

# KENT AVENUE BRIDGE (18C-0132) REPLACEMENT

## Draft Initial Study / Mitigated Negative Declaration



February 2019



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AND ASSOCIATES



# **Kent Avenue Bridge Replacement Project**

## **DRAFT Initial Study / Mitigated Negative Declaration**

**Sutter County, California**

### **Submitted To:**

Sutter County  
Development Services Department  
1130 Civic Center Drive  
Yuba City, CA 95993

### **Submitted by:**

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**February 2019**

## EXECUTIVE SUMMARY

The County of Sutter (County) proposes to remove the existing Kent Avenue Bridge (18C-0132) over Sutter Butte Irrigation Canal (Canal). The Kent Avenue Bridge Replacement Project (Project) is located in northeastern Sutter County, southeast of the City of Live Oak, on Kent Avenue, approximately 0.5 miles east of State Route 99 (SR 99) and 0.05 miles south of McDonald Avenue. Land use surrounding the project site is agricultural. Adjacent land uses include private agricultural lands, residential dwellings, and the Canal controlled by the Sutter Extension Water District (SEWD).

The purpose of the Project is to replace the structurally deficient bridge with a new bridge of similar footprint. The bridge would be replaced in approximately the same location with the roadway approaches widened slightly to provide a safe tapered transition to the new structure. A single span bridge is being considered to eliminate support elements within the Canal. Replacing the bridge in the same location and eliminating supports within the Canal would help to minimize the Project footprint.

This Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) was submitted to the State Clearinghouse on February 1, 2019 for a 30-day public review period that will end on March 4, 2019. During the public review period, the Draft IS/MND is available for review at the Sutter County Development Services Department Headquarters (1130 Civic Center Boulevard, Yuba City, CA 95993) during business hours.

The Draft IS/MND prepared for the Project assesses the potential effects on the environment and the significance of those effects. Based on the results of the Draft IS/MND, the Project would not have any significant impacts on the environment once mitigation measures are implemented. This conclusion is supported by the following findings:

- The Project would not impact recreation.
- The Project would have a less-than-significant impact on aesthetics, air quality, agricultural and forest resources, geology and soils, greenhouse gas emissions, hydrology and water quality, land use and land use planning, mineral resources, population and housing, and utilities and services.
- The Project would have a less-than-significant impact, once mitigation measures are implemented, on biological resources, cultural resources, hazards and hazardous materials, noise, public services, transportation and traffic, and tribal cultural resources.
- No substantial evidence exists that the Project would have a significant negative or adverse effect on the environment.

The Project incorporates standard construction measures and all applicable mitigation measures, as described in the Draft IS/MND. In addition to standard construction measures required by the California Department of Transportation (Caltrans) Standard Specifications and other applicable laws, regulations, and policies, the following mitigation measures would be implemented as part of the Project to avoid or minimize potential environmental impacts. Implementation of these mitigation measures would reduce the potentially significant environmental impacts of the Project to a less-than-significant level.

**Table 1. Mitigation Measures**

Potential Impact	Mitigation measures	Timing	Responsible party	Level of significance after mitigation
<b>Biological Resources</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 U.S. Fish and Wildlife Service.	<b>Mitigation Measure BIO-1:</b> Conduct <i>Preconstruction Surveys</i> . A CDFW-approved biologist shall conduct a preconstruction survey for special status plant species within 30 days prior to construction. If special status plant species are not found, then no further measures are necessary. If special status plant species are found in the Project area, notify CDFW at least ten days prior to dewatering or construction impacts in the vicinity of any special status plant species in accordance with the California Native Plant Protection Act of 1977 (10 FGC § 1900-1913) to allow sufficient time to transplant the individuals to a suitable location.	Prior to and during construction activities.	Sutter County	Less than significant
	<p><b>Mitigation Measure BIO-2:</b> <i>Protect Giant Garter Snakes</i>. Implement the following in order to reduce potential Project effects to GGS:</p> <ul style="list-style-type: none"> <li>• Install temporary fencing (or similar devices which lack openings which might cause the GGS to become stranded or otherwise become entangled) at the upstream and downstream limits of the construction area to deter GGS from entering the Project area and being harmed by construction activities. Install the fencing prior to the start of construction to ensure that GGS do not enter the construction zone.</li> <li>• Have construction personnel participate in a USFWS-approved worker environmental awareness program prior to the onset of construction activities. A CDFW-approved biologist shall inform all construction personnel about the life history of GGS; how to identify species and their habitats; what to do if a GGS is encountered during construction activities; and explain the state and federal laws pertaining to GGS.</li> <li>• A CDFW-approved biologist shall conduct a preconstruction survey for GGS, no more than 24 hours prior to the start of construction activities (site preparation and grading). If construction activities stop for a period of two or more weeks, complete a new GGS survey no more than 24 hours prior to the reinitiating of construction activities. The biologist shall monitor the site during dewatering activities; if a GGS is encountered during the construction period after the completion of these dewatering activities, the</li> </ul>	Prior to and during construction activities.	Sutter County	Less than significant

		<p>monitoring biologist shall be notified and shall have the authority to stop localized construction activities until corrective measures have been taken to avoid harm to GGS.</p> <ul style="list-style-type: none"> <li>• Confine any vegetation or ground clearing to the minimal area necessary within 200 feet of aquatic habitat to facilitate construction activities. To ensure that construction equipment and personnel do not affect upland and aquatic habitat for GGS outside of the Project area, erect exclusionary fencing to clearly define the GGS habitat to be avoided. This will delineate the environmentally sensitive areas within the Project area. Coordinate the installation techniques and location of the exclusionary fencing with a CDFW-approved wildlife biologist, who shall inspect and approve the fencing prior to commencement of construction.</li> <li>• Upon completion of construction, hydroseed and stabilize disturbed sections of Sutter Butte Canal.</li> <li>• If a live GGS is encountered during construction activities, immediately notify the Project biological monitor and USFWS. The biological monitor shall: <ul style="list-style-type: none"> <li>○ Stop all construction activity in the vicinity of the GGS, monitor the GGS, and allow the GGS to leave on its own. The monitor will remain in the area for the remainder of the workday to verify the GGS is not harmed or to verify the GGS leaves the site and does not return. Determine escape routes for GGS in advance of construction. If the GGS does not leave on its own within one working day, conduct further consultation with USFWS.</li> <li>○ Only personnel with a USFWS recovery permit pursuant to the federal Endangered Species Act Section 10 (16 USC § 1539(a)(1)(A)) will have the authority to capture and/or relocate GGS encountered in the Project Impact Area (PIA).</li> </ul> </li> <li>• Upon locating dead, injured or sick GGS, Caltrans shall notify the USFWS Division of Law Enforcement or the Sacramento Fish and Wildlife Office within one working day. Written notification to both offices shall be made within three calendar days and will include the date, time, and location of the finding of a specimen and any other pertinent information.</li> <li>• Do not employ any plastic, monofilament, jute, or similar erosion control matting that could entangle GGS. Use possible substitutions such as coconut coir matting, tactified hydro seeding compounds, or other material approved by the USFWS.</li> </ul>		
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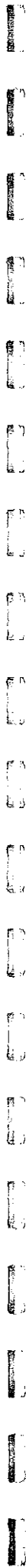
	<ul style="list-style-type: none"> <li>Implement standard construction BMPs throughout construction to avoid and minimize adverse effects to Project area water quality. Inspect these BMPs daily to ensure their effectiveness. Install these BMPs per the BMP installation specifications. Maintain or replace BMPs deemed to be ineffective as necessary.</li> </ul>			
	<p><b>Mitigation Measure BIO-3: Protect Western Pond Turtles.</b> Implement the following to reduce potential Project effects to western pond turtle:</p> <ul style="list-style-type: none"> <li>If dewatering is necessary, both notify CDFW and dewater the construction area prior to construction activities.</li> <li>No more than two weeks prior to the commencement of ground-disturbing activities, the County shall retain a CDFW-approved biologist to perform surveys for western pond turtle within suitable aquatic and upland habitat within the Project area. Surveys will include western pond turtle nests as well as individuals. The biologist (with the appropriate agency permits) will temporarily move any identified western pond turtles upstream of the construction area, and temporary barriers will be placed around the construction area to prevent ingress. Do not proceed with construction until the work area is determined to be free of turtles. Document the results of these surveys in a technical memorandum to be submitted to CDFW (if turtles are documented).</li> <li>Implement standard construction BMPs throughout construction to avoid and minimize adverse effects to the water quality within the Project area.</li> </ul>	Prior to and during construction activities.	Sutter County	Less than significant
Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	<p><b>Mitigation Measure BIO-4: Conduct Preconstruction Surveys for Swainson's Hawks.</b> Prior to construction, a CDFW-approved biologist shall conduct surveys to determine presence/absence of nesting Swainson's hawk in and within 0.50 miles of the Project area according to the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (CDFG, 2000). If no Swainson's hawks are found during any of the surveys, no further mitigation will be necessary. If Swainson's hawk nests are found, consult CDFW regarding measures to reduce the likelihood of forced fledging of young or nest abandonment by adult birds. These measures will likely include, but are not limited to, the establishment of a no-work zone around the nest until the young have fledged as determined by a CDFW-approved biologist.</p>	Prior to and during construction activities.	Sutter County	Less than significant
	<p><b>Mitigation Measure BIO-5: Protect Migratory Birds.</b> Use the following avoidance and minimization measures when work occurs on or in the vicinity of structures that may be subject to nesting by song sparrow and other migratory raptors and songbirds.</p>	Prior to and during construction activities.	Sutter County	Less than significant

