementation Plan (SIP). A SIP constitutes a federally enforceable definition of the state's approach (or "plan") and schedule for the attainment of the NAAQS. The NAAQS and CAAQS are provided in Table 3-1, *National and California Ambient Air Quality Standards*.

ATTAINMENT STATUS

The NAAQS and CAAQS differ in many cases; therefore, it is possible for an area to be designated attainment by the USEPA and nonattainment by CARB. The SVAB is designated nonattainment for the federal $PM_{2.5}$ and the state PM_{10} standards. In addition, Placer County is located within the Sacramento region's severe nonattainment area for federal ozone standards and in a nonattainment status for state ozone standards. Table 3-2, *Sacramento Valley Air Basin Air Quality Attainment Status*, provides the attainment status for the SVAB.

Table 3-1. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m³)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 μg/m³)		0.075 ppm (147 μg/m³)		
Respirable Particulate Matter (PM_{10})	24 Hour	50 μg/m³	Gravimetric or Beta Attenuation	150 μg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 μg/m³		--		
Fine Particulate Matter ($PM_{2.5}$)[8]	24 Hour	No Separate State Standard		35 μg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 μg/m³	Gravimetric or Beta Attenuation	12.0 μg/m³	15 μg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	None	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		--	--	==
Nitrogen Dioxide (NO_2)[9]	1 Hour	0.18 ppm (339 μg/m³)	Gas Phase Chemiluminescence	100 ppb (188 μg/m³)	--	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)		0.053 ppm (100 μg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[10]	1 Hour	0.25 ppm (655 μg/m³)	Ultraviolet Fluorescence	75 ppb (196 μg/m³)	--	Ultraviolet Flourescence; Spectrophotometry (Paraosaniline Method)
	3 Hour	--		--	0.5 ppm (1300 μg/m³)	
	24 Hour	0.04 ppm (105 μg/m³)		0.14 ppm (for certain areas)	--	
	Annual Arithmetic Mean	--		0.30 ppm (for certain areas)	--	
Lead[11, 12] (Pb)	30 Day Average	1.5 μg/m³	Atomic Absorption	--	--	High Volume Sampler and Atomic Absorption
	Calendar Quarter	--		1.5 μg/m³	Same as Primary Standard	
	Rolling 3-Month Average[10]	--		0.15 μg/m³		

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Visibility Reducing Particles[13]	8 Hour	Extinction coefficient of 0.23 per kilometer – visibility of ten miles or more (0.07 – 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		**No Federal Standards**		
Sulfates	24 Hour	25 μg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[11]	24 Hour	0.01 ppm (26 μg/m³)	Gas Chromatography			

Source: Air Quality Report, RBF Consulting, 2014.

1 California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All other are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2 National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m³ is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current Federal policies.

3 Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4 Any equivalent procedure which can be shown to the satisfaction of CARB to give equivalent results at or near the level of the air quality standard may be used.

5 National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6 National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7 Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8 On December 14, 2012, the annual $PM_{2.5}$ primary standard was lowered from 15 μg/m³ to 12 μg/m³. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 μg/m³, as was the annual secondary standard of 15 μg/m³. The existing 24-hour PM_{10} standards (primary and secondary) of 150 μg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

9 To attain this standard, the 3-year average of the annual 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

10 On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

11 CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

12 National lead standard, rolling 3-month average: final rule signed October 15, 2008.

13 In 1989. CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Table 3-2. Sacramento Valley Air Basin Air Quality Attainment Status

Pollutants	State	Federal
Carbon Monoxide (CO)	Attainment	Attainment
Ozone (O_3) (1-hour standard)	Nonattainment	Severe 15 Nonattainment
Ozone (O_3) (8-hour standard)	Nonattainment	Severe 15 Nonattainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Particulate Matter <10 microns (PM_{10})	Nonattainment	Attainment[1]
Particulate Matter <2.5 microns ($PM_{2.5}$)	Attainment	Nonattainment
Lead (Pb)	Attainment	Attainment
Sulfates	Attainment	---
Hydrogen Sulfides	Unclassified	---
Visibility Reducing Particles	Unclassified	---

Source: Air Quality Report, RBF Consulting, 2014; and Area Designations for State Ambient Air Quality Standards, CARB 2014.

[1] The USEPA eliminated the annual PM_{10} standard in its final rule revision in October 2006.

TRANSPORTATION CONFORMITY RULE

The USEPA, in conjunction with the U.S. Department of Transportation (DOT), established the Transportation Conformity Rule on November 30, 1993. The rule implements the Federal Clean Air Act (FCAA) conformity provision, which mandates that the federal government not engage, support, or provide financial assistance for licensing or permitting, or approve any activity not conforming to an approved FCAA implementation plant. The General Transportation Conformity Regulations apply to all federal actions except programs and projects requiring funding or approval from the DOT, the Federal Highway Administration (FHWA), the Federal Transit Authority (FTA), or the Metropolitan Planning Organization (MPO).

It should be noted that the Transportation Conformity Rule distinguishes between metropolitan and rural areas since metropolitan areas have MPO's, which are specifically charged with determining conformity under the FCAA. The MPO is responsible for transportation planning, including the development of federally required metropolitan transportation plans and Transportation Improvement Programs (TIPs) and determining conformity of such plans and TIPs. Transportation projects in rural areas are not included in MPO plans and TIPs. However, there are two types of rural areas for the purposes of the transportation conformity program, and the conformity requirements in these two types of rural areas are different. These two types of rural areas are defined as Isolated and Donut Areas.

The Transportation Conformity Rule has been amended several times since 1993 to address updates to the NAAQS and revise conformity provisions and procedures. Enacted in August 2005, the Safe, Accountable, Flexible, Efficient Transportation Act: A Legacy for Users (SAFETEA-LU) authorizes funding of the nation's transportation infrastructure and made several changes to the conformity portion of the FCAA. SAFETEA-LU was superseded by the Moving Ahead for Progress in the 21st Century Act (MAP-21), which was enacted on July 6, 2012. MAP-21 governs the use of federal funds for transportation investments.

AREA POLLUTANTS

The following air quality information briefly describes the various types of pollutants as well as associated health hazards.

- **Ozone (O_3):** Ozone is a colorless gas with a sharp odor, and is one of a number of substances called photochemical oxidants (highly reactive secondary pollutant). These oxidants are formed when hydrocarbons, Nitrogen Oxides (NO_X), and related compounds interact in the presence of ultraviolet sunlight. It is a photochemical pollutant, and needs Volatile Organic Compounds (VOC), NO_X, and sunlight to form; therefore, VOCs and NO_X are ozone precursors. To reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors. Ozone is a strong respiratory irritant and an oxidant that can cause substantial damage to vegetation and other materials. It can constrict the airways, forcing the respiratory system to work hard to deliver oxygen. Individuals exercising outdoors, children, and people with pre-existing lung disease such as asthma and chronic pulmonary lung disease are considered to be the most susceptible to the health effects of ozone. Short-term exposure (lasting for a few hours) to ozone at high levels can result in aggravated respiratory diseases such as emphysema, bronchitis and asthma, shortness of breath, increased susceptibility to infections, inflammation of the lung tissue, increased fatigue, as well as chest pain, dry throat, headache, and nausea.
- **Nitrogen Dioxide (NO_2):** NO_x are a family of highly reactive gases that are a primary precursor to the formation of ground-level ozone, and react in the atmosphere to form acid rain. NO_2 (often used interchangeably with NO_X) is a reddish-brown gas that can cause breathing difficulties at high levels. Peak readings of NO_2 occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations). NO_2 can

irritate and damage the lungs, and lower resistance to respiratory infections such as influenza. Short-term exposure to NO_2 may increase resistance to air flow and airway contraction. Continued or frequent exposure to NO_2 concentrations that are typically much higher than those normally found in the ambient air, may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

- **Inhalable Particulate Matter (PM_{10} and $PM_{2.5}$):** The federal and state ambient air quality standard for particulate matter applies to two classes of particulates: PM_{10} and $PM_{2.5}$. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM_{10} scatters light and significantly reduces visibility. Fine particulate matter ($PM_{2.5}$) impacts primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease. Health concerns associated with inhalable particulate matter focus on those particles small enough to reach the lungs when inhaled. Sources of PM_{10} in the SVAB are both rural and urban, and include agricultural burning, discing of agricultural fields, industrial emissions, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere.
- **Carbon Monoxide (CO):** Carbon monoxide is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. Motor vehicles are the dominant source of CO emissions in most areas. It is a public health concern because it combines readily with hemoglobin and reduces the amount of oxygen transported in the bloodstream. Individuals with a deficient blood supply to the heart, patients with diseases involving heart and blood vessels, fetuses (unborn babies), and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes, are most susceptible to the adverse effects of CO exposure. People with heart disease are also more susceptible to developing chest pains when exposed to low levels of carbon monoxide. Exposure to high levels of carbon monoxide can slow reflexes and cause drowsiness, and result in death when in confined spaces at very high concentrations.
- **Carbon Dioxide (CO_2):** Carbon dioxide is an anthropogenic greenhouse gas (GHG) and is the dominant of all anthropogenic GHG emissions. Its long atmospheric lifetime (on the order of decades to centuries) ensures that atmospheric concentrations of CO_2 will remain elevated for decades. Increasing CO_2 concentrations in the atmosphere are primarily a result of emissions from the burning of fossil fuels, gas flaring, cement production, and land use changes.
- **Volatile Organic Compounds (VOCs) or Reactive Organic Gases (ROGs):** Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including ROGs and VOCs. Both ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation). There are no specific state or federal VOC thresholds as they are regulated by individual air districts as O_3 precursors.
- **Total Suspended Particles (TSP) and Visibility:** Tiny airborne particles or aerosols that are less than 100 micrometers are collectively referred to as Total Suspended Particulate matter (TSP). These particles constantly enter the atmosphere from many natural sources including soil, bacteria, viruses, fungi, molds, yeast, and pollen. Man-made sources of TSP also include combustion products from space heating, industrial processes, power generation, and motor vehicle use. Over 99 percent of inhaled particulate matter is either exhaled or trapped in the upper areas of the respiratory system and expelled. The balance enters the windpipe and lungs, where some particulates cling to protective mucous and are removed. Other mechanisms, such as coughing, also filter out or remove particles. Collectively, these “pulmonary clearance” mechanisms protect the

lungs from the majority of inhalable particles. Irritating odors are often associated with particulates. Some examples of sources are gasoline and diesel engine exhausts, large-scale coffee roasting, paint spraying, street paving, and trash burning. The EPA replaced TSP as the indicator for both the annual and 24-hour primary (i.e., health-related) standards in 1987. The indicator includes only those particles with an aerodynamic diameter smaller than or equal to PM_{10}.

MONITORED AIR QUALITY

The PCAPCD operates several air quality monitoring stations throughout the SVAB. The Roseville-North Sunrise Boulevard Monitoring Station is the closest monitoring station to the site (approximately one mile north). This station monitors O_3, NO_X, PM_{10}, and $PM_{2.5}$. The North Highlands-Blackfoot Way Monitoring Station (approximately six miles southwest) was used to gather data for CO and SO_X. The data collected at these stations is considered to be representative of the air quality experienced on-site. Air quality data from 2011 to 2013 is provided in Table 3-3, *Local Air Quality Levels*.

Table 3-3. Local Air Quality Levels

Pollutant	Primary Standard		Year	Maximum Concentration[1]	Number of Days State/Federal Std. Exceeded
	California	Federal			
Carbon Monoxide (CO) [3] (8-Hour)	9.0 ppm for 8 hours	9.0 ppm for 8 hours	2011 2012 2013	1.87 ppm 1.54 NM	0/0 0/0 N/A
Carbon Monoxide (CO) [3] (1-Hour)	20 ppm for 1 hour	35 ppm for 1 hour	2011 2012 2013	2.30 ppm 3.10 1.90	0/0 0/0 0/0
Ozone (O_3) [2] (1-Hour)	0.09 ppm for 1 hour	N/A	2011 2012 2013	0.109 ppm 0.108 0.111	11/0 9/0 2/0
Ozone (O_3) [2] (8-Hour)	0.07ppm for 8 hours	0.075 ppm for 8 hours	2011 2012 2013	0.094 ppm 0.092 0.083	23/15 28/13 8/2
Nitrogen Dioxide (NO_x) [2] (1-Hour)	0.18 ppm for 1 hour	0.100 ppm	2011 2012 2013	0.066 ppm 0.055 0.056	0/0 0/0 0/0
Sulfur Dioxide (SO_X) [4] (24-Hour)	0.04 ppm for 24 hours	0.14 ppm for 24 hours	2011 2012 2013	0.001 ppm 0.002 0.002	N/A N/A N/A
Particulate Matter (PM_{10}) [2, 5, 6] (24-Hour)	50 µg/m^3 for 24 hours	150 µg/m^3 for 24 hours	2011 2012 2013	56.5 µg/m^3 43.2 55.5	1/0 0/0 1/0
Fine Particulate Matter ($PM_{2.5}$) [2.5, 6] (24-Hour)	No Separate State Standard	35 µg/m^3 for 24 hours	2011 2012 2013	42.3 µg/m^3 16.1 23.7	NM/1 NM/0 NM/0

Sources: Air Quality Report, RBF Consulting, 2014; and California Air Resources Board, Aerometric Data Analysis and Measurement System (ADAM) Air Quality Data Statistics, http://www.arb.ca.gov/adam/welcome.html, accessed on September 29, 2014.

ppm = parts per million
µg/m^3 = micrograms per cubic meter
NM = Not Measured
PM_{10} = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
NA = Not Applicable

[1] Maximum concentration is measured over the same period as the California Standard.
[2] Measurements taken at the Roseville-North Sunrise Boulevard Monitoring Station located at 151 North Sunrise Boulevard, Roseville, California 95561.
[3] Measurements taken at the North Highlands-Blackfoot Way Monitoring Station located at 7823 Blackfoot Way, North Highlands, California 95843.
[4] Measurements taken at the Sacramento-Del Paso Manor Monitoring Station located at 2701 Avalon Drive, Sacramento, California 95821.
[5] PM_{10} exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002.
[6] PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.

CITY OF ROSEVILLE GENERAL PLAN

The Air Quality and Climate Change Element of the City General Plan aims to protect the health and welfare of the community by promoting development that is compatible with air quality standards. The City has established goals and policies to improve air quality and address climate change. The following goals and policies pertain to the proposed project.

Goal 1: Improve Roseville's air quality by:

- Achieving and maintaining ambient air quality standards established by the EPA and the ARB; and,
- Minimizing public exposure to toxic or hazardous air pollutants and air pollutants that create a public nuisance through irritation to the senses (such as unpleasant odors).

Goal 4: Increase the capacity of the transportation system, including the roadway system and alternate modes of transportation.

Policy 5: Develop transportation systems that minimize vehicle delay and air pollution.

CLIMATE CHANGE

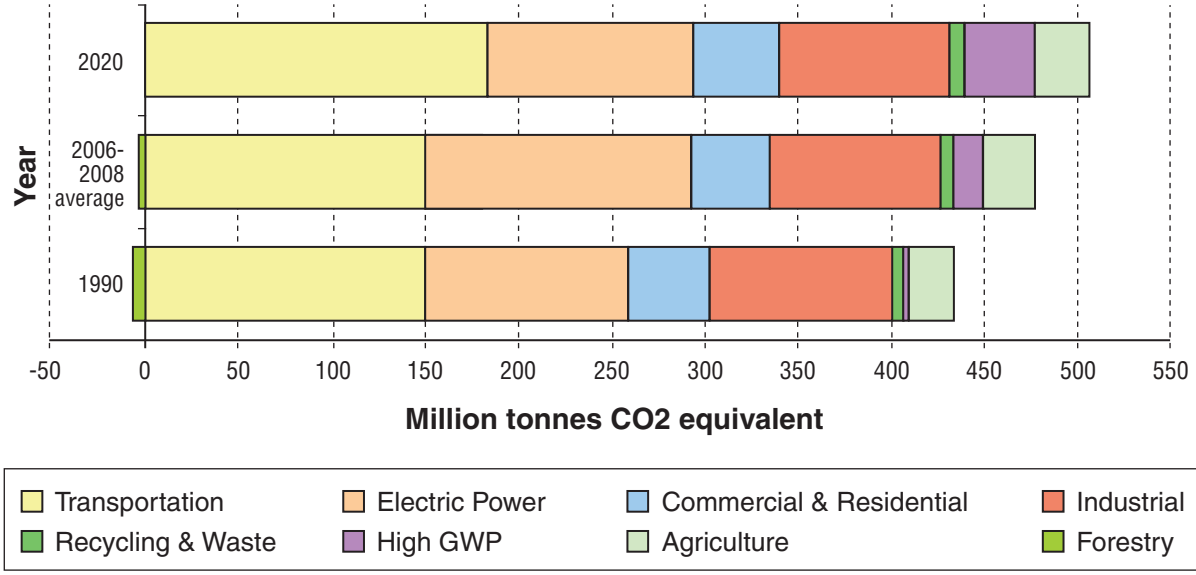
Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to GHG emissions, particularly those generated from the production and use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

While climate changes has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization's in 1988, has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. Numerous efforts in legislation at the state and federal levels have resulted in policies with targets for GHG emissions reduction. Climate change research and policy efforts are primarily concerned with the emissions of GHGs related to human activity that include CO_2, methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (1, 1, 1, 2–tetrafluoroethane), and HFC-152a (difluoroethane).

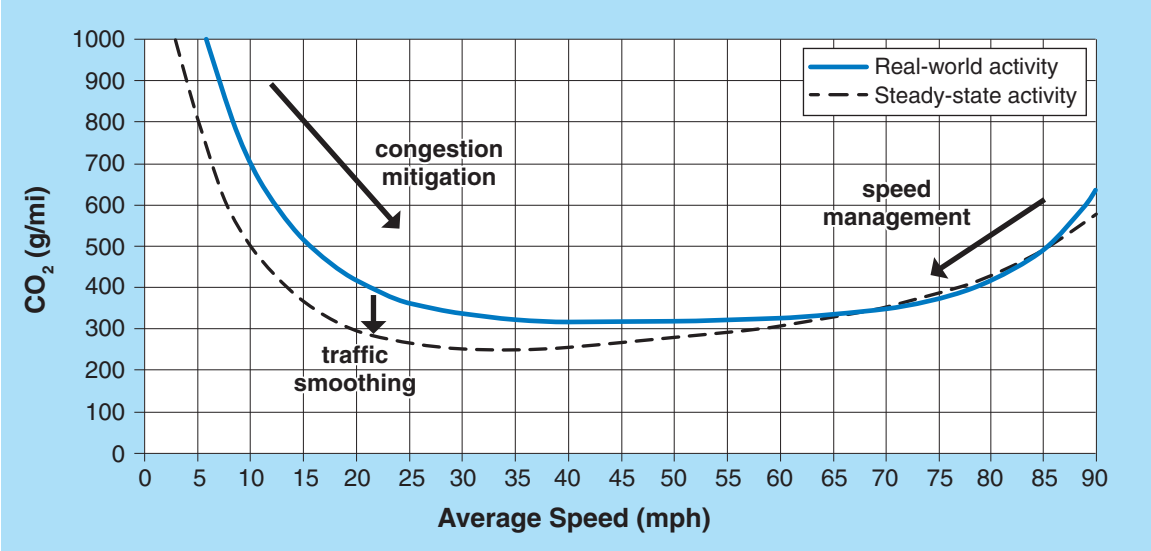
The Assembly Bill (AB) 32 Scoping Plan contains the main strategies California will use to reduce GHG emissions. As part of the supporting documentation for the AB 32 Scoping Plan, CARB released the GHG inventory for California (Forecast last updated October 28, 2010). The forecast is an estimate of the emissions expected to occur in year 2020 if none of the foreseeable measures included in the AB 32 Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for years 2006, 2007, and 2008; refer to Figure 3-1, *California GHG Inventory and Vehicle CO_2 Emissions vs. Speed*.

The California Department of Transportation (Caltrans) and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change; Figure 3-2, *Mobility Pyramid.* Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006 (RBF 2014b).

California GHG Inventory Forecast

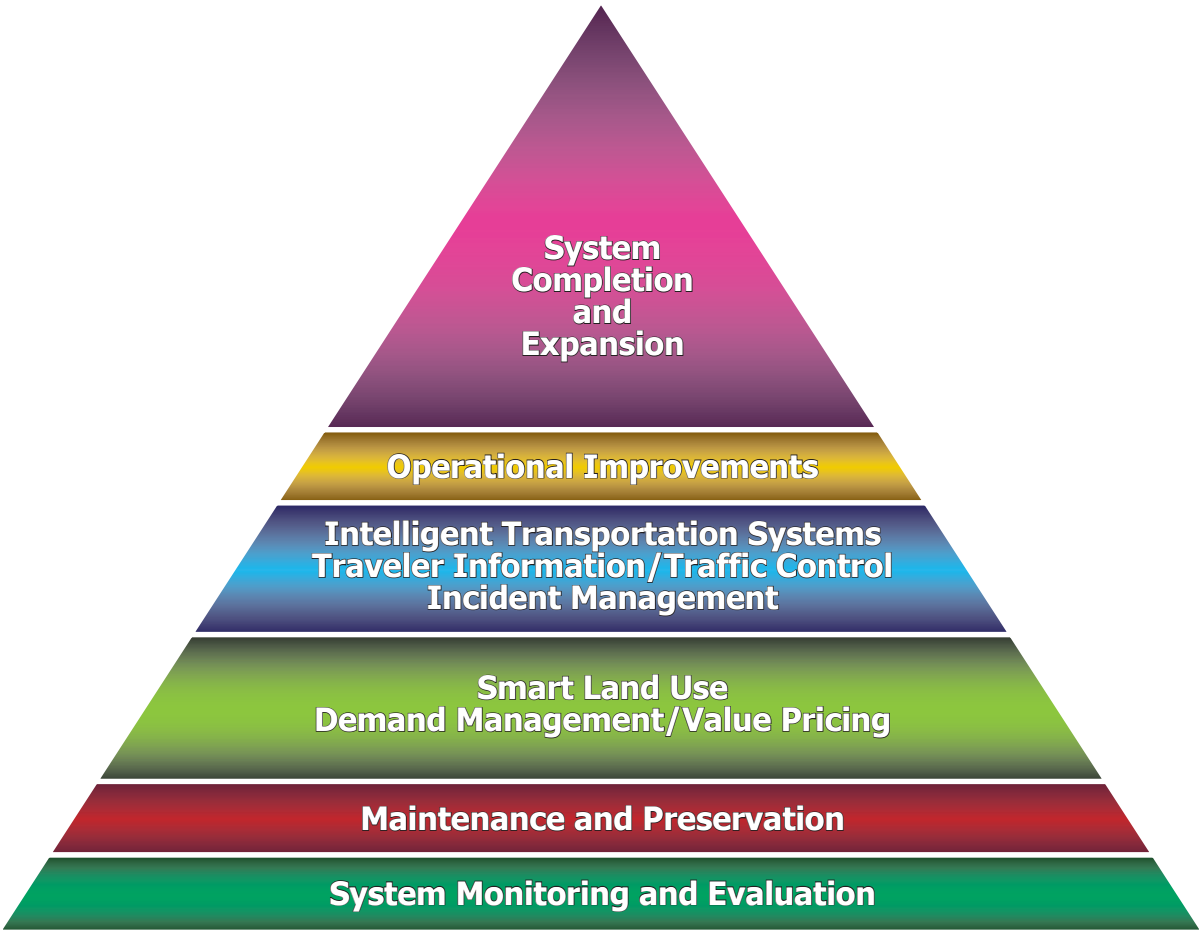


Fleet CO2 Emissions vs. Speed (Highway)



OAK RIDGE DRIVE BRIDGE PROJECT • CEQA

California GHG Inventory and Vehicle CO_2 Emissions vs. Speed



OAK RIDGE DRIVE BRIDGE PROJECT • CEQA

Mobility Pyramid

10/1/14 JN 134939-20517 MAS

Figure 3-2

In addition, the City has existing programs in place that reduce and minimize GHG emissions:

- City-adopted National Action Plan for Energy Efficiency (2006).
- City of Roseville Greenhouse Gas Emissions Reduction Action Plan (2009).
- City of Roseville Community Wide Sustainability Action Plan (2010).
- Solar electric (PV) incentive programs.
- Joined California Climate Action Registry (2006).
- Asphalt recycling.
- City-adopted Smart Choices for Roseville's Future: Implementation Strategies to Achieve Blueprint Project Objectives (June 2005).
- Residential energy efficiency programs.
- City-installed solar electric generation (PV) on several city facilities.
- Energy efficiency programs for low income residents.
- City Civic Center and Roseville Electric buildings powered with clean, renewable power by purchasing 100 percent of their energy use from Green Roseville.
- Commercial energy efficiency programs.
- 20 percent renewable power resources in Roseville Electric's power portfolio.
- Tree mitigation ordinance.
- Shade tree program.
- Parking lot shade tree ordinance.
- Roseville Electric goal to reduce energy requirements by 5 percent by 2012.
- Recycling drop-offs throughout city.
- Alternatively fueled city vehicles.
- Summer youth bus pass.
- Electric vehicle charging stations.
- Bicycle incentive programs.
- City traffic signal head retrofit from traditional incandescent to LED.
- Intelligent Transportation System (ITS) for traffic management.
- City facilities retrofitted with a HVAC efficiency management program.
- Alternatives to paper at the library.

SENSITIVE RECEPTORS

Sensitive populations (sensitive receptors) are more susceptible to the effects of air pollution than the general population. Sensitive receptors that are in proximity to localized sources of toxins and CO are of particular concern. A sensitive receptor is a person in the population who is particularly susceptible to health effects due to exposure to an air contaminant. Land uses considered sensitive receptors include residences, motels/hotels, schools, playgrounds, childcare centers, athletic facilities, long-term health care

facilities, rehabilitation centers, convalescent centers, and retirement homes. The PCAPCD generally defines sensitive receptors as schools, hospitals, senior centers, and places where people of poor health may be located. Sensitive receptors located near the proposed project include residential, school, and park facilities as follows: residential uses are adjacent to the north, east and south; Alta Manor senior apartments (an assisted living community) is adjacent to the west; the City's bicycle path runs through the project site, adjacent to Linda Creek; Oakmont High School is located approximately 0.3 mile southeast of the bridge; a day care and preschool facility is located approximately 0.15 mile southeast of the bridge; Sierra Gardens Elementary School/Sierra Gardens Park/Warren T. Eich Junior High School are adjacent to the staging area and approximately 0.35 mile north of the bridge; a church is adjacent to the staging area to the west and approximately 0.3 miles to the northwest of the bridge; Roseville Pediatric Medical is located approximately 0.35 mile northwest of the bridge; Sunrise Health Center is located approximately 0.40 mile northeast of the bridge; Eastwood Park is located approximately 0.50 mile west of the bridge; the old Roseville Hospital is located approximately 0.55 mile northwest of the bridge; Maidu Park (a large City and Regional park facility) is located approximately 0.85 mile east of the bridge; and Crestmont Elementary School is located approximately 0.95 mile southeast of the bridge.

PCAPCD ADOPTED RULES

The PCAPCD has adopted a number of District Rules that apply to the construction phase of the proposed project. Standard City practice is to include applicable adopted rules as notes on the approved engineering plan set as a reminder to the construction contractor.

DISCUSSION

a. Project development would occur under the jurisdiction of the PCAPCD within the SVAB. As shown in Table 3-2, the SVAB is designated nonattainment for the federal $PM_{2.5}$ and the State PM_{10} standards, as well as for both the federal and State ozone standards. In order to address the federal nonattainment for ozone, the PCAPCD, along with other local air districts in the SVAB, is required to comply with and implement the SIP to demonstrate when and how the region can attain the federal ozone standards. As such, the PCAPCD, along with the other air districts in the region, prepared the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (Plan) in December 2008. The PCAPCD adopted the Plan on February 19, 2009. CARB determined that the Plan meets CAA requirements and approved the Plan on March 26, 2009 as a revision to the SIP. Accordingly, the Plan is the applicable air quality plan for the proposed project site. It should be noted that an update to the Plan, the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2013 SIP Revisions), has been prepared and was approved and adopted on September 26, 2013. The 2013 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan were submitted to the USEPA as a revision to the SIP and the USEPA published the final rule in the January 29, 2015 Federal Register (Federal Register, Volume 80 Number 19).

   The Plan demonstrates how existing and new control strategies would provide the necessary future emission reductions to meet the federal CAA requirements, including the NAAQS. Adoption of all reasonably available control measures is required for attainment. Measures could include, but are not limited to, the following: regional mobile incentive programs; urban forest development programs; and local regulatory measures for emission reductions related to architectural coating, automotive refinishing, natural gas production and processing, asphalt concrete, and various others.

   A conflict with, or obstruction of, implementation of the Plan could occur if a project generates greater emissions than what has been projected for the site in the emission inventories of the Plan. Emission inventories are developed based on projected increases in population, employment,

regional vehicle miles traveled (VMT), and associated area sources within the region, which are based on regional projections that are, in turn, based on the General Plan Land Use and Zoning Ordinances for the region. In addition, general conformity requirements of the Plan include whether a project would cause or contribute to new violations of any NAAQS, increase the frequency or severity of an existing violation of any NAAQS, or delay timely attainment of any NAAQS.

The project proposes to replace the existing narrow bridge to accommodate a standard width involving two travel lanes with shoulders (for bike lanes) and sidewalks. The proposed project would not modify the existing land use or operations on the site. Thus, the proposed project would not conflict with the emissions inventories of the Plan, and would be considered consistent with the Plan. In addition, the PCAPCD's permits, rules, and regulations are in compliance with the Plan, and the proposed project is required to comply with all applicable PCAPCD rules and regulations. Furthermore, as analyzed and determined in the discussions below, the proposed project would not result in project-level construction emissions that would exceed the applicable thresholds of significance. Thus, the project would not cause or contribute to new violations of any NAAQS, increase the frequency or severity of an existing violation of any NAAQS, or delay timely attainment of any NAAQS.

Because the proposed project would not conflict with the emissions inventories of the Regional Air Quality Plan, it would result in emissions below the thresholds of significance, and would not conflict with or obstruct implementation of the applicable Air Quality. Thus, impacts are less than significant. No mitigation is required.

b. In order to evaluate ozone and other criteria air pollutant emissions and support attainment goals for those pollutants that the area is designated nonattainment, the PCAPCD recommends significance thresholds for emissions of PM_{10}, carbon monoxide (CO), and ozone precursors-reactive organic gases (ROG) and nitrous oxides (NOx). Table 3-4, *PCAPCD Recommended Thresholds of Significance,* presents PCAPCD's recommended thresholds of significance for use in the evaluation of air quality impacts associated with proposed development projects. The City of Roseville, as Lead Agency, utilizes the PCAPCD's recommended project-level criteria air pollutant thresholds of significance for CEQA evaluation purposes. Thus, if the proposed project's emissions exceed the pollutant thresholds presented in Table 3-4 the proposed project could have a significant effect on air quality and the attainment of federal and State Ambient Air Quality Standards.

Table 3-4. PCAPCD Recommended Thresholds of Significance

Phase	Pollutant (lbs/day)			
	ROG	NO_X	PM_{10}	CO
Construction	82	82	82	550
Operation	82	82	82	5

Source: Placer County Air Pollution Control District, 2012.
CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter smaller than 10 microns
ROG = reactive organic gases.

Implementation of the proposed project would contribute local emissions in the area during construction. Short-term construction-related emissions resulting from project construction were estimated using the California Emissions Estimator Model (CalEEMod) computer model.

Construction activities would result in short-term impacts on ambient air quality from demolition, grading, building construction, and grading, and indirectly from construction equipment emissions

and construction worker commute trips. Pollutant emissions would vary daily depending on the level of activity, specific operations, and prevailing weather. Earth-moving and site grading activities would potentially result in the highest daily fugitive dust generation. Stationary or mobile powered on-site construction equipment would include trucks, tractors, signal boards, excavators, backhoes, concrete saws, bore/drill rig, skid steer loaders, graders, cranes, forklifts, rollers, surfacing equipment, striping truck, pavers, and other paving equipment. The aforementioned activities would involve the use of diesel- and gasoline-powered equipment that would generate emissions of criteria pollutants. Project construction activities also represent sources of fugitive dust, which includes PM emissions. As construction of the proposed project would generate air pollutant emissions intermittently within the site and vicinity of the site, until all construction has been completed, construction is a potential concern because the proposed project is in a non-attainment area for ozone and PM.

The proposed project is required to comply with all PCAPCD rules and regulations for construction, including, but not limited to Rule 202 related to visible emissions, Rule 217 related to volatile organic compound emissions and Rule 228 related to fugitive dust, which would be noted on City-approved construction plans. In addition, the City has adopted construction standards that apply to all projects within the City limits that require projects to meet specific engineering and design requirements. The proposed project would be required to comply with the City's Department of Public Works Construction Standards, Section 111, that are intended to minimize fugitive dust and PM_{10} emissions during construction activities. Compliance with the engineering and design requirements would be noted on City-approved construction plans as well.

As shown in Table 3-4, the PCAPCD threshold of significance for construction is 82 pounds per day for ROG, NO_X, and PM_{10} and 550 pounds per day for CO. Table 3-5, *Maximum Unmitigated Project Construction Emissions,* presents the estimated construction-related emissions of ROG, NO_X, PM_{10}, and CO resulting from the proposed project. Construction emissions do not exceed the PCAPCD thresholds. Therefore, impacts are less than significant in this regard. No mitigation is required.

Table 3-5. Maximum Unmitigated Project Construction Emissions

Emissions Source	Emissions (pounds per day)[1]			
	ROG	NO_X	PM_{10}	CO
Year 1				
Construction Emissions	6.38	66.68	4.43	52.64
PCAPCD Threshold	*82*	*82*	*82*	*550*
Is Threshold Exceeded After Mitigation?	***No***	***No***	***No***	***No***

1. Emissions calculated using California Emissions Estimator Model.
Refer to Appendix A, *Air Quality and Greenhouse Gas Emissions Data*, for assumptions used in this analysis, including quantified emissions reduction by mitigation measures.

FUGITIVE DUST EMISSIONS

Construction activities are a source of fugitive dust emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project area. Fugitive dust emissions are associated with land clearing, ground excavation, cut-and-fill, and truck travel on unpaved roadways (including demolition as well as construction activities). Fugitive dust emissions vary substantially from day to day, depending on the level of activity, specific operations, and weather conditions. Fugitive dust from grading, excavation and construction is expected to be short-term and would cease upon project completion.

Additionally, most of this material is inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to health.

Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM_{10} (particulate matter smaller than 10 microns) generated as a part of fugitive dust emissions. PM_{10} poses a serious health hazard alone or in combination with other pollutants.

Adherence to PCAPCD Rule 228, which requires watering of inactive and perimeter areas, track out requirements, to reduce PM_{10} concentrations, would further reduce fugitive dust emissions. As depicted in Table 3-5, total PM_{10} emissions would not exceed the PCAPCD thresholds during construction. Therefore, impacts are less than significant. No mitigation is required.

CONSTRUCTION EQUIPMENT AND WORKER VEHICLE EXHAUST

Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to/from the site. As presented in Table 3-5, construction equipment and worker vehicle exhaust emissions would be below the established PCAPCD thresholds. Therefore, air quality impacts from equipment and vehicle exhaust emission are less than significant. No mitigation is required.

ASBESTOS

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by state, federal, and international agencies and was identified as a toxic air contaminant by CARB in 1986.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed. According to the Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report* (August 2000), serpentinite and ultramafic rocks are not known to occur within the project area. Thus, there is no impact in this regard. No mitigation is required.

TOTAL DAILY CONSTRUCTION EMISSIONS

In accordance with the PCAPCD Guidelines, CalEEMod was utilized to model construction emissions for ROG, NO_X, CO, and PM_{10}. As indicated in Table 3-5, impacts would be less than significant for all criteria pollutants during construction. Implementation of standard construction air quality measures and compliance with PCAPCD adopted Rules would further reduce these emissions. Thus, construction related air emissions are less than significant. No mitigation is required.

OPERATIONAL EMISSIONS

Operational emissions of ROG, NO_X, CO, and PM_{10} are generated by mobile and stationary sources, including day-to-day activities such as vehicle trips to and from a project site, natural gas combustion from heating mechanisms, landscape maintenance equipment exhaust, and consumer products (e.g., deodorants, cleaning products, spray paint, etc.). However, as discussed previously, the proposed project would remove the functionally obsolete, narrow two-lane bridge and construct a standard two-lane bridge with shoulders, a sidewalk, and a raised profile. The proposed project would not create new or add significant capacity to Oak Ridge Drive and would not modify the existing land use or operations on the project site. Thus, the proposed project would not involve mobile, stationary, or area sources and new operational emissions would not occur. Therefore, the proposed project would result in a less-than-significant impact associated with operational emissions. No mitigation is required.

CONCLUSION

The proposed project would not exceed the applicable thresholds of significance for air pollutant emissions during construction or operation. The project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Therefore, implementation of the proposed project would result in a less-than-significant impact related to air quality. No mitigation is required.

c. The proposed project is within a nonattainment area for ozone and PM and would generate short term construction emissions. Because of the nature of the project (bridge replacement), it would not generate operational emissions. The project's construction emissions are projected to be below PCAPCD thresholds, are a one-time release and would occur temporarily (approximately over a six-month span). Accordingly, the incremental contribution of the proposed project's construction-related emissions would not be cumulatively considerable. Per PCAPCD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements would also be imposed on construction projects throughout the Basin, which would include related projects. Adherence to PCAPCD rules and regulations would alleviate potential impacts related to cumulative conditions on a project-by-project basis. Emission reduction technology, strategies, and plans are constantly being developed. As a result, the proposed project construction activities would not contribute a cumulatively considerable net increase of any nonattainment criteria pollutant. Therefore, cumulative impacts associated with implementation of the proposed project are less than significant. No mitigation is required.

d. The project proposes to replace the existing narrow bridge to accommodate a standard width involving two travel lanes with shoulders (for bike lanes) and sidewalks on each side. As presented above, CO emissions were determined to be below thresholds during construction of the proposed project. Emissions of CO results from the incomplete combustion of carbon-containing fuels such as gasoline or wood and are particularly related to traffic levels. As the project would not create new or add capacity to Oak Ridge Drive and would not increase the total daily VMT, the proposed project would not result in an increase in vehicle trips in the area. Accordingly, the proposed project would not cause substantial levels of CO at surrounding intersections or generate localized concentrations of CO that would exceed standards. Impacts are less than significant. No mitigation is required.

Toxic Air Contaminants (TACs) are a category of environmental concern as well. CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook) provides recommendations for citing new sensitive land uses near sources typically associated with

significant levels of TAC emissions, including, but not limited to, freeways and high traffic roads, distribution centers, and rail yards. CARB has identified diesel particulate matter (DPM) from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Health risks from TACs are a function of both the concentration of emissions and the duration of exposure. Health-related risks associated with DPM in particular are primarily associated with long-term exposure and associated risk of contracting cancer.

Because the proposed project does not involve on-site operations, long-term operation of any stationary diesel engine or other major on-site stationary source of TACs would not occur. Emissions of DPM resulting from construction-related equipment and vehicles would be temporary. Furthermore, the proposed project would not introduce any sensitive receptors to the area, and, thus, would not expose sensitive receptors to any existing sources of substantial pollutant concentrations. In conclusion, the proposed project would not introduce sensitive receptors to the area and would not generate substantial levels of pollutant concentrations that would expose existing sensitive receptors in the area. Therefore, impacts related to exposing sensitive receptors to substantial pollutant concentrations are less than significant. No mitigation is required.

e. While offensive odors rarely cause any physical harm, they can be unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and air districts. Project-related odor emissions would be limited to the construction period, when emissions from equipment may be evident in the immediately surrounding area. These activities would be short term in nature and cease upon project completion. Any impacts to existing adjacent land uses would be short-term, as previously noted, and are not likely to result in nuisance odors that would violate PCAPCD odor regulations. This impact is less than significant. No mitigation is required.

f., g. Emissions of greenhouse gases (GHGs) contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and City, and virtually every individual on earth. A project's GHG emissions are at a micro-scale relative to global emissions, but could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact.

As discussed previously, the proposed project would not modify the existing land use or operations on the project site. Thus, the proposed project would not involve mobile, stationary, or area sources and new operational emissions, including GHG emissions, would not occur. Accordingly, the only increase in GHG emissions generated by the proposed project that would contribute to global climate change would occur during the construction phase, which would be temporary. Due to the inherently cumulative nature of global climate change, effects of which occur over a long period of time, a project's GHG emissions contribution is typically quantified and analyzed on an annual basis (i.e., annual operational GHG emissions). Construction-related GHG emissions are a one-time release that occurs over a short period of time; nonetheless, construction-related GHG emissions have been quantified for the proposed project.

The estimated construction-related GHG emissions attributable to the proposed project would be primarily associated with increases of CO_2 and other GHG pollutants, such as methane (CH_4) and nitrous oxide (N_2O), from mobile sources and construction equipment usage. The proposed project's short-term construction-related emissions were estimated using CalEEMod. The model quantifies direct GHG emissions from construction, which are expressed in tons per project of CO_2

equivalent units of measure (i.e., $MTCO_2e$), based on the global warming potential of the individual pollutants. The estimated increase in GHG emissions associated with construction of the proposed project is summarized in Table 3-6, *Estimated Project Construction Greenhouse Gas Emissions*.

Table 3-6. Estimated Project Construction Greenhouse Gas Emissions

Source	CO_2	CH_4		N_2O		Total
	MT/yr[1]	MT/yr[1]	$MTCO_2eq/yr$[2]	MT/yr[1]	$MTCO_2eq/yr$[2]	$MTCO_2eq/yr$[3]
Construction (amortized over 30 years)	6.64	0.00	0.04	0.00	0.00	6.68
Total Project-Related Construction Emissions[3]	***6.68 $MTCO_2eq/yr$***					

Notes:
1. Emissions calculated using California Emissions Estimator Model.
2. Carbon dioxide equivalent values calculated using the United States Environmental Protection Agency Website, *Greenhouse Gas Equivalencies Calculator*, http://www.epa.gov/cleanenergy/energy-resources/calculator.html, accessed September 25, 2014.
3. Totals may be slightly off due to rounding.

Refer to Appendix A, *Air Quality/Greenhouse Gas Data*, for detailed model input/output data.

As presented in Table 3-6, short-term emissions of GHG associated with construction of the proposed project are estimated to be 6.68 $MTCO_2e$. Construction GHG emissions are typically summed and amortized over the lifetime of the project (assumed to be 30 years).[3] As stated above, because construction-related GHG emissions are a one-time release that occurs over a short period of time and are typically considered separate from operational emissions, construction-related GHG emissions are not typically considered to result in a substantial contribution towards global climate change. In addition, no applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions apply to the project area. Neither the PCAPCD nor the City has established thresholds of significance for construction-related GHG emissions. Therefore, the proposed project would not conflict with an adopted plan, policy, or regulation pertaining to GHGs. Due to the size of the proposed project and lack of any change to annual operational emissions, the GHG emissions resulting from construction of the proposed project are not expected to significantly contribute to the cumulative GHG levels of the area. For comparison purposes, multiple agencies have developed draft interim thresholds of significance for GHG emissions, including the following:

- 1,100 $MTCO_2e$ per year according to Bay Area Air Quality Management District (BAAQMD);
- 1,600 $MTCO_2e$ per year according to CARB;
- 3,000 $MTCO_2e$ per year according to South Coast Air Quality Management District
- (SCAQMD); and
- 900 $MTCO_2e$ per year according to San Diego County.

The proposed project's construction-related emissions would be substantially below all of the draft interim thresholds of significance listed above for GHG emissions, and would occur only one time, not annually or over multiple years. Therefore, the proposed project's construction-related GHG emissions are not expected to cause a significant impact. In conclusion, operational GHG emissions would be minimal and would not change as a result of the proposed project; however, construction of the proposed project would generate GHG emissions that would contribute to the

[3] The project lifetime is based on the standard 30-year assumption of the South Coast Air Quality Management District (http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-13/ghg-meeting-13-minutes.pdf?sfvrsn=2).

overall GHG levels in the atmosphere. Although the proposed project would contribute to GHG levels during construction, the incremental contribution to cumulative GHG emissions and global climate change would be minor. In addition, the GHG emissions resulting from construction of the proposed project would occur only once temporarily during construction. Therefore, a less than significant impact would occur in this regard. No mitigation is required.

BIOLOGICAL RESOURCES

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Adversely impact, either directly or through habitat modifications, any endangered, rare or threatened species, as listed in Title 14 of the California Code of Regulations Sections 670.2 or 670.5) or in Title 50, Code of Federal Sections 17.11 or 17.12)?	☐	☒	☐	☐
b) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the United States Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or the United States Fish and Wildlife Service?	☐	☒	☐	☐
d) Have a substantial adverse effect on Federally protected wetlands as defined by Section 404 of the Clean Water Act including, but not limited to, marshes, vernal pools, coastal areas) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
e) Interfere substantially with the Movement of any native resident or migratory fish or wildlife species or with any established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
f) Conflict with any local policies or ordinances protecting biological Resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
g) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒

SETTING

Surrounding land uses include residential development, open space, and school/park occur adjacent to the biological study area (BSA). Oak Ridge Drive Bridge crosses Linda Creek and is surrounded by single family residences and Alta Manor senior apartments located at the northwest corner of the bridge. A paved bicycle path is located at the top of the north bank of Linda Creek. The potential staging area on the northwest corner of Coloma Way and Oak Ridge Drive, is mowed with a sparsely grassy area outside of

the stream zone. It is directly adjacent to Cirby Creek, but above the upper banks and above the ordinary high water mark (OHWM). Both Linda Creek and Cirby Creek are considered open space/floodplain.

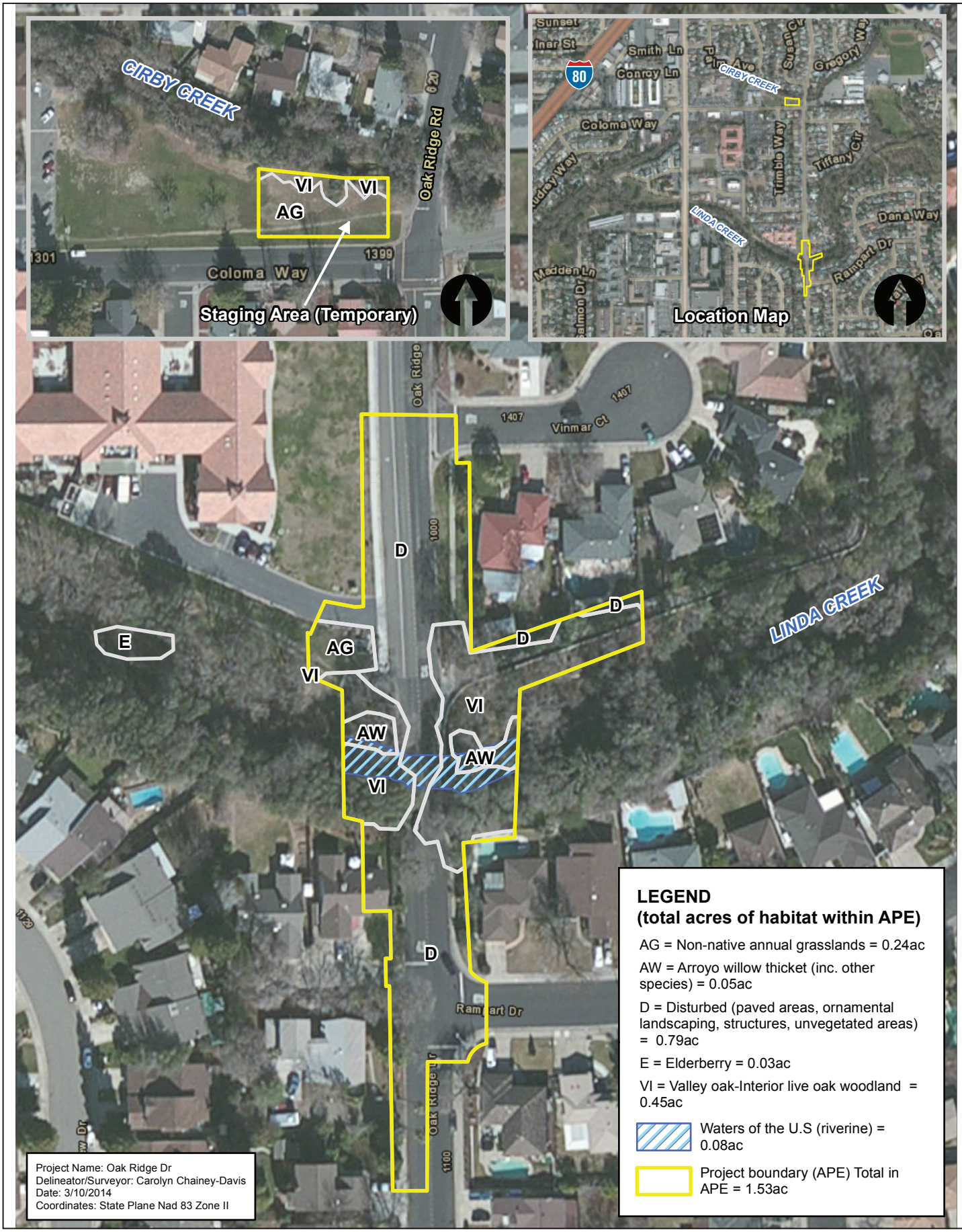
Although the proposed project is in an urbanized setting, the top of bank on both sides of Linda Creek are well vegetated with a valley oak-interior oak woodland with a dense understory that includes many naturalized non-native plant species. Linda Creek is a low gradient creek that has near vertical eroded banks on the south side. The north bank of Linda Creek has a near vertical bank for the first three to six feet above the OHWM, and then slopes more gently toward the top of the bank. Because Linda Creek is deeply incised, the oak woodland that lines the top and upper slopes of the stream bank consists of upland species. The stream generally lacks a lower or active floodplain due to the deep incision. Cirby Creek is adjacent to the potential staging area, with a raised berm located along the outside edge of the top of the south bank. Cirby Creek is less incised than that of Linda Creek, but has a similar valley oak-interior live oak woodland along its upper and middle banks. Disturbed areas in the BSA include ornamental landscaping, unvegetated or sparsely vegetated areas, roads, road embankments, structures, and gravel or dirt pullouts. Figure 3-3, *Vegetation Map*, provides a graphical representation of the surrounding areas.

The confluence of Linda Creek and Cirby Creek is approximately 2,400 feet downstream of the proposed project. A large undeveloped parkway of oak woodland is located from the proposed project upstream to Maidu Park, approximately 0.77 mile upstream of the proposed project. Linda Creek is a perennial tributary in the upper headwaters of the Dry Creek watershed. Dry Creek ultimately drains into the Natomas East Main Drainage Canal, which then flows south into Discovery Park in the American River Parkway, and then west into the Sacramento River. Linda Creek is located mainly in an urbanized area and detached from its floodplain.

STUDY METHODS

A Natural Environment Study (NES) and Biological Assessment (BA) were prepared by EcoBridges Environmental Consulting in May 2015, a Waters Delineation Report was prepared by Chainey-Davis Biological Consulting in July 2014, a Fishery Resources BA was prepared by A.A Rich and Associates in May 2015, and an Arborist Report and Preservation Recommendations Report was prepared by Abacus Consulting Arborists in May 2015.

Studies for the proposed project began by generating global information system (GIS) and Google Earth maps of plant, animal, and habitat records in the California Natural Diversity Database (CNDDB) prior to the site visit; these maps were generated on August 7, 2013. A full written (condensed) CNDDB report was generated on August 21, 2013 and updated on February 19, 2014. A wide tabular report was generated on February 19, 2014. The CNDDB maps and reports are based on the nine U.S. Geological Survey (USGS) quadrangles centered on the Citrus Heights USGS quadrangle (the other eight are Roseville, Pleasant Grove, Rio Linda, Sacramento East, Carmichael, Buffalo Creek, Folsom, and Rocklin). An unofficial U.S. Fish and Wildlife Service (USFWS) species list was generated for the USGS Citrus Heights quadrangle on August 21, 2013 and updated on March 6, 2014 (EcoBridges Environmental Consulting 2015). Environmental documents for surrounding developments were sought and only one restoration plan was found and reviewed: Roseville Creek and Riparian Management and Restoration Plan (City of Roseville 2005).



Source: ESRI Imagery

0 100'

OAK RIDGE DRIVE BRIDGE PROJECT • CEQA

Vegetation Map

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Figure 3-3

An initial site visit was conducted on August 8, 2013, by biologist Anne Wallace and botanist and wetland ecologist Carolyn Chainey-Davis. Ms. Chainey-Davis conducted additional surveys on August 21, 2013, in order to survey upstream (approximately 100 feet) and downstream (approximately 150 feet) of the bridge. Ms. Chainey-Davis performed a routine delineation of the project area on August 11-13, 2013 during the dry season, and again on September 24, 2013 (following a storm event) and February 17, 2014 (following a larger storm event). Ms. Wallace conducted a follow-up site visit on September 25, 2013. A reconnaissance bat survey and habitat assessment was conducted by Sacramento bat expert Kim Fettke on September 2, 2013.

Fisheries biologist Dr. Alice A. Rich and a biological assistant conducted a field investigation on October 22, 2013 to assess fish habitat conditions in Linda Creek within the project area, and other areas of the creek up and downstream of the Oak Ridge Drive Bridge.

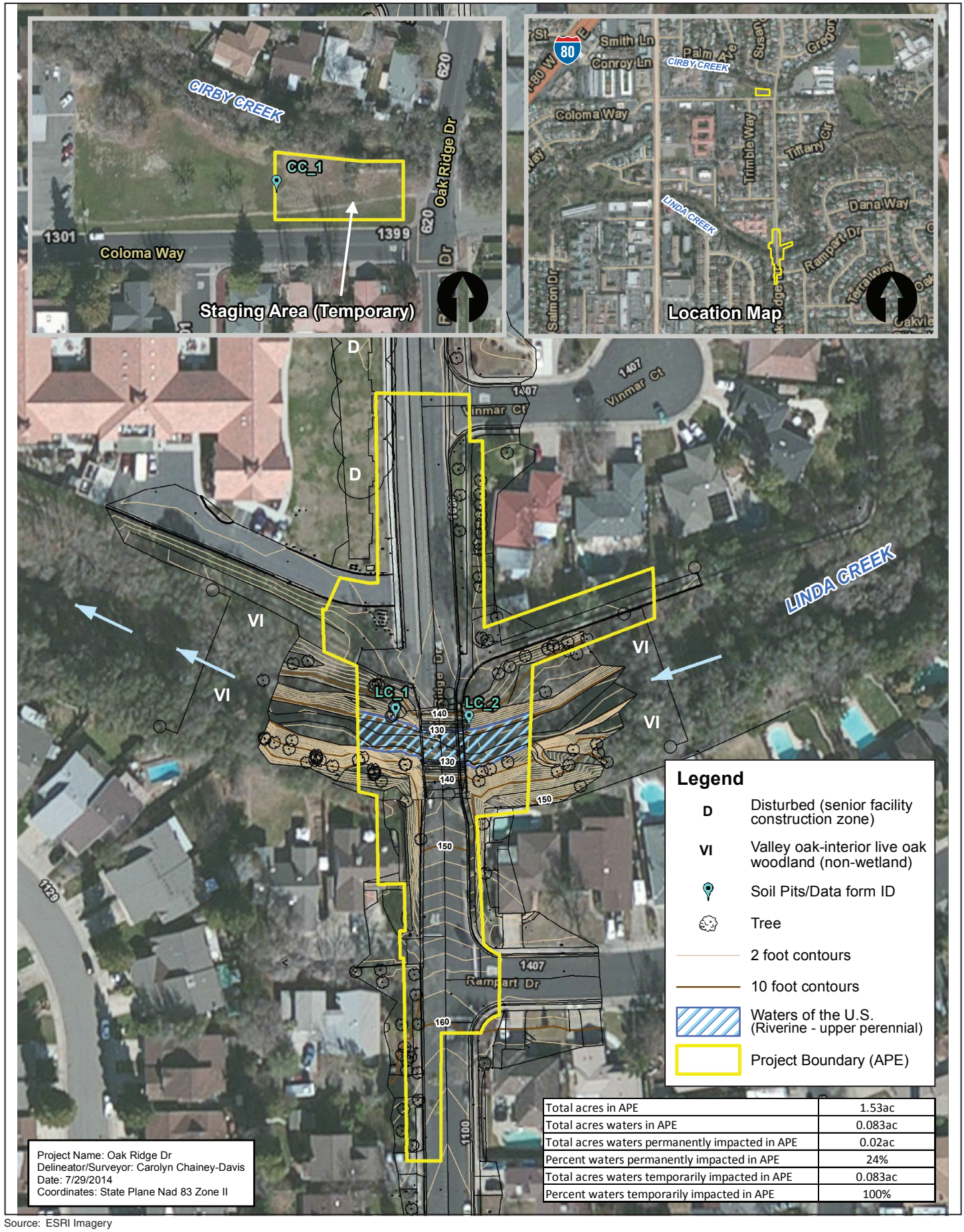
Certified Arborist Nicole Harrison completed an inventory of trees within the immediate project area on January 9, 2015 (as required under the City of Roseville's Section 19.66.050, Arborist Report Chapter 19.66, Article IV, Tree Preservation Code). The inventory included identifying species, counting the number of stems, measuring the diameter at breast height (DBH), evaluating the canopy, and assessing tree health and structure. In addition, the trees were tagged with a green anodized aluminum, "acorn" shaped tag installed six feet above ground level on the north side of the tree.

NATURAL COMMUNITIES

Natural communities within the BSA are both aquatic (Figure 3-4, *Delineation of Wetlands and Other Areas*) and terrestrial (refer to Figure 3-4). The communities include: Riverine - Upper Perennial (Linda Creek); Valley Oak-Interior Live Oak Woodland (Palustrine Forested Non-Wetland); Arroyo Willow Thickets (Palestrine Scrub-Shrub Non-Wetland); and Non-Native Annual Grassland (disturbed stand).

RIVERINE - UPPER PERENNIAL (LINDA CREEK)

Linda Creek within the project area is a low-gradient, urbanized but unchannelized reach of Linda Creek. The channel is deeply incised within the BSA with a near vertical and eroded, but stable, bank and a well-vegetated, moderately steep slope on the south bank. Wetland and facultative wetland plants are restricted to scattered individuals at the ordinary high water mark (OHWM) that occur as waifs between larger storm events because the banks are steep and either lack a terrace or the terrace is positioned too high above the summer water table. The OHWM is at the 136-foot contour elevation and everything above this line, in the understory of the valley oak woodland, is infrequently flooded and co-dominated with facultative upland and upland (non-wetland) species. Under the bridge, the abutment is heavily armored with gabion rock walls and concrete, and is entirely unvegetated. A roadside culvert discharges storm runoff beneath the bridge on the south bank. The open channel, or active channel, as it passes through the project study area, is approximately 16 to 20 feet in width at the OHWM and up to 3.3 feet above the summer water elevation of the creek. The channel bottom includes some exposed bedrock and gravels.



Total acres in APE	1.53ac
Total acres waters in APE	0.083ac
Total acres waters permanently impacted in APE	0.02ac
Percent waters permanently impacted in APE	24%
Total acres waters temporarily impacted in APE	0.083ac
Percent waters temporarily impacted in APE	100%

Source: ESRI Imagery

0 100'

OAK RIDGE DRIVE BRIDGE PROJECT • CEQA

Delineation of Wetlands and Other Waters

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Figure 3-4

VALLEY OAK-INTERIOR LIVE OAK WOODLAND (PALUSTRINE FORESTED NON-WETLAND)

The streambanks above the OHWM and extending upstream and downstream of the BSA consist of a closed- to intermittent- canopy woodland of valley oak with a sub-canopy of interior live oak (*Quercus wislizenii*). Blue oak are occasional but not dominant. The community has a well-developed understory of mostly shade-tolerant, native and non-native shrubs and herbs due to year-round shade for the live oak sub-canopy. Non-native trees, shrubs, and vines common in the shrub layer include tree of heaven, cherry plum (*Prunus cerasifera*), almond (*Prunus dulcis*), privet (*Ligusticum* sp.), and English ivy (*Hedera helix*). Common native species include California buckeye (*Aesculus californica*), poison oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), and California wild rose (*Rosa californica*). Characteristic herbs include the non-natives ripgut brome (*Bromus diandrus*), Japanese hedge parsley (*Torilis arvensis*), and wild oat (*Avena* spp.) at the sunnier canopy edges, and the natives blue wildrye (*Leymus glaucus*) and western mugwort (*Artemisia douglasiana*) in the woodland interior.

Approximately 175 feet west of the existing bridge, and approximately 105 feet from the edge of the BSA, there is a stand of shrubby valley elderberry (*Sambucus caerulea*) with about 50 stems in the understory of the valley oak woodland on the north bank. They occur on a narrow terrace approximately 27 feet downslope of the edge of the existing bike trail on top of the Linda Creek levee. Approximately 25 plants had stem diameters greater than one inch, with one plant having a 1.75-inch stem, and most of the rest between 0.25 inch and 1 inch.

One heritage oak, defined as an oak greater than 36 inches DBH, was found in the BSA at the southeast corner of the bridge, 9 feet east of the guard rail. Refer to the subsection *Tree Inventory*, below, for additional details regarding trees within the study area.

ARROYO WILLOW THICKETS (PALUSTRINE SCRUB – SHRUB NON-WETLAND)

This community type describes the small, narrow stands of non-wetland riparian habitat on the near-vertical banks just above OHWM on the north bank. This habitat does not occur along the south bank within the project area. Because riparian species require access to the summer water table, the riparian species in this highly incised creek are restricted to a zone no more than 3.3–6.6 vertical feet above the stream's OHWM. Arroyo willow (*Salix lasiolepis*) is a diagnostic component but other riparian species are occasional, and most plants are small, shrubby, or pole-stage plants. These include: box elder (*Acer negundo*), California black walnut, Oregon ash (*Fraxinus latifolia*), and the non-natives tree of heaven and Himalayan blackberry (*Rubus armeniacus*). Refer to the subsection *Tree Inventory*, below, for additional details regarding trees within the study area.

NON-NATIVE ANNUAL GRASSLAND – DISTURBED STANDS

Annual grassland occurring in the BSA is restricted to an open, mowed, disturbed, and sparsely vegetated area at a narrow strip along the bicycle path in the northwest portion of the BSA along Linda Creek and at the northwest corner of Coloma Way and Oak Ridge Drive, at the site of the proposed staging area. Dominant grasses and herbs observed at Coloma Way are non-native and include red-stemmed filaree (*Erodium cicutarium*), broad-leafed filaree (*Erodium botrys*), rat tail (*Vulpia myuros*), wild oats (*Avena* spp.), and brome grasses (*Bromus* spp.).

Annual grasslands in the BSA are a predominantly nonnative and manmade community, widespread in California. They occur in all topographic settings in waste places, rangelands, and openings in woodlands. They are not considered sensitive or subject to regulation.

JURISDICTIONAL WATERS

Linda Creek is a perennial tributary of Cirby Creek that, in turn, flows into Dry Creek. Both Linda Creek and Cirby Creek are waters of the U.S. and waters of the state and are therefore subject to state and federal regulation. However, only Linda Creek is within the project area; Cirby Creek is adjacent to the potential staging area at the northwest corner of Coloma Way and Oak Ridge Drive. Any work within the OHWM of Linda Creek (e.g., placement of piers, bridges, or bank stabilization) would require permits from a variety of agencies, including the U.S. Army Corps of Engineers (USACE), National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries or NMFS), Central Valley Regional Water Quality Control Board (CVRWQCB), California Department of Fish and Wildlife (CDFW), and Central Valley Flood Protection Board (CVFPB).

NOXIOUS WEEDS

Noxious weeds include species designated as federal noxious weeds by the U.S. Department of Agriculture (USDA), species listed by the California Department of Food and Agriculture (CDFA), and other exotic pest plants designated by the California Invasive Plant Council (Cal-IPC). Roads, highways, railroad lines, utility corridors, and related construction projects are some of the principal dispersal pathways for noxious weeds. The introduction and spread of exotic pest plants adversely affect natural plant communities by displacing native plant species that provide shelter and forage for wildlife species.

There are no federal-rated noxious weeds occurring in or adjacent to the BSA. Two CDFA-rated weeds, giant reed (*Arundo donax*) and tree of heaven, occur in or adjacent to the BSA. The giant reed cluster is located outside the BSA in a patch of elderberry shrubs, and the tree of heaven occurs as several small clusters throughout the valley oak-interior live oak woodland on the north bank. Tree of heaven produces an abundance of seed, grows rapidly, and can overrun native vegetation. Once established, it can quickly form an impenetrable, spreading thicket. It produces toxins that prevent the establishment of native species near the infestation.

Two additional species of high concern to Cal-IPC, due to their tendency to invade wildlands, are found in the BSA: English ivy and Himalayan blackberry. None occur in heavy infestations and/or they are already widespread on valley and foothill streams; however, the English ivy could potentially adversely affect the large oaks they have infested.

TREE INVENTORY

The trees within the proposed project's disturbance area of the Oak Ridge Drive Bridge over Linda Creek include a total of 43 trees, made up of two blue oak, eight interior live oak, 13 valley oak, and 20 landscape trees. These trees were rated during the field visit, pursuant to City of Roseville requirements. Trees are rated on a scale of 0 to 5 as follows: 0 = dead; 1 = poor condition, extreme problems; 2 = poor to fair condition, major problems; 3 = fair condition, minor problems; 4 = fair to good condition, no apparent problems; and 5 = good condition, no problems. The 43 inventoried trees are rated as follows:

- 5 trees have a rating of 1 (Poor);
- 10 trees have a rating of 2 (Poor to Fair); and
- 28 trees have a rating of 3 (Fair) or 4 (Fair to Good).

The inventory identified three species of native oaks (8 individual native oaks total), which, pursuant to the City of Roseville Tree Preservation Ordinance, are protected native trees because they are at least six inches DBH or are multi-stemmed native oak trees with an aggregate of stems at least six inches DBH (Abacus 2015).

GENERAL WILDLIFE

The riparian zone along both Linda and Cirby creeks is narrow and tightly constrained by residential development. This context diminishes wildlife potential but a number of species that tolerate urban habitats could use the riparian zone along either creek. The habitats within and along these creeks could support Sierran treefrog (*Pseudacris sierra*), common garter snake (*Thamnophis sirtalis*), downy woodpecker (*Picoides pubescens*), red-shouldered hawk (*Buteo lineatus*), great horned owl (*Bubo virginianus*), California towhee (*Pipilo crissalis*), spotted towhee (*Pipilo maculatus*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). A number of bat species could use the project area including cavity-roosting species such as Mexican free-tailed bat (*Tadarida brasiliensis*) and California myotis (*Myotis californicus*), and foliage-roosting species such as hoary bat (*Lasiurus cinereus*) (EcoBridges Environmental Consulting 2015).