	<ul style="list-style-type: none"> <li>• Avoid Active Nesting Season. If feasible, conduct all tree and shrub removal and grading activities during the non-breeding season (generally September 1 through January 31). If grading and tree removal activities are scheduled to occur during the breeding and nesting season (February 1 through August 31), perform preconstruction surveys for migratory birds prior to the start of Project activities.</li> <li>• Conduct Preconstruction Nesting Bird Surveys. If construction, grading or other Project-related activities are scheduled during the nesting season (February 1 to August 31), conduct preconstruction surveys for other migratory bird species no less than 14 days and no more than 30 days prior to the beginning of construction within 250 feet of suitable nesting habitat. If the preconstruction surveys do not identify any nesting migratory bird species within areas potentially affected by construction activities, no further mitigation would be required.</li> <li>• Avoid Active Bird Nest Sites. If active nests are found, establish no-work buffers to limit Project-related construction activities near the nest site. Determine the size of the no-work buffer zone in consultation with CDFW; use a 500-foot buffer when possible. Delineate the no-work buffer zone with highly visible temporary construction fencing. In consultation with CDFW, monitoring of nest activity by a CDFW-approved biologist may be required. If the Project-related construction activity has potential to adversely affect the nest or nesting behavior of the bird. Do not commence Project-related construction activity within the no-work buffer area until a CDFW-approved biologist and CDFW confirms that the nest is no longer active.</li> </ul>	construction activities.		
	<p><b>Mitigation Measure BIO-6: Protect Special Status Species Bats.</b> A CDFW-approved biologist shall conduct a survey for roosting bats prior to grubbing and clearing activities. If no roosting bats are found, no further mitigation would be necessary. If bats are not found and there is no evidence of use by pallid bats, construction may proceed. If pallid bats are found or evidence of use by bats is present, consult CDFW for guidance on measures to avoid or minimize disturbance to the colony. Additional measures may include excluding bats from the tree before their hibernation period (mid-October to mid-March) and before construction begins.</p>	Prior to construction activities.	Sutter County	Less than significant

<b>Cultural Resources</b>				
Project implementation has the potential to discover unanticipated paleontological resources during ground-disturbing activities.	<b>Mitigation Measure CUL-1:</b> Follow Protocol for the Unanticipated Discovery of Paleontological Resources. If paleontological resources are encountered during Project-related ground-disturbing activities, the County's construction contractor(s) shall cease all work within 100 feet of the find until the find can be evaluated by a qualified paleontologist. If the paleontologist determines that the resources are significant, the paleontologist shall notify the County and the resource will be avoided, if possible, including permanent preservation of the site and/or permanent preservation of salvaged fossils along with all contextual data in established institutions.	During construction activities.	Sutter County	Less than significant
Project implementation has the potential to discover unanticipated cultural resources or human remains during ground-disturbing activities.	<b>Mitigation Measure CUL-2:</b> Follow Protocol for the Unanticipated Discovery of Cultural Resources or Human Remains. If buried cultural materials are encountered during construction, stop all work in that area until a qualified archaeologist can evaluate the nature and significance of the find. In the event that human remains or associated funerary objects are encountered during construction, cease all work within the vicinity of the discovery. Contact the County coroner immediately, in accordance with CEQA (Section 1064.5) and the California Health and Safety Code (Section 7050.5). If the human remains are determined to be Native American, the coroner will notify the Native American Heritage Commission, who will notify and appoint a Most Likely Descendant (MLD). The MLD will work with a qualified archaeologist to decide the proper treatment of the human remains and any associated funerary objects.	During construction activities.	Sutter County	Less than significant
<b>Hazards and Hazardous Materials</b>				
Construction activities involve reasonably foreseeable upset and accident conditions that may subject the public and environment to the release of hazardous materials.	<b>Mitigation Measure HAZ-1:</b> Develop a Health and Safety Plan (HASP). Develop a HASP for the Project prior to the start of construction activities. The HASP shall describe appropriate procedures to follow in the event that any contaminated soil or groundwater is encountered during construction activities. Any unknown substances shall be tested, handled, and disposed of in accordance with appropriate federal, state and local regulations.	Prior to construction activities.	Sutter County	Less than significant
	<b>Mitigation Measure HAZ-2:</b> Follow Procedure for Handling Asbestos and Lead-Based Paint. A California-licensed abatement contractor will conduct a survey for lead containing materials prior to demolition (including concrete elements) and the contractor will submit a National Emission Standard for Hazardous Air Pollutants (NESHAP) notification. Per the Asbestos NESHAP regulation, all "demolition activity" requires written notification even if there is no asbestos present. This notification shall be typewritten and postmarked or delivered no later than ten days prior to the beginning of the asbestos demolition or removal activity. If asbestos and/or lead containing materials are found, the following will be required:	Prior to and during construction activities.	Sutter County	Less than significant