GENERAL FISH RESOURCES

Linda Creek is a perennial tributary of Cirby Creek that, in turn, flows into Dry Creek. Water temperatures in Linda Creek were continuously recorded from 1998-2002 and found that the mean daily stream temperatures, from June through May of the following year, ranged from 42.8 to 69.8 degrees Fahrenheit (°F), depending upon the month of the year. The site visit determined that the creek channel was shaded with valley and live oak at the top of both banks and there was a dense understory of both native and non-native plants. The creek was very incised (12-16 feet above the summer water table) (A.A Rich and Associates 2014).

Native and introduced fish species reported to occur in Linda and Cirby creeks include Sacramento sucker (*Catostomus occidentalis*), Sacramento pikeminnow (*Ptychocheilus grandis*–formerly Sacramento squawfish), hitch (*Lavinia exilicauda*), green sunfish (*Lepomis cyanellus*), bluegill (*Lepomis macrochirus*), brown bullhead catfish (*Ictalurus nebulosus*), western mosquitofish (*Gambusia affinis*), golden shiner (*Notemigonus crysoleucas*), and common carp (*Cyprinus carpio*).

MIGRATION CORRIDORS

Wildlife movement includes migration (usually one direction per season), inter-population movement (long-term genetic exchange), and small travel pathways (daily movement corridors within an animal's territory). While small travel pathways usually facilitate movement for daily home range activities such as foraging or escape from predators, they also provide connection between outlying populations and the main corridor, permitting an increase in gene flow between populations (EcoBridges Environmental Consulting 2015).

Linkages between habitat types can extend for miles between primary habitat areas and occur on a large scale throughout California. They facilitate movement between populations located in discrete areas and those located within larger areas. Even where patches of pristine habitat are fragmented, such as occurs with coastal scrub and many other California habitats, the movement between wildlife populations is facilitated through habitat linkages, i.e., migration corridors and movement corridors (EcoBridges Environmental Consulting 2015).

SPECIAL-STATUS SPECIES

Special-status species is a collective term that refers to plants, animals, and fish that are legally protected under the Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), or other regulations, as well as species that are considered sufficiently rare by the scientific community to qualify for such listing. Special-status species and sensitive habitats are those plants and animals found on the CNDDB, CNPS, and USFWS species lists, or otherwise known to occur in the region, for which general geographic range and habitats overlap with the BSA and that are: 1) listed, proposed for listing, or candidates for listing as threatened or endangered under state or federal endangered species acts, 2) California species of special concern, 3) California fully protected species, 4) found on CNPS lists 1B.1, 1B.2, and 2, and/or 5) have a state rank of S1, S2, or S3. Species and habitats that do not fall into at least one of these classifications were not included in the NES prepared by EcoBridges Environmental Consulting in 2014.

SPECIAL-STATUS PLANTS

Seventeen special-status plants and three rare habitats were identified during the record searches as potentially occurring in the project region, but most of the species can be ruled out based on an absence of general or specific microhabitat requirements. This includes vernal pools, volcanic lahars, serpentine or gabbbro-derived soils, or alkaline soils because none of these occur within the BSA. A small, approximately 0.03-acre patch of approximately 50 valley elderberry stems, with as many as 25 stems greater than one inch in diameter at ground level, occurs approximately 175 feet west (downstream) of the existing bridge and 27 feet downslope of the gravel bicycle path west of the bridge, within the creek corridor. This patch of elderberry would not be considered an example of the rare natural community elderberry savannah, which is a rare community of Central Valley bottomlands and stream terraces. The elderberry in the project area occurs in the deeply shaded understory of the valley oak–interior live oak woodland in the foothill zone of the Sierra Nevada (EcoBridges Environmental Consulting 2015).

SPECIAL-STATUS WILDLIFE

Twenty-seven (27) wildlife species and migratory birds were found to have the potential to occur within the BSA. Some of these species can be ruled out based on an absence of habitat type, such as no vernal pools or suitable aquatic habitat occur within the project area. Migratory birds have a high potential to occur within the project area because there is suitable habitat for nesting within the BSA. Species that have a moderate potential to occur within the project area include the Central Valley fall/late-fall-run chinook salmon and Central Valley steelhead, discussed below, and nesting purple martin. Species that have a low potential of occurrence within the project area include Sacramento River winter-run chinook salmon, western pond turtle[4], foothill yellow-legged frog, Swainson's hawk, song sparrow, pallid bat, Townsend's big-eared bat, and western red bat (EcoBridges Environmental Consulting 2015).

SPECIAL-STATUS FISH

Linda Creek and Cirby Creek are designated critical habitat for three special-status salmonids that are known to use the creeks: Central Valley steelhead, Sacramento River winter-run chinook, and Central Valley fall/late-fall-run chinook. Hatching success and fry survival were found to be poor and populations are therefore limited. Research suggests that the chinook are of the fall/late-fall-run; however, NOAA NMFS reports that winter-run chinook may also occur (EcoBridges Environmental Consulting 2015).

[4] The western pond turtle is also known as the Pacific pond turtle.

The project site is located within the region identified as Essential Fish Habitat (EFH) for Pacific salmon in Amendment 14 of the Pacific Salmon Fisheries Management Plan (FMP). The EFH is defined as those waters and substrates necessary to fish for spawning, breeding, feeding, and growth to maturity. For the purposes of interpreting the definition of EFH, "waters" includes aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate. "Substrate" includes sediment, hard bottom, structures underlying the waters and associated biological communities. "Necessary" means habitat required to support a sustainable fishery and a healthy ecosystem. "Spawning, breeding, feeding, or growth to maturity" covers all habitat types used by a species throughout its life cycle. In order to protect EFH, federal agencies are required to consult with NOAA Fisheries on activities that may adversely affect EFH, and NOAA Fisheries must provide EFH conservation recommendations to those agencies (section 305(b)(4)(A)) (A.A. Rich and Associates 2015).

Linda Creek, during the late summer months, has water temperatures that would be lethal to salmonids. The habitat within Linda Creek within the proposed project area had very little potential rearing habitat and no spawning habitat at the time of the survey (October 22, 2013). Linda Creek was shaded throughout the proposed project area; some protective cover was provided by rocks, turbulence from riffles, and leaves. If Chinook salmon or steelhead were present during the fall-run, the proposed project area would serve as a migration route during the spawning migration. From the late winter through the spring, stream flows would be greater and, hence, there would be more rearing habitat in Linda Creek. During the spring when smoltification occurs, the proposed project area would serve as a migration route and rearing area (A.A. Rich and Associates 2015).

DISCUSSION

a., b. The proposed project would replace the functionally obsolete bridge, raise the new bridge and roadway profile and lengthen the bridge in order to pass the 200-year design flood event in Linda Creek, and would provide shoulders and sidewalks. Work would mainly be within existing City right-of-way and within Linda Creek; however, a temporary construction easement may be required in certain areas as shown in Figure 2-7, particularly for the retaining wall in the southwest quadrant of the bridge site as well as for construction of driveway conforms. The proposed project consists of developed and disturbed areas and habitats associated with open waters (Linda Creek) (refer to items c and d for an analysis). Specific impacts are discussed below. Implementation of Mitigation Measures BIO-1 through BIO-9 would reduce impacts to a less-than-significant level.

SPECIAL-STATUS PLANTS AND HABITATS

The NES identified 17 special-status plant species and three rare habitats that have the potential to occur within the proposed project area. The following plants and habitat types meet the criteria for inclusion described above but have been eliminated from further consideration because the BSA does not provide suitable habitat or soil conditions:

- Vernal Pool Species: Dwarf Downingia; Boggs Lake hedge-hyssop; Ahart's rush; Red Bluff rush; Legenere; Pincushion navarretia; slender orcutt grass; northern bolcanic mudflow vernal pools, northern harpan vernal pools; and northern clay vernal pools
- Akaline Seeps and Meadows: hispid bird's-beak; alkaline seeps, alkaline meadows
- Native Grasslands: Valley needlegrass grasslands

The following species could be affected by the proposed project.

Sanford's Arrowhead. Sanford's arrowhead is an emersed aquatic perennial in the Water-Plantain family. It blooms late May to August in shallow, standing, fresh water and sluggish waterways in open sites with muddy substrate in marshes, swamps, ponds, vernal pools and lakes, reservoirs,

sloughs, ditches, canals, streams and rivers at elevations from 10 to 2,000 feet. It is not listed under the state or federal endangered species acts. There is a known occurrence in the project vicinity on an urbanized creek. The channel of Linda Creek within the BSA is too rocky, shady, and flows too swiftly for this special-status plant species. Sanford's arrowhead was not identified within the BSA during the August and September comprehensive surveys, which was conducted at a time that is adequate to detect presence of the species. BIO-1 requires pre-construction surveys occur to verify the absence of special-status plant species within the project area and also provides actions if Sanford's arrowhead is identified. Direct and indirect effects are less than significant with the incorporation of Mitigation Measure BIO-1.

Brandegee's clarkia and California balsamroot. Brandegee's clarkia and California balsamroot have marginally suitable general habitat present (grassland) but the micro-habitat requirements are absent for California balsamroot (e.g., heavy clay or serpentine) in the BSA. Brandegee's clarkia could occur in the grassy openings at the top of the northwest bank of Linda Creek. The habitat at the potential staging area at the northwest corner of Coloma Way and Oak Ridge Drive is too highly disturbed from regular mowing or competition from dense weeds. These two taxa are unlikely to occur in the BSA. The nearest occurrence for California balsamroot is five miles from the project site, while the nearest occurrence for Brandegee's clarkia is in Newcastle, approximately 12 miles northeast of the project site. BIO-1 requires pre-construction surveys occur to verify the absence of special-status plant species within the project area; BIO-1 also provides actions if special-status plant species are identified. Therefore, impacts to California balsamroot and Brandegee's clarkia are less than significant with the incorporation of Mitigation Measure BIO-1.

SPECIAL-STATUS ANIMAL SPECIES

The NES identified 27 special-status animal species that have the potential to occur within the proposed project area. Of the 27 special-status wildlife species identified, 15 have been eliminated from further consideration as described below. Therefore, no impact would occur to these 15 species.

- Vernal pool fairy shrimp and vernal pool tadpole shrimp are found exclusively in vernal or other ephemeral pools in grasslands, which do not occur in the project area.
- California tiger salamander and western spadefoot breed in vernal and rain pools and other aquatic sites and use upland grasslands during the nonbreeding season; there are no suitable habitats for either species in or near the project area.
- California red-legged frog does not occur at the proposed project's elevation (165 feet elevation) in the Central Valley, the project site does not provide for adequate breeding habitat, and, thus, is not expected to be present.
- Giant garter snake uses low-elevation and low-gradient wetlands, sloughs, canals, and rice fields on the floor of the Central Valley and would not occur in the project vicinity.
- Tricolored blackbird nests colonially in patches of emergent vegetation, willows, or blackberries near water and surrounded by open-country foraging habitat; these conditions do not occur in or near the project area.
- Grasshopper sparrow nests in dense grasslands, which do not occur in the project vicinity.
- Burrowing owl dens and forages in grassland and other open-country habitats, which do not occur in the project area.
- Northern harrier nests in open, treeless terrain, which does not occur in the project area.
- Loggerhead shrike nests in shrubs or small trees in relatively open country for foraging, which does not occur in the project area.

- White-tailed kite nests and forages in open country with scattered trees, which does not occur in the project area. While potentially suitable nest trees occur in the riparian of Linda and Cirby creeks, adjacent foraging habitat is entirely absent.
- Bank swallow nests along streams and rivers with exposed vertical banks, which do not occur in or near the project area.
- Western mastiff bat roosts in cliffs and rock crevices high above the ground, which do not occur in the project area.
- American badger dens and forages in large home ranges of contiguous open-country habitats, which do not occur in or near the project area.

The following species could be affected by the proposed project.

Valley Elderberry Longhorn Beetle. The valley elderberry longhorn beetle (VELB), endemic to the Central Valley and foothills of California, is found only in association with its host plant, elderberry (*Sambucus* spp), a common component of riparian forests and adjacent uplands. Elderberry plants that support VELB populations are generally found along waterways and in floodplains and savannas supporting remnant stands of riparian vegetation. It inhabits plants of various sizes, ages, and growth forms. Larvae feed internally on the pith of the trunk and larger branches, while adults feed externally on foliage and flowers. The life cycle takes one to two years to complete. Adults are present from March through June, about the time elderberries flower, and are short-lived. During this time, beetles mate and females lay eggs on living elderberry plants. The VELB spends most of its life in the larval stage, living within the stems of elderberry plants. The VELB was recognized as a threatened species because of loss and alteration of its riparian habitat and because it naturally occurs at low population densities (EcoBridges Environmental Consulting 2015).

Frequently, the only exterior evidence of VELB use of the elderberry plant use is an exit hole created by the larvae just prior to the pupal stage. Recent field work along the Cosumnes River and in the Folsom Lake area indicates that larval galleries can be found in elderberry stems with no evidence of exit holes; the larvae either succumb prior to constructing an exit hole or are not far enough along in the developmental process to construct an exit hole. Larvae appear to be distributed primarily in stems that are one inch or greater in diameter at ground level (EcoBridges Environmental Consulting 2015).

A cluster of approximately 50 valley elderberry stems was identified on a terrace above Linda Creek on the north bank beginning approximately 175 feet west (downstream) of the Oak Ridge Drive Bridge and extending another 60 feet downstream. As many as 25 plants had stems greater than one inch in diameter, with one plant having a 1.75-inch stem. Much of the stand is embedded in Himalayan blackberry, poison oak, and giant reed, and was not easily accessible. No exit holes were observed in stems that could be seen; however, occurrence of VELB cannot be ruled out because species-specific surveys were not conducted. This project would have no impacts on VELB; however, because of the potential for indirect impacts, implementation of Mitigation Measure BIO-2 is required. Impacts are reduced to a less-than-significant level.

Foothill Yellow-Legged Frog. Foothill yellow-legged frogs are found in or near rocky streams in a variety of woodland, scrub, and meadow habitats. They require shallow, flowing water in small to moderate streams with some cobble-sized substrate. They require sunny and partly shaded banks for basking. Adults are usually found near water and prefer riffle or cascade/pool areas with rocky banks (EcoBridges Environmental Consulting 2015).

Breeding sites are typically in main-stem creeks and rivers near tributary confluences because tributaries, while generally poor for breeding, are relatively advantageous for overwintering. Adults are commonly found in tributaries in the early spring before they move downstream into main-stem habitats to breed. Characteristics of successful breeding sites are channels with high width-to-depth ratios with the presence of cobble, small boulders, and emergent rocks. Adults often bask on exposed rock surfaces along streams; when disturbed, they dive and take refuge among stones, silt, or vegetation. During periods of inactivity, especially during cold weather, individuals seek cover under rocks in streams or on shore within a few meters of water. They are infrequent or absent in habitats where introduced aquatic predators such as centrarchid fishes and bullfrogs are present (EcoBridges Environmental Consulting 2015).

The foothill yellow-legged frog was not detected during site visits; however, species specific surveys were not conducted. Within the BSA and the project area, habitat suitability for breeding within both Linda Creek and Cirby Creek is limited. These limitations include water velocity during high-flow seasons (generally fall, winter, spring), the lack of backwater or slackwater areas for egg masses, and excessive shade, especially along Linda Creek. If breeding and nonbreeding habitats are present or more suitable upstream or downstream of where project activities will take place, these frogs might occur in the project area on a temporary basis (EcoBridges Environmental Consulting 2015). The CNDDB record search found no known occurrences of the foothill yellow-legged frog within the nine-quad search area. Construction impacts are potentially significant; however, with the implementation of Mitigation Measure BIO-3, impacts are less than significant. Long-term impacts are less than significant because disturbed areas would be restored to pre-project conditions and there would be minimal loss of aquatic habitats.

Western Pond Turtle. The western pond turtle, also known as the Pacific pond turtle, occurs in perennial waters such as lakes, ponds, rivers, streams, irrigation ditches, and sloughs with aquatic vegetation, deep or muddy water for cover, and sunny openings. Pond turtles need basking sites for thermoregulation such as logs, vegetation mats, open banks, or rock outcrops, adjacent to deep water for escape. While adults are found in a variety of habitats, hatchlings and juveniles require specific habitats for survival: shallow water with relatively dense submergent or short emergent vegetation in which to forage and hide from predators (EcoBridges Environmental Consulting 2015).

Linda Creek is heavily shaded in the project area and in August 2013 was very shallow, although it is deeper during winter and spring. The depth of Linda Creek and winter/spring flow velocity may be undesirable for pond turtles. This and the absence of sunny openings make the project area unlikely habitat for the western pond turtle. The surrounding uplands provide no upland egg-laying habitat, therefore, Linda Creek, within the BSA, would not support breeding turtles or their offspring (EcoBridges Environmental Consulting 2015).

Cirby Creek, adjacent to a potential staging area at the northwest corner of Coloma Way and Oak Ridge Drive, contains some sunny openings near the BSA. Cirby Creek water depth was deeper than the depth in Linda Creek in August 2013; however, Cirby Creek was not deep enough to provide good escape cover. The depth of Cirby Creek and winter/spring flow velocity may be undesirable for pond turtles. The potential staging area is an open field with compacted soils within a residential neighborhood and does not provide suitable nesting habitat for this turtle. No construction activity would occur at this location and no activities would occur within Cirby Creek (EcoBridges Environmental Consulting 2015).

No species-specific surveys were conducted. The western pond turtles could move through the project area, between habitats that are more suitable; however, the turtle is not likely to use either Linda Creek or Cirby Creek in the vicinity of the proposed project and would not be expected outside of the stream channel (EcoBridges Environmental Consulting 2015). Construction impacts are potentially significant; however, with the implementation of Mitigation Measure BIO-3, impacts are less than significant. Long-term impacts are less than significant because disturbed areas would be restored to pre-project conditions and there would be minimal loss of aquatic habitats.

Swainson's Hawk. Swainson's hawks are breeding residents of California, especially the Central Valley, and most of them winter from Mexico to South America; a small population has been documented to winter in the Sacramento-San Joaquin Delta. Generally present in California from early March to late September, they nest in tall trees in riparian forest, oak woodland, roadside landscape corridors, urban parks, and isolated trees in agricultural areas. No Swainson's hawks were detected during the August 2013 site visits. While the riparian zones of Linda and Cirby creeks provide potentially suitable nest trees, suitable adjacent foraging habitat is absent. Swainson's hawks are known to travel from nest sites to forage. The nearest suitable foraging habitat can be found five miles west of the proposed project; however, Swainson's hawk rarely, if ever, nest in areas that do not provide some foraging habitat adjacent to the nest. The nearest CNDDB records of a Swainson's hawk nest are approximately five miles northwest of the proposed project, six miles northwest, and seven miles west of the proposed project (EcoBridges Environmental Consulting 2015). To ensure that Swainson's hawk are protected, Mitigation Measure BIO-4 shall be implemented. Impacts are potentially significant; however, with the implementation of Mitigation Measure BIO-4, impacts are less than significant.

Modesto Song Sparrow. There are currently nine subspecies of song sparrow breeding in California, seven of which breed in northern California. Most song sparrows are resident where they occur. The widespread Modesto song sparrow occurs from roughly Suisun Marsh on the west to the Sierra foothills on the east, and from Butte and Glenn counties south to northwest Baja. They nest in riparian thickets of willows and other vines, shrubs, and tall herbs, as well as in fresh or saline emergent marshes (EcoBridges Environmental Consulting 2015).

No surveys were conducted for Modesto song sparrow and song sparrows were not detected during August 2013 site visits. Suitably dense thickets are not abundant along Linda Creek or Cirby Creek within the project area, giving this species a low likelihood of occurrence within project impact areas (EcoBridges Environmental Consulting 2015). To ensure that all nesting birds are protected, Mitigation Measure BIO-4 shall be implemented. Impacts are potentially significant; however, with the implementation of Mitigation Measure BIO-4, impacts are less than significant.

Purple Martin. Purple martin are cavity nesters; they are locally distributed in woodland and forest areas at low to intermediate elevations or in open habitats where there is low or no canopy cover at next height. They are prefer areas relatively open air space above accessible nest sites, relatively abundant aerial insect prey, especially large insects such as dragonflies, and a low density of starlings. They will nest in tree cavities, utility poles, and bridges. All CNDDB nesting records of this species in the Roseville area are from drain or weep holes of overpasses along Interstate 80, Capital City Freeway, Highway 50, and other local highways (EcoBridges Environmental Consulting 2015).

No surveys were conducted for purple martin and no martins were seen during the August site visits. They are not expected to nest in or near the project area because of the likely presence of starlings, the scarcity of large aerial insect prey in this largely developed area, and the limited

abundance of tree cavities in the narrow riparian zones along Linda and Cirby creeks. Project impacts to this species are not expected and impacts are considered less than significant.

Townsend's Big-Eared Bat. In California, Townsend's big-eared bat occurs from inland deserts to coastal forests, in oak woodlands of the inner Coast Ranges and Sierra Nevada foothills, and mixed forests at low to mid elevations. Distribution is patchy and strongly correlated with the availability of caves and cave-like roosting habitat, with population centers occurring in areas dominated by exposed, cavity-forming rock and/or historic mining districts. It prefers open surfaces of caves or cave-like structures, such as mine adits and shafts, but has also been reported using such structures as buildings, bridges, and water diversion tunnels that offer a cavernous environment. It has also been found in rock crevices and, like other bat species, in large hollow trees (EcoBridges Environmental Consulting 2015). Bat expert Kim Fettke conducted a site visit and habitat assessment of the BSA (EcoBridges Environmental Consulting 2015). Oak Ridge Drive Bridge over Linda Creek does not provide suitable day-roosting habitat for any bat species. The surfaces of the bridge are smooth and contain no cracks or crevices in which bats could roost. Oak Ridge Drive Bridge could be used as a temporary night roost because Linda Creek provides foraging habitat for bats. There are no cavernous or cave-like structures in or near the project area that could support roosting Townsend's big-eared bats, even with foraging habitat in the project area. There are not CNDDB records Townsend's big-eared bats within the nine-quad search area performed for the proposed project (EcoBridges Environmental Consulting 2015).

The Oak Ridge Drive Bridge does not provide suitable day- or night-roosting bat habitat, and bats that could be using the bridge as a temporary night roost would not be disturbed by daytime construction activities. Foraging bats would not be affected by project activities because bats would be active during the nighttime hours and could easily avoid the area of disturbance. Therefore, impacts to Townsend's big-eared bat are less than significant. No mitigation is required.

Pallid Bat and Western Red Bat. Pallid bats occur in a wide range of habitats, but are particularly associated with lower-elevation oak woodland. It roosts alone, in small groups, or in groups of hundreds in buildings, tree hollows, caves, mines, bat boxes, and rock outcrops and cliffs. Roosts typically have unobstructed entrances and are high above the ground. It forages in relatively open areas on ground-dwelling arthropods such as Jerusalem crickets, katydids, moths, scorpions. At lower elevations, it is strongly associated with oak savanna habitat. This species has been found to forage within a broad riparian zone, but primarily upslope from the river; it has also been observed foraging along dry streambeds (EcoBridges Environmental Consulting 2015).

Western red bat is found primarily at lower elevations, and is strongly associated with orchards and riparian woodlands (willow, cottonwood, and sycamore). Breeding females are found in association with the cottonwood/sycamore riparian habitat along large river drainages in the Central Valley, and winter populations of both sexes are concentrated along the central and southern coast. This non-colonial species roosts almost exclusively in foliage, under overhanging leaves. Summering populations are substantially more abundant in remnant stands of cottonwood/sycamore riparian that extend more than 164 feet back from the river than they are in younger or less extensive stands. This species is an open-air forager that feeds primarily on moths; it hunts along river and stream corridors, over stock ponds and lakes, and possibly in open forested or grassland habitats (EcoBridges Environmental Consulting 2015).

Bat expert Kim Fettke conducted a site visit and habitat assessment of the BSA (EcoBridges Environmental Consulting 2015). As stated above, Oak Ridge Drive Bridge over Linda Creek does not provide suitable day-roosting habitat for any bat species. The surfaces of the bridge are smooth and contain no cracks or crevices in which bats could roost. The bridge could be used as a temporary night roost because Linda and Cirby creeks likely provide high-quality foraging habitat

for bats. A large drainage pipe that daylights under the south side of the bridge over Linda Creek near the top of the bridge abutment has some but low potential to provide poor bat-roosting habitat, but no evidence was seen to indicate that it is being used by roosting bats. There is marginally suitable tree-roosting habitat around the bridge at Linda Creek and the potential staging area at Cirby Creek. One large valley oak located approximately 40 feet northeast of the bridge has limited potential to provide roosting habitat for bats that roost in cavities or foliage. Impacts are potentially significant; however, with the implementation of Mitigation Measure BIO-5, impacts are less than significant.

Salmonids. Three special-status salmonids are known to use Linda and Cirby creeks: Central Valley steelhead, Sacramento River winter-run chinook, and Central Valley fall/late-fall-run chinook. Linda and Cirby creeks are designated critical habitat. Stream-type Chinook salmon have adults that swim up streams before they have reached full maturity, in spring, or summer, Chinook salmon have adults that spawn soon after entering freshwater, in summer and fall, and juveniles that spend a relatively short time (3-12 months) rearing in freshwater. Rearing salmonids (e.g., Chinook salmon and steelhead) require clean water, low water temperatures, abundant food, natural cover (shade), submerged and overhanging large woody material, log jams, aquatic vegetation, substrate consisting of large rocks and boulders, side channels, and undercut banks. Both spawning areas and migratory corridors provide rearing habitat for juvenile salmonids, which feed and grow before and during their emigration out to sea (parr-smolt transformation or smoltification) (A.A. Rich and Associates 2015).

The winter-run steelhead was once distributed widely throughout the Sacramento-San Joaquin System. The primary remaining wild populations are in Deer and Mill creeks in Tehama County and a population of unknown size in the Yuba River. Apparently, wild steelhead are found elsewhere in the Sacramento system, primarily in the cold tailwaters of dams, but their identity is confused by the presence of hatchery fish (of Eel River origin in the American and Mokelumne rivers) and by the presence of various strains of rainbow trout of hatchery origin (A.A. Rich and Associates 2015).

Linda Creek and Cirby Creek are known to support chinook salmon and steelhead; however, hatching success and fry survival were found to be poor and populations are therefore limited. Research suggests that the chinook are of the fall/late-fall run; however, NOAA Fisheries reports that winter-run chinook may also occur there. The proposed project area falls within the region identified as EFH for Pacific salmon. EFH is defined as those waters and substrates necessary to fish for spawning, breeding, feeding, and growth to maturity. Linda Creek and Cirby Creek are also designated critical habitat (A.A. Rich and Associates 2015).

Although juvenile or adult steelhead (and Chinook salmon) are not anticipated to be present in the work area that would be temporarily isolated and dewatered during the in-stream construction period, a qualified fish biologist would visually survey the work area for salmonids, including juvenile steelhead, prior to the installation of the temporary stream diversion structure, as outline in Mitigation Measure BIO-6, below. Once the biologist confirms that salmonids are not present, the stream diversion structure would be installed in a downstream direction beginning at the upstream end of the instream work area while leaving the downstream end open to the main channel of Linda Creek. A second visual survey of the instream work area would be conducted by the qualified fish biologist prior to the final installation of the stream diversion structure. If fish are found within the area of water diversion, the fish would be guided with nets from the affected reaches to be dewatered by a qualified fish biologist who has authorization from CDFW and NOAA Fisheries, as outlined in Mitigation Measure BIO-6, below. By following this sequence during installation of the stream diversion structure, the City would ensure as best as possible that no salmonids are inadvertently trapped in the isolated work area requiring relocation. This installation

sequence would also avoid entrapment of any non-salmonid fish species that may be present in the in-water work area. In addition, construction activities within Linda Creek are restricted to occur outside the spawning season.

The above methods do not require handling, capturing, or translocating steelhead (and Chinook salmon); consequently, there would be no "take" of steelhead associated with the proposed stream dewatering and diversion structures. With the implementation of the measures listed below, the proposed project would have a less than significant effect on listed Chinook salmon and steelhead.

Project construction activities that could negatively affect the fish include diverting water around the proposed project and construction-related impacts to water quality. Construction impacts are potentially significant; however, with the implementation of Mitigation Measure BIO-6, impacts are less than significant. Long-term impacts are less than significant because disturbed areas would be restored to pre-project conditions and there would be minimal loss of aquatic habitats and no obstructions within Linda Creek to impede salmonid movements.

c., d. The proposed project would replace the functionally obsolete Oak Ridge Drive Bridge over Linda Creek with a new bridge that would be elevated to pass the 200-year design flood event water surface elevation, and would provide standard shoulders and sidewalks. Work would be within existing City right-of-way, within a temporary construction easement for a retaining wall, and within Linda Creek. One type of wetlands or other waters were delineated within the BSA and is considered waters of the U.S.: riverine-upper perennial - streambed (Linda Creek). No other wetlands or waters were found within the BSA. Two terrestrial communities were identified within the BSA, one of which is considered riparian: riparian (non-wetland) arroyo willow thicket.

The riverine community (riverine-upper perennial) is also considered waters of the state. Of the total 0.083 acre of waters within the BSA, 0.02 acre would be permanently impacted by the proposed project. In addition, the entire reach of Linda Creek within the BSA would be temporarily affected by a temporary water diversion during demolition of the existing bridge, and instream work for the demolition of the existing piers and associated gabion wall. Permanent impacts to waters, 0.02 acre, would result from the placement of rock slope protection along the low-flow channel.

The riparian community (non-wetland arroyo willow thicket) identified within the BSA and totals 0.05 acres. Within the BSA, this habitat community occurs as a few small, shrubby, multi-stemmed plants on the bank above the OHWM in non-hydric soils on the north streambank. The entire riparian (non-wetland) arroyo willow area within the BSA would be temporarily affected by construction activities. Temporary work access and construction of the wider bridge abutments would affect understory species, primarily the invasive, non-native Himalayan blackberry. Construction of the bridge would directly and permanently impact one single, small, stump-sprouting arroyo willow, located east of the bridge on the north bank.

Table 3-7, *Impacts to Waters of the U.S. and Riparian Habitat*, provides the total area for these two habitat types within the BSA, and total area temporarily and permanently impacted by the proposed project.

Table 3-7. Impacts to Waters of the U.S. and Riparian Habitat

Habitat Type	Area within Biological APE (acres)	Direct (Permanent) Impact (acres)	Percentage of Area Permanently Affected	Indirect (Temporary) Impact (acres)
Riverine-Upper Perennial (Linda Creek)	0.083	0.02	24	≤ 0.083
Riparian (non-wetland) Arroyo Willow	0.05	One single small, stump-sprouting arroyo willow	<1	≤ 0.05

Source: EcoBridges Environmental Consulting, Natural Environment Study, May 2015

Construction impacts and the placement of rock slope protection within the Riverine – Upper Perennial (Linda Creek) and riparian (non-wetland) Arroyo Willow habitats would be regulated under Section 404 of the Federal Clean Water Act (CWA) and Section 1600 et. seq. of the California Fish and Game Code. Permanent impacts to these sensitive habitats types is considered potentially significant. Implementation of Mitigation Measures BIO-7 through BIO-9 would reduce permanent impacts to less-than-significant levels.

Soil disturbance along the banks and near the stream would render the habitat more vulnerable to invasion by noxious weeds, as would the accidental introduction of weeds on contaminated vehicles and equipment, reducing native habitat values. These impacts are potentially significant. Implementation of Mitigation Measure BIO-7 would reduce the potential spread of noxious weeds and related and related sensitive habitat impacts to less-than-significant levels.

e. The proposed project would replace the functionally obsolete Oak Ridge Drive Bridge over Linda Creek with a new bridge that would be elevated to pass the 200-year design flood event water surface elevation, and would provide standard shoulders and sidewalks. Because the Oak Ridge Drive Bridge has been in the same location since 1964, the proposed project would not add features that could interfere with the movement of any native or migratory animals. Construction activities could result in impacts to migratory nesting birds and salomids. For specific impacts on salomids, refer to the discussion under Items a and b, above; however, construction activities within Linda Creek would be restricted to times outside the standard spawning season. Construction impacts are potentially significant; however, with the implementation of Mitigation Measures BIO-4 and BIO-6, impacts are less than significant.

The Migratory Bird Treaty Act (MBTA), administered by the USFWS, implements various treaties and conventions between the U.S., Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. A migratory bird is any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle. There are currently 1,007 migratory bird species covered under the MBTA. The MBTA is interpreted to include disturbance through noise and human intrusion that could result in nest abandonment or premature fledging, so implementation typically takes the form of a preconstruction nesting-bird survey and protection of active nests with an appropriate no-disturbance buffer zone until chicks have fledged or the nest is no longer active, as determined by a qualified biologist.

Migratory birds are also protected under Section 3503 of California FGC, which states that it is unlawful to take, possess, or destroy the nests or eggs of any bird. This code is also interpreted to include disturbance through noise and human intrusion that could result in nest abandonment or forced fledging. The proposed project would result in some temporary and permanent loss of nesting habitat for migratory birds, and could result in nest abandonment or forced fledging through noise and disturbance (EcoBridges Environmental Consulting 2015). Impacts are potentially

significant. Implementation of Mitigation Measure BIO-4 would reduce impacts to a less-than-significant level.

f. The proposed project area contains trees that are mainly associated with upland habitat and consist of valley oak-interior live oak woodland. Consistent with the City's Tree Preservation Ordinance, a certified arborist identified and evaluated trees in the proposed project disturbance area, including native oak trees six inches DBH and larger (as required under the City of Roseville's Section 19.66.050, Arborist Report Chapter 19.66, Article IV, Tree Preservation Code). There are a total of 43 trees within the proposed project's disturbance area. Of these 43 trees, 2 are blue oak, 8 are interior live oak, 13 are valley oak, and 20 are landscape trees. One blue oak (a heritage oak, defined as an oak greater than 36 inches DBH) is located in the BSA at the southeast corner of the Oak Ridge Drive Bridge 9 feet east of the guard rail (EcoBridges Environmental Consulting 2015; Abacus 2015).

As discussed above, the 43 trees were rated on a scale of 0 to 5 with a 0 rating meaning the tree is dead and a 5 rating meaning the tree has no problems and is in good condition. None of the trees evaluated were rated 0 (dead) and none were rated 5 (good). Trees rated 3, 4, or 5 are trees that should be preserved; trees rated 0, 1, or 2 are recommended for removal. Trees rated 2 (poor to fair) could be retained if specific recommendations are followed. The proposed project's disturbance area contains 15 trees with a rating of 1 (poor) or 2 (poor to fair) and 28 trees are rated 3 (fair) or 4 (fair to good).

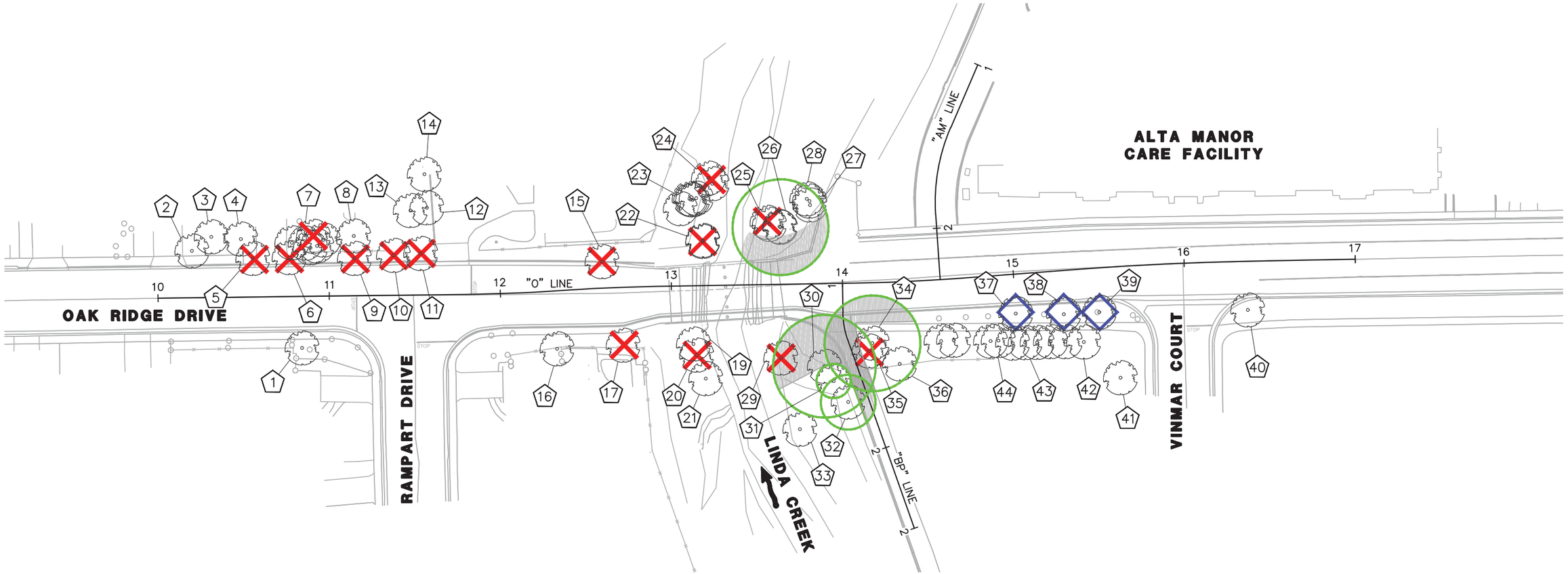
The proposed project would remove a total of ten trees; however, three trees were identified for potential relocation. An additional seven trees have been recommended by the arborist for removal as a result of the Arborist Report. In addition, two trees are recommended to be retained and five trees are recommended for protection. Table 3-8, *Tree Inventory and Project Impacts,* provides information regarding the ten trees that would be directly impacted by the proposed project, as well as the seven trees that the certified arborist has recommended for removal (Abacus 2015). Refer to Figure 3-5, *Tree Impacts*, for additional details and tree locations.

The City would require the contractor to comply with its Standard Policies and Procedure for Approved Work (19.66.060) and Oak Tree Planting and Replacement Program (19.66.070), as required by Chapter 19.66 Article IV, Tree Preservation Code. Native oak trees greater than six inches DBH along staging areas would be protected by orange barrier construction fencing installed outside the tree driplines but could be indirectly disturbed during use of the staging areas or access for construction equipment and vehicles. Because native oak trees are protected under the City of Roseville's Tree Preservation Code and are considered an important natural resource in the City, this impact is potentially significant. Implementation of Mitigation Measures BIO-8 and BIO-9 would reduce this impact to a less-than-significant level.

Table 3-8. Tree Inventory and Project Impacts

Tree Number	Common Name (*Botanical Name*)	No. of Stems	DBH (inches)	Canopy Radius (feet)	Rating	Removal due to Project	Additional Arborist Recommended Action		
							Remove	Retain	Protect
5	Mexican Fan Palm (*Washingtonia robusta*)	1	14	N/A	3 (Fair	Yes			
6	Mexican Fan Palm (*Washingtonia robusta*)	1	16	N/A	3 (Fair)	Yes			
7	Mimosa tree (*Albizia julibrisson*)	1	Multi-stem	N/A/	3 (Fair)		Yes		
9	Valley Oak (*Quercus lobata*)	1	14	25	3 (Fair)	Yes			
10	Crape Myrtle	Multi-stem	N/A	5	3 (Fair)	Yes			
11	Valley Oak (*Quercus lobata*)	1	17 @ 3 feet	29	4 (Fair to Good)	Yes			
15	Mimosa tree (*Albizia julibrisson*)	1	14	N/A	2 (Poor to Fair)	Yes			
17	Interior Live Oak (*Quercus wislizenii*)	1	12	23	1 (Poor)		Yes		
20	Interior Live Oak (*Quercus wislizenii*)	2	13, 7	N/A	1 (Poor)		Yes		
22	Interior Live Oak (*Quercus wislizenii*)	3	8, 10, 14 @ 1 foot	N/A	1 (Poor)		Yes		
24	Interior Live Oak (*Quercus wislizenii*)	5	~12, 10, 7, 9, 8	30	1 (Poor)		Yes		
25	California Black Walnut (*Juglans hindsii*)	1	9	24	1 (Poor)		Yes		
26	Valley Oak (*Quercus lobata*)	1	21	28	3 (Fair)			Yes	
27	Valley Oak (*Quercus lobata*)	2	7, 10 @ 3 feet	21	3 (Fair)				Yes
28	Valley Oak (*Quercus lobata*)	2	4, 5	16	2 (Poor to Fair)				Yes
29	Valley Oak (*Quercus lobata*)	2	13, 9 @ 1 foot	25	2 (Poor to Fair)	Yes			
30	Valley Oak (*Quercus lobata*)	1	17	30	3 (Fair)				Yes
31	Valley Oak (*Quercus lobata*)	1	7	10	3 (Fair)				Yes
32	Interior Live Oak (*Quercus wislizenii*)	2	9, 11	16	2 (Poor to Fair)				Yes
34	Valley Oak (*Quercus lobata*)	1	25	28	4 (Fair to Good)			Yes	
35	Valley Oak (*Quercus lobata*)	1	9	19	2 (Poor to Fair)		Yes		
37	Pecan (*Carya illinoises*)	1	1.5	N/A	4 (Fair to Good)	Yes			
38	Pecan (*Carya illinoises*)	1	2	N/A	4 (Fair to Good)	Yes			
39	Pecan (*Carya illinoises*)	1	3	N/A	4 (Fair to Good)	Yes			
					Total Trees	***10***	***7***	***2***	***5***

Source: Abacus Consulting Arborists, *Arborist Report and Preservation Recommendations*, May 2015.
Notes:
Detailed arborist recommendations for individual trees are provided in the *Arborist Report and Preservation Recommendations*.
Total oak trees to be removed for poor quality = 4
Total oak trees to be removed for development, protected species = 3



TREE REMOVAL DATA		
Tree No.	Description	DBH
5	MEXICAN FAN PALM	14"
6	MEXICAN FAN PALM	16"
7	MIMOSA	MULTI STEM @ 3"
9	VALLEY OAK	14"
10	CRAPE MYRTLE	MULTI STEM
11	VALLEY OAK	17"
15	MIMOSA	14"
17	INTERIOR LIVE OAK	12"
20	INTERIOR LIVE OAK	13", 7"
22	INTERIOR LIVE OAK	8", 10", 14"
24	INTERIOR LIVE OAK	12", 10", 7", 9", 8"
25	BLACK WALNUT	9"
29	VALLEY OAK	13", 9"
35	VALLEY OAK	9"
TOTAL DBH REMOVAL		258"

PROTECTED ROOT ZONE DATA			
Tree No.	Description	Protected Zone Diameter	% ENCROACHMENT
26	VALLEY OAK	56'	44%
30	VALLEY OAK	60'	58%
31	VALLEY OAK	20'	0%
32	INTERIOR LIVE OAK	32'	27%
34	VALLEY OAK	56'	49%

NATIVE TREE REMOVAL		
Tree No.	Description	DBH
9	VALLEY OAK	14"
11	VALLEY OAK	17"
17	INTERIOR LIVE OAK	12"
20	INTERIOR LIVE OAK	13", 7"
22	INTERIOR LIVE OAK	8", 10", 14"
24	INTERIOR LIVE OAK	12", 10", 7", 9", 8"
29	VALLEY OAK	13", 9"
35	VALLEY OAK	9"
TOTAL NATIVE DBH REMOVAL		172"

Legend:

- Indicates Tree to be Removed
- Indicates Tree That Can Be Relocated
- Indicates Protected Root Zone
- Indicates Tree Number

Source: Drake Haglan and Associates, May 2015.

0 15' 30 feet
APPROXIMATE

05/14/15 134939-20517

OAK RIDGE DRIVE BRIDGE PROJECT • CEQA

Tree Impacts

Figure 3-5

g. The proposed project would not conflict with the provisions of an adopted habitat conservation plan (HCP), natural community conservation plan (NCCP), or other approved local, regional, or state habitat conservation plan. The proposed project is located within and adjacent to the City's right-of-way and would replace a functionally obsolete bridge over Linda Creek. The proposed project would not result in a change in land use designations or zoning classifications. The proposed project is not adjacent to an HCP, NCCP or other approved local, regional, or state habitat conservation area. Thus, there are no impacts as a result of the proposed project. No mitigation is required.

MITIGATION MEASURES

BIO-1 **Conduct Preconstruction Surveys for Special-Status Plant Species.** A preconstruction survey by a qualified botanist shall be conducted within the biological area of potential effects (APE), focusing the survey in the grassy area along the northwest bank of Linda Creek and at the potential staging area on the northwest corner of Coloma Way and Oak Ridge Drive. This preconstruction survey shall be conducted prior to the start of construction activities and within the typical blooming season or spring and early summer (generally March/April to August) for easy identification. If special-status plant species are identified within the APE, the area shall be flagged for avoidance. If a special-status species is identified and cannot be fully avoided, a mitigation plan shall be prepared and approved by both the City of Roseville and the California Department of Fish and Wildlife. Activities within Linda Creek shall comply with the Nation Wide Permit 14, Stream Bed Alternation Agreement, and National Pollutant Discharge Elimination System permits as well as regulatory agency standards, including, but not limited to, the California Department of Fish and Wildlife, U.S. Army Corps of Engineers, Central Valley Regional Water Quality Control Board, and the State Water Resources Control Board.

BIO-2 **Protect Valley Elderberry Longhorn Beetle.** The following measures are proposed for the protection of Valley Elderberry Longhorn Beetle:

- No project construction activities shall occur within 100 feet of elderberry plants.
- Install temporary construction fencing and signage. The fencing shall be placed to provide a 100-foot exclusion buffer around the stand of elderberries. Signs shall be installed every 50 feet along the edge of the fenced area, shall be clearly readable from a distance of 20 feet, and shall be maintained for the duration of construction.
- Signs along the fenced exclusion buffer shall provide the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment."
- Conduct a pre-construction educational tailboard session and provide all contractors and their workers with an informational brochure on the valley elderberry longhorn beetle (VELB) its host plant, and the status of the VELB. This tailboard session shall emphasize avoidance of the elderberry plant, the need to stay outside of the 100-foot buffer in order to avoid damaging the elderberry plants. The tailboard session shall also provide information on the possible penalties if the 100-foot buffer is not maintained and avoidance is not ensured.

BIO-3 **Protect Sensitive, Non-Listed Aquatic Wildlife Species (Non-Listed Frogs and Turtles).** The following measures are proposed for the protection of non-listed aquatic wildlife species

(including foothill yellow-legged frog and wester pond turtle, also known as Pacific pond turtle):

- No construction shall take place within any aquatic or upland habitats until a qualified biologist has conducted a survey within one week of construction initiation.
- If non-listed aquatic wildlife species are present or could be present in the biological area of potential effects (APE), no work within aquatic habitats will take place without the presence of a qualified biological monitor to ensure that the species are not harmed during construction of water diversions, containment dams, and associated structures.
- At a minimum, weekly monitoring shall ensure that best management practices (BMPs), erosion and siltation controls, and diversion structures are in place functioning effectively, and that turbidity levels are within allowable limits.

BIO-4 **Protect Nesting Birds, Including Migratory Birds.** For all construction-related activities that take place within the nesting season, accepted as February 15 through August 31, a preconstruction nesting-bird survey for migratory birds shall be conducted by a qualified biologist no more than two weeks prior to project initiation within the BSA and a 300-foot buffer. If active nests are found, a no-disturbance buffer zone shall be established, the size of which will be determined in consultation with CDFW. Within this buffer zone, no construction shall take place until August 31 or the biologist determines that the nest is no longer active.

BIO-5 **Protect Special-Status Bat Species.** The following measures shall be implemented to protect special status bat species:

- Prior to any tree or overhead limb removal taking place between April 1 and July 31, the bat pupping season, a bat survey shall be conducted by a qualified biologist to assess the potential for impacts to any maternity roosts of special-status bat species within 300 feet of project activities. Surveys shall include a minimum of one day and one evening visit.
- If active maternity roosts or hibernacula are found, the tree occupied by the roost shall be avoided. If avoidance of the roost is not feasible, the bat biologist shall survey (through the use of radio telemetry or other California Department of Fish and Wildlife [CDFW]-approved methods) for nearby alternative maternity colony sites. If the bat biologist determines, in consultation with and with the approval of the CDFW, there are alternative roost sites used by the maternity colony and young are not present, then no further action is required. However, if there are no alternative roost sites used by the maternity colony, substitute roosting habitat shall be provided on, or in close proximity to, the project site, less than three months prior to the eviction of the colony. Alternative roost sites will be designed and constructed in accordance with the specific bats' requirements and in coordination with the CDFW. Alternative roosting sites must be of comparable size and proximal in location to the impacted colony. If active maternity roosts are absent, but a hibernaculum is present, then exclusion of bats prior to demolition of roosts is required.

BIO-6 **Protect Chinook Salmon and Steelhead.** The following measures shall be implemented for Chinook salmon and steelhead:

- All in-water construction activities shall be conducted between June 15 and October 15 (or as authorized by NOAA Fisheries), the protective windows for sensitive species.
- A Fisheries Biologist Monitor shall be present during in-water construction activities.
- Install temporary construction fencing and signage at the top-of-bank at Cirby Creek, adjacent to the staging area, and at Linda Creek, in areas where construction activities are not required.

- The precise method(s) selected to conduct visual surveys for fish presence during clear water diversion installation will depend on site conditions at the time the work is being implemented and NOAA Fisheries requirements. The methods used to conduct the visual surveys may include one or more of the following, as appropriate:
  - Visual Surveys—Visual surveys of the affected habitat would be conducted from shore with and without the use of binoculars, as appropriate. For visual surveys without the use of binoculars, polarized sunglasses would be used to reduce glare on the water and increase the underwater area visible to the biologist conducting the survey.
  - Direct Observation (snorkel)—In the event that water depth or cover elements (e.g., instream woody material, substrate) preclude the ability of the biologist to adequately view the affected underwater habitat from shore, direct observation (i.e., snorkel) surveys may be used instead of, or to supplement, visual surveys provided that water clarity is sufficient for underwater viewing. To assist with underwater viewing, a waterproof flashlight would be used to illuminate areas with deep water or dense cover. Concerns regarding water quality and diver health may preclude this method from being used.
  - Direct Observation (underwater camera)—An underwater camera may be used as an alternative to direct observations via snorkeling in the event that water depths are too shallow to effectively or safely (due to water quality concerns) conduct a snorkel survey of affected habitats. The camera would be mounted on a long pole and operated from either the shore or the channel bed and would be used to survey areas with dense cover.
- If necessary, a qualified fish biologist will guide fish with nets from the affected reach of Linda Creek to be dewatered. Seining to guide fish from the work area will be repeated as necessary, as flow is incrementally diverted to ensure that all fish are successfully guided from the work area. The guiding methods will be developed in cooperation with NOAA Fisheries and will specify the type of nets to be used. No steelhead or salmon shall be captured or handled in any manner during seining activities. If listed fish are found dead or injured following fish guiding activities, the Fisheries Biologist Monitor will contact NOAA Fisheries Immediately.

BIO-7 **Avoid and Minimize Disturbance of Sensitive Habitats, Including Waters of the US and Riparian Areas, and Compensate for Temporary and Permanent Impacts.** The following measures shall be implemented for impacts to sensitive habitats, including riparian areas and waters of the US:

- Comply with the Federal Clean Water Act no-net-loss policy for permanent impacts to open water habitat and section 1600 of the California Fish and Game Code for replacement of riparian habitat and implement related conditions as specified in the project's Army Corps NWP and CDFW Streambed Alteration Agreement. Determine the appropriate compensation ratios and form in consultation with the respective permitting agencies. Compensation ratios are anticipated to be between 1:1 and 3:1 depending on the habitat value and integrity. Compensatory mitigation shall be implemented via purchase of mitigation credits from an agency-approved mitigation bank or as authorized by the regulatory agencies.
- Conduct a pre-construction educational tailboard session and provide all contractors and their workers with an informational brochure on sensitive resources in the project area to ensure compliance.

- Install temporary construction fencing and signage along the boundary of the active construction zone and any environmentally sensitive areas within the work zone as identified by the biological monitor. Signage shall warn workers that persons, vehicles, and equipment are prohibited within these designated sensitive habitat areas during construction.
- Install appropriate erosion and sediment controls (including, but not limited to, silt fencing, detention basins, coir rolls and blankets) along the stream banks between any flowing waters and active work areas.
- Prior to a rain event, remove all vehicles, equipment, and loose materials from the stream bank, install additional erosion and sediment controls where needed, and cover spoil piles consistent with provisions of the SWPPP.
- Confine parking, storage, refueling, and maintenance to designated staging and storage areas a minimum of 30 feet from Linda and Cirby Creeks.
- Construct the containment dam and water diversion in accordance with guidance from the City of Roseville, CDFW, USACE, NMFS, and the Central Valley Regional Water Quality Control Board (CVRWQCB).
- Prepare a noxious-weed removal plan for grubbing and disposing of the noxious weed tree of heaven with the BSA. Proper disposal techniques shall occur for all noxious weeds removed.
- Require contractors to wash the tires and tracks of vehicles before entering and leaving the site, to prevent inadvertent introduction and spread of noxious weeds.

BIO-8 **Protect the Oak Woodlands Outside the Work Area**. Establish the oak woodlands outside the permitted work area as an environmentally sensitive area during construction. Work shall not begin until temporary construction fencing and temporary signage have been installed at the edge of the permitted work area to prevent accidental harm to preserved trees and woodlands.

BIO-9 **Implement the City of Roseville Tree Preservation Ordinance.** The project shall comply with requirements of the City's tree preservation ordinance, including avoidance, minimization, or compensation for the removal or disturbance of native oak trees greater than 6 inches diameter at breast height during construction. All native oak removals and/or access trimming shall be conducted consistent with the *Arborist Report and Preservation Recommendations* dated May 2015 by Abacus Consulting Arborists for the proposed Project (refer to the Arborist Report for tree-specific recommendations). For any oak trees that would be removed, the City will mitigate the impact through either on-site planting (if feasible based on arborist recommendations) or use of the City's in-lieu fee program.

CULTURAL RESOURCES

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

SETTING

PREHISTORY

The prehistory of central California is divisible into a broad framework of five temporal periods: Paleo-Indian; Lower Archaic; Middle Archaic; Upper Archaic; and Emergent.

PALEO-INDIAN

During the late Pleistocene and early Holocene (12,000 to 8,000 years before present (B.P.), humans first occupied the Central Valley and Coast Range regions of California. However, little is known about life during this early period because evidence of occupation is sparse, having been eroded away or deeply buried under accumulated gravels and silts. Consequently, the development of prehistoric chronology in central California largely has been focused upon the latter half of the Holocene (i.e., the last 5,000 years) for which the archaeological record is more abundantly documented (Tremaine & Associates, Inc. 2014).

Flaked stone tools associated with the early part of the Paleo-Indian Period (i.e., 12,000-10,000 B.P.) have been found in northern California. They include large Clovis-like fluted points that likely were hafted and used as spear points. In northern California, fluted points tend to be found as isolated artifacts. Elsewhere in western North America they occur in association with the remains of extinct animals such as mammoths and bison. This association has led archaeologists to suggest that these early peoples emphasized hunting large game mammals. Paleo-Indian peoples appear to have formed relatively small groups, were highly mobile, and settled around wetlands (e.g., lakes and rivers) where large game congregated (Tremaine & Associates, Inc. 2014).

LOWER ARCHAIC

Like the previous period, the Lower Archaic (8000-5000 B.P.) is poorly understood. Few sites have been found due to the fact that evidence from this time period is largely buried, given the depositional environment. A buried component was discovered in the Kellogg Creek drainage in 1997, at the toe of Mount Diablo, at a depth of about 13 feet below surface. It yielded a sparse but diverse assemblage,

including traces of freshwater mussel, low to moderate densities of faunal material (primarily artiodactyls and small mammals), handstones, millingslabs, large cobble-core tools, and large projectile points and biface fragments (including large wide-stem variants of Napa obsidian). This assemblage reflects long-term, periodic use of the eastern flanks of the Central Valley. Macrofloral remains (acorn and cucumber) indicate only short-term seasonal use, probably associated with a highly mobile adaptation. In the Lower Sacramento Valley, a site from this period was encountered, in downtown Sacramento, ranging from 10 to 20 feet below the surface (Tremaine & Associates, Inc. 2014).

MIDDLE ARCHAIC

The Middle Archaic Period (5,000-2,200 B.P.) is identified as one that emphasized hunting, evidenced by the relative proportions of tools representative of hunting, fishing, and gathering activities. Artifacts characteristic of this period include distinctive shell ornaments and charmstones, large projectile points with concave bases and stemmed points, baked clay balls (used for cooking) and milling tools. Net weights, bonefish hooks, and bone spear tips provide evidence for fishing. Burials of this period, in the Sacramento – San Joaquin Delta Region, tend to be extended, oriented towards the west, and often contain grave goods such as baked clay balls, charmstones, shell beads, and exotic minerals (Tremaine & Associates, Inc. 2014).

UPPER ARCHAIC

Sites associated with the Upper Archaic Period (2,200-1,000 B.P.) contain substantial midden deposits with shell, mammal and fish bone, charcoal, milling tools, and other artifacts. The number of mortars and pestles increases during this time, suggesting a greater reliance on acorn and nuts. A greater density of obsidian artifacts and shell beads are present in the site assemblages of this time period and is thought to indicate a greater complexity of exchange networks and social stratification. Burials are more often flexed, as opposed to extended, with varied orientations and notably fewer grave offerings, generally involving limited numbers of utilitarian items or ornamental objects (Tremaine & Associates, Inc. 2014).

EMERGENT

The Emergent Period dates between 1,000 B.P. and the arrival of the Spanish in central California (i.e., 1770s). This period involves a dramatic change in general economy, characterized by large village sites situated on high ground, increased evidence of acorn and nut processing, introduction and use of the bow and arrow (indicated by small projectile points), and use of clamshell disc beads as the primary medium of exchange. During the latter part of the period (i.e., within the last 500 years), cremation became a common mortuary practice; grave goods were often burned as well. Sites from the latter portion of this period sometimes include items of Euroamerican manufacture, such as glass trade beads or worked bottle glass (Tremaine & Associates, Inc. 2014).

ETHNOGRAPHY

The project site is located in the territory of the Nisenan, or Southern Maidu. The area Nisenan called home was from the west bank of the Sacramento River to about the 3,500 foot elevation in the Sierra Nevada, north to about the Middle Fork Feather River, and south to about the Cosumnes River (Tremaine & Associates 2014).

The Nisenan occupied permanent settlements, usually located on low rises along major watercourses. Village size ranged from 3 houses to 40 or 50 houses. Houses were domed structures covered with earth and tule or grass and measured 10 to 15 feet in diameter. Brush shelters were used in summer and at temporary camps during food-gathering rounds. Larger villages often had semi-subterranean dance houses,

which were covered in earth and tule or brush, had central smoke hole at the tope, and an entrance that faced east (Tremaine & Associates 2014).

The Nisenan had no extensive contact with Euroamericans until between 1828 and 1836, when intensive fur trapping by the Hudson's Bay Company occurred in the region. In 1833, an epidemic (possibly malaria) killed from 50 to 75 percent of the entire Maidu population. The establishment of Sutter's Fort in Nisenan territory in 1839 became the focal point of foreign incursions into their homeland after the 1848 gold discovery. The population reduction resulting from the 1833 epidemic left Nisenan unable to resist the overwhelming flood of miners and settlers. Many of the few survivors became wage laborers in mines and on ranches; their language and culture greatly diminished. Descendants of the Nisenan remain in the area, however, and continue to carry on traditional practices. Many individuals and groups are active in the preservation of their culture and the places we refer to as archaeological sites (Tremaine & Associates 2014).

HISTORY

The Spanish began establishing the Franciscan missions and military presidios as vehicles for taking complete control of Alta California in 1769. The closest missions, in present-day San Francisco and Sonoma, were established in 1776 and 1823 respectively. In 1839, John A. Sutter founded a settlement at present-day Sacramento on land granted to him by the Mexican government as a part of their effort to stabilize the inland frontier. Known as New Helvetia, the settlement was located 4-miles east of the Sacramento River (Tremaine & Associates 2014).

Several other ranchos were established in surrounding Yuba, Sutter and Sacramento counties, but none within Placer County itself. Frontier life was soon to change in 1848, with the discovery of gold and Mexico's ceding of California to the United States under the *Treaty of Guadalupe Hidalgo*, resulting in a massive influx of people from around the world, changing the demographics, the social order, and politics of the region overnight (Tremaine & Associates 2014).

Gold was discovered in Auburn Ravine in May of 1848, and the region soon became inundated with miners. In 1850 Auburn became the county seat of Sutter County, retaining this honor when Placer County was formed from a portion of Sutter County in 1851. Although the region was heavily mined, the specific project area was not a likely place of associated activities because it does not contain auriferous gravels or gold-bearing quartz. Instead, the area would have been the location for the burgeoning wheat-growing industry. One of these early wheat farmers was J. P. Whitney, who owned over 20,000 acres in the area of Roseville, Rocklin, and Lincoln (Tremaine & Associates 2014).

STUDY METHODS

Efforts to locate cultural resources within the study area consisted of record searches, literature reviews, a pedestrian survey of the project site, and coordination with the Native American Heritage Commission, Native American tribal representatives, the Placer County Historical Society, and the Roseville Historical Society. Tremaine & Associates requested and archaeological site records search through the North Central Information Center, Sacramento State University on July 29, 2013. Archival sources consulted included maps of previous cultural resources studies and known cultural resource locations, a review of the National Register of Historic Places, the California Register of Historic Properties, the *National Register of Historic Places* (National Register), *California Register of Historical Resources* (California Register), *California Inventory of Historic Resources*, *California Historical Landmarks*, and *California Points of Historical Interest*.

Tremaine & Associates, Inc. conducted an intensive pedestrian survey on August 30, 2013. The survey accomplished 100 percent coverage of the project area of potential effects (APE). The survey was accomplished using linear transects located parallel to Industrial Avenue. Transects were spaced no further than 20 feet apart. Most of the native soil in the project area is obscured by imported gravel, asphalt pavement, concrete sidewalks, concrete chunks, hardpan, and eroded and sterile soil. The south bank of Linda Creek is very steep and is overgrown with vegetation. The structures surrounding and in the APE are modern (post 1970) residences.

RECORD SEARCH RESULTS

The records search indicated that one previous cultural resources survey had been conducted within the APE. Four additional studies have been conducted within a 0.5-mile radius of the proposed project. No resources were identified within the APE. The Oak Ridge Drive Bridge was constructed in 1964; however, it is listed as not eligible for the National Register on the Caltrans Structure Maintenance and Investigation Historical Significance – Local Agency Bridges List.

Two prehistoric sites (P-34-816 and P-31-3053) were documented within a 0.5-mile radius of the proposed project. These sites were comprised of an isolated handstone and one site includes a historic railroad grade. No prehistoric materials were discovered during the pedestrian survey (Tremaine & Associates 2014).

DISCUSSION

a.–c. No prehistoric materials were discovered during the pedestrian survey. The APE has been disturbed by construction of Oak Ridge Drive, and construction of the surrounding residential neighborhood. These prior ground disturbances should have unearthed and broadcast at least some evidence of prior human use, if near-surface buried deposits were present. No evidence was found during the proposed project's survey, or the previous survey conducted within the APE.

As stated above, the Oak Ridge Drive Bridge was constructed in 1964. It is listed as not eligible for the National Register on the Caltrans Structure Maintenance and Investigation Historical Significance – Local Agency Bridges List. Therefore, the existing bridge is not considered a historic resource and replacing the bridge would result in a less than significant impact on cultural resources.

The proposed project is not expected to cause a substantial adverse change in the significance of a historical or archaeological resource pursuant to State CEQA Guidelines Section 15604.5, nor would it directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. No unique historical, archaeological or paleontological/geologic resources were identified in the project APE. Construction would occur in disturbed and imported soil where work has occurred in the past. However, there is potential for buried archaeological or paleontological resources to be unearthed inadvertently during project construction, which is considered a potentially significant impact. Implementation of Mitigation Measure CULT-1 would reduce this impact to a less-than-significant level.

d. No known human remains are located within the project APE. However, there is potential for construction activities to result in the inadvertent discovery and disturbance of human remains, which is considered a potentially significant impact. Mitigation Measure CULT-2 would reduce this impact to a less-than-significant level.

MITIGATION MEASURES

CULT-1 **Minimize Disturbance to Unknown Cultural and Paleontological Materials.** If cultural or paleontological materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist or paleontologist can assess the nature and significance of the find. At this time, the person who made the discovery will contact the City of Roseville Environmental Coordinator with the City Manager's Office so that they may coordinate an appropriate plan of action. If the find is determined by archaeologists or paleontologists to require further treatment, the area of discovery will be protected from disturbance while qualified archaeologists or paleontologists and appropriate officials, in consultation with the State Historic Preservation Officer (SHPO) or the University of California (UC) Museum of Paleontology at UC Berkeley, determine an appropriate treatment plan. An additional archaeological survey will be required if the proposed project limits are extended beyond the present Area of Potential Effects (APE).

CULT-2 **Minimize Disturbance to Unknown Human Remains.** If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC), which will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact the City of Roseville so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

- The Placer County Coroner (530-265-1220) has been informed and has determined that no investigation of the cause of death is required. If the remains are of Native American origin (916-653-4038), one of the following occurs:
  - The descendants of the deceased Native Americans have made a recommendation to the landowner or person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC 5097.98.
  - NAHC has been unable to identify a descendant, or the descendant failed to make a recommendation within 24 hours after being notified.

GEOLOGY AND SOILS

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located in a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

SETTING

The City of Roseville is located on the eastern edge of the Sacramento Valley floor, a depression in which sedimentary deposits have accumulated for more than 100 million years. Marine sediments were deposited by a receding ocean, and these deposits are overlain by river deposits that originated in the Sierra Nevada, Klamath Mountains, Cascade Range, and Coast Range.

As discussed in the City General Plan, numerous faults have been identified within 62 miles of the Sacramento area; however, there are no known active faults located within Placer County. Three inactive faults lie within the immediate Roseville vicinity: 1) the Volcano Hill Fault, extending northwesterly for approximately one mile starting just east of the City limits; 2) the Linda Creek Fault (the existence of which is disputed due to, lack of recorded activity) extends along a portion of Linda Creek through Roseville and

a portion of Sacramento County; and, 3) an unnamed fault alignment extending east to west between Folsom Lake and the City of Rocklin, portions of which are concealed, but possibly connected to the Bear Mountain Fault near Folsom Lake. According to Caltrans ARS online fault mapping model, the Foothill Fault System – north central reach section (Deadman Fault) is located east of the proposed project, in Auburn, and has the potential to produce an earthquake with a magnitude of 6.2 on the Richter scale. The Dunnigan Hills Fault is located west of the proposed project, northwest of the City of Woodland, and has the potential to produce an earthquake with a magnitude of 6.4 on the Richter scale.