	<ul style="list-style-type: none"> <li>Removal, disposal, storage and transportation of materials from the structure that contain asbestos should be performed in compliance with the Project-specific guidelines put forth in 2015 Caltrans Revised Standard Specification 14-11.16 and other federal and state regulations for hazardous waste.</li> <li>Building materials associated with paint on structures and paint on utilities should be abated by a California-licensed abatement contractor and disposed of as a hazardous waste in compliance with 2015 Caltrans Standard Specification 14-11.12, 2015 Caltrans Standard Specification 14 11.13, and other federal and state regulations for hazardous waste.</li> <li>A Lead Compliance Plan should be prepared by the contractor for the disposal of lead-based paint. The grindings (which consist of the roadway material and the yellow and white color traffic stripes) shall be removed and disposed of in accordance with the appropriate 2015 Caltrans Standard Specifications.</li> </ul>			
<b>Noise</b>				
Project implementation has the potential to result in a temporary elevation of noise levels.	<p><b>Mitigation Measure NO-1: Implement Noise Control Measures.</b> The following control measures shall be implemented in order to minimize noise and vibration disturbances at sensitive receptors during periods of construction:</p> <ul style="list-style-type: none"> <li>Construction will only occur Mondays to Fridays, from the hours of 7:00 AM to 6:00 PM and Saturdays from the hours of 8:00 AM to 5:00 PM. Construction will not occur on Sundays or holidays.</li> <li>Tier 4 or newer equipment with noise control devices will be used. The contractor will ensure that all equipment items have the manufacturers' recommended noise abatement measures, such as mufflers, engine enclosures, and engine vibration isolators intact and operational will be used. Newer equipment is generally quieter in operation than older equipment. All construction equipment will be inspected by the contractor at periodic intervals to ensure proper maintenance and presence of noise control devices (e.g., mufflers and shrouding).</li> <li>Construction methods or equipment that provide the lowest level of noise and ground vibration impact such as alternative low noise pile installation methods will be utilized.</li> <li>Idling equipment will be turned off after no more than five minutes, per the California Code of Regulations.</li> </ul>	Prior to and during construction activities	Sutter County	Less than significant

<b>Public Services</b>				
Project implementation has the potential to result in inadequate emergency access.	<b>Mitigation Measure PUB-1: Develop a Construction Period Standard Emergency Access Plan.</b> Prior to the start of construction, the contractor shall coordinate with County Service Area (CSA) F, the Sutter County Sheriff's Department, and local public and private ambulance and paramedic providers in the area to prepare a Construction Period Emergency Access Plan. The Construction Period Emergency Access Plan shall identify phases of the Project and construction scheduling and shall identify appropriate alternative emergency access routes.	Prior to construction activities.	Sutter County	Less than significant
<b>Tribal Cultural Resources</b>				
Project implementation has the potential to adversely affect tribal cultural resources during construction.	<b>Mitigation Measure TCR-1: Conduct Tribal Cultural Resources Awareness Training.</b> Prior to the start of construction, develop, in coordination with interested Native American tribes, a consultant and construction worker tribal cultural resources awareness brochure and training program for all personnel involved in Project implementation. Distribute this brochure and conduct training, in coordination with qualified cultural resources specialists and Native American representatives from culturally affiliated Native American tribes, before construction commencement. The worker awareness program will include relevant information regarding sensitive tribal cultural resources, including applicable regulations, confidentiality requirements, requirements for the culturally-appropriate treatment of any discovered resources, protocols for avoidance, and consequences of violating state laws and regulations; describe the protocol to avoid and minimize impacts to resources that have the potential to be located on the Project site; and will outline the protocol to follow if any potential archaeological resources or artifacts are encountered.	Prior to and during construction activities.	Sutter County	Less than significant



# ACRONYMS AND ABBREVIATIONS

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The following is a list of abbreviations used within this document. Each term is defined in full once within the document before the abbreviation is used.

AASHTO: American Association of State Highway and Transportation Officials	DFW: U.S. Department of Fish and Wildlife
AB 52: Assembly Bill 52	Draft IS/MND: Draft Initial Study Mitigation Negative Declaration
ACM: (presumed) asbestos-containing material	DWR: California Department of Water Resources
APN: Assessor Parcel Number	ESA: Endangered Species Act
ARB: California Air Resources Board	FEMA: Federal Emergency Management Agency
BA: Biological Assessment	FHWA: Federal Highway Administration
BMP: best management practices	FMMP: Farmland Mapping and Monitoring Program
CAAQS: California Ambient Air Quality Standards	FRAQMD: Feather River Air Quality Management District
Caltrans: California Department of Transportation	FTA: Federal Transit Administration
Canal: Sutter Mutual Water Company's Westside Canal	General Plan: 2030 Sutter County General Plan
CDC: California Department of Conservation	GGS: Giant Green Garter Snake
CDFG: California Department of Fish and Game	H <sub>2</sub> S: hydrogen sulfide
CDFW: California Department of Fish and Wildlife	HASP: Health and Safety Plan
CEQA: California Environmental Quality Act	HBP: Highway Bridge Program
CFGC: California Fish and Game Code	HRER: Historical Resource Evaluation Report
CHRIS: California Historical Resources Information System	IPaC: Information for Planning and Consultation
CNDDDB: California Natural Diversity Database	ISA: Initial Site Assessment
CNEL: community-equivalent noise level	LBP: lead-based paint
CNPS: California Native Plant Society	MBTA: Migratory Bird Treaty Act
CMP: corrugated metal pipe(s)	MMRP: Mitigation, Monitoring, and Reporting Program
CO: carbon monoxide	MRZ-1: mineral resources zone (type) 1
CRHR: California Register of Historical Resources	MRZ-1: mineral resources zone (type) 3
CSA: County Service Area	NAAQS: National Ambient Air Quality Standards
County: Sutter County	NAHC: Native American Heritage Commission
dB: decibel	NHPA: National Historic Preservation Act
dBA: A-weighted decibel	NO <sub>2</sub> : nitrogen dioxide