No Alquist-Priolo faults are located in Roseville or Placer County (California Department of Conservation 2012). One distinct geologic unit exists in the project vicinity: Quaternary Turlock Lake Formation (California Department of Conservation 1981).

The proposed project area consists of continental deposits from the Cenozoic. Specifically, the project area is underlain by the the Xerofluvents, frequently flooded, Xerofluvents, occasionally flooded, Fiddyment, and Xerorthents soil components (RBF 2014a).

- The Xerofluvents, frequently flooded soil is a Class C stratified loamy sand to fine sandy loam, which includes slow infiltration rates. Xerofluvents Class C soils have layers impeding downward movement of water, or soils with moderately fine or fine textures, resulting in a soil that is poorly drained. (RBF 2014a)

- The Xerofluvents, occasionally flooded soil is a Class A stratified loamy sand to fine sandy loam, which includes high infiltration rates. Xerofluvents Class A soils are deep, well drained to excessively drained sands and gravels. This soil is moderately well drained. (RBF 2014a)

- The Fiddyment soil is a Class D loam, which includes very slow infiltration rates. Fiddyment soils are clayey, have a high water table, or are shallow to an impervious layer. This soil is well drained. (RBF 2014a)

- The Xerorthents soil is a Class D variable soil, which includes very slow infiltration rates. Xerorthents soils are clayey, have a high water table, or are shallow to an impervious layer. This soil is well drained. (RBF 2014a)

Roseville's geographic location, soil conditions, and surface terrain combine to minimize the risk of major damage from landslides, subsidence (gradual shrinking of the Earth's surface caused by underground resource extraction), or other geologic hazards resulting from seismic activity and related natural forces. Soils in the Roseville area are not considered to have high liquefaction potential. Roseville and the surrounding Sacramento region are not identified as areas prone to landslide hazards.

DISCUSSION

a. No active faults are known to exist within the project area. The project site is not expected to experience faulting, strong ground shaking, seismically related ground failure, or liquefaction. Further, as part of the proposed project approvals, the City will review the site-specific geotechnical study prepared for the proposed project and design construction documents to ensure compliance with applicable California Building Code (CBC) regulations for seismic safety as well as the City of Roseville Design and Construction Standards. Impacts are less than significant. No mitigation is required.

Landslides typically occur where soils on steep slopes become saturated, or where natural or human-made conditions have taken away supporting structures and vegetation. The project site is considered to have low landslide potential because the area is relatively flat, with topography ranging from approximately 140 feet above mean sea level (msl) to 160 feet above msl. Proposed project construction would comply with the most current City of Roseville's Design and Construction Standards. In addition, the international Building Code (IBC) also outlines site development standards for the protection of slopes. The proposed project would minimize the potential of landslides by implementing state and local regulations for grading and slope stabilization. Therefore, the impact is less than significant. No mitigation is required.

b. As part of the City's Mitigating Ordinances, Guidelines, and Standards (described in Chapter 2), the proposed project would be constructed in a manner that minimizes soil erosion or loss of topsoil. However, the proposed project would remove approximately 400 cubic yards of the northerly abutment fill prism restoring the native creek bank. One benefit that results from the increased area beneath the bridge is a slight drop in water surface elevation immediately upstream of the bridge and a measurable reduction in flood water velocity, thus reduced long term erosion. To minimize erosion during construction, the City would require the project contractor to implement a storm water pollution prevention plan (SWPPP) to comply with the National Pollutant Discharge Elimination System (NPDES) general permit administered by the State Water Resources Control Board. The SWPPP identifies structural and nonstructural best management practices (BMPs) to control erosion. The SWPPP includes spill prevention and control plan to ensure transport, storage, and handling of hazardous materials required for construction is conducted in a manner consistent with relevant regulations and guidelines. In addition, the proposed project would comply with the City's Design and Construction Standards, which prescribe erosion/sediment control and grading requirements addressing erosion. After construction, the project site would be returned to existing conditions with mostly impervious surfaces, which would not be susceptible to erosion. Impacts are less than significant and no mitigation is required.

c., d. The proposed project is not located in a sensitive geologic area, and the City of Roseville area does not typically experience subsidence. However, foundations and roadways may be damaged depending upon soil characteristics such as shrink-swell potential, permeability, and low strength; foundations and roadways could fail, especially if located on soils of differing properties. The proposed project would comply with the City's Mitigating Ordinances, Guidelines, and Standards to reduce impacts related to soil, including on- or off-site landslides, lateral spreading, subsidence, liquefaction, collapse, or expansive soils. In addition, the City would ensure the design specifications in the site-specific geotechnical and geomorphic reports prepared for the project are incorporated into the project, in accordance with City of Roseville Design and Construction Standards. Therefore, the impacts are less than significant. No mitigation is required.

e. No wastewater systems or septic tanks are proposed as part of the project. Therefore, no impact on soils related to the use of septic tanks would occur. No mitigation is required.

HAZARDS AND HAZARDOUS MATERIALS

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact 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 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project site?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing in the project site?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

SETTING

A Phase I Initial Site Assessment (ISA) was prepared in April 2014 by RBF Consulting to determine whether hazardous materials or contamination are present in the project vicinity. The ISA provided a comprehensive review of data sources, including environmental records, historical topographic maps, and aerial photographs of the project area, as well as a reconnaissance-level field survey.

The City of Roseville Fire Department is the Certified Unified Program Agency (CUPA) for Roseville and is available to respond to hazardous materials complaints or emergencies and review construction plans involving hazardous materials.

A record search was conducted as part of the ISA and approximately 21 listed regulatory sites were identified within one mile of the proposed project.

ASBESTOS CONTAINING MATERIAL

Asbestos is a strong, incombustible, and corrosion resistant material, which was used in many commercial products prior to the 1940s through the early 1970s. If inhaled, asbestos fibers can result in serious health problems. Asbestos containing materials (ACMs) are building materials containing more than one percent asbestos. ACMs are commonly known to have been used in building materials for bridge structures built between 1940 and the early 1970s.

LEAD BASED PAINT

Until 1978, when the U.S. Consumer Product Safety Commission phased out the sale and distribution of residential paint containing lead, many homes were treated with paint containing some amount of lead. It is estimated that over 80 percent of all housing built prior to 1978 contains some lead based paint. Lead based paint was commonly known to be used in building materials for bridge structures. In addition, lead based paints were commonly used in traffic striping materials before the discontinued use of lead chromate pigment in traffic/marking materials and not-melt thermoplastic stripe materials in 1996 and 2004, respectively.

AERIALLY DEPOSITED LEAD

Until the mid-1980s, gasoline and other fuels contained lead. As each car or truck traveled highways and roads, tiny particles of lead were released in the exhaust and settled on the soils next to the road. Oak Ridge Drive has been used as a roadway since before 1965.

DISCUSSION

a., c. The proposed project would replace the existing functionally obsolete bridge over Linda Creek. Thus, the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

The project site is located near a school. The potential staging area is adjacent to Sierra Gardens Elementary School/Sierra Gardens Park/Eich Junior High School. The Oak Ridge Drive bridge is located approximately 0.3 mile south of Sierra Gardens Elementary School/Sierra Gardens Park/Eich Junior High School. The staging area is an area to place equipment and construction material until it is needed. No construction would occur at the staging area.

Construction activities would involve the use of some hazardous materials, such as diesel fuel, hydraulic oil, grease, solvents, adhesives, paints, and other petroleum based products, although these materials are commonly used during construction activities and would not be disposed of on the project site. Any hazardous waste or debris that is generated during construction of the proposed project would be collected and transported away from the site, and disposed of at an approved off-site landfill or other such facility. In addition, sanitary waste generated during construction would be managed through the use of portable toilets, which would be located at reasonably accessible

on-site locations. The contractor would be required to use standard construction controls and safety procedures, which would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, State, and Federal law. Impacts would be less than significant. No mitigation is required.

b., d. During proposed project construction, there is a possibility of accidental release of hazardous substances. The project area has consisted of transportation uses since the early 1890s with Oak Ridge Drive becoming a developed roadway by 1965; however, the roadway has not historically served a high volume of traffic. Due to the nature of soils in the project area, it is unlikely that lead contamination exists within exposed soils on-site. Therefore, the potential for aerially deposited lead to exist within the project site is low; however, to ensure the safety of the surrounding residents as well as construction crews, and as required by Caltrans District 3, a Phase II analysis would be completed per Mitigation Measure HAZ-1. The bridge structure was built in 1964, thus there is the potential that the bridge contains asbestos containing materials. Finally, both the bridge paint as well as the thermoplastic roadway striping has the potential to contain lead based paint. Impacts are potentially significant. Implementation of Mitigation Measures HAZ-1 through HAZ-3 would reduce the level of risk associated with an accidental release of hazardous substances to less than significant.

A record search was conducted as part of the ISA and approximately 21 listed regulatory sites were identified within one mile of the proposed project. Of the 21 listed regulatory sites, 18 sites are considered to have a low potential of affecting the proposed project site for one or more of the following reasons: distance from the project site; direction of anticipated groundwater flow; site status; and/or no contamination has been reported (RBF 2014a). Three sites were investigated further to determine the potential effect on the proposed project; it was found that all three sites would have a low potential of affecting the proposed project.

- Nelson Windshield Repair (915 Oak Ridge Drive) – This property is located adjacent to the project site and is listed in the EDR. This site is not anticipated to handle, store, or transport hazardous materials in reportable quantities. This off-site property has a low potential to affect the proposed project (RBF 2014a).

- Sunflower Laundries (1415 Michael Way) – This property is located approximately 0.25 mile up-gradient to the north of the proposed project. It is listed in the EDR. Dry cleaner facilities are known to have a moderate to high potential to contaminate soil and groundwater. This site was reported in 2002; however, no additional information is reported. Although this site is located up-gradient from the project site, Cirby Creek acts as a barrier to contamination and vapors. Therefore, this site has a low potential to affect the proposed project (RBF 2014a).

- Continental Cleaners (1079 Sunrise Boulevard) – This property is located approximately 0.3 mile cross-gradient to the south of the project site. This site was reported to consist of dry cleaning and laundry services from 1987 to 2005. The ENVIROSTOR database reports that the Department of Toxic Substances Control (DTSC) completed a site screen which documents that additional work is necessary at the site. ENVIROSTOR reports that a Preliminary Assessment/Site Inspection (PA/SI) Report was completed for this facility on January 20, 2011 (RBF 2014a).

Subsurface soil and groundwater sampling conducted at the dry cleaning site between 1998 and 2004 have confirmed tetrachloroethylene (PCE) in soil and groundwater beneath the site at 0.37 parts per million and 39 parts per billion, respectively. The Regional Screening Level for PCE in residential soils is 0.57 parts per million. The Maximum Contaminant Level (MCL) for PCE in drinking water is 5 parts per billion (RBF 2014a).

In 2004, the site owners requested that the California Regional Water Quality Control Board (RWQCB) issue a no further action (NFA) letter for the site. The RWQCB responded that additional investigation into the on-site PCE release would need to be conducted for a NFA letter to be issued; however the RWQCB could not direct these investigations due to budgetary constraints and higher priority cases. Based upon the previous sampling information and the historic use of PCE on site, there is evidence to indicate that soils and groundwater beneath this site have been impacted by these activities. Thus further evaluation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is warranted. Although soil and groundwater are known to be contaminated under this facility as a result of PCE, the letter indicates that groundwater flow direction is to the west. Due to the groundwater flow direction as well as the groundwater plume assumptions, the cross-gradient distance exceeds 182.5 feet (as the site is 1,590 feet away) and therefore the potential for this off-site property to impact groundwater underlying the project site is low (RBF 2014a).

The contractor would be required to use standard construction controls and safety procedures, which would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, state, and federal law. During the construction of the proposed project, there is the potential that unknown evidence of petroleum products or suspect materials could be encountered. Impacts are considered potentially significant. Mitigation Measure HAZ-1 would be completed to implement Phase II testing for aerially deposited lead, asbestos containing material, and lead based paint, as required by Caltrans District 3. Impacts are potentially significant; however, with implementation of Mitigation Measures HAZ-1 through HAZ-3, impacts are reduced to a less-than-significant level.

As part of the proposed project, the City would implement the following plans and special provisions to ensure the project would not create a significant hazard to the public or environment:

- Compliance with the City's Multi-Hazard Mitigation Plan (approved by the Federal Emergency Management Agency) which requires contractors to transport and store materials in appropriate and approved containers along designated truck routes, maintain required clearances, and handle materials using fire department–approved protocols, as illustrated in Roseville Fire Code Ordinance 4594.

- Implementation of a spill prevention and control plan to minimize the exposure of people and the environment to potentially hazardous materials. The SWPPP will include spill prevention and control plan to ensure transport, storage, and handling of hazardous materials required for construction is conducted in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the CUPA.

- City and Caltrans standard hazard materials special provision (7-1.01L—Removal of Asbestos and Hazardous Substances) will be implemented which describes the process for the contractor to follow if a hazardous substance were encountered during construction.

Implementation and compliance with the plans, standards, and special provisions described above, in combination with Mitigation Measures HAZ-1 through HAZ-3 would reduce impacts to a less-than-significant level.

e., f. The project site is not located within an airport land use plan area, within two miles of an airport, or within the vicinity of a private airstrip. Therefore, there would be no impact as a result of the proposed project. No mitigation is required.

g. During construction, emergency access to and in the vicinity of the project site could potentially be affected by the road closure at the bridge. The nearest Roseville Fire Department facility is Station 3, located at 1300 Cirby Way; Station 3 is approximately 0.25 mile southwest of Oak Ridge Drive Bridge. As shown on Figure 2-6, *Preliminary Site Detour*, Oak Ridge Drive north of Linda Creek would be accessed from Coloma Way during construction. This detour would add approximately one mile to the distance traveled from Fire Station 3 to the north side of the Oak Ridge Drive Bridge. The detour could potentially increase response time for the Roseville Fire Department from Fire Station 3. This detour would be temporary and would extend approximately six to nine months during the construction season. In accordance with Roseville Municipal Code, the City requires any traffic lane closures to be approved by the City Engineering Department and notification provided to the City Police and Fire Departments 48 hours in advance of any road closures. As noted in Chapter 2, the City would ensure its contractor prepares a traffic management plan during the final stage of project design to ensure local and emergency traffic is accommodated during construction and access to residences and schools is maintained. Therefore, the impact is less than significant. No mitigation is required.

h. According to the California Department of Forestry and Fire Protection (CalFire) Placer County Natural Hazard Disclosure (Fire) map, the proposed project site is not located in a fire hazard region (CalFire 2008, 2007). There is no impact associated with wildland fires. No mitigation is required.

MITIGATION MEASURES

HAZ-1 **Prepare a Phase II Analysis and Follow Specified Handling Provisions.** A Phase II/Site Characterization Specialist shall conduct sampling along the project site in order to determine whether or not contamination exists in association with aerially deposited lead from Oak Ridge Drive. Results of the sampling will indicate the level of remediation efforts that may be required, if necessary. Any special handling, treatment, or disposal provisions associated with aerially deposited lead may be included in the construction document. If soluble levels are above 5 milligrams per liter (mg/L), then soils are considered hazardous waste and shall be handled according to CCR Title 22, the California Environmental Protection Agency (Cal/EPA) Department of Toxic Substance Control (DTSC) variance for lead-contaminated soils.

Finally, the Phase II/Site Characterization Specialist shall conduct sampling along the project site in order to determine whether or not contamination exists in association with lead based paint from Oak Ridge Drive and the bridge structure. Results of the sampling shall indicate the level of remediation efforts that are required. Any special handling, treatment, or disposal provisions associated with lead based paint shall be included in the construction document.

HAZ-2 **Minimize Disturbance to Unknown Petroleum Contamination.** If during grading or soil excavation, evidence of petroleum products is discovered and appears to continue below the ground surface, construction activities shall stop immediately and sampling shall be performed to characterize the extent of contamination. If applicable, remediation shall include removal of soil and proper disposal at an approved facility.

HAZ-3 **Minimize Disturbance to Unknown Suspect Materials and Wastes.** If suspect materials or wastes of unknown origin are discovered during construction on the project site, the following shall occur:

- All work shall immediately stop in the vicinity of the suspected contaminant;
- Project engineer of the implementing agency shall be notified;
- Area(s) shall be secured as directed by the Project Engineer;

  Notification shall be made to the appropriated agency's Hazardous Waste/Materials Coordinator.

HYDROLOGY AND WATER QUALITY

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?	☐	☐	☒	☐
e) Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted water?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☒	☐	☐
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☒	☐	☐
j) Contribute to inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

SETTING

The City of Roseville is located within the Sacramento Hydrologic Basin, which encompasses approximately 26,500 square miles and is bounded by the Sierra Nevada to the east, northern Coast Ranges to the west, Cascade Range to the northeast, Trinity Mountains to the northwest, and Sacramento River–San Joaquin River Delta and central Sierra Nevada region to the south. The Sacramento River is the principal river in this basin. Its main tributaries are the Pit, Feather, Yuba, Bear, and American Rivers.

CLIMATE

The climate of the watershed is Mediterranean, with hot, dry summers and cooler, wet winters. The average annual precipitation is approximately 24 inches. Most of the precipitation occurs between November and April in the form of rain, with variable amounts of snow in the higher elevations. It is extremely rare to have snow at the location of the proposed project. The climatological cycle of the region results in high surface water flows in the spring and early summer, followed by low flows during the dry season.

LINDA CREEK

Linda Creek is a perennial tributary in the upper headwaters of the Dry Creek watershed. The confluence of Linda Creek and Cirby Creek is approximately 2,400 feet downstream. Dry Creek ultimately drains into the Natomas East Main Drainage Canal, which then flows south into Discovery Park in American River Parkway, and then west (parallel with American River) into the Sacramento River.

The Oak Ridge Drive Bridge Replacement Project Hydrology and Hydraulic Design Report (RBF 2014c), Water Quality Technical Memorandum (Kimley-Horn 2014), and the Oak Ridge Drive Bridge Replacement Geomorphology Study (cbec 2015) provide information regarding the existing conditions of Linda Creek. The existing peak flow for Linda Creek at Oak Ridge Drive Bridge is 2,480 cubic feet per second (cfs) during the 100-year storm event and 3,125 cfs during the 200-year event. Approximately 850 feet upstream and downstream of the bridge are the inlet and outlet of a high-flow stormwater bypass structure which carries flow parallel to the main channel of Linda Creek during flood events.

FLOW VELOCITY AND EROSION

Linda Creek is characterized by a low water flow velocity, low slope and a relatively homogenous creek bed, known as slow glide morphology, downstream of the Oak Ridge Drive Bridge. Beginning under the bridge and extending upstream, Linda Creek has areas ranging from slow glide morphology to pool-riffle morphology. Pool-riffle morphology is characterized by alternating sequences of pools (regions of relatively deep and slow water flow with a low water surface slope) and riffles (features with relatively fast and shallow flow over a high water surface slope and coarse creek bed). Banks immediately under the Oak Ridge Drive Bridge are protected by rip-rap, gabion baskets, and stacked concrete bags.

Bank erosion within the geomorphology study area ranges from moderate-high severity to minor severity. The banks immediately upstream of the Oak Ridge Drive Bridge are primarily considered to have minor severity erosion, with the nearest moderate-high bank erosion is located along the left (southern) bank, approximately 380 feet upstream of the bridge and is approximately 12 feet in height. The left (southern) bank immediately downstream of the bridge has moderate-high bank erosion approximately 15 feet in height. Banks downstream also exhibit moderate and minor erosion.

WATER QUALITY

Linda Creek does not have any pollutants included in 303(d) waterway required list; therefore it is not a 303(d) listed waterway. The following are pollutants listed by the State Water Board for Linda Creek: Ammonia, dissolved oxygen, pH, and specific conductivity. Low dissolved oxygen can be attributed to low flows, which typically occur in the summer months.

FLOODING

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM Panel Number 06061C0479G, as amended by the Letter of Map Revision (LOMR) Case No: 02-09-1258, Oak Ridge Drive Bridge is located within Zone AE, special flood hazard areas inundated by 100-year flood with base flood elevations determined, and Zone X, areas outside the 500-year floodplain. Per the LOMR, the AO Zones that appear on the FEMA FIRM Panel Number 06061C0479G were removed and the base flood elevations within the AE Zones were reduced by the Cirby-Linda-Dry Creek Flood Control Project. The potential staging area at northwest corner of Coloma Way and Oak Ridge Drive is located within Zone X, per the LOMR amendment to the FEMA FIRM Panel Number 06061C0479G. In addition, portions of the project area are located within the floodway.

Because much of the stream's length is urbanized and incised or detached from its floodplain, including the reach in the project area, it is prone to localized flooding (Kimley-Horn 2014). The area near the project site has experienced significant flooding in 1986 and again in 1995. This resulted in the flood control project in 1998, which incorporated flood walls along the northern bank of Linda Creek, near the Oak Ridge Drive Bridge. A concrete floodwall was constructed and tied to the existing Oak Ridge Drive bridge abutment and railing on the west and east side of the bridge. This flood control project also involved filling the voids in the existing bridge metal railing and posts with steel plates to create a solid rail system. Two parallel, nine-foot diameter bypass pipes were also constructed as part of the 1998 flood control project to reduce flooding in the area. The inlet of the bypass pipes is located approximately 900 feet upstream from the proposed project and conveys flows to the outlet located approximately 1,000 feet downstream from the project site. This floodwall and solid railing provide the four feet of freeboard that is a requirement of the LOMR amendment to the FEMA FIRM; this requirement provides the protection necessary to keep the structures in the vicinity within Zone X.

DISCUSSION

a., f. The proposed project would replace the existing functionally obsolete bridge over Linda Creek. While the proposed project would slightly increase the overall amount of impervious surface in the project area, the increase is less than 0.1 acre. Thus, any runoff from the proposed project would be considered similar to existing conditions (Kimley-Horn 2014). The proposed project would not substantially increase the potential for small amounts of lubricants, sloughing of tire and brake material, and other contaminants associated with driving to enter the stormwater drainage system. Because the proposed project would replace the bridge, the land uses would be the same and vehicle use and traffic numbers would not change. Therefore, long-term impacts to water quality from the proposed project would be the same as the existing conditions.

Construction activities of the proposed project would disturb soil within the project area, including removing the fill prism at the northern bridge abutment and placing new piers to accommodate the new bridge. In addition, some activities would occur within Linda Creek, including removing the existing bridge piers. Potential staging areas for construction would occur on Oak Ridge Drive, north and south of the bridge, as well as a potential staging area located on the northwest corner of

Coloma Way and Oak Ridge Drive. As discussed in the Biological Resources Section, above, Cirby Creek is located immediately north of the Coloma Way/Oak Ridge Drive potential staging area, but outside of the area of direct impact. Both Cirby Creek and Linda Creek could collect disturbed soil and construction-related contaminants.

The City's Grading Ordinance requires grading plans to include an erosion control plan to eliminate offsite flows of sediment and to reduce site erosion to protect water quality in streams and drainages, the storm drain system, and adjacent properties. The plan would include measures such as use of an onsite portable settling basin if dewatering is required during construction of the bridge piers or use of straw wattles around the staging area drainages to avoid sediment runoff into Cirby Creek and Linda Creek. The City would require the contractor to comply with the ordinance and prepare a Stormwater Pollution Prevention Plan (SWPPP) as part of the National Pollutant Discharge Elimination Systems (NPDES) Permit required for the proposed project. The SWPPP would meet the requirement of the City's General Permit for Stormwater Discharge from the Central Valley Regional Water Quality Control Board (CVRWQCB). The proposed project would be required to obtain a Section 404 Permit from the U.S. Army Corps of Engineers (USACE), a Section 401 Water Quality Certification permit from the CVRWQCB, a Lake and Streambed Alteration Agreement (Section 1600 Permit) from the California Department of Fish and Wildlife (CDFW), a Flood Encroachment Permit or letter of authorization from the Central Valley Flood Protection Board (CVFPB). The City would implement best management practices (BMPs) specified in the required plans and permits as part of the proposed project design. The project would also implement BIO-7 which includes measures to protect siltation and construction related water quality impacts. The impacts to water quality are less than significant. No mitigation is required.

b. The proposed project would replace the functionally obsolete bridge and would lengthen the bridge and raise the bridge profile in order to pass the 200-year design flood event in Linda Creek. The proposed project would not use groundwater for construction or operations and thus would not deplete groundwater supplies. The proposed project would minimally increase impervious surfaces, as a result of widening the bridge to provide for standard sidewalks and shoulders, and provide rock slope protection for erosion control. The amount of recharge contributed to groundwater within the project area is minimal compared to that contributed by the open space surrounding the proposed project as well as the Sacramento Valley groundwater basin overall. No impacts associated with groundwater recharge are expected. No mitigation is required.

c. The proposed project would replace the functionally obsolete bridge; the proposed replacement would lengthen the bridge and raise the bridge profile in order to pass the 200-year design flood event in Linda Creek. The proposed project would also remove the fill prism at the northern bridge abutment, thus restoring the native creek bank. Finally, the proposed project would install erosion protection, either rock slope or soft armoring, in front of the bridge abutments on the north side of Linda Creek. The erosion protection would extend above the high water surface elevation of the 200-year design flood event. The proposed erosion protection would extend approximately 40 feet upstream and downstream of the Oak Ridge Drive Bridge. Refer to Section 2.6.1, *Proposed Project*, for further detail.

Two-dimensional (2D) hydrodynamic modeling for the 2-, 10-, and 100-year flood events were analyzed in the geomorphology study. The modeling found that the proposed project relieves the flow constriction on Linda Creek that occurs at the existing bridge. Thus, the velocities and shear stresses underneath and in the immediate vicinity of the Oak Ridge Drive Bridge are generally reduced as a result of the proposed project. Minor recirculation zones, or eddies, are anticipated to

form within Linda Creek along the right (northern) bank where the bank grading ties into the proposed abutment. However, the relatively low velocities associated with these recirculation zones suggests their presence would be less than significant in terms of erosion implications (cbec, 2015).

The proposed project would ultimately reduce velocities and shear stresses acting in the immediate vicinity of the Oak Ridge Drive Bridge, particularly at the higher end of the flood flows modeled (10- and 100-year flood events). The proposed improvements include a substantial reduction to the shear stresses acting on an existing bank erosion site immediately downstream of the bridge on the left (southern) bank; however, the proposed bridge replacement and proposed removal of the fill prism would also generally increase velocities in the reach upstream of the bridge as well as those occurring along the left (southern) bank of the channel downstream of the bridge. These velocity increases would result in greater shear stresses acting on existing bank erosion sites on the left (southern) bank at the bend approximately 350 feet upstream and a section roughly 150 feet downstream of the Oak Ridge Drive Bridge. These increases in velocities and shear stresses may exacerbate scour that occurs at these existing bank erosion sites during these infrequent flood events. It should also be noted that sediment storage dynamics along the channel bed may adjust slightly throughout the study reach as a result of these changes. Overall, the proposed bridge replacement would cause only minor impacts to the stream channels' geomorphology with regard to bank erosion and channel migration during flood events up to the 100-year flood event. Impacts would be less than significant. No mitigation is required.

The City of Roseville currently monitors these existing erosion sites through its Creek Maintenance Program. Through this program, the City's stream maintenance inspectors conduct annual monitoring to identify any new, or changes to known, bank erosion sites throughout the City and implement repairs and/or additional erosion controls as appropriate. Linda Creek is part of this program; therefore, the existing creek maintenance program provides an adequate means of monitoring and addressing any existing and/or potential new areas of erosion within proximity of the Oak Ridge Drive Bridge. This impact is less than significant. No mitigation is required.

d. The proposed project would result in a 0.1 acre increase in impervious surface. The existing storm drain system is adequate to accommodate the resulting increased surface runoff. This impact is less than significant. No mitigation is required.

e. The slight increase in impervious surface from widening of the roadway to accommodate two travel lanes with standard shoulders and sidewalks would be relatively small, an increase of less than 0.1 acre. The existing stormwater drainage system would be reconstructed as necessary to accommodate the road widening. This impact is less than significant. No mitigation is required.

g. Oak Ridge Drive Bridge is located in the 100-year floodplain; however, the surrounding area is located outside the 100-year floodplain as a result of the existing floodwalls within and adjacent to the project site. The proposed project would raise the Oak Ridge Drive Bridge in order to pass the 200-year design flood event in Linda Creek and would replace the functionally obsolete bridge with a bridge that would provide a two-lane facility with standard shoulders and sidewalks. The proposed project does not include placing housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. Therefore impacts are less than significant and no mitigation is required.

h. Bridge replacement would occur within the 100-year-floodplain of Linda Creek. While the new bridge super structure and six-inch sewer line would be elevated above the 200-year design flood

event and therefore would not interfere with creek flow, the bridge abutments and piers have the potential to obstruct or redirect the flow of floodwaters. In addition, because 100-year storm flows would be more easily accommodated by the new elevated bridge, a slight increase in the post project 100-year water surface elevation occurs downstream of the new bridge. These potential impacts are discussed separately below.

IMPEDE AND/OR REDIRECT FLOOD FLOWS

The existing bridge piers are currently located in the Linda Creek low flow channel and the abutments are located within the 100-year floodplain. In addition, a fill prism exists adjacent the northerly abutment which restricts flood flows.

The proposed project would construct a longer, two-span bridge with the new abutment foundations set back from the former abutments outside the active Linda Creek channel, but still within the floodplain. Proposed improvements also include locating the new bridge pier outside the low flow channel and removing much of the existing northerly abutment fill prism from the 100-year floodplain. Therefore, the new bridge design and hydraulic improvements would collectively reduce impedance and redirection of flood flows representing an improvement over existing conditions. As such this impact is less than significant. No mitigation is required.

CHANGES TO THE 100-YEAR WATER SURFACE ELEVATION

The hydraulic analysis conducted by RBF Consulting (the RBF Report) (RBF 2014c) to support the bridge design describes potential 100-year water surface elevation (WSE) impacts that could result from proposed bridge replacement. The report concludes no change to existing 100-year water surface elevations upstream of the bypass pipe inlet or downstream of the bypass pipe outlet. However minor 100-year WSE changes would occur within the limits of the bypass inlet and outlet as discussed below.

The RBF Report indicates that removal of the fill prism and raising the bridge as proposed results in a slight decrease (0.06 feet) in the 100-year WSE beginning at a point 20 feet upstream of the new bridge. This change in upstream WSE attenuates to no decrease at the bypass pipe inlet located approximately 900 feet upstream. The 0.06-foot decrease in the 100-year WSE is a beneficial effect of the project.

Beginning at a point immediately upstream of the new bridge and extending to a point approximately 900 feet downstream, the opposite would occur. The RBF Report indicates that implementing the project as proposed results in a very slight increase (0.03 feet) in the 100-year WSE beginning immediately upstream of the new bridge and increasing to a 0.10 feet rise immediately downstream of the new bridge. This increase in WSE attenuates to no increase at a point just prior to the bypass pipe outlet (approximately 900 feet downstream). The increase in downstream 100-year WSE occurs because lower upstream water levels cause less flow through the bypass pipe, which places more flow in the channel, and causes the water level immediately downstream of the bridge to be slightly higher. Nevertheless, the proposed project-generated increase in 100-year WSE is considered less than significant because it does not exceed the City's 0.10 feet threshold of significance for 100-year WSE increase. Furthermore, the City's existing accredited flood system freeboard would be maintained. Therefore related impacts are considered less than significant and no mitigation is required.

i. The new bridge and roadway profile would be elevated and the bridge would be lengthened to pass the 200-year design flood event in Linda Creek. The elevation on the north side of the bridge would be raised slightly (approximately two feet at the northern bridge abutment) and the bridge extended; therefore, the adjacent floodwalls that currently connect to the existing bridge would be modified to conform to the new bridge to maintain the same level of flood protection post project. As discussed in Chapter 2, *Project Description*, the proposed project would result in a temporary breach of the floodwall system during construction. The timing of this breach, during the summer season, significantly reduces the risk of flooding, as the summer season is typically dry with minimal rain events. While this risk is minimized by timing, the floodwall breach would be considered a potentially significant flooding impact if the breach remained open beyond October 15, the onset of the rainy season. Implementation of mitigation measure HYDRO-1 would reduce this impact to a less-than-significant level. In addition, as discussed in Section 2.10, *Required Permits and Approvals*, the City would obtain a CLOMR from FEMA, an encroachment permit from CVFPB, and a design variance from CVFPB freeboard requirements.[5] Any flood related conditions identified in these permits would also be adhered to during construction of the proposed project. Therefore, obtaining the required permits and implementing mitigation measure HYDRO-1 would result in a less than significant construction (short-term) impact.

   The adjacent floodwalls that currently connect to the existing bridge would be modified to conform to the new bridge in order to provide the same level of flood protection. Therefore, the flood protection for the adjacent residential uses upon project completion would not be altered by the proposed project and no changes in flood zones would occur. The operational (long-term) impact is less than significant and no mitigation is required.

j. The proposed project would not contribute to inundation by seiche, tsunami, or mudflow. There are no impacts. No mitigation is required.

MITIGATION MEASURES

HYDRO-1 Close Temporary Floodwall Breach by October 15. The temporary floodwall breach created by removal of the existing bridge shall be closed to provide flood protection equal to pre-project conditions by October 15th.