NRHP: National Register of Historic Places

O<sub>2</sub>: ozone

NES: Natural Environment Study

NESHAP: national emissions standard for hazardous pollutants

NPDES: National Pollution Discharge Elimination System

OSHA: Occupational Safety and Health Administration

Pb: lead

PIA: Project Impact Area

PM<sub>2.5</sub>: particulate matter less than 2.5 microns in diameter

PM<sub>10</sub>: particulate matter less than 10 microns in diameter

Project: Kent Avenue Bridge over Sutter Butte Canal Replacement Project

REC: recognized environmental conditions

ROG: reactive organic gas

RWQCB: Regional Water Quality Control Board

SACOG: Sacramento Area Council of Governments

SMARA: California Surface Mining and Reclamation Act

SO<sub>2</sub>: sulfur dioxide

SR 99: State Route 99

SWPPP: Stormwater Pollution Prevention Plan

UCMP: University of California Museum of Paleontology

USDA: U.S. Department of Agriculture

U.S. EPA: U.S. Environmental Protection Agency

USFWS: U.S. Fish and Wildlife Service

USGS: United States Geological Survey

VdB: root mean square vibration velocity level in decibels

Zoning Code: Sutter County Zoning Code

# TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	1
ACRONYMS AND ABBREVIATIONS .....	9
TABLE OF CONTENTS .....	11
INITIAL STUDY .....	1
1 INTRODUCTION .....	1
2 PROJECT DESCRIPTION .....	4
2.5 PROJECT PURPOSE AND NEED .....	4
2.6 DEMOLITION AND CONSTRUCTION STAGING .....	5
2.7 CONSTRUCTION ACTIVITIES .....	8
2.8 PERMITS AND APPROVALS NEEDED .....	10
3 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED .....	11
3.5 DETERMINATION: (TO BE COMPLETED BY LEAD AGENCY) .....	11
4 ENVIRONMENTAL CHECKLIST .....	12
4.1 AESTHETICS .....	12
4.2 AGRICULTURAL AND FOREST RESOURCES .....	16
4.3 AIR QUALITY .....	19
4.4 BIOLOGICAL RESOURCES .....	25
4.5 CULTURAL RESOURCES .....	35
4.6 GEOLOGY, SOILS, AND SEISMICITY .....	39
4.7 GREENHOUSE GAS EMISSIONS .....	45
4.8 HAZARDS AND HAZARDOUS MATERIALS .....	47
4.9 HYDROLOGY AND WATER QUALITY .....	52
4.10 LAND USE AND LAND USE PLANNING .....	57
4.11 MINERAL RESOURCES .....	59
4.12 NOISE .....	61
4.13 POPULATION AND HOUSING .....	67
4.14 PUBLIC SERVICES .....	68
4.15 RECREATION .....	70
4.16 TRANSPORTATION AND TRAFFIC .....	71
4.17 TRIBAL CULTURAL RESOURCES .....	74
4.18 UTILITIES AND SERVICE SYSTEMS .....	76
4.19 MANDATORY FINDINGS OF SIGNIFICANCE .....	79
5 LIST OF PREPARERS AND REVIEWERS .....	81



## LIST OF FIGURES

Figure 1. Project Vicinity Map .....	2
Figure 2. Project Location Map .....	3
Figure 3. Project Impact Area .....	6
Figure 4. Project Detour Map.....	7
Figure 5. Site Photos .....	13
Figure 6. Habitat Types within the Action Area .....	27
Figure 7. Project Impacts to Habitat Type .....	30
Figure 8. Project Soils Map .....	41
Figure 9. FIRMette Map .....	55

## LIST OF TABLES

Table 1. Mitigation Measures .....	ii
Table 2. Construction Equipment .....	9
Table 3. Permits and Approvals Needed.....	10
Table 4. NAAQS .....	20
Table 5. CAAQS .....	20
Table 6. Typical Noise Levels.....	62
Table 7. Typical Construction Phases and Noise Levels .....	63
Table 8. Typical Construction Equipment Noise Levels .....	64



## INITIAL STUDY

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|---|---|
| <b>1. Project Title:</b>                      | Kent Avenue Bridge (18C-0132) Replacement<br>Over Sutter Butte Canal Project  |
| <b>2. Lead Agency Name and Address:</b>       | Sutter County Development Services Department<br>1130 Civic Center Blvd.<br>Yuba City, CA 95993                                     |
| <b>3. Contact Person and Phone Number:</b>    | Neal Hay, Director<br>(530) 822-7400  |
| <b>4. Project Location:</b>                   | Sutter County, near the intersection of Kent and<br>McDonald Avenues  |
| <b>5. Project Sponsor's Name and Address:</b> | Neal Hay<br>Sutter County Development Services<br>Department, Engineering Division<br>1130 Civic Center Blvd.<br>Yuba City CA 95993 |
| <b>6. General Plan Designation(s):</b>        | Agriculture – 20 (AG-20)  |
| <b>7. Zoning Designation(s):</b>              | Agriculture (AG)  |
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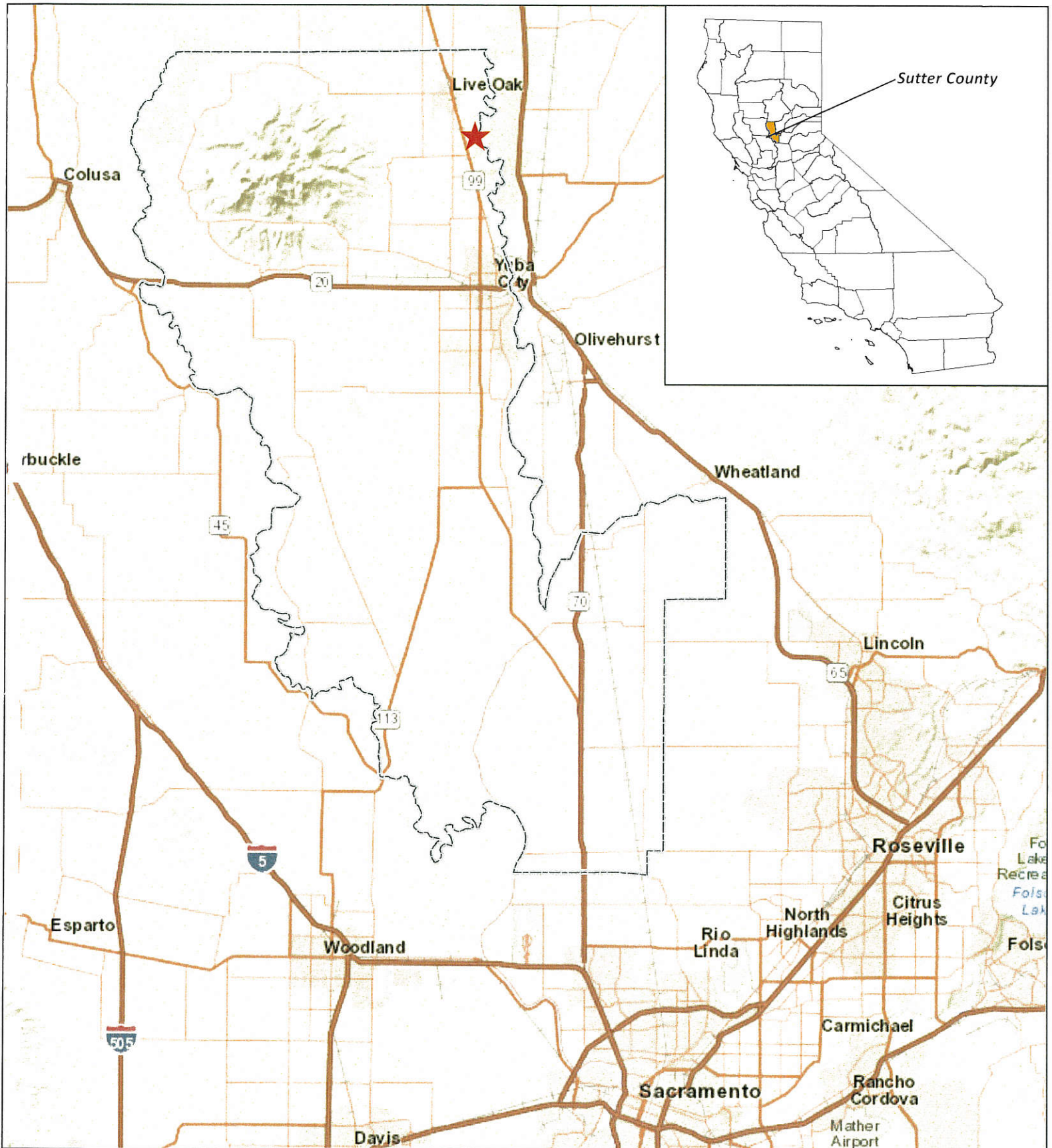
## 1 INTRODUCTION



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The Sutter County Development Services Department (County) proposes to replace the existing Kent Avenue Bridge (Bridge No. 18C-0132) with a new bridge over the Sutter Extension Water District, Sutter Butte Irrigation Canal (Canal). The Project site is located in northeastern Sutter County, southeast of the City of Live Oak, on Kent Avenue, approximately 0.5 miles east of State Route 99 (SR 99) and 0.05 miles south of McDonald Avenue (**Figure 1** and **Figure 2**). The area in which the Project would occur will be referred to as the "Project site" or "Project area" throughout the remainder of this document.

The Project is funded primarily by the federal aid Highway Bridge Program (HBP) administered by the Federal Highway Administration (FHWA) through the California Department of Transportation (Caltrans) Local Assistance. The replacement bridge would meet current applicable County and American Association of State Highway and Transportation Officials (AASHTO) design criteria and standards.



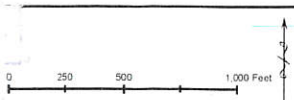


-  Project Location
-  County Boundary





★ Project Location



Source: ESRI Online Basemap, World Street Map, Aerial Imagery;  
Coordinate System NAD 83 State Plane California II FIPS 0402 Feet  
Notes: This map was created for informational and display purposes only

Kent Avenue over Sutter Butte Canal  
Bridge (18C-0132) Replacement Project  
Sutter County, CA

**Project Location**

**Figure  
2**



This Initial Study identifies the potential environmental impacts of the Project to determine whether the Project would have a significant effect on the environment and identifies mitigation measures, where applicable, to reduce or avoid significant effects. This Initial Study has been prepared pursuant to the California Environmental Quality Act (CEQA) (14 CCR § 1500 *et seq.*) and the CEQA Guidelines, which require that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before acting on those projects. The County is a public agency with discretionary authority over the Project and is the Lead Agency under CEQA.

## **2 PROJECT DESCRIPTION**

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Located in Sutter County, California, the existing bridge, constructed in 1938, is 42 feet long and 28 feet wide, and is composed of four 90-inch-diameter corrugated metal pipes (CMP) with headwalls. The average daily traffic (ADT) in 2012 was 500 vehicles and the projected 2035 ADT is 592 vehicles (Caltrans, 2016). All improvements would be in accordance with current AASHTO Standards.

The bridge would be replaced in approximately the same location. Roadway approaches would be widened slightly to provide a safe, tapered transition to the new structure. A single-span bridge is being considered to eliminate support elements within the Canal. Replacing the bridge in the same location and eliminating supports within the Canal would help to minimize the Project footprint. With regard to historical significance, the bridge is identified as five, "not eligible" for listing on the National Register of Historic Places (NRHP).

In general, the Project would involve the removal and replacement of the existing pipe culverts with a new, safer two-lane structure. The new bridge would consist of reinforced concrete abutments supporting precast concrete voided slabs clear-spanning the Canal. The width of the new structure would be approximately 33 feet wide, including two 11 foot wide lanes, two four-foot-wide shoulders, and two 1.5 foot wide railings. The length of the bridge would be 61 feet.

### **2.5 Project Purpose and Need**

The Project is needed to replace the existing deficient structure with a new structure that meets current design standards for shoulder widths, structural requirements, and includes traffic-rated barrier railings. The bridge has a sufficiency rating of 51.6 and has been designated as structurally deficient per the 2016 Caltrans Structure Maintenance and Investigations, Local Agency Bridge List. Based on details reported on the Caltrans Bridge Inspection Report, the existing CMP is slumping and resulting in cracking in the asphalt concrete; this is caused by settlement of fill on top of the culverts. All four CMPs are slumping along the longitudinal axis with the largest slumping (approximately 12 inches) occurring in barrel two.

The purpose of the Project is to:

- Remove the existing structure and reconstruct with a bridge that provides adequate and safe vehicle access; and
- Provide a new structure that is consistent with AASHTO design standards.

## 2.6 Demolition and Construction Staging

Demolition of the existing bridge would be performed in accordance with Caltrans Standard Specifications modified to meet environmental permit requirements and to incorporate the environmental mitigation measures stated in this Initial Study/Mitigated Negative Declaration (IS/MND). All concrete and other debris resulting from the demolition of the existing bridge would be removed from the Project site and disposed of by the contractor. The construction contractor would prepare a bridge demolition plan.

### 2.6.1 Utility Relocation

There are several public service utilities in the immediate vicinity of the crossing:

- Overhead electrical lines: overhead electrical distribution lines are located on wooden poles placed in the roadside shoulders. Lines run north-south along the west edge of Kent Avenue. At the north end of the bridge, lines split off to the east, crossing the road ten feet beyond the Canal bank.
- Overhead telephone/communication lines: An overhead telephone line runs along the east edge of the Kent Avenue bridge over the Canal and returns to a buried condition at both ends.

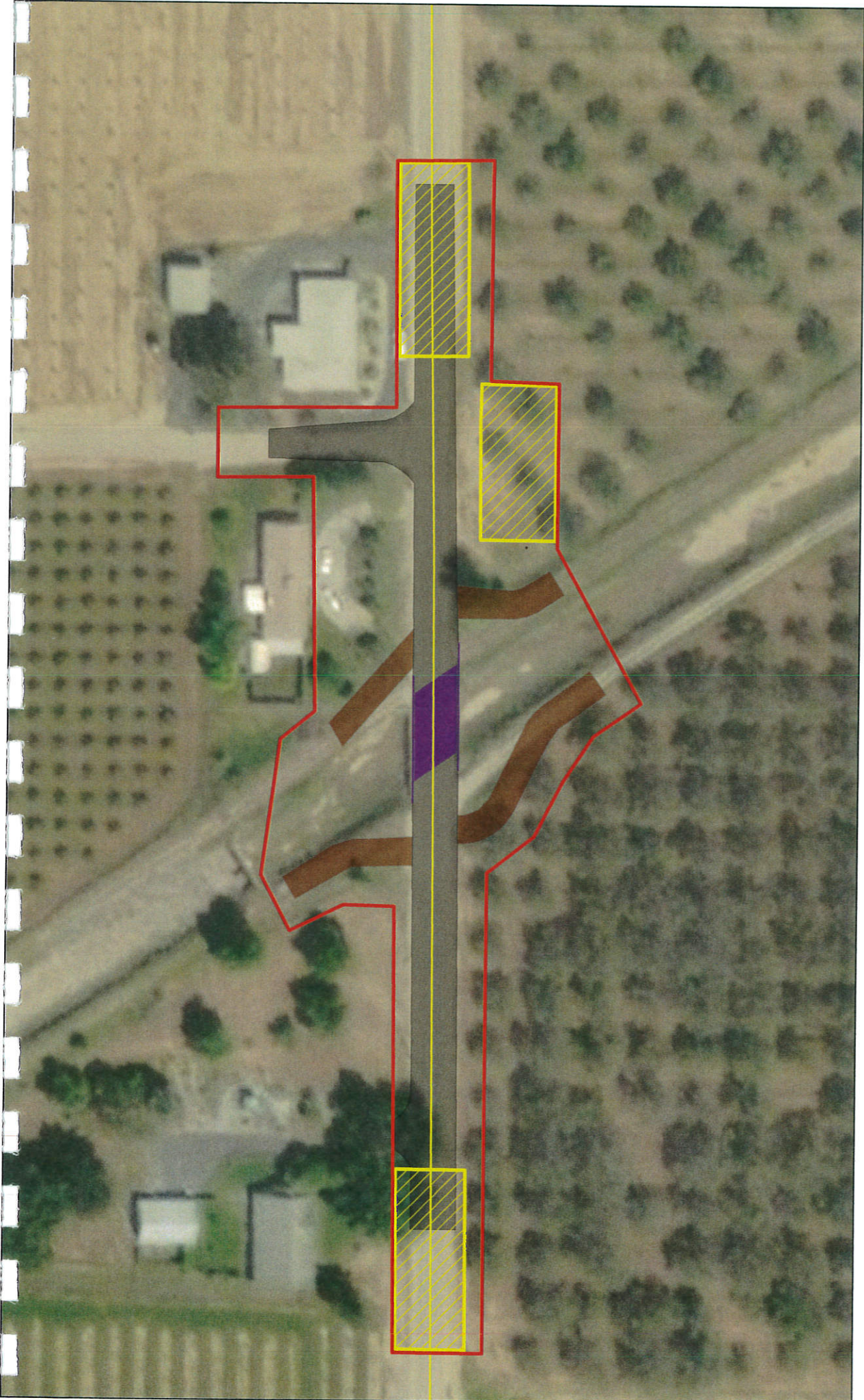
No other utilities, buried, surface or overhead, were visually identified. Due to the widening of the bridge, and close proximity of the overhead lines to the construction operations, relocation of these lines would be required.