[5] The proposed project would result in modifications to conform to the existing floodwall; therefore a revised Letter of Map Revision (LOMR) from FEMA would be required. The proposed project would not meet the CVFPB requirement of three feet of freeboard above the 200-year design flood event on the north end of the project site; therefore, the proposed project would be required to obtain a Freeboard Requirement Variance from the CVFPB. For details regarding the need for a Freeboard Requirement Variance from the CVFPB, refer to Appendix A, *Analysis Comparison of a Design Meeting the CVFPB Bridge Design Criteria*.

LAND USE AND PLANNING

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

SETTING

The proposed project is located within the City of Roseville, Placer County, California, on the eastern edge of the Sacramento Valley floor at the base of the Sierra Nevada foothills. The proposed project is within the Downtown Planning Area, located north of Cirby Way, east of Sunrise Boulevard, and east of Interstate (I) 80. City land use designations for the surrounding area LDR-3.5 (Low Density Residential, 3.5 units per acre) and MDR-8.7 (Medium Density Residential, 8.7 units per acre) to the south, LDR-3.7 (Low Density Residential, 3.7 units per acre) to the north, OS/PR/FP (Open Space/Parks and Recreation/Floodplain [Combining]) along Linda Creek to the east and west of the bridge. City land use designations for the area surrounding the potential staging area, north of the bridge, include LDR-3.7 (Low Density Residential, 3.7 units per acre) to the south, LDR-4.6 (Low Density Residential, 4.6 units per acre) to the north, OS/FP (Open Space/Floodplain [Combining]) immediately adjacent to the staging area, and P/QP (Public/Quasi-Public) to the east (refer to Figure 2-3, *Existing General Plan Land Use Designations*). The area surrounding the proposed project is City zoned FW (Floodway); R1 (Single-Family Residential); P/QP (Public/Quasi-Public); PD19 #4454 (Planned Development 19 Zoning Ordinance Update #4454); and PD47 #1393 (Planned Development 47 Zoning Ordinance Update #1393) (refer to Figure 2-4, *Existing City Zoning Classifications*).

DISCUSSION

a. The proposed project would not substantially alter existing land uses and all work will be completed within existing City right-of-way, with the exception of a temporary easement in order to construct a retaining wall and complete driveway conforms. No residences or businesses would be demolished as part of the proposed project. The proposed project would replace the Oak Ridge Drive Bridge over Linda Creek and reconstruct Oak Ridge Drive and the bicycle pathway to conform to the new bridge. In addition, the new bridge would provide sidewalks on either side of the bridge and shoulders wide enough to accommodate bicycle lanes. During construction a temporary detour would be provided for vehicle, bicyclists and pedestrians. Therefore, the proposed project would not divide the area but would rather connect the neighborhood/community north of the bridge and neighborhood/community south of the bridge. The proposed project would

not divide an existing community. No impact would occur as a result of the proposed project. No mitigation is required.

b. The proposed project would not result in changes to existing land use, zoning, or specific plans in the City of Roseville. The proposed project would not alter existing land uses and is entirely within City right-of-way. Therefore, the proposed project would not conflict with any existing plans. No impact would occur as a result of the proposed project. No mitigation is required.

c. The proposed project is located within the City's right-of-way and would replace a functionally obsolete bridge over Linda Creek. There are no approved Habitat Conservation Plans of Natural Community Conservation Plans that apply to the project site. No impact would occur as a result of the proposed project. No mitigation is required.

MINERAL RESOURCES

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and 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?	☐	☐	☐	☒

SETTING

According to the Roseville General Plan, mineral resources are limited and no mineral extraction operations currently exist or are anticipated to exist in Roseville within the timeframe of the General Plan's analysis. There are no MRZ-2 lands in the project area; the project area is classified as MRZ-4, a mineral area with no known mineral occurrences. No other deposits of mineral commodities are known to exist in the vicinity of the project site (California Department of Conservation 1995). No policies relating to mineral resources were included in the general plan.

DISCUSSION

a.–b. The project site does not include any lands that are classified as MRZ-2 or any known locally important mineral resources. Therefore, there are no impacts. No mitigation is required.

NOISE

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

SETTING

NOISE TERMINOLOGY

Different types of measurements are used to characterize the time-varying nature of sound. The following are brief definitions of noise terminology used in this evaluation:

- **Sound:** A vibratory disturbance created by a vibrating object that, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise:** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB):** A unitless measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
- **A-Weighted Decibel (dBA):** An overall frequency-weighted sound level in dB that approximates the frequency response of the human ear.

- **Sound Level Percentiles (L_n):** The sound level exceeded a certain percentage of time during a specified interval, where the subscript "n" is the percentile value. For example, L90 is the sound level exceeded 90 percent of the time, and L10 is the sound level exceeded 10 percent of the time.
- **Maximum and Minimum Sound Levels (L_{max} and L_{min}):** The maximum or minimum sound level measured during a measurement period.
- **Day-Night Level (L_{dn}):** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring from 10 PM to 7 AM.
- **Equivalent Continuous Sound Level (L_{eq}):** The average of the sound level occurring over a specified period.
- **Community Noise Equivalent Level (CNEL):** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the A-weighted sound levels occurring from 7 PM to 10 PM and 10 dB added to the A-weighted sound levels occurring from 10 PM to 7 AM.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000 Hertz [Hz] to 8,000 Hz) range. However, it is widely accepted that people are able to begin to detect sound level changes of 3 dB for typical noisy environments. Further, a 10-dB increase is generally perceived as a doubling of loudness. Therefore, doubling sound energy (e.g., doubling the volume of traffic on a highway) would generally be perceived as a detectable, but not substantial, increase in sound level.

NOISE STANDARDS

FEDERAL TRANSIT AUTHORITY CONSTRUCTION NOISE GUIDELINES

The Department of Transportation, Federal Transit Authority (FTA) has established a method for assessing construction source noise levels. Unless local noise ordinances can be found to apply, this method can be used to develop criteria on a project-specific basis. For major construction projects where a known noise-sensitive receptor (e.g., residential land use) is adjacent to the site, the use of the levels in Table 3-9, *Summary of Recommended Noise Levels for Major Construction Projects with Adjacent Noise-Sensitive Receptors,* is recommended by the FTA. Because residential uses surround the proposed project, these noise thresholds are used in the impact analysis below.

Table 3-9. Summary of Recommended Noise Levels for Major Construction Projects with Adjacent Noise-Sensitive Receptors

Land Use	L_{eq} (8-Hour) dBA		L_{dn} (30-Day Average) dBA
	Day	Night	
Residential	80	70	75
Commercial	85	85	80
Industrial	90	90	85

Source: j.c. brennan & associates, *Construction Noise and Vibration Assessment*, May 2014.

CALTRANS

Construction noise is regulated by Caltrans standard specifications Section 14-8.02 "Noise Control." Section 14-8.02 requires that the project construction noise levels not exceed 86 dBA at 50 feet from the project site activities from 9 PM to 6 AM. Additionally, internal combustion engine equipment shall not be operated on the project site without the appropriate muffler.

CITY OF ROSEVILLE

The City has established several policies and codes concerning the generation and control of noise that could adversely affect citizens and noise-sensitive land uses.

The City of Roseville Noise Ordinance exempts construction-related activity from noise regulation. Section 9.24.150 G of the ordinance also exempts noise from private construction (e.g., construction, alteration or repair activities) between the hours of 7 AM and 7 PM Monday through Friday, and between the hours of 8 AM and 8 PM Saturday and Sunday; provided, however, that all construction equipment is fitted with factory installed muffling devices and that all construction equipment shall be maintained in good working order. These exemptions are typical of city and county noise ordinances and reflect the recognition that construction-related noise is temporary in character, is generally acceptable when limited to daylight hours, and is part of what residents of urban areas expect as part of a typical urban noise environment (along with sirens).

The City of Roseville General Plan Noise Element outlines policies and implementation measures to achieve the City's goals of protecting Roseville residents from the harmful and annoying effects of exposure to excessive noise. The General Plan Noise Element identifies the maximum allowable noise level exposure from transportation noise sources according to sensitive receptor. In general, outdoor activity areas of sensitive receptors should have a maximum noise level of 60 dB L_{dn}; however, outdoor office space areas have a maximum L_{dn} of 65 dB and playgrounds/neighborhood parks have a maximum noise level of 70 dB L_{dn}.

NOISE SENSITIVE LAND USES

As previously stated, land use designations for the surrounding area include area LDR-3.5 (Low Density Residential, 3.5 units per acre) and MDR-8.7 (Medium Density Residential, 8.7 units per acre) to the south, LDR-3.7 (Low Density Residential, 3.7 units per acre) to the north, OS/PR/FP (Open Space/Parks and Recreation/Floodplain [Combining]) along Linda Creek to the east and west of the bridge. City land use designations for the area surrounding the potential staging area, north of the bridge, include LDR-3.7 (Low Density Residential, 3.7 units per acre) to the south, LDR-4.6 (Low Density Residential, 4.6 units per acre) to the north, OS/FP (Open Space/Floodplain [Combining]) immediately adjacent to the staging area, and P/QP (Public/Quasi-Public) to the east. Specifically, noise sensitive land uses include residential, school, and park facilities as follows: residential uses are adjacent to the north, east and south; Alta Manor senior apartments (an assisted living community) is adjacent to the west; the City's bicycle path runs through the project site, adjacent to Linda Creek; Sierra Gardens Elementary School/Sierra Gardens Park/Eich Junior High School is adjacent to the staging area and approximately 0.3 mile north of the bridge; and a church is adjacent to the staging area to the west and approximately 0.3 miles to the northwest of the bridge.

EXISTING NOISE CONDITIONS

The existing noise environment in the project area is dominated by noise from traffic traveling on Oak Ridge Drive. The noise measurement site for the proposed project was located adjacent to Oak Ridge Drive

at a setback distance of approximately 55 feet from the centerline of the roadway. The results of the 24-hour noise measurement are summarized in Table 3-10, *Existing Ambient Noise Monitoring*.

Table 3-10. Existing Ambient Noise Monitoring

Site	Location	L_{dn} (dBA)	Measured Hourly Noise Levels, dBA Low-High (Average)					
			Daytime (7AM – 10 PM)			Nighttime (10 PM – 7 AM)		
			L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}
LT-1	55 feet east of Oak Ridge Drive centerlilne	58	49-58 (55)	45-56 (52)	60-85 (72)	44-55 (51)	41-53 (46)	57-83 (67)

Source: j.c. brennan & associates, *Construction Noise and Vibration Assessment*, May 2014.

DISCUSSION

a., d.

CONSTRUCTION IMPACTS

The proposed project would replace the Oak Ridge Drive Bridge over Linda Creek and provide standard sidewalks and shoulders, ultimately conforming to the existing roadway north and south of the proposed project area. The proposed project would not add capacity to Oak ridge Drive.

Residential uses are located adjacent to the project construction site in all directions. Because of this, the FTA Residential daytime level limit of 80 dbA L_{eq} was used as the threshold for significance to analyze impacts due to periodic increase in ambient noise levels.

Table 3-11, *Construction Equipment Noise Levels for the Worst Case Scenario*, provides the usage percent of each construction equipment type and the hourly dBA. The excavator would be the loudest construction activity that could occur with the proposed project, and thus is considered the worst case scenario. Therefore, the highest hourly dBA at 50 feet from the construction area is 81.5 dBA.

Table 3-11. Construction Equipment Noise Levels for the Worst Case Scenario (50 Feet)

Equipment	Usage (%)	Hourly L_{eq} (dBA)
Backhoe	40	73.6
Crane	16	72.6
Concrete Mixer Truck	40	74.8
Excavator	40	76.7
Compressor (air)	40	73.7
Total		81.5 dBA

Source: j.c. brennan & associates, *Construction Noise and Vibration Assessment*, May 2014.

Figure 3-6, *Predicted Construction Noise Levels*, illustrates the predicted hourly (L_{eq}) 80 dBA contour limits for the proposed project and dBA L_{eq} noise levels of the surrounding residences. Given these limits, the proposed project would not exceed the FTA 80 dBA L_{eq} daytime noise level limit of sensitive residential uses. The specific noise levels for the nearest sensitive receptors are listed below and none exceed the FTA Residential daytime level limit of 80 dbA L_{eq} threshold used for the proposed project.

- R1, Northwest quadrant (Alta Manor senior apartments) = 67 dBA L_{eq}
- R2, Northeast quadrant (single-family residence) = 71 dBA L_{eq}
- R3, Southwest quadrant (single-family residence) = 77 dBA L_{eq}
- R4, Southeast quadrant (single-family residence) = 73 dBA L_{eq}

In addition, the City Noise Ordinance acknowledges that construction noise is temporary in nature and exempts construction-related activity from noise regulation.

Noise impacts to the identified noise-receptors in the vicinity of the proposed project would be less than significant. Typical noise design considerations further reduce noise levels during construction. These design considerations could include maintaining construction equipment in proper operating condition and equipping engines with appropriate mufflers. This impact is less than significant. No mitigation is required.

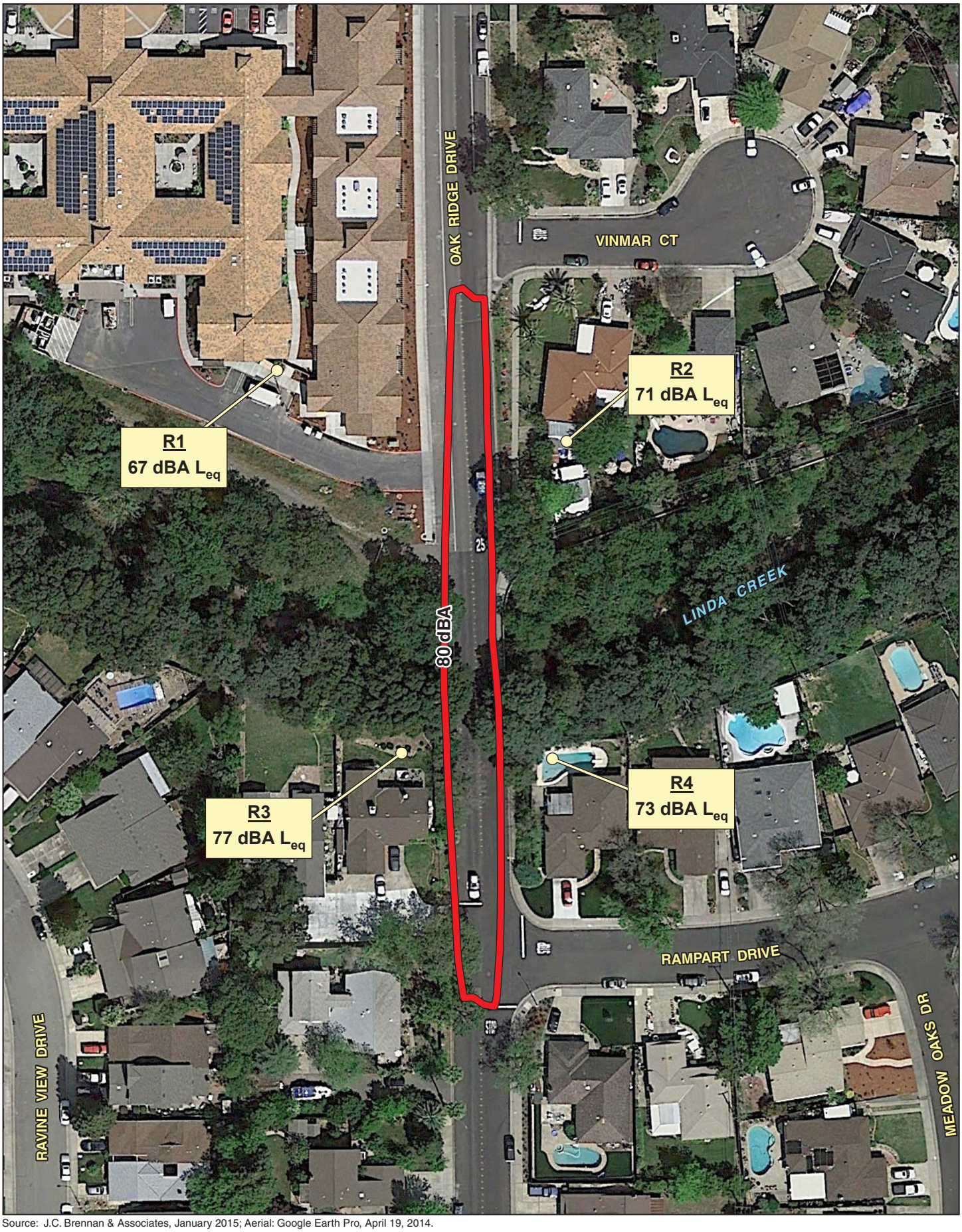
OPERATION IMPACTS

As discussed in Chapter 2.0, *Project Description*, the bridge would be elevated a maximum of approximately three feet at the southern abutment and two feet at the northern abutment to pass the 200-year design flood event in Linda Creek. As a result of the change in the roadway profile, the CadnaA sound prediction model was used to evaluate operational noise levels upon completion of construction. Operational traffic noise levels are predicted to increase a maximum of 0.2 dBA at the residential land uses located on the north side of Linda Creek. Operational traffic noise levels would decrease by up to 0.7 dBA at the residential land uses located on the south side of Linda Creek. Table 3-12, *Existing and Existing Plus Project Noise Levels*, summarizes the noise levels anticipated to occur after the completion of the project. The decrease in noise levels on the south end of the bridge is a result of the change in roadway grade across Linda Creek (not as steep).

Table 3-12. Existing and Existing Plus Project Noise Levels

Site	Location	Existing L_{dn} (dBA)	Existing Plus Project L_{dn} (dBA)	Change in L_{dn} (dBA)
R1	Northwest quadrant (Alta Manor senior apartments)	49.6	49.7	+ 0.1
R2	Northeast quadrant (single-family residence)	52.9	53.1	+ 0.2
R3	Southwest quadrant (single-family residence)	58.1	57.5	- 0.6
R4	Southeast quadrant (single-family residence)	58.6	57.9	- 0.7

Source: j.c. brennan & associates, *Supplemental Traffic Noise Assessment for the Oak Ridge Drive Bridge Replacement Project*, December 2014.



Source: J.C. Brennan & Associates, January 2015; Aerial: Google Earth Pro, April 19, 2014.

0 80'
APPROXIMATE

OAK RIDGE DRIVE BRIDGE PROJECT • CEQA

Predicted Construction Noise Levels

05/14/15 JN 134939-20517

Figure 3-6

The City General Plan has a transportation noise source maximum noise level for outdoor activity areas for sensitive receptors, such as office space, of 65 dB while places such as meeting halls and residences have a transportation noise source maximum outdoor noise level of 60 dB. In addition, it is widely accepted that people are able to begin to detect sound level changes of 3 dB for typical noisy environments. Therefore, noise impacts to the identified noise-receptors in the vicinity of the proposed project after construction would be less than significant. No mitigation is required.

b. The proposed project construction activities may result in a minor amount of ground vibration. The most significant source of ground-borne vibrations during project construction would be from drillers (for piers), excavators, and vibratory compactors. Auger/drill rigs would generate typical vibration levels of 0.089 in/sec at a distance of 25 feet. Vibratory compactors would generate typical vibration levels of 0.210 in/sec at a distance of 25 feet (j.c. brennan & associates 2014).

The closest buildings to the project site are located a distance of approximately 75 feet south of the bridge. The threshold for architectural damage of buildings is 0.20 in/sec (j.c. brennan & associates 2013). Auger/drill rigs would generate typical vibration levels of 0.017 in/sec at a distance of 75 feet. Vibratory compactors would generate typical vibration levels of 0.04 in/sec at a distance of 75 feet (j.c. brennan & associates 2014).

New or modern buildings can safely be exposed to vibration levels up to 0.50 in/sec with virtually no risk of damage. Older non-historic structures (constructed prior to 1969) can be exposed to vibration levels up to 0.30 in/sec, and historic structures have a recommended limit of 0.25 in/sec. None of the residential structures in the project vicinity are historic. Even if the surrounding structures were to fall within the category of "old", the safe no-damage limit would be 0.30 in/sec. As stated above, anticipated vibration levels would be well below the limit of 0.30 in/sec for older non-historic buildings. The upper range construction related activities would be up to 0.210 in/sec at a distance of 25 feet and 0.04 in/sec at a distance of 75 feet.

In addition, vibration from construction activity is typically below the threshold of human perception when the activity is more than about 50 feet from the receiver. Also, vibration from these activities would be short-term and would end when construction is completed. This impact is less than significant. No mitigation is required.

c. Refer to item "a." The proposed project would not permanently increase capacity of Oak Ridge Drive. The change in grade would slightly alter the noise levels; however, these changes are less than the detectable change of 3 dBA. Therefore, noise levels would remain similar after construction completion, with a maximum noise level increase of 0.2 dBA on the north end of the bridge and a maximum noise level decrease of 0.7 dBA on the south end of the bridge. The proposed project would not result in an increase in ambient noise level that would be detectible to the human ear. Impacts would be less than significant as a result of the proposed project. No mitigation is required.

e.–f. The project site is not located within an airport land use plan area, within two miles of an airport, or within the vicinity of a private airstrip. There are no impacts. No mitigation is required.

POPULATION AND HOUSING

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

SETTING

The population for the City of Roseville in 2010 was 118,788 people, an approximately 48.6 percent increase from the 2000 population of 79,921 people (U.S. Census Bureau 2010). The U.S. Census Bureau estimated that by 2013, the City of Roseville's population would increase by another 6.49 percent to total 127,035 people by July 2013 (U.S. Census Bureau 2014).

DISCUSSION

a. The proposed project would not directly induce population growth because it proposes no residential development. It would not indirectly induce population growth because it would not increase roadway capacity, nor would it extend roads or infrastructure into previously undeveloped areas. The proposed project would replace the functionally obsolete, narrow bridge with a new bridge that includes shoulders and sidewalks. These improvements are needed to construct a safe and standard two-lane facility with standard shoulders and sidewalks consistent with City and American Association of State Highway and Transportation Officials (AASHTO) standards, remove the bridge from the Highway Bridge Program (HBP) eligibility list for bridge replacements, reduce the likeliness of hydraulic pressure flow against the bridge, and to improve the pedestrian and bicycle facilities across the bridge. Therefore, there are no impacts. No mitigation is required.

b.–c. The proposed project does not include residential development, would not displace any existing homes or people, and would not necessitate the construction of replacement housing elsewhere. There are no impacts. No mitigation is required.

PUBLIC SERVICES

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new 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 following public services:				
a) Fire protection?	☐	☐	☒	☐
b) Law enforcement?	☐	☐	☒	☐
c) Schools?	☐	☐	☒	☐
d) Maintenance of public facilities, including roads?	☐	☐	☒	☐
e) Other public facilities?	☐	☐	☒	☐

SETTING

Fire protection for the project site is provided by the Roseville Fire Department. The proposed project is serviced by Fire Station 3, located at 1300 Cirby Way, approximately 0.25 mile southwest of Oak Ridge Drive Bridge. Law enforcement services are provided to Roseville by the Roseville Police Department. The nearest schools to the project site are: Sierra Gardens Elementary School and Eich Junior High School is adjacent to the staging area and approximately 0.3 mile north of the bridge. The Roseville Public Works Department performs maintenance of roads and public facilities.

DISCUSSION

a.–e. The proposed project would not introduce new structures, attract new residents, or increase on-site activity that would produce demand for fire and police protection services, schools, or other public facilities. As discussed in Chapter 2, the project site contains utilities that include water and sewer lines. These utilities would be relocated vertically as a result of bridge construction.

During construction, a detour would be put into place in order to replace the bridge in one construction season; refer to Figure 2-6, *Preliminary Site Detour*. Per consultation with the Fire Department, response time from Fire Station 3 to the north end of the Oak Ridge Drive Bridge would be 2.5 minutes, with the proposed detour. This is within the response time requirements for the Fire Station. In accordance with Roseville Municipal Code, the City requires any traffic lane closures to be approved by the City Engineering Department and notification provided to the City Police and Fire Departments 48 hours in advance of any road closures. As noted in Chapter 2, the City would require the contractor prepare a traffic management plan during the final stage of project design to ensure local traffic is accommodated during construction and access to residences and schools is maintained. Therefore, the impact is less than significant. No mitigation is required.

RECREATION

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact 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 physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☒	☐

SETTING

The proposed project is located in an area that is predominantly residential. A multi-use trail/bicycle facility is located at the top of the north bank of Linda Creek and the potential staging area is located adjacent to Sierra Gardens Elementary School/Sierra Gardens Park/Eich Junior High School. Both uses are designated as P/QP (Public/Quasi-Public) land use designations (refer to Figure 2-3, *Existing General Plan Land Use Designations*). The City General Plan Circulation Element identifies the multi-use trail as a Class I bicycle trail. The City General Plan also identifies a Class III route on Oak Ridge Drive (right-of-way designated by signs or permanent markings and shared with motorists).

The City of Roseville Bicycle Master Plan identifies approximately 199 miles of existing Class I through Class III bicycle facilities within the City. The City-designated multi-use trail/bicycle facility located on the north bank of Linda Creek is identified as Bicycle Master Plan Segment 6i. This multi-use trail/bicycle facility is paved and extends between Oak Ridge Drive on the west and Meadowlark Way on the east. The multi-use trails turns into a designated Class I bicycle facility at approximately Sierra Gardens Drive. The total length of this multi-use trail/Class I bicycle facility is approximately one mile. The multi-use trail has spurs that go north and south of the main pathway at various points along this one-mile route. The project site includes 100 feet of the multi-use trail, east of Oak Ridge Drive.

DISCUSSION

a. The proposed project would not include new residences or features that would attract new residents or increase demand on parks and recreational trail systems. There are no impacts. No mitigation is required.

b. The proposed project includes providing shoulders that would accommodate bicycle traffic. The existing multi-use trail/Class I facility connection with Oak Ridge Drive would be temporarily disrupted during construction, while the bridge is raised slightly and the connection with the multi-use trail/Class I facility is restored. The multi-use trail/Class I facility would be reconnected to the roadway upon construction completion. The multi-use trail/Class I facility would be temporary closed beginning at Oak Ridge Drive and extending 100 feet east during construction. As shown on Figure 2-6, *Preliminary Site Detour*, pedestrian and bicycle traffic would be routed around the Oak Ridge Drive Bridge, using the existing roadways, multi-use trails, and Class I facilities.

In accordance with Roseville Municipal Code, the City requires any traffic lane closures to be approved by the City Engineering Department and notification provided to the residents, school districts, and City Police and Fire Departments no less than 48 hours in advance of any road closures. As noted in Chapter 2, the City would ensure its contractor prepares a traffic management plan during the final stage of project design to ensure local traffic is accommodated during construction and access to residences and schools is maintained. Therefore, the impact is less than significant. No mitigation is required.

TRANSPORTATION/TRAFFIC

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

SETTING

EXISTING ROADWAY FACILITY

The existing Oak Ridge Drive Bridge is 56.5 feet long with two lanes, no shoulders (26.4 feet wide) and two, 1.3-foot wide vehicular barrier rails. Oak Ridge Drive is a two-lane roadway to the south of the bridge. Oak Ridge Drive to the north of the bridge is a two-lane roadway with standard shoulders and sidewalks on either side; the standard shoulders accommodate parking and bicycle use.

EXISTING AVERAGE DAILY VEHICLE TRIPS

Oak Ridge Drive, classified as a "collector" roadway by the City of Roseville General Plan, carries approximately 4,200 average daily trips (ADT) through a neighborhood subdivision between two major arterials – Cirby Way to the south and Sunrise Boulevard to the north. This section of Oak Ridge Drive

also provides direct access to Sierra Gardens Elementary School which is 1,700 feet north of the proposed project.

EXISTING BICYCLE FACILITIES

As discussed in the Recreation Section, above, Class III bicycle routes are identified for Oak Ridge Drive in the City General Plan Circulation Element, as well as the City Bicycle Master Plan. There is a Class I bicycle trail identified in the City General Plan Circulation Element that runs parallel to Linda Creek and is currently paved to the east of Oak Ridge Drive. This Class I facility is identified in the City Bicycle Master Plan as currently a multi-purpose trail and a proposed Class I facility.

EXISTING PEDESTRIAN FACILITIES

Pedestrian facilities consist of sidewalks on the east and west sides of Oak Ridge Drive north of the bridge over Linda Creek. South of the bridge over Linda Creek, pedestrian facilities on Oak Ridge Drive are located on the east side of Oak Ridge Drive. The existing Oak Ridge Drive Bridge over Linda Creek contains a sidewalk on the east side of the roadway.

EXISTING TRANSIT FACILITIES

Roseville Transit provides services on three fixed routes (Routes A, B, and C) along Sunrise Avenue, approximately 0.25 mile west of Oak Ridge Drive, and Cirby Way. No services service Oak Ridge Drive directly.

- Route A provides service between Louis/Orlando, the Civic Center, Galleria Mall, and Sierra Gardens and has designated timed stops at the following transfer stations: Louis/Orlando, Civic Center, Galleria, and Sierra Gardens. The nearest bus stops to the proposed project are Cirby Way/Sunrise Boulevard and Conroy/Sunrise Boulevard, both of which are stops that are made on request. Route A operates Monday through Friday every 30 minutes between 6:00 AM and 6:30 PM, and hourly from 6:30 to 9:53 PM; it operates on Saturdays hourly between 8 AM and 5 PM.
- Route B provides service between the Civic Center, Louis/Orlando, Sierra Gardens, and Galleria Mall and has designated timed stops at the following transfer stations: Louis/Orlando, Civic Center, Galleria, and Sierra Gardens. The nearest bus stops to the proposed project are Cirby Way/Sunrise Boulevard and Sunrise Boulevard before Coloma Way, both of which are stops that are made on request. Route B operates Monday through Friday every 30 minutes between 6:10 AM and 6:40 PM, and hourly from 6:40 to 9:43 PM; it operates on Saturdays hourly between 8:07 AM and 4:50 PM.
- Route C provides service between Rocky Ridge, Cirby, Sunrise, and Sierra Gardens, with designated timed stops at the Sierra Gardens Transfer Station and the Sunrise Boulevard and Cirby Way bus stop. There are three nearby bus stops to the proposed project: Sunrise Boulevard at Cirby Way; Sunrise Boulevard before Coloma Way; and Cirby Way at Parkview Drive. Route C operates Monday through Friday hourly from 6:45 AM through 6:17 PM and Saturdays hourly from 8:45 AM to 5:17 PM.

Roseville Transit also operates Dial-A-Ride, which provides curb-curb bus service between 5:45 AM and 10 PM Monday through Friday and 8 AM and 5 PM Saturday and Sunday. Dial-A-Ride is also a complementary ADA paratransit service.

DISCUSSION

a., b., e. The proposed project would replace the functionally obsolete Oak Ridge Drive Bridge, with a bridge that provides standard sidewalks and shoulders, and would raise the bridge profile and lengthen the bridge in an attempt to pass the design 50-year flood event water surface elevation of Linda Creek. The ADT for Oak Ridge Drive would remain the same before and after project completion. Therefore, the proposed project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. The proposed project would not conflict with an applicable congestion management program as travel demands would not change and level of service on Oak Ridge Drive would remain the same.

During construction, the proposed project would result in the closure of Oak Ridge Drive at Linda Creek in order to replace the bridge in one construction season. As shown on Figure 2-6, *Preliminary Site Detour*, detours for vehicles, bicycles, and pedestrians would be provided and would be temporary in nature. A temporary pedestrian crossing of Linda Creek cannot be accommodated at this location, as it would place pedestrians at a safety risk because of the proximity to the bridge construction activities. Therefore, temporary on-site pedestrian detours would not be provided. In accordance with Roseville Municipal Code, the City requires any traffic lane closures to be approved by the City Engineering Department and notification provided to the residents, school districts, and City Police and Fire Departments no less than 48 hours in advance of any road closures. As noted in Chapter 2, the City would require the contractor prepare a traffic management plan during the final stage of project design to ensure local traffic is accommodated during construction and access to residences and schools is maintained. Therefore, construction-related impacts on traffic circulation and access are less than significant. No mitigation is required.

c. The proposed project does not include an air traffic component and would not have the potential to affect air traffic patterns. Therefore, there are no impacts. No mitigation is required.

d. The purpose of the proposed project is to construct a safe and standard two-lane facility with standard shoulders and sidewalks consistent with City and American Association of State Highway and Transportation Officials (AASHTO) standards, remove the bridge from the Highway Bridge Program (HBP) eligibility list for bridge replacements, reduce the likeliness of hydraulic pressure flow against the bridge, and to improve the pedestrian and bicycle facilities across the bridge. As the proposed project would include sidewalks and shoulders, hazards related to incidents between vehicles and pedestrians or cyclists would be reduced. Therefore, impacts resulting from the proposed project would be beneficial, and do not include any design features that could increase hazards. No mitigation is required.

f. The proposed project would replace the Oak Ridge Drive Bridge over Linda Creek and would provide standard shoulders (which can accommodate bicycle lanes) and sidewalks, which is consistent with the City of Roseville General Plan as well as the City of Roseville Bicycle Master Plan. Ultimately, the proposed project would be beneficial to public transit, bicycle, and pedestrian facilities by providing an improved connection between existing bicycle and pedestrian facilities north and south of the bridge.