### 2.6.2 Right-of-Way and Utility Relocation

The Project site is located mainly within an existing 50-foot right-of-way. The bridge replacement and approach roadway widening would be constructed primarily within the existing right-of-way. Barrier end protection measures require relocation of Canal access roads and residential access driveways, requiring additional permanent right-of-way. Additional temporary easements would be necessary during construction for bridge removal, access to the site from adjacent parcels, reconstructing Canal maintenance and inspection roads, and placement of slope protection. In addition, improvements at the Kent Avenue/McDonald Avenue intersection would be required for profile conform and other AASHTO compliant improvements. Right-of-way would be required from parcels APN 010-043-019, APN 010-043-011, APN 010-045-003, and APN 010-045-001.

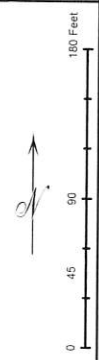
### 2.6.3 Detour Route

A portion of Kent Avenue would be closed to through traffic during construction. The removal and replacement of the existing bridge would require local traffic to utilize a detour to the north onto McDonald Avenue and south on Cutting Avenue (**Figure 3** and **Figure 4**). The implementation of the detour during the construction period would affect local traffic temporarily. However, the detour would reduce the overall construction schedule.



**Legend**

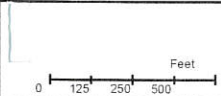
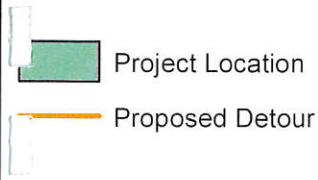
- Project Impact Area
- Proposed Staging Areas
- Proposed Roadway
- Proposed Bridge
- Proposed Access Roads



Source: ESRI Online Basemap, Aerial Imagery, Data 2017, Coordinate System: NAD 83  
 Notes: This map was created for informational and display purposes only.

Kent Avenue over Sutter Butte Canal  
 Bridge (18C-0132) Replacement Project  
 Sutter County, CA

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Source: ESRI Online Basemap, World Street Map, Sutter County;  
Coordinate System: NAD 83 State Plane California II FIPS 0402 Feet  
Notes: This map was created for informational and display purposes only

Kent Avenue over Sutter Butte Canal  
Bridge (18C-0132) Replacement Project  
Sutter County, CA

**Detour Map**

**Figure 4**

[illegible]

## **2.7 Construction Activities**

Construction would consist of the following activities in this general order:

### **2.7.1 Installing Construction Area and Detour Signs**

No less than 30 days in advance of construction operations, necessary freeway segment closure signs, signs warning motorists of future construction, and temporary signal systems would be installed along US 50 and at the US 50 exit and entrance ramps designated in the Project detour map (**Figure 3 and Figure 4**). Signs would display the exact date and time window in which construction on US 50 would take place and would remain in place throughout the duration of Phase II construction. The number and placement of temporary signal systems and lane closure signs for Phase III construction will be determine during the Plans, Specifications and Estimates (PS&E) phase. All temporary traffic control equipment and procedures would comply with the 2015 Caltrans Standard Specifications and the 2015 Caltrans revised specifications for Section 12.

### **2.7.2 Relocating Utilities**

Existing utilities, which conflict with proposed improvements and equipment required to install pilings and erect girders, would be relocated.

### **2.7.3 Clearing, Grubbing, and Tree Removals**

Minor ground disturbance and vegetation removal would be conducted at the ends of the existing bridge abutments to accommodate the new bridge. The maximum depth of excavation is expected to be six feet (72 inches).

### **2.7.4 Canal Diversion**

Work within the Canal would be scheduled when there is little or no demand for water in the Canal; therefore, a diversion would not be required. However, because work within the Canal is proposed to be conducted during the rainy spring season (January to May), standard best management practices (BMPs), as described in the Stormwater Pollution Prevention Plan (SWPPP), would be implemented in order to prevent any construction debris from being washed down the Canal in the event of a storm.

### **2.7.5 Demolition**

Existing culverts and headwalls identified to be removed would be demolished and properly disposed of offsite. These demolition activities may require heavy equipment, as listed in **Table 2**. The Canal, below the bridge, as well as drainage features in the vicinity of the bridge, would be protected from contamination and debris generated by the demolition.

### **2.7.6 New Bridge Foundations**

The new abutment seat and associated foundations would involve excavations of up to six feet deep in the bank of the Canal. No supports would be placed within the Canal waterway.

### **2.7.7 New Bridge Construction**

New bridge construction would involve placement of precast, pre-stressed concrete slabs with a cast-in-place concrete overlay. Traffic rated barriers would be placed at the edge of deck, and Midwest Guardrail Systems would be installed on both approaches to the bridge.

### 2.7.8 New Approach Roadway Construction

Adjacent roadway improvements would require excavation for a new structural section, placement of aggregate base, and placement of an asphalt roadway surface. **Table 2** provides a description of the type of equipment likely to be used during the construction of the Project.

**Table 2. Construction Equipment**

Equipment	Construction Purpose
Hydraulic hammer	Demolition
Hoe ram	Demolition
Jack hammer	Demolition
Water truck	Earthwork construction, dust control
Bulldozer/loader	Earthwork construction, clearing and grubbing
Haul truck	Earthwork construction, clearing and grubbing
Front-end loader	Dirt or gravel manipulation
Grader	Ground grading and leveling
Dump truck	Fill material delivery
Bobcat	Fill distribution
Excavator	Soil manipulation and placement of rock slope protection
Compaction equipment	Earthwork
Roller/compactor	Earthwork and asphalt concrete construction
Backhoe	Soil manipulation, drainage work
Drill rig	Construction of drilled or driven pile foundations
Holding tanks	Slurry storage for pile installation
Crane	Placement of false work beams
Concrete truck and pump	Placing concrete
Paver	Asphalt concrete construction
Truck with seed sprayer	Erosion control landscaping
Generators	Power hand tools

### 2.7.9 Construction Sequence/Schedule and Timing

Construction would start in the winter of 2020 and is anticipated to last between four and six months.

## 2.8 Permits and Approvals Needed

The following permits, reviews, and approvals are required for Project construction:

**Table 3. Permits and Approvals Needed**

Agency	Permit/Approval	Status
Caltrans/FHWA	Approval of Categorical Exclusion (CE)	Follows approval of technical studies.
Army Corps of Engineers	Section 404 Nationwide Permit	Application to follow release of IS/MND
Central Valley Regional Water Quality Control Board	Section 401 Water Quality Certification	Application to follow release of IS/MND
California Department of Fish and Wildlife	Section 1602 Streambed Alteration Agreement	Application to follow release of IS/MND
United States Fish and Wildlife Service	Section 7 Consultation for Threatened and Endangered Species	Natural Environmental Study (NES) Report and Biological Assessment (BA) prepared as a basis for informal consultation. Biological Opinion received August 2018.
Sutter County	Grading and Erosion Control Permit	Application to follow release of IS/MND
State Water Resource Control Board	General construction activity stormwater discharge permit	File Notice of Intent and prepare Stormwater Pollution Prevention Plan (SWPPP) prior to construction.



### 3 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The Project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Aesthetics                            | <input type="checkbox"/> Agriculture and Forestry Resources         | <input type="checkbox"/> Air Quality                   |
| <input checked="" type="checkbox"/> Biological Resources       | <input checked="" type="checkbox"/> Cultural Resources              | <input type="checkbox"/> Geology, Soils and Seismicity |
| <input type="checkbox"/> Greenhouse Gas Emissions              | <input checked="" type="checkbox"/> Hazards and Hazardous Materials | <input type="checkbox"/> Hydrology and Water Quality   |
| <input type="checkbox"/> Land Use and Land Use Planning        | <input type="checkbox"/> Mineral Resources                          | <input checked="" type="checkbox"/> Noise              |
| <input type="checkbox"/> Population and Housing                | <input checked="" type="checkbox"/> Public Services                 | <input type="checkbox"/> Recreation                    |
| <input checked="" type="checkbox"/> Transportation and Traffic | <input checked="" type="checkbox"/> Tribal Resources                | <input type="checkbox"/> Utilities/Service Systems     |
| <input type="checkbox"/> Mandatory Findings of Significance    |   |  |

#### 3.5 Determination: (To be completed by Lead Agency)

On the basis of this initial study:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

  
Signature

1/30/2019  
Date

Doug Libby  
Printed Name

\_\_\_\_\_  
For



## 4 ENVIRONMENTAL CHECKLIST

### 4.1 Aesthetics

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Aesthetics – Would the project:</b>				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 4.1.1 Setting

The analysis below follows the guidance and the definitions outlined in the publication *Guidelines for the Visual Impact Assessment of Highway Projects* published by the U.S. Department of Transportation Federal Highway Administration (FHWA) in January 2015.

Visual character is a description (not evaluation) of a site, and includes attributes such as form, line, color, and texture. Visual quality is the intrinsic appeal of a landscape or scene due to the combination of natural and built features in the landscape, and this analysis rates visual quality as high, moderate, or low. Visual sensitivity is the level of interest or concern that the public has for maintaining the visual quality of a particular aesthetic resource, and is a measure of how noticeable proposed changes might be in a particular scene and is based on the overall clarity, distance, and relative dominance of the proposed changes in the view, as well as the duration that a particular view could be seen.

The Sutter County General Plan Technical Background Report (TBR) identifies geographic features such as the Sutter Buttes, the Sacramento, Feather, and Bear Rivers, and the valley's orchards as scenic resources within the county that contribute to the county's character.

The existing visual character of the Project site can be described as rural countryside. The Project site is approximately 5 miles from the base on the Sutter Buttes, and implementation of the Project would not impact any views to the Buttes. The land use designation within the vicinity of the Project site is AG/OS (Agriculture and Open Space), specifically AG-20 (Agriculture 20-acre minimum), and the zone classification is AG (Agriculture) (Sutter County, 2018). In general, adjacent land to the Project site includes private agricultural lands, residential dwellings, and the Sutter Butte Irrigation Canal controlled by the Sutter Extension Water District.

The visual quality of the Project site is considered moderate, as it is representative of the general visual character of the surrounding area (photos provided in **Figure 5**). The Canal adds scenic value to the Project site, but the Sutter County General Plan does not inventory any scenic vista on the subject property.



**Figure 5. Site Photos**



View from west of the bridge, oriented east.

View from the bridge, oriented north.



View from the bridge, oriented south.





View from east of the bridge, oriented west.

View from slightly east of the bridge, oriented south.



View from slightly west of the bridge, oriented north.

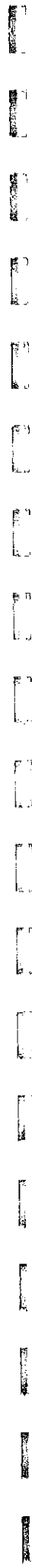




View of an existing route of access.

View of an existing access road on the site. There are four existing access roads adjacent to the Kent Avenue Bridge.





Viewer groups include roadway users and residents within the vicinity of the Project site. Existing viewers include those working within the agricultural fields, living at the nearby residences, or driving on Kent Avenue.

According to the Caltrans California Scenic Highway Mapping System and the FHWA database, there are no national scenic byways or state scenic highways within the Project vicinity (Caltrans, 2011; FHWA, 2017). There are no scenic resources as defined by the Sutter County General Plan (i.e. the Sutter Buttes; wildlife and habitat areas; the Sacramento, Feather, and Bear Rivers) within the Project site (Sutter County, 2011a).

#### 4.1.2 Discussion

- a) **No Impact.** There are no scenic vistas located within the Project site. A scenic resource evaluation was not conducted because the Project is not within the limits of an officially designated state scenic highway or an officially designated scenic byway (Caltrans, 2011; FHWA, 2017). The Project site is located within a predominately agricultural setting with adjacent open space uses. The Project would build a replacement bridge in the same location as the existing bridge structure that meets applicable County and AASHTO design criteria and standards, and therefore, would be consistent with the current land uses within the Project vicinity. The Project would not change current land uses in the area (roadway, bridge, agricultural, and open space). There would be no impact and no mitigation measures are required.
- b) **No Impact.** The Project is not within the vicinity of a state scenic highway. According to the Caltrans California Scenic Highway Mapping System and the FHWA database there are no officially designated state scenic highways, eligible scenic highways, or scenic byways within the County (Caltrans, 2011; FHWA, 2017). There would be no impact and no mitigation measures are required.
- c) **Less-than-Significant Impact.** Construction of the Project would result in temporary changes to local visual conditions, however, the visual character of the Project would be compatible with the existing visual character of the corridor. The Project would not affect the pattern elements (landscaping trees and vegetation) of the Project site, nor would it interrupt land use diversity with the addition of new land uses. Since the Project would be in the same location and have similar aesthetic design elements as the existing bridge, there would be minimal impacts to existing views. The Project would not substantially degrade the existing visual character or quality of the site and its surroundings. Therefore, viewer response at the Project site is considered low for all viewer groups because aesthetic changes to the bridge under the Project would be minimal. This impact would be less than significant and no mitigation measures are required.
- d) **No Impact.** The Project site is not located where street lighting is present. Roadway traffic and lighting from private properties are sources of nighttime light. Per **Mitigation Measure NO-1**, Project construction will occur during daylight hours only. The Project would not result in any changes that would introduce new sources of light and glare (i.e., billboards, street lamps, security lighting) to the vicinity of the Project site, and therefore is consistent with Sutter County General Plan Policy ER7.5, which states that the County shall "includ[e] the design and sighting of light fixtures to minimize glare and light on adjacent properties" (Sutter County, 2011a). Additionally, it is not the Project purpose to increase roadway capacity, thus, greater numbers of vehicles that

could increase nighttime light and/or glare would not be introduced in this area as a result of Project construction. There would be no impact and no mitigation measures are required.