During construction, the proposed project would result in the closure of Oak Ridge Drive at Linda Creek in order to replace the bridge in one construction season. As shown on Figure 2-6, *Preliminary Site Detour*, detours for vehicles, bicycles, and pedestrians would be provided and would be temporary in nature. In accordance with Roseville Municipal Code, the City requires

any traffic lane closures to be approved by the City Engineering Department and notification provided to the City Police and Fire Departments 48 hours in advance of any road closures. As noted in Chapter 2, the City would require the contractor prepare a traffic management plan during the final stage of project design to ensure local traffic is accommodated during construction and access to residences and schools is maintained. Therefore, impacts are less than significant. No mitigation is required.

UTILITIES AND SERVICE SYSTEMS

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effect s?	☐	☐	☒	☐
d) Are sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Has the wastewater treatment provider that serves or may serve the project determined that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Is the project served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

SETTING

The City is located within the jurisdiction of the Central Valley Regional Water Quality Control Board, Region 5 (CVRWQCB). The City maintains a Storm Water Management Program (SWMP) in compliance with their General Permit for Stormwater Discharge from the CVRWQCB. Roseville's wastewater is treated at one of two wastewater treatment plants. In the northwest part of Roseville, treatment is provided by the Pleasant Grove Wastewater Treatment Plant. In the southeast part of Roseville, wastewater is conveyed to the Dry Creek Wastewater Treatment Plant. Both plants produce recycled water that meets all the requirements for "full unrestricted reuse" specified by the California Department of Health Services. An Order is currently proposed to renew the National Pollutant Discharge Elimination System (NPDES) Permit for these facilities.

Roseville is supplied with water by the Roseville Environmental Utilities Department. Roseville's water supply comes from Folsom Lake and is treated at the City owned and operated Water Treatment Plant on Barton Road. The City also maintains five groundwater wells, operates an aquifer storage and recovery program, and has several interties with surrounding water agencies.

The Western Placer Waste Management Authority is a regional agency handling recycling and waste disposal for Roseville and surrounding areas. Their facilities include a Material Recovery Facility and the Western Regional Sanitary Landfill. The City of Roseville has a Construction and Demolition Debris Ordinance that provides guidelines for reducing the amount of solid waste by recycling 50 percent of solid waste, including construction and demolition debris.

Utilities and related services within the proposed project area also include a sewer line, a water line, and storm drain system. The City is coordinating with the utility operators to relocate or accommodate all existing utilities.

DISCUSSION

a., b., d., e. The proposed project would not have any impact on water or wastewater systems, as it would replace the functionally obsolete Oak Ridge Drive Bridge over Linda Creek. Proposed project operations would not generate a demand for water because no drinking fountains, toilets, or other water-dependent facilities are planned for the proposed project. Relatively minor amount of water would be used during construction; however, these construction water demands would be temporary. Neither construction nor operation of the proposed project would generate substantial amounts of wastewater. Therefore, there are no impacts. No mitigation is required.

c. The proposed project would not generate a substantial amount of stormwater drainage such that new storm water drainage facilities would be required. The proposed project would replace the existing bridge and provide standard shoulders and sidewalks, resulting in an increase of impervious surface of approximately 0.1 acre. Therefore, stormwater runoff would not increase such that drainage facilities would require upgrading. Impacts are less than significant. No mitigation is required.

The City would require the contractor to submit a stormwater pollution prevention plan (SWPPP) that meets the requirements of the City's SWMP to handle stormwater discharges during construction and protect receiving water quality. These measures typically include, but are not limited to the following:

- Installing and maintaining temporary erosion controls, such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover.
- Covering bare areas with erosion control matting or mulch (straw, hay, or erosion control fabric) to stabilize the soil surfaces and reduce surface erosion following construction.

Compliance with the City's SWMP would ensure this impact is less than significant. No mitigation is required.

f., g. The proposed project would generate solid waste as a result of removing existing roadway materials and demolishing the existing bridge structure. The Western Placer Waste Management Authority (WPWMA), which operates the Western Regional Sanitary Landfill, estimates that the current space available, together with recovery efforts through the materials recovery program, would enable the landfill to accept waste well into the twenty-first century (WPWMA 2014). As specified in the City's design/construction standards for solid waste (section 151), the City would ensure that its contractor meets with the designated Roseville Environmental Utilities inspector prior to beginning work to ensure that an approved plan is in place to store and dispose of all construction debris, according to relevant federal, state, and local statutes. Therefore, these impacts are less than significant. No mitigation is required.

MANDATORY FINDINGS OF SIGNIFICANCE

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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) 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) Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

DISCUSSION

a.–c. With implementation of the City's Mitigating Ordinances, Guidelines, and Standards and best management practices (BMPs) listed in Chapter 2, mitigation measures described in this chapter, and state and federal permit conditions, the proposed project is not expected to have a significant impact on the habitat of any plant or animal species. Long-term environmental goals are not expected to be affected by the proposed project because there are no new cumulative impacts beyond what was disclosed in the City General Plan and City General Plan Environmental Impact Report (EIR). With incorporation of mitigation measures, the proposed project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of any wildlife species, or create adverse effects on human beings.

4.0 LIST OF PREPARERS

4.1 CITY OF ROSEVILLE

Hossein Naghibzadeh—Project Engineer

Mark Morse—Environmental Coordinator

4.2 QUINCY ENGINEERING

Howard Michael—Project Manager

4.3 DRAKE HAGLAN

Dennis Haglan—Project Manager/Project Engineer

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Wesley Salter, CEI—Environmental Professional, Planning/Environmental Services

Debby Hutchinson—Graphics

Faye Stroude—Graphics

4.6 SUB CONSULTANTS

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Carolyn Chainey-Davis—Botanist and Wetland Specialist, Chainey-Davis Biological Consulting

Alice Rich, PhD—Fishery and Ecological Specialist, A.A. Rich and Associates

5.0 REFERENCES

A.A. Rich and Associates. 2015. *Replacement of the Oak Ridge Drive Bridge, Placer County, Fishery Resources Biological Assessment.* May 2015.

Abacus Consulting Arborists. 2015. *Arborist Report and Preservation Recommendations for the Property of Oak Ridge Drive at Linda Creek.* May 2015.

California Air Resources Board (CARB). 2014. Final Regulation Order, Area Designations for State Ambient Air Quality Standards. Available: http://www.arb.ca.gov/regact/2013/area13/area13fro.pdf. Accessed September 18, 2014.

California Department of Conservation, Division of Land Resource Protection. 2010. Placer County Important Farmland 2010. Farmland Mapping and Monitoring Program. Map Published May 9, 2013.

California Department of Conservation, Division of Mines and Geology (California Geological Survey). 2012. . Alquist-Priolo Earthquake Fault Zones. Available: http://www.consrv.ca.gov/cgs/rghm/ap/Pages/official_release.aspx. Accessed March 16, 2013 and September 19, 2014.

———. 1995. *Mineral Land Classification of Placer County, California*. Open File Report 95-10.

———. 1981. California Geological Survey, Regional Geologic Map No. 1A. Available: http://www.quake.ca.gov/gmaps/RGM/sacramento/sacramento.html. Accessed March 16, 2014.

California Department of Forestry and Fire Protection (CalFire). 2008. Very High Fire Hazard Severity Zones in LRA. Recommended by CalFire. November 2008.

———. 2008. Very High Fire Hazard Severity Zones in SRA. Adopted by CalFire. November 2007.

California Department of Transportation. 2014. Caltrans ARS online – Fault Mapping Model. Available: http://dap3.dot.ca.gov/ARS_Online/index.php. Accessed March 16, 2014.

California Department of Transportation. California Scenic Highway Mapping System. Available at: http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm. Accessed September 18, 2014.

cbec, inc. (cbec). 2015. *Oak Ridge Drive Bridge Replacement Geomorphology Study*. May 2015.

Chainey-Davis Biological Consulting. 2014. *Waters Delineation Report for the Oak Ridge Drive Bridge Replacement Project*. July 2014.

EcoBridges Environmental Consulting. 2015a. *Oak Ridge Drive Bridge Replacement Project Natural Environment Study*. Including the *Oak Ridge Drive Bridge Replacement Project Biological Assessment*. May 2015.

j.c. brennan & associates. 2014a. *Construction Noise and Vibration Assessment, Oak Ridge Drive Bridge Replacement Project*. May 2014.

———. 2014b. *Supplemental Traffic Noise Assessment for the Oak Ridge Drive Bridge Replacement Project (Federal ID: 5182-057)*. December 2014.

Kimley-Horn and Associates, Inc. 2014. *Water Quality Technical Memorandum*. October 2014.

RBF Consulting. 2014a. *Phase I Initial Site Assessment for Oak Ridge Drive Bridge Project.* April 2014.

———. 2014b. *Air Quality Report for Oak Ridge Drive Bridge Project*. May 2014.

———.2014c. *(Draft) Oak Ridge Drive Bridge Replacement Project Hydrology and Hydraulic Design Report.* February 2014.

———. 2014d. *Scenic Resources Evaluation and Visual Impact Assessment Memorandum for the Oak Ridge Drive Bridge Project*. July 2014.

Tremaine & Associates, Inc. 2014. *Historic Property Survey Report*. July 2014.

———.2014. *Archaeological Survey Report, Bridge No. 19C0046, Industrial Avenue over Pleasant Grove Creek Replacement Project*. July 2014.

U.S. Census Bureau. 2000. Census 2000 Summary File 1. Available: http://www.census.gov/prod/cen2000/doc/sf1.pdf. Accessed March 14, 2014.

———. 2010. Census 2010 Summary File 1. Available: http://www.census.gov/prod/cen2010/doc/dpsf.pdf. Accessed on March 14, 2014.

———. 2014. Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2013. Release Date May 2014.

Western Placer Waste Management Authority. 2014. Western Regional Sanitary Landfill Information. Available: http://www.wpwma.com/landfill.html. Accessed March 16, 2014.

Appendix A

Air Quality and Greenhouse Gas Emissions Data

Parenthetical CALEEMOD Assumptions
For: Oak Ridge Bridge Project
Date: September 2014

CONSTRUCTION

- Other Asphalt Surfaces.
- 3,440 square feet.

Demolition (2016)

- 6 days.

Equipment:

Quantity	Type	Hours of Daily Operation
1	Concrete/Industrial Saws	8
1	Crane	8
3	Excavators	8
1	Rough Terrain Forklift	8
1	Rubber Tired Loader	8
2	Signal Boards	8
1	Skid Steer Loader	8
4	Tractors/Loaders/Backhoes	6

Grading 1 (2016)

- 2,800 cubic yards of cut and 800 cubic yards of fill.
- 22 days.

Equipment:

Quantity	Type	Hours of Daily Operation
1	Excavator	8
1	Grader	8
1	Roller	8
1	Signal Board	8
1	Skid Steer Loader	8
2	Tractors/Loaders/Backhoes	8

Grading 2 (2016)

- 500 cubic yards of import and 2,500 cubic yards of export.
- 23 days.

Equipment:

Quantity	Type	Hours of Daily Operation
2	Excavators	8
1	Roller	8
1	Rubber Tired Loader	8
1	Signal Board	8
2	Tractors/Loaders/Backhoes	8

Building Construction (2016)

- 95 days.

Equipment:

Quantity	Type	Hours of Daily Operation
1	Bore/Drill Rig	8
1	Crane	4
1	Rough Terrain Forklift	8
2	Signal Boards	8
2	Tractors/Loaders/Backhoes	8

Paving (2016)

- 3 days.

Equipment:

Quantity	Type	Hours of Daily Operation
1	Other Construction Equipment (Striping Truck)	8
1	Paver	7
1	Paving Equipment	8
2	Rollers	7
1	Rubber Tired Loader	8
2	Signal Boards	8
1	Surfacing Equipment	8
3	Tractors/Loaders/Backhoes	7

Oak Ridge Bridge Replacement Project

Sacramento Valley Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.00		0.00	3,440.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	65
Climate Zone	2			**Operational Year**	2016
Utility Company	Roseville Electric				
CO2 Intensity (lb/MWhr)	793.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 80'L, 42'W (including 1' railings) = 3,440SF

Construction Phase - Proposed Construction Schedule

Off-road Equipment - Proposed Equipment

Off-road Equipment - Proposed Equipment

Off-road Equipment - Proposed Equipment

Off-road Equipment - Proposed Equipment

Off-road Equipment - Other Construction Equipment: 1 Striping Truck

Grading - Acres disturbed split among 2 grading phases
Grading 1: 2,800 CY Cut and 800 CY Fill
Grading 2: 500 CY Import and 2,500 CY Export

Demolition -

Trips and VMT - Demolition Hauling Distance = 25 to reflect distance to disposal site;
Grading 1 Hauling Distance = 0.12 to reflect distance across the project site.

Construction Off-road Equipment Mitigation - Mitigation per PCAPCD Rule 228

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	95.00
tblConstructionPhase	NumDays	0.00	6.00
tblConstructionPhase	NumDays	0.00	23.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	22.00
tblGrading	AcresOfGrading	0.00	0.04
tblGrading	AcresOfGrading	11.00	0.04
tblGrading	MaterialExported	0.00	2,500.00
tblGrading	MaterialExported	0.00	800.00
tblGrading	MaterialImported	0.00	500.00
tblGrading	MaterialImported	0.00	2,800.00
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs

tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Surfacing Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripLength	20.00	25.00
tblTripsAndVMT	HaulingTripLength	20.00	0.12

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.1673	1.7943	1.1755	2.1600e-003	0.0112	0.0941	0.1053	3.0400e-003	0.0868	0.0899	0.0000	199.2113	199.2113	0.0500	0.0000	200.2615
Total	**0.1673**	**1.7943**	**1.1755**	**2.1600e-003**	**0.0112**	**0.0941**	**0.1053**	**3.0400e-003**	**0.0868**	**0.0899**	**0.0000**	**199.2113**	**199.2113**	**0.0500**	**0.0000**	**200.2615**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.1673	1.7943	1.1755	2.1600e-003	0.0112	0.0941	0.1053	3.0300e-003	0.0868	0.0899	0.0000	199.2111	199.2111	0.0500	0.0000	200.2613
Total	**0.1673**	**1.7943**	**1.1755**	**2.1600e-003**	**0.0112**	**0.0941**	**0.1053**	**3.0300e-003**	**0.0868**	**0.0899**	**0.0000**	**199.2111**	**199.2111**	**0.0500**	**0.0000**	**200.2613**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.27**	**0.00**	**0.02**	**0.33**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0174	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0174**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0174	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0174**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2016	5/9/2016	5	6	
2	Grading 1	Grading	5/10/2016	6/8/2016	5	22	
3	Grading 2	Grading	6/9/2016	7/11/2016	5	23	
4	Building Construction	Building Construction	7/12/2016	11/21/2016	5	95	
5	Paving	Paving	11/22/2016	11/24/2016	5	3	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading 1	Concrete/Industrial Saws	0	8.00	81	0.73
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading 2	Concrete/Industrial Saws	0	8.00	81	0.73
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	0	6.00	89	0.20
Grading 1	Graders	1	8.00	174	0.41
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	2	7.00	80	0.38
Demolition	Rubber Tired Dozers	0	1.00	255	0.40
Grading 2	Rubber Tired Dozers	0	1.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	4	6.00	97	0.37

Grading 2	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading 1	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading 1	Rubber Tired Dozers	0	1.00	255	0.40
Demolition	Cranes	1	8.00	226	0.29
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rough Terrain Forklifts	1	8.00	100	0.40
Demolition	Rubber Tired Loaders	1	8.00	199	0.36
Demolition	Signal Boards	2	8.00	6	0.82
Demolition	Skid Steer Loaders	1	8.00	64	0.37
Grading 1	Excavators	1	8.00	162	0.38
Grading 1	Rollers	1	8.00	80	0.38
Grading 1	Signal Boards	1	8.00	6	0.82
Grading 1	Skid Steer Loaders	1	8.00	64	0.37
Grading 2	Excavators	2	8.00	162	0.38
Grading 2	Rollers	1	8.00	80	0.38
Grading 2	Rubber Tired Loaders	1	8.00	199	0.36
Grading 2	Signal Boards	1	8.00	6	0.82
Building Construction	Bore/Drill Rigs	1	8.00	205	0.50
Building Construction	Rough Terrain Forklifts	1	8.00	100	0.40
Building Construction	Signal Boards	2	8.00	6	0.82
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rubber Tired Loaders	1	8.00	199	0.36
Paving	Signal Boards	2	8.00	6	0.82
Paving	Surfacing Equipment	1	8.00	253	0.30
Paving	Other Construction Equipment	1	8.00	171	0.42

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	14	35.00	0.00	340.00	10.80	7.30	25.00	LD_Mix	HDT_Mix	HHDT
Grading 1	7	18.00	0.00	277.00	10.80	7.30	0.12	LD_Mix	HDT_Mix	HHDT
Grading 2	7	18.00	0.00	297.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	1.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	12	30.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0135	0.1427	0.0914	1.5000e-004		7.8600e-003	7.8600e-003		7.3300e-003	7.3300e-003	0.0000	13.8904	13.8904	3.8100e-003	0.0000	13.9704
Total	**0.0135**	**0.1427**	**0.0914**	**1.5000e-004**		**7.8600e-003**	**7.8600e-003**		**7.3300e-003**	**7.3300e-003**	**0.0000**	**13.8904**	**13.8904**	**3.8100e-003**	**0.0000**	**13.9704**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.6400e-003	0.0556	0.0507	1.6000e-004	3.5800e-003	8.5000e-004	4.4300e-003	9.8000e-004	7.8000e-004	1.7700e-003	0.0000	14.3571	14.3571	1.0000e-004	0.0000	14.3592
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	5.0000e-004	5.0000e-003	1.0000e-005	8.3000e-004	1.0000e-005	8.4000e-004	2.2000e-004	1.0000e-005	2.3000e-004	0.0000	0.7453	0.7453	4.0000e-005	0.0000	0.7461
Total	**5.0300e-003**	**0.0561**	**0.0557**	**1.7000e-004**	**4.4100e-003**	**8.6000e-004**	**5.2700e-003**	**1.2000e-003**	**7.9000e-004**	**2.0000e-003**	**0.0000**	**15.1024**	**15.1024**	**1.4000e-004**	**0.0000**	**15.1054**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0135	0.1427	0.0914	1.5000e-004		7.8600e-003	7.8600e-003		7.3300e-003	7.3300e-003	0.0000	13.8904	13.8904	3.8100e-003	0.0000	13.9704
Total	**0.0135**	**0.1427**	**0.0914**	**1.5000e-004**		**7.8600e-003**	**7.8600e-003**		**7.3300e-003**	**7.3300e-003**	**0.0000**	**13.8904**	**13.8904**	**3.8100e-003**	**0.0000**	**13.9704**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.6400e-003	0.0556	0.0507	1.6000e-004	3.5800e-003	8.5000e-004	4.4300e-003	9.8000e-004	7.8000e-004	1.7700e-003	0.0000	14.3571	14.3571	1.0000e-004	0.0000	14.3592
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	5.0000e-004	5.0000e-003	1.0000e-005	8.3000e-004	1.0000e-005	8.4000e-004	2.2000e-004	1.0000e-005	2.3000e-004	0.0000	0.7453	0.7453	4.0000e-005	0.0000	0.7461
Total	**5.0300e-003**	**0.0561**	**0.0557**	**1.7000e-004**	**4.4100e-003**	**8.6000e-004**	**5.2700e-003**	**1.2000e-003**	**7.9000e-004**	**2.0000e-003**	**0.0000**	**15.1024**	**15.1024**	**1.4000e-004**	**0.0000**	**15.1054**

3.3 Grading 1 - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0286	0.2890	0.1857	2.5000e-004		0.0179	0.0179		0.0165	0.0165	0.0000	23.7493	23.7493	7.0700e-003	0.0000	23.8977
Total	**0.0286**	**0.2890**	**0.1857**	**2.5000e-004**	**2.0000e-005**	**0.0179**	**0.0179**	**0.0000**	**0.0165**	**0.0165**	**0.0000**	**23.7493**	**23.7493**	**7.0700e-003**	**0.0000**	**23.8977**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9100e-003	3.0300e-003	0.0287	0.0000	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	1.0000e-005	2.0000e-005	0.0000	0.2796	0.2796	1.0000e-005	0.0000	0.2798
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	9.4000e-004	9.4200e-003	2.0000e-005	1.5600e-003	1.0000e-005	1.5800e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.4054	1.4054	8.0000e-005	0.0000	1.4070
Total	**2.6400e-003**	**3.9700e-003**	**0.0381**	**2.0000e-005**	**1.5800e-003**	**2.0000e-005**	**1.6100e-003**	**4.2000e-004**	**2.0000e-005**	**4.5000e-004**	**0.0000**	**1.6850**	**1.6850**	**9.0000e-005**	**0.0000**	**1.6868**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0286	0.2890	0.1857	2.5000e-004		0.0179	0.0179		0.0165	0.0165	0.0000	23.7493	23.7493	7.0700e-003	0.0000	23.8977
Total	**0.0286**	**0.2890**	**0.1857**	**2.5000e-004**	**1.0000e-005**	**0.0179**	**0.0179**	**0.0000**	**0.0165**	**0.0165**	**0.0000**	**23.7493**	**23.7493**	**7.0700e-003**	**0.0000**	**23.8977**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9100e-003	3.0300e-003	0.0287	0.0000	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	1.0000e-005	2.0000e-005	0.0000	0.2796	0.2796	1.0000e-005	0.0000	0.2798
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	9.4000e-004	9.4200e-003	2.0000e-005	1.5600e-003	1.0000e-005	1.5800e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.4054	1.4054	8.0000e-005	0.0000	1.4070
Total	**2.6400e-003**	**3.9700e-003**	**0.0381**	**2.0000e-005**	**1.5800e-003**	**2.0000e-005**	**1.6100e-003**	**4.2000e-004**	**2.0000e-005**	**4.5000e-004**	**0.0000**	**1.6850**	**1.6850**	**9.0000e-005**	**0.0000**	**1.6868**

3.4 Grading 2 - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0251	0.2723	0.1682	2.8000e-004		0.0147	0.0147		0.0135	0.0135	0.0000	26.5356	26.5356	7.9000e-003	0.0000	26.7015
Total	**0.0251**	**0.2723**	**0.1682**	**2.8000e-004**	**2.0000e-005**	**0.0147**	**0.0147**	**0.0000**	**0.0135**	**0.0135**	**0.0000**	**26.5356**	**26.5356**	**7.9000e-003**	**0.0000**	**26.7015**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.6500e-003	0.0395	0.0416	1.1000e-004	2.5000e-003	6.0000e-004	3.1000e-003	6.9000e-004	5.5000e-004	1.2400e-003	0.0000	10.0813	10.0813	7.0000e-005	0.0000	10.0828
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	9.8000e-004	9.8500e-003	2.0000e-005	1.6300e-003	1.0000e-005	1.6500e-003	4.3000e-004	1.0000e-005	4.5000e-004	0.0000	1.4693	1.4693	8.0000e-005	0.0000	1.4709
Total	**4.4200e-003**	**0.0404**	**0.0514**	**1.3000e-004**	**4.1300e-003**	**6.1000e-004**	**4.7500e-003**	**1.1200e-003**	**5.6000e-004**	**1.6900e-003**	**0.0000**	**11.5505**	**11.5505**	**1.5000e-004**	**0.0000**	**11.5537**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0251	0.2723	0.1682	2.8000e-004		0.0147	0.0147		0.0135	0.0135	0.0000	26.5355	26.5355	7.9000e-003	0.0000	26.7015
Total	**0.0251**	**0.2723**	**0.1682**	**2.8000e-004**	**1.0000e-005**	**0.0147**	**0.0147**	**0.0000**	**0.0135**	**0.0135**	**0.0000**	**26.5355**	**26.5355**	**7.9000e-003**	**0.0000**	**26.7015**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.6500e-003	0.0395	0.0416	1.1000e-004	2.5000e-003	6.0000e-004	3.1000e-003	6.9000e-004	5.5000e-004	1.2400e-003	0.0000	10.0813	10.0813	7.0000e-005	0.0000	10.0828
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	9.8000e-004	9.8500e-003	2.0000e-005	1.6300e-003	1.0000e-005	1.6500e-003	4.3000e-004	1.0000e-005	4.5000e-004	0.0000	1.4693	1.4693	8.0000e-005	0.0000	1.4709
Total	**4.4200e-003**	**0.0404**	**0.0514**	**1.3000e-004**	**4.1300e-003**	**6.1000e-004**	**4.7500e-003**	**1.1200e-003**	**5.6000e-004**	**1.6900e-003**	**0.0000**	**11.5505**	**11.5505**	**1.5000e-004**	**0.0000**	**11.5537**

3.5 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0815	0.9239	0.5380	1.0700e-003		0.0488	0.0488		0.0450	0.0450	0.0000	99.3067	99.3067	0.0291	0.0000	99.9181
Total	**0.0815**	**0.9239**	**0.5380**	**1.0700e-003**		**0.0488**	**0.0488**		**0.0450**	**0.0450**	**0.0000**	**99.3067**	**99.3067**	**0.0291**	**0.0000**	**99.9181**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.5000e-004	4.4700e-003	7.4000e-003	1.0000e-005	3.0000e-004	7.0000e-005	3.8000e-004	9.0000e-005	7.0000e-005	1.5000e-004	0.0000	1.0202	1.0202	1.0000e-005	0.0000	1.0204
Worker	1.8000e-004	2.2000e-004	2.2600e-003	0.0000	3.8000e-004	0.0000	3.8000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3372	0.3372	2.0000e-005	0.0000	0.3375
Total	**8.3000e-004**	**4.6900e-003**	**9.6600e-003**	**1.0000e-005**	**6.8000e-004**	**7.0000e-005**	**7.6000e-004**	**1.9000e-004**	**7.0000e-005**	**2.5000e-004**	**0.0000**	**1.3574**	**1.3574**	**3.0000e-005**	**0.0000**	**1.3579**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0815	0.9239	0.5380	1.0700e-003		0.0488	0.0488		0.0450	0.0450	0.0000	99.3066	99.3066	0.0291	0.0000	99.9179
Total	**0.0815**	**0.9239**	**0.5380**	**1.0700e-003**		**0.0488**	**0.0488**		**0.0450**	**0.0450**	**0.0000**	**99.3066**	**99.3066**	**0.0291**	**0.0000**	**99.9179**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.5000e-004	4.4700e-003	7.4000e-003	1.0000e-005	3.0000e-004	7.0000e-005	3.8000e-004	9.0000e-005	7.0000e-005	1.5000e-004	0.0000	1.0202	1.0202	1.0000e-005	0.0000	1.0204
Worker	1.8000e-004	2.2000e-004	2.2600e-003	0.0000	3.8000e-004	0.0000	3.8000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3372	0.3372	2.0000e-005	0.0000	0.3375
Total	**8.3000e-004**	**4.6900e-003**	**9.6600e-003**	**1.0000e-005**	**6.8000e-004**	**7.0000e-005**	**7.6000e-004**	**1.9000e-004**	**7.0000e-005**	**2.5000e-004**	**0.0000**	**1.3574**	**1.3574**	**3.0000e-005**	**0.0000**	**1.3579**

3.6 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.5600e-003	0.0611	0.0352	6.0000e-005		3.3300e-003	3.3300e-003		3.0600e-003	3.0600e-003	0.0000	5.7147	5.7147	1.7000e-003	0.0000	5.7503
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.5600e-003**	**0.0611**	**0.0352**	**6.0000e-005**		**3.3300e-003**	**3.3300e-003**		**3.0600e-003**	**3.0600e-003**	**0.0000**	**5.7147**	**5.7147**	**1.7000e-003**	**0.0000**	**5.7503**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	2.1000e-004	2.1400e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3194	0.3194	2.0000e-005	0.0000	0.3198
Total	**1.7000e-004**	**2.1000e-004**	**2.1400e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3194**	**0.3194**	**2.0000e-005**	**0.0000**	**0.3198**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.5600e-003	0.0611	0.0352	6.0000e-005		3.3300e-003	3.3300e-003		3.0600e-003	3.0600e-003	0.0000	5.7147	5.7147	1.7000e-003	0.0000	5.7503
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.5600e-003**	**0.0611**	**0.0352**	**6.0000e-005**		**3.3300e-003**	**3.3300e-003**		**3.0600e-003**	**3.0600e-003**	**0.0000**	**5.7147**	**5.7147**	**1.7000e-003**	**0.0000**	**5.7503**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	2.1000e-004	2.1400e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3194	0.3194	2.0000e-005	0.0000	0.3198
Total	**1.7000e-004**	**2.1000e-004**	**2.1400e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3194**	**0.3194**	**2.0000e-005**	**0.0000**	**0.3198**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.462992	0.061838	0.181170	0.154683	0.057449	0.007359	0.019227	0.041233	0.001831	0.001687	0.006984	0.000699	0.002847

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0174	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0174	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.9900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0134					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0174**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	0.0134					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Architectural Coating	3.9900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0174**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Oak Ridge Bridge Replacement Project

Sacramento Valley Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.00		0.00	3,440.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	65
Climate Zone	2			**Operational Year**	2016
Utility Company	Roseville Electric				
CO2 Intensity (lb/MWhr)	793.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 80'L, 42'W (including 1' railings) = 3,440SF

Construction Phase - Proposed Construction Schedule

Off-road Equipment - Proposed Equipment

Off-road Equipment - Proposed Equipment

Off-road Equipment - Proposed Equipment

Off-road Equipment - Proposed Equipment

Off-road Equipment - Other Construction Equipment: 1 Striping Truck

Grading - Acres disturbed split among 2 grading phases
Grading 1: 2,800 CY Cut and 800 CY Fill
Grading 2: 500 CY Import and 2,500 CY Export

Demolition -

Trips and VMT - Demolition Hauling Distance = 25 to reflect distance to disposal site;
Grading 1 Hauling Distance = 0.12 to reflect distance across the project site.

Construction Off-road Equipment Mitigation - Mitigation per PCAPCD Rule 228

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	95.00
tblConstructionPhase	NumDays	0.00	6.00
tblConstructionPhase	NumDays	0.00	23.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	22.00
tblGrading	AcresOfGrading	0.00	0.04
tblGrading	AcresOfGrading	11.00	0.04
tblGrading	MaterialExported	0.00	2,500.00
tblGrading	MaterialExported	0.00	800.00
tblGrading	MaterialImported	0.00	500.00
tblGrading	MaterialImported	0.00	2,800.00
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs

tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Surfacing Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripLength	20.00	25.00
tblTripsAndVMT	HaulingTripLength	20.00	0.12

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	6.3761	66.6834	52.6400	0.1058	1.5229	2.9076	4.4305	0.4147	2.7048	3.1195	0.0000	10,639.4031	10,639.4031	1.4508	0.0000	10,669.8707
Total	**6.3761**	**66.6834**	**52.6400**	**0.1058**	**1.5229**	**2.9076**	**4.4305**	**0.4147**	**2.7048**	**3.1195**	**0.0000**	**10,639.4031**	**10,639.4031**	**1.4508**	**0.0000**	**10,669.8707**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	6.3761	66.6834	52.6400	0.1058	1.5229	2.9076	4.4305	0.4147	2.7048	3.1195	0.0000	10,639.4031	10,639.4031	1.4508	0.0000	10,669.8707
Total	**6.3761**	**66.6834**	**52.6400**	**0.1058**	**1.5229**	**2.9076**	**4.4305**	**0.4147**	**2.7048**	**3.1195**	**0.0000**	**10,639.4031**	**10,639.4031**	**1.4508**	**0.0000**	**10,669.8707**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0955	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0955**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0955	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0955**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2016	5/9/2016	5	6	
2	Grading 1	Grading	5/10/2016	6/8/2016	5	22	
3	Grading 2	Grading	6/9/2016	7/11/2016	5	23	
4	Building Construction	Building Construction	7/12/2016	11/21/2016	5	95	
5	Paving	Paving	11/22/2016	11/24/2016	5	3	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading 1	Concrete/Industrial Saws	0	8.00	81	0.73
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading 2	Concrete/Industrial Saws	0	8.00	81	0.73
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	0	6.00	89	0.20
Grading 1	Graders	1	8.00	174	0.41
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	2	7.00	80	0.38
Demolition	Rubber Tired Dozers	0	1.00	255	0.40
Grading 2	Rubber Tired Dozers	0	1.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	4	6.00	97	0.37

Grading 2	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading 1	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading 1	Rubber Tired Dozers	0	1.00	255	0.40
Demolition	Cranes	1	8.00	226	0.29
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rough Terrain Forklifts	1	8.00	100	0.40
Demolition	Rubber Tired Loaders	1	8.00	199	0.36
Demolition	Signal Boards	2	8.00	6	0.82
Demolition	Skid Steer Loaders	1	8.00	64	0.37
Grading 1	Excavators	1	8.00	162	0.38
Grading 1	Rollers	1	8.00	80	0.38
Grading 1	Signal Boards	1	8.00	6	0.82
Grading 1	Skid Steer Loaders	1	8.00	64	0.37
Grading 2	Excavators	2	8.00	162	0.38
Grading 2	Rollers	1	8.00	80	0.38
Grading 2	Rubber Tired Loaders	1	8.00	199	0.36
Grading 2	Signal Boards	1	8.00	6	0.82
Building Construction	Bore/Drill Rigs	1	8.00	205	0.50
Building Construction	Rough Terrain Forklifts	1	8.00	100	0.40
Building Construction	Signal Boards	2	8.00	6	0.82
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rubber Tired Loaders	1	8.00	199	0.36
Paving	Signal Boards	2	8.00	6	0.82
Paving	Surfacing Equipment	1	8.00	253	0.30
Paving	Other Construction Equipment	1	8.00	171	0.42

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	14	35.00	0.00	340.00	10.80	7.30	25.00	LD_Mix	HDT_Mix	HHDT
Grading 1	7	18.00	0.00	277.00	10.80	7.30	0.12	LD_Mix	HDT_Mix	HHDT
Grading 2	7	18.00	0.00	297.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	1.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	12	30.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.4913	47.5782	30.4673	0.0501		2.6215	2.6215		2.4418	2.4418		5,103.8637	5,103.8637	1.3986		5,133.2340
Total	**4.4913**	**47.5782**	**30.4673**	**0.0501**		**2.6215**	**2.6215**		**2.4418**	**2.4418**		**5,103.8637**	**5,103.8637**	**1.3986**		**5,133.2340**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.7494	18.9196	20.4426	0.0524	1.2354	0.2839	1.5193	0.3384	0.2611	0.5995		5,269.5402	5,269.5402	0.0372		5,270.3214
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1354	0.1855	1.7302	3.2400e-003	0.2875	2.1600e-003	0.2897	0.0763	1.9700e-003	0.0782		265.9991	265.9991	0.0151		266.3153
Total	**1.8848**	**19.1051**	**22.1727**	**0.0556**	**1.5229**	**0.2861**	**1.8090**	**0.4147**	**0.2630**	**0.6777**		**5,535.5394**	**5,535.5394**	**0.0523**		**5,536.6367**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.4913	47.5782	30.4673	0.0501		2.6215	2.6215		2.4418	2.4418	0.0000	5,103.8637	5,103.8637	1.3986		5,133.2340
Total	**4.4913**	**47.5782**	**30.4673**	**0.0501**		**2.6215**	**2.6215**		**2.4418**	**2.4418**	**0.0000**	**5,103.8637**	**5,103.8637**	**1.3986**		**5,133.2340**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.7494	18.9196	20.4426	0.0524	1.2354	0.2839	1.5193	0.3384	0.2611	0.5995		5,269.5402	5,269.5402	0.0372		5,270.3214
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1354	0.1855	1.7302	3.2400e-003	0.2875	2.1600e-003	0.2897	0.0763	1.9700e-003	0.0782		265.9991	265.9991	0.0151		266.3153
Total	**1.8848**	**19.1051**	**22.1727**	**0.0556**	**1.5229**	**0.2861**	**1.8090**	**0.4147**	**0.2630**	**0.6777**		**5,535.5394**	**5,535.5394**	**0.0523**		**5,536.6367**

3.3 Grading 1 - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9300e-003	0.0000	1.9300e-003	2.1000e-004	0.0000	2.1000e-004			0.0000			0.0000
Off-Road	2.5963	26.2692	16.8855	0.0231		1.6280	1.6280		1.4989	1.4989		2,379.9229	2,379.9229	0.7081		2,394.7933
Total	**2.5963**	**26.2692**	**16.8855**	**0.0231**	**1.9300e-003**	**1.6280**	**1.6299**	**2.1000e-004**	**1.4989**	**1.4991**		**2,379.9229**	**2,379.9229**	**0.7081**		**2,394.7933**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2188	0.2785	3.3997	3.2000e-004	1.5800e-003	1.3500e-003	2.9300e-003	4.6000e-004	1.2000e-003	1.6600e-003		26.7315	26.7315	7.9000e-004		26.7481
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0696	0.0954	0.8898	1.6600e-003	0.1479	1.1100e-003	0.1490	0.0392	1.0200e-003	0.0402		136.7996	136.7996	7.7400e-003		136.9621
Total	**0.2885**	**0.3739**	**4.2895**	**1.9800e-003**	**0.1495**	**2.4600e-003**	**0.1519**	**0.0397**	**2.2200e-003**	**0.0419**		**163.5310**	**163.5310**	**8.5300e-003**		**163.7102**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.2000e-004	0.0000	8.2000e-004	9.0000e-005	0.0000	9.0000e-005			0.0000			0.0000
Off-Road	2.5963	26.2692	16.8855	0.0231		1.6280	1.6280		1.4989	1.4989	0.0000	2,379.9229	2,379.9229	0.7081		2,394.7933
Total	**2.5963**	**26.2692**	**16.8855**	**0.0231**	**8.2000e-004**	**1.6280**	**1.6288**	**9.0000e-005**	**1.4989**	**1.4990**	**0.0000**	**2,379.9229**	**2,379.9229**	**0.7081**		**2,394.7933**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2188	0.2785	3.3997	3.2000e-004	1.5800e-003	1.3500e-003	2.9300e-003	4.6000e-004	1.2000e-003	1.6600e-003		26.7315	26.7315	7.9000e-004		26.7481
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0696	0.0954	0.8898	1.6600e-003	0.1479	1.1100e-003	0.1490	0.0392	1.0200e-003	0.0402		136.7996	136.7996	7.7400e-003		136.9621
Total	**0.2885**	**0.3739**	**4.2895**	**1.9800e-003**	**0.1495**	**2.4600e-003**	**0.1519**	**0.0397**	**2.2200e-003**	**0.0419**		**163.5310**	**163.5310**	**8.5300e-003**		**163.7102**

3.4 Grading 2 - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.8400e-003	0.0000	1.8400e-003	2.0000e-004	0.0000	2.0000e-004			0.0000			0.0000
Off-Road	2.1783	23.6794	14.6251	0.0247		1.2756	1.2756		1.1747	1.1747		2,543.5174	2,543.5174	0.7575		2,559.4241
Total	**2.1783**	**23.6794**	**14.6251**	**0.0247**	**1.8400e-003**	**1.2756**	**1.2774**	**2.0000e-004**	**1.1747**	**1.1749**		**2,543.5174**	**2,543.5174**	**0.7575**		**2,559.4241**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3636	3.5023	4.4229	9.6100e-003	0.2253	0.0520	0.2773	0.0617	0.0478	0.1095		964.9978	964.9978	6.9400e-003		965.1435
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0696	0.0954	0.8898	1.6600e-003	0.1479	1.1100e-003	0.1490	0.0392	1.0200e-003	0.0402		136.7996	136.7996	7.4400e-003		136.9621
Total	**0.4333**	**3.5977**	**5.3127**	**0.0113**	**0.3731**	**0.0531**	**0.4262**	**0.1009**	**0.0488**	**0.1497**		**1,101.7974**	**1,101.7974**	**0.0147**		**1,102.1056**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.9000e-004	0.0000	7.9000e-004	9.0000e-005	0.0000	9.0000e-005			0.0000			0.0000
Off-Road	2.1783	23.6794	14.6251	0.0247		1.2756	1.2756		1.1747	1.1747	0.0000	2,543.5174	2,543.5174	0.7575		2,559.4241
Total	**2.1783**	**23.6794**	**14.6251**	**0.0247**	**7.9000e-004**	**1.2756**	**1.2764**	**9.0000e-005**	**1.1747**	**1.1747**	**0.0000**	**2,543.5174**	**2,543.5174**	**0.7575**		**2,559.4241**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3636	3.5023	4.4229	9.6100e-003	0.2253	0.0520	0.2773	0.0617	0.0478	0.1095		964.9978	964.9978	6.9400e-003		965.1435
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0696	0.0954	0.8898	1.6600e-003	0.1479	1.1100e-003	0.1490	0.0392	1.0200e-003	0.0402		136.7996	136.7996	7.7400e-003		136.9621
Total	**0.4333**	**3.5977**	**5.3127**	**0.0113**	**0.3731**	**0.0531**	**0.4262**	**0.1009**	**0.0488**	**0.1497**		**1,101.7974**	**1,101.7974**	**0.0147**		**1,102.1056**

3.5 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7167	19.4502	11.3254	0.0226		1.0271	1.0271		0.9472	0.9472		2,304.5657	2,304.5657	0.6756		2,318.7539
Total	**1.7167**	**19.4502**	**11.3254**	**0.0226**		**1.0271**	**1.0271**		**0.9472**	**0.9472**		**2,304.5657**	**2,304.5657**	**0.6756**		**2,318.7539**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0162	0.0956	0.1978	2.4000e-004	6.6300e-003	1.5400e-003	8.1800e-003	1.8900e-003	1.4200e-003	3.3100e-003		23.5701	23.5701	1.9000e-004		23.5741
Worker	3.8700e-003	5.3000e-003	0.0494	9.0000e-005	8.2100e-003	6.0000e-005	8.2800e-003	2.1800e-003	6.0000e-005	2.2400e-003		7.6000	7.6000	4.3000e-004		7.6090
Total	**0.0201**	**0.1009**	**0.2472**	**3.3000e-004**	**0.0148**	**1.6000e-003**	**0.0165**	**4.0700e-003**	**1.4800e-003**	**5.5500e-003**		**31.1701**	**31.1701**	**6.2000e-004**		**31.1831**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7167	19.4502	11.3254	0.0226		1.0271	1.0271		0.9472	0.9472	0.0000	2,304.5656	2,304.5656	0.6756		2,318.7538
Total	**1.7167**	**19.4502**	**11.3254**	**0.0226**		**1.0271**	**1.0271**		**0.9472**	**0.9472**	**0.0000**	**2,304.5656**	**2,304.5656**	**0.6756**		**2,318.7538**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0162	0.0956	0.1978	2.4000e-004	6.6300e-003	1.5400e-003	8.1800e-003	1.8900e-003	1.4200e-003	3.3100e-003		23.5701	23.5701	1.9000e-004		23.5741
Worker	3.8700e-003	5.3000e-003	0.0494	9.0000e-005	8.2100e-003	6.0000e-005	8.2800e-003	2.1800e-003	6.0000e-005	2.2400e-003		7.6000	7.6000	4.3000e-004		7.6090
Total	**0.0201**	**0.1009**	**0.2472**	**3.3000e-004**	**0.0148**	**1.6000e-003**	**0.0165**	**4.0700e-003**	**1.4800e-003**	**5.5500e-003**		**31.1701**	**31.1701**	**6.2000e-004**		**31.1831**

3.6 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.7080	40.7016	23.4917	0.0409		2.2169	2.2169		2.0418	2.0418		4,199.5685	4,199.5685	1.2472		4,225.7604
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7080**	**40.7016**	**23.4917**	**0.0409**		**2.2169**	**2.2169**		**2.0418**	**2.0418**		**4,199.5685**	**4,199.5685**	**1.2472**		**4,225.7604**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1161	0.1590	1.4830	2.7700e-003	0.2464	1.8500e-003	0.2483	0.0654	1.6900e-003	0.0671		227.9993	227.9993	0.0129		228.2702
Total	**0.1161**	**0.1590**	**1.4830**	**2.7700e-003**	**0.2464**	**1.8500e-003**	**0.2483**	**0.0654**	**1.6900e-003**	**0.0671**		**227.9993**	**227.9993**	**0.0129**		**228.2702**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.7080	40.7016	23.4917	0.0409		2.2169	2.2169		2.0418	2.0418	0.0000	4,199.5685	4,199.5685	1.2472		4,225.7603
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7080**	**40.7016**	**23.4917**	**0.0409**		**2.2169**	**2.2169**		**2.0418**	**2.0418**	**0.0000**	**4,199.5685**	**4,199.5685**	**1.2472**		**4,225.7603**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1161	0.1590	1.4830	2.7700e-003	0.2464	1.8500e-003	0.2483	0.0654	1.6900e-003	0.0671		227.9993	227.9993	0.0129		228.2702
Total	**0.1161**	**0.1590**	**1.4830**	**2.7700e-003**	**0.2464**	**1.8500e-003**	**0.2483**	**0.0654**	**1.6900e-003**	**0.0671**		**227.9993**	**227.9993**	**0.0129**		**228.2702**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.462992	0.061838	0.181170	0.154683	0.057449	0.007359	0.019227	0.041233	0.001831	0.001687	0.006984	0.000699	0.002847

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0955	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0955	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	0.0736					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Architectural Coating	0.0218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0955**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	0.0736					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Architectural Coating	0.0218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0955**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Oak Ridge Bridge Replacement Project

Sacramento Valley Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.00		0.00	3,440.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	65
Climate Zone	2			**Operational Year**	2016
Utility Company	Roseville Electric				
CO2 Intensity (lb/MWhr)	793.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 80'L, 42'W (including 1' railings) = 3,440SF

Construction Phase - Proposed Construction Schedule

Off-road Equipment - Proposed Equipment

Off-road Equipment - Proposed Equipment

Off-road Equipment - Proposed Equipment

Off-road Equipment - Proposed Equipment

Off-road Equipment - Other Construction Equipment: 1 Striping Truck

Grading - Acres disturbed split among 2 grading phases
Grading 1: 2,800 CY Cut and 800 CY Fill
Grading 2: 500 CY Import and 2,500 CY Export

Demolition -

Trips and VMT - Demolition Hauling Distance = 25 to reflect distance to disposal site;
Grading 1 Hauling Distance = 0.12 to reflect distance across the project site.

Construction Off-road Equipment Mitigation - Mitigation per PCAPCD Rule 228

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	95.00
tblConstructionPhase	NumDays	0.00	6.00
tblConstructionPhase	NumDays	0.00	23.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	22.00
tblGrading	AcresOfGrading	0.00	0.04
tblGrading	AcresOfGrading	11.00	0.04
tblGrading	MaterialExported	0.00	2,500.00
tblGrading	MaterialExported	0.00	800.00
tblGrading	MaterialImported	0.00	500.00
tblGrading	MaterialImported	0.00	2,800.00
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs

tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Surfacing Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripLength	20.00	25.00
tblTripsAndVMT	HaulingTripLength	20.00	0.12

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	6.0831	65.2262	47.1498	0.1062	1.5229	2.9068	4.4297	0.4147	2.7041	3.1188	0.0000	10,685.7311	10,685.7311	1.4504	0.0000	10,716.1900
Total	**6.0831**	**65.2262**	**47.1498**	**0.1062**	**1.5229**	**2.9068**	**4.4297**	**0.4147**	**2.7041**	**3.1188**	**0.0000**	**10,685.7311**	**10,685.7311**	**1.4504**	**0.0000**	**10,716.1900**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	6.0831	65.2262	47.1498	0.1062	1.5229	2.9068	4.4297	0.4147	2.7041	3.1188	0.0000	10,685.7311	10,685.7311	1.4504	0.0000	10,716.1900
Total	**6.0831**	**65.2262**	**47.1498**	**0.1062**	**1.5229**	**2.9068**	**4.4297**	**0.4147**	**2.7041**	**3.1188**	**0.0000**	**10,685.7311**	**10,685.7311**	**1.4504**	**0.0000**	**10,716.1900**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0955	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0955**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0955	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0955**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2016	5/9/2016	5	6	
2	Grading 1	Grading	5/10/2016	6/8/2016	5	22	
3	Grading 2	Grading	6/9/2016	7/11/2016	5	23	
4	Building Construction	Building Construction	7/12/2016	11/21/2016	5	95	
5	Paving	Paving	11/22/2016	11/24/2016	5	3	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading 1	Concrete/Industrial Saws	0	8.00	81	0.73
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading 2	Concrete/Industrial Saws	0	8.00	81	0.73
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	0	6.00	89	0.20
Grading 1	Graders	1	8.00	174	0.41
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	2	7.00	80	0.38
Demolition	Rubber Tired Dozers	0	1.00	255	0.40
Grading 2	Rubber Tired Dozers	0	1.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	4	6.00	97	0.37

Grading 2	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading 1	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading 1	Rubber Tired Dozers	0	1.00	255	0.40
Demolition	Cranes	1	8.00	226	0.29
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rough Terrain Forklifts	1	8.00	100	0.40
Demolition	Rubber Tired Loaders	1	8.00	199	0.36
Demolition	Signal Boards	2	8.00	6	0.82
Demolition	Skid Steer Loaders	1	8.00	64	0.37
Grading 1	Excavators	1	8.00	162	0.38
Grading 1	Rollers	1	8.00	80	0.38
Grading 1	Signal Boards	1	8.00	6	0.82
Grading 1	Skid Steer Loaders	1	8.00	64	0.37
Grading 2	Excavators	2	8.00	162	0.38
Grading 2	Rollers	1	8.00	80	0.38
Grading 2	Rubber Tired Loaders	1	8.00	199	0.36
Grading 2	Signal Boards	1	8.00	6	0.82
Building Construction	Bore/Drill Rigs	1	8.00	205	0.50
Building Construction	Rough Terrain Forklifts	1	8.00	100	0.40
Building Construction	Signal Boards	2	8.00	6	0.82
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rubber Tired Loaders	1	8.00	199	0.36
Paving	Signal Boards	2	8.00	6	0.82
Paving	Surfacing Equipment	1	8.00	253	0.30
Paving	Other Construction Equipment	1	8.00	171	0.42

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	14	35.00	0.00	340.00	10.80	7.30	25.00	LD_Mix	HDT_Mix	HHDT
Grading 1	7	18.00	0.00	277.00	10.80	7.30	0.12	LD_Mix	HDT_Mix	HHDT
Grading 2	7	18.00	0.00	297.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	1.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	12	30.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.4913	47.5782	30.4673	0.0501		2.6215	2.6215		2.4418	2.4418		5,103.8637	5,103.8637	1.3986		5,133.2340
Total	**4.4913**	**47.5782**	**30.4673**	**0.0501**		**2.6215**	**2.6215**		**2.4418**	**2.4418**		**5,103.8637**	**5,103.8637**	**1.3986**		**5,133.2340**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4372	17.4993	14.7735	0.0524	1.2354	0.2832	1.5186	0.3384	0.2604	0.5988		5,279.5429	5,279.5429	0.0368		5,280.3154
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1546	0.1487	1.9089	3.6800e-003	0.2875	2.1600e-003	0.2897	0.0763	1.9700e-003	0.0782		302.3245	302.3245	0.0151		302.6406
Total	**1.5918**	**17.6480**	**16.6825**	**0.0561**	**1.5229**	**0.2854**	**1.8083**	**0.4147**	**0.2623**	**0.6770**		**5,581.8674**	**5,581.8674**	**0.0518**		**5,582.9560**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.4913	47.5782	30.4673	0.0501		2.6215	2.6215		2.4418	2.4418	0.0000	5,103.8637	5,103.8637	1.3986		5,133.2340
Total	**4.4913**	**47.5782**	**30.4673**	**0.0501**		**2.6215**	**2.6215**		**2.4418**	**2.4418**	**0.0000**	**5,103.8637**	**5,103.8637**	**1.3986**		**5,133.2340**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4372	17.4993	14.7735	0.0524	1.2354	0.2832	1.5186	0.3384	0.2604	0.5988		5,279.5429	5,279.5429	0.0368		5,280.3154
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1546	0.1487	1.9089	3.6800e-003	0.2875	2.1600e-003	0.2897	0.0763	1.9700e-003	0.0782		302.3245	302.3245	0.0151		302.6406
Total	**1.5918**	**17.6480**	**16.6825**	**0.0561**	**1.5229**	**0.2854**	**1.8083**	**0.4147**	**0.2623**	**0.6770**		**5,581.8674**	**5,581.8674**	**0.0518**		**5,582.9560**

3.3 Grading 1 - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9300e-003	0.0000	1.9300e-003	2.1000e-004	0.0000	2.1000e-004			0.0000			0.0000
Off-Road	2.5963	26.2692	16.8855	0.0231		1.6280	1.6280		1.4989	1.4989		2,379.9229	2,379.9229	0.7081		2,394.7933
Total	**2.5963**	**26.2692**	**16.8855**	**0.0231**	**1.9300e-003**	**1.6280**	**1.6299**	**2.1000e-004**	**1.4989**	**1.4991**		**2,379.9229**	**2,379.9229**	**0.7081**		**2,394.7933**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1494	0.2710	2.1303	3.2000e-004	1.5800e-003	1.1800e-003	2.7600e-003	4.6000e-004	1.0500e-003	1.5100e-003		28.9540	28.9540	7.0000e-004		28.9687
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0795	0.0765	0.9817	1.8900e-003	0.1479	1.1100e-003	0.1490	0.0392	1.0200e-003	0.0402		155.4812	155.4812	7.7400e-003		155.6437
Total	**0.2289**	**0.3474**	**3.1120**	**2.2100e-003**	**0.1495**	**2.2900e-003**	**0.1517**	**0.0397**	**2.0700e-003**	**0.0418**		**184.4351**	**184.4351**	**8.4400e-003**		**184.6124**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.2000e-004	0.0000	8.2000e-004	9.0000e-005	0.0000	9.0000e-005			0.0000			0.0000
Off-Road	2.5963	26.2692	16.8855	0.0231		1.6280	1.6280		1.4989	1.4989	0.0000	2,379.9229	2,379.9229	0.7081		2,394.7933
Total	**2.5963**	**26.2692**	**16.8855**	**0.0231**	**8.2000e-004**	**1.6280**	**1.6288**	**9.0000e-005**	**1.4989**	**1.4990**	**0.0000**	**2,379.9229**	**2,379.9229**	**0.7081**		**2,394.7933**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1494	0.2710	2.1303	3.2000e-004	1.5800e-003	1.1800e-003	2.7600e-003	4.6000e-004	1.0500e-003	1.5100e-003		28.9540	28.9540	7.0000e-004		28.9687
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0795	0.0765	0.9817	1.8900e-003	0.1479	1.1100e-003	0.1490	0.0392	1.0200e-003	0.0402		155.4812	155.4812	7.7400e-003		155.6437
Total	**0.2289**	**0.3474**	**3.1120**	**2.2100e-003**	**0.1495**	**2.2900e-003**	**0.1517**	**0.0397**	**2.0700e-003**	**0.0418**		**184.4351**	**184.4351**	**8.4400e-003**		**184.6124**

3.4 Grading 2 - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.8400e-003	0.0000	1.8400e-003	2.0000e-004	0.0000	2.0000e-004			0.0000			0.0000
Off-Road	2.1783	23.6794	14.6251	0.0247		1.2756	1.2756		1.1747	1.1747		2,543.5174	2,543.5174	0.7575		2,559.4241
Total	**2.1783**	**23.6794**	**14.6251**	**0.0247**	**1.8400e-003**	**1.2756**	**1.2774**	**2.0000e-004**	**1.1747**	**1.1749**		**2,543.5174**	**2,543.5174**	**0.7575**		**2,559.4241**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2925	3.2422	3.1291	9.6100e-003	0.2253	0.0518	0.2771	0.0617	0.0476	0.1093		967.2772	967.2772	6.8400e-003		967.4209
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0795	0.0765	0.9817	1.8900e-003	0.1479	1.1100e-003	0.1490	0.0392	1.0200e-003	0.0402		155.4812	155.4812	7.4400e-003		155.6437
Total	**0.3720**	**3.3186**	**4.1108**	**0.0115**	**0.3731**	**0.0529**	**0.4261**	**0.1009**	**0.0486**	**0.1496**		**1,122.7583**	**1,122.7583**	**0.0146**		**1,123.0646**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.9000e-004	0.0000	7.9000e-004	9.0000e-005	0.0000	9.0000e-005			0.0000			0.0000
Off-Road	2.1783	23.6794	14.6251	0.0247		1.2756	1.2756		1.1747	1.1747	0.0000	2,543.5174	2,543.5174	0.7575		2,559.4241
Total	**2.1783**	**23.6794**	**14.6251**	**0.0247**	**7.9000e-004**	**1.2756**	**1.2764**	**9.0000e-005**	**1.1747**	**1.1747**	**0.0000**	**2,543.5174**	**2,543.5174**	**0.7575**		**2,559.4241**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2925	3.2422	3.1291	9.6100e-003	0.2253	0.0518	0.2771	0.0617	0.0476	0.1093		967.2772	967.2772	6.8400e-003		967.4209
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0795	0.0765	0.9817	1.8900e-003	0.1479	1.1100e-003	0.1490	0.0392	1.0200e-003	0.0402		155.4812	155.4812	7.4400e-003		155.6437
Total	**0.3720**	**3.3186**	**4.1108**	**0.0115**	**0.3731**	**0.0529**	**0.4261**	**0.1009**	**0.0486**	**0.1496**		**1,122.7583**	**1,122.7583**	**0.0146**		**1,123.0646**

3.5 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7167	19.4502	11.3254	0.0226		1.0271	1.0271		0.9472	0.9472		2,304.5657	2,304.5657	0.6756		2,318.7539
Total	**1.7167**	**19.4502**	**11.3254**	**0.0226**		**1.0271**	**1.0271**		**0.9472**	**0.9472**		**2,304.5657**	**2,304.5657**	**0.6756**		**2,318.7539**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0124	0.0894	0.1300	2.4000e-004	6.6300e-003	1.5200e-003	8.1600e-003	1.8900e-003	1.4000e-003	3.2900e-003		23.7520	23.7520	1.9000e-004		23.7559
Worker	4.4200e-003	4.2500e-003	0.0545	1.1000e-004	8.2100e-003	6.0000e-005	8.2800e-003	2.1800e-003	6.0000e-005	2.2400e-003		8.6378	8.6378	4.3000e-004		8.6469
Total	**0.0168**	**0.0937**	**0.1845**	**3.5000e-004**	**0.0148**	**1.5800e-003**	**0.0164**	**4.0700e-003**	**1.4600e-003**	**5.5300e-003**		**32.3899**	**32.3899**	**6.2000e-004**		**32.4028**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7167	19.4502	11.3254	0.0226		1.0271	1.0271		0.9472	0.9472	0.0000	2,304.5656	2,304.5656	0.6756		2,318.7538
Total	**1.7167**	**19.4502**	**11.3254**	**0.0226**		**1.0271**	**1.0271**		**0.9472**	**0.9472**	**0.0000**	**2,304.5656**	**2,304.5656**	**0.6756**		**2,318.7538**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0124	0.0894	0.1300	2.4000e-004	6.6300e-003	1.5200e-003	8.1600e-003	1.8900e-003	1.4000e-003	3.2900e-003		23.7520	23.7520	1.9000e-004		23.7559
Worker	4.4200e-003	4.2500e-003	0.0545	1.1000e-004	8.2100e-003	6.0000e-005	8.2800e-003	2.1800e-003	6.0000e-005	2.2400e-003		8.6378	8.6378	4.3000e-004		8.6469
Total	**0.0168**	**0.0937**	**0.1845**	**3.5000e-004**	**0.0148**	**1.5800e-003**	**0.0164**	**4.0700e-003**	**1.4600e-003**	**5.5300e-003**		**32.3899**	**32.3899**	**6.2000e-004**		**32.4028**

3.6 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.7080	40.7016	23.4917	0.0409		2.2169	2.2169		2.0418	2.0418		4,199.5685	4,199.5685	1.2472		4,225.7604
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7080**	**40.7016**	**23.4917**	**0.0409**		**2.2169**	**2.2169**		**2.0418**	**2.0418**		**4,199.5685**	**4,199.5685**	**1.2472**		**4,225.7604**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1325	0.1274	1.6362	3.1600e-003	0.2464	1.8500e-003	0.2483	0.0654	1.6900e-003	0.0671		259.1353	259.1353	0.0129		259.4062
Total	**0.1325**	**0.1274**	**1.6362**	**3.1600e-003**	**0.2464**	**1.8500e-003**	**0.2483**	**0.0654**	**1.6900e-003**	**0.0671**		**259.1353**	**259.1353**	**0.0129**		**259.4062**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.7080	40.7016	23.4917	0.0409		2.2169	2.2169		2.0418	2.0418	0.0000	4,199.5685	4,199.5685	1.2472		4,225.7603
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7080**	**40.7016**	**23.4917**	**0.0409**		**2.2169**	**2.2169**		**2.0418**	**2.0418**	**0.0000**	**4,199.5685**	**4,199.5685**	**1.2472**		**4,225.7603**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1325	0.1274	1.6362	3.1600e-003	0.2464	1.8500e-003	0.2483	0.0654	1.6900e-003	0.0671		259.1353	259.1353	0.0129		259.4062
Total	**0.1325**	**0.1274**	**1.6362**	**3.1600e-003**	**0.2464**	**1.8500e-003**	**0.2483**	**0.0654**	**1.6900e-003**	**0.0671**		**259.1353**	**259.1353**	**0.0129**		**259.4062**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.462992	0.061838	0.181170	0.154683	0.057449	0.007359	0.019227	0.041233	0.001831	0.001687	0.006984	0.000699	0.002847

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0955	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0955	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	0.0736					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Architectural Coating	0.0218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0955**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	0.0736					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Architectural Coating	0.0218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0955**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Appendix B

Analysis Comparison of a Design Meeting the CVFPB Bridge Design Criteria

APPENDIX B

ANALYSIS COMPARISON OF A DESIGN MEETING THE CVFPB BRIDGE DESIGN CRITERA

The City of Roseville considered an alternative that provided for the replacement of the Oak Ridge Drive Bridge over Linda Creek with a new bridge that could accommodate the Central Valley Flood Protection Board (CVFPB) required 200-year design flood event with three feet of freeboard. This alternative would meet the requirements of the CVFPB without the need for a freeboard variance. This alternative would result in an elevated roadway over Linda Creek with increased height of the roadway on the south side by approximately three feet and on the north side by approximately six feet compared to existing conditions. Therefore, Oak Ridge Drive would be reconstructed for approximately 250 feet north and south of the existing bridge. The multi-use trail on the north side of Linda Creek and east of Oak Ridge Drive would be raised by approximately six feet at its intersection with Oak Ridge Drive. The multi-use trail would then be reconstructed for approximately 180 feet to the east of Oak Ridge Drive in order to conform to the new roadway profile height. Retaining walls would be required, under this alternative, on the north side of Oak Ridge Drive Bridge for the length of the raised multi-use trail on the east and along each side of Oak Ridge Drive north of the bridge to the conform with the existing roadway in order to minimize the right-of-way impacts to adjacent properties. Additionally, new privacy fencing would be required on top of the retaining wall along the raised multi-use trail. This project alternative would result in added vegetation removal, potentially including additional large oak trees, in order to accommodate the new bridge, raised multi-use trail profile, and retaining walls. While this alternative would result in the required freeboard, three feet over the CVFPB required 200-year design flood event, this alternative, when compared to the proposed project, would result in increased impacts to aesthetics, land use and planning, noise, and utilities. These increased impacts are discussed in further detail below. Impacts to all other resources are considered to be similar to the impacts resulting from the proposed project, and these are not discussed further.

As stated above, in order to accommodate a bridge that provides for the 200-year design flood event plus three-feet of freeboard, this alternative would raise the roadway and multi-use trail profile and place retaining walls on the east and west sides of Oak Ridge Drive, north of Linda Creek. This would increase views of the bridge structure, Oak Ridge Drive, and the multi-use trail from the existing residential properties resulting in a change in visual character and cohesion for the adjacent residences. While viewers that use the project area currently have views of the existing facility, the increased roadway profile and vegetation removal resulting from this project alternative would result in added views of adjacent residential properties, including views above existing privacy fencing. These added elements would reduce privacy and increase the bulk and scale of the views from sensitive viewers. This alternative would result in views of the roadway, traffic on Oak Ridge Drive, the retaining walls, and views of the multi-use trail that were not previously within a viewer's line of sight. Thus, impacts to aesthetics would be increased from that of the proposed project to a significant and unavoidable level.

This project alternative of raising the roadway and bridge profile, and thus conforming Oak Ridge Drive and the multi-use trail to the new profile, would result in additional impacts to properties. While no residences or businesses would be physically impacted as a result of this project alternative, there would be impacts to property access. The RV access currently available to the residential property located in the northeast corner of the Oak Ridge Drive/multi-use trail intersection would be eliminated as a result of this project alternative. The southern access to the Alta Manor senior apartments would be required to conform to the new Oak Ridge Drive profile. This would result in the reconstruction of approximately 70 feet of the existing southern access driveway, requiring retaining walls for this access driveway and relocation of the senior facility electrical transformer. These added elements would alter the existing property access to the

Alta Manor senior apartments and would eliminate existing RV access to the private residence. Thus, impacts to land use and planning would be increased from that of the proposed project.

Noise levels are based on traffic volumes, line of sight, and proximity of sensitive receptors to the facility. The Oak Ridge Drive profile would be raised by approximately six feet on the north end of the bridge over Linda Creek. The change in the roadway profile would result in a change to the line of sight from surrounding residences; this would provide views of Oak Ridge Drive and it's traffic that are currently not visible. This would result in an increase in long-term (operational) vehicular noise levels above that of the proposed project. It is widely accepted that people are able to begin to detect sound level changes of three decibels (3 dB) for typical noisy environments, thus a 3-dB increase is set as the threshold. The anticipated increase from this alternative would be expected to be at or below the 3 dB threshold. During construction, the additional roadway and multi-use trail conforms would be increased as compared to the proposed project, thus increasing the project footprint and associated construction noise levels above that of the proposed project. Therefore, impacts to temporary and long-term noise would be increased from that of the proposed project.

This project alternative would require relocation of existing water and sewer lines, similar to the proposed project. In addition to the water and sewer line, this alternative would also require the relocation of a fire hydrant, water meters, backflow prevention devices, and electrical transformer. In addition, the increased height of the profile would result in construction equipment encroaching on overhead utility clearance. If construction equipment encroaches on overhead utilities, a 10-foot buffer between the equipment and the overhead utilities would be required. This results in more utilities being relocated as compared to the proposed project. Thus, impacts to utilities and public service systems would be increased from that of the proposed project.

As discussed above, if project design is required to comply with CVFPB 200-year flood event design standards, the project would result in significant and unavoidable effects to visual resources, and would result in increased impacts above the proposed project levels for land use, noise, and utilities. Because of the significant and unavoidable impacts identified for visual resources, an EIR would be required for this project alternative. As such this alternative was considered and rejected due to the increased impacts cited above.