#### **4.1.3 References**

California Department of Transportation (Caltrans), California Scenic Highway Mapping System, September 7, 2011. Sutter County scenic highways. Available at: [http://www.dot.ca.gov/hq/LandArch/16\\_livability/scenic\\_highways/](http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/). Accessed December 11, 2017.

Sutter County, 2011a. 2030 Sutter County General Plan.

Sutter County, 2018. Sutter County Zoning Code. June 2018. Available at: [https://www.suttercounty.org/assets/pdf/cs/ps/Zoning\\_Code.pdf](https://www.suttercounty.org/assets/pdf/cs/ps/Zoning_Code.pdf). Accessed August 27, 2018.

U.S. Department of Transportation, Federal Highway Administration (FHWA), 2015. Guidelines for the Visual Impact Assessment of Highway Projects. Prepared by ICF International.

FHWA, 2017. America's Byways. Available at: <https://www.fhwa.dot.gov/byways/states/CA>. Accessed December 11, 2017.

## 4.2 Agricultural and Forest Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Agricultural and Forest Resources</b> – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
<b>Would the project:</b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 4.2.1 Setting

According to the California Department of Conservation (CDC) Farmland Mapping and Monitoring Program (FMMP), land within, and adjacent to, the Project site is categorized as farmland of statewide importance; prime farmland, unique farmland, grazing land, and urban and built up land also occur within the Project vicinity (CDC, 2015). According to the CDC Division of Land Resource Protection, the Project site does not contain agricultural land enrolled under the Williamson Act (CDC, 2016). The Project site zone classification is AG (Agriculture); Sutter County does not contain lands zoned as forestland or timberland (Sutter County, 2018). The Project site General Plan land use designation is AG-20 (Agriculture 20-acre minimum) (Sutter County, 2011a). In general, adjacent land to the Project site includes private agricultural lands, residential dwellings, and the Sutter Butte Irrigation Canal operated by the Sutter Extension Water District.

#### 4.2.2 Discussion

- a) **Less-than-Significant Impact.** The Project may require temporary construction and/or access easements on parcels APN 010-043-019 (7708 Kent Ave.), APN 010-043-011 (7726 Kent Ave.), APN 010-045-003, and APN 010-045-001. Each of these parcels is classified as farmland of statewide importance within the CDC FMMP (CDC, 2015). The total potential permanent impact to these parcels is 0.06 acres and the total potential temporary impact to these parcels is 0.16 acres, equaling a total combined potential impact of 0.22 acres to agricultural lands. The proposed relocated access road on the northwest corner of the Project site would create the permanent impact to agricultural lands, and temporary construction staging would create the temporary impact to agricultural lands. However, the impacted parcel is a mature orchard; the proposed relocated access road and temporary construction staging would not cause the trimming of, removal of, or otherwise damage to agricultural fruit trees and would not otherwise cause any adverse impact to farming operations on the property. The relocated access road would establish a safe connection from the farm parcel to Kent Avenue; this connection would not be possible using the existing access roads in their existing alignments during construction. In addition, access will be maintained to properties adjacent to the Project site. The size and scale of the relocated access road would be similar to that of the existing access roads. This impact would be less than significant and no mitigation measures are required.
- b) **No Impact.** According to the CDC, the Project site does not include agricultural land enrolled under the Williamson Act (CDC, 2016). Therefore, the Project would not result in any impacts to lands covered by a Williamson Act contract. There would be no impact and no mitigation measures are required.
- c) **No Impact.** Sutter County does not contain land use designations or zone classifications for forestland or timberland. Therefore, these land uses are not within the Project vicinity (Sutter County, 2016). The Project would not conflict with lands zoned as forestland or timberland. There would be no impact and no mitigation measures are required.
- d) **No Impact.** Sutter County does not contain land use designations or zone classifications for forestland or timberland. Therefore, there are no land uses within the Project vicinity that are zoned as forestland or timberland within the County Zoning Code (Sutter County, 2018). The Project would replace an existing bridge with a new bridge in the same location with a similar footprint; therefore, the Project would not result in the loss of forestland or conversion of forestland. There would be no impact and no mitigation measures are required.
- e) **Less-than-Significant Impact.** The Project would replace an existing bridge with a new bridge in the same location with a similar footprint. The Project would relocate the access roads, as discussed above in (a). The proposed relocated access road on the northwest corner of the Project site would create the permanent impact to agricultural lands, and temporary construction staging would create the temporary impact to agricultural lands. However, the impacted parcel is a mature orchard; the proposed relocated access road and temporary construction staging would not cause the trimming of, removal of, or otherwise damage to agricultural fruit trees and would not otherwise cause any adverse impact to farming operations on the property. The Project would not include any new land uses that would indirectly cause the permanent conversion of

existing agricultural lands or result in any other actions that would adversely impact the adjacent agricultural lands. This impact would be less than significant and no mitigation measures are required.

#### **4.2.3 References**

California Department of Conservation (CDC), 2015. California Important Farmland Finder. Available at: <https://maps.conservation.ca.gov/DLRP/CIFF/>. Accessed January 3, 2017.

CDC, 2016. Sutter County Williamson Act for Years 2014/2015. Available at: <http://www.conservation.ca.gov/dlrp/lca>. Accessed January 3, 2017.

Sutter County, 2011a. 2030 Sutter County General Plan.

Sutter County, 2018. Sutter County Zoning Code. June 2018. Available at: [https://www.suttercounty.org/assets/pdf/cs/ps/Zoning\\_Code.pdf](https://www.suttercounty.org/assets/pdf/cs/ps/Zoning_Code.pdf). Accessed August 27, 2018.

## 4.3 Air Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Air Quality</b> – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.				
<b>Would the project:</b>				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 4.3.1 Setting

The Project site is located in Sutter County within the Sacramento Valley Air Basin, and is under the jurisdiction of the Feather River Air Quality Management District (FRAQMD) (ARB, 2012). FRAQMD is one of 35 regional air quality districts in California, and has jurisdiction over all of Sutter and Yuba Counties. Air quality districts are public health agencies whose mission is to improve the health and quality of life for all residents through effective air quality management strategies. Sutter County is also a member of the Sacramento Area Council of Governments (SACOG), a regional planning association that also includes the counties of El Dorado, Placer, Sacramento, Yolo, and Yuba and is located within the Sacramento Valley Air Basin (SACOG, 2017a). SACOG is responsible for regional transportation planning within its jurisdiction and preparing air quality conformity analyses, documents that are used to bring regional emissions into compliance with federal and state air quality standards pursuant to the Clean Air Act.

The Clean Air Act requires the U.S. Environmental Protection Agency (U.S. EPA) to set National Ambient Air Quality Standards (NAAQS) for major pollutants that could be detrimental to the environment and human health. The California Ambient Air Quality Standards (CAAQS) are the California state equivalent of the NAAQS. An air basin is in "attainment" (compliance) when the levels of the pollutant in that air basin are below NAAQS and CAAQS thresholds. **Table 4** provides information on the NAAQS and **Table 5** provides information on the CAAQS.

**Table 4. NAAQS**

Pollutant		Standard type	Averaging Time	Concentration Threshold	Form
Carbon monoxide (CO)		Primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		Primary and secondary	Rolling 3 month average	0.15 µg/m³	Not to be exceeded
Nitrogen dioxide (NO₂)		Primary	1 hour	100 ppb	98th percentile of 1 hour daily maximum concentrations, averaged over 3 years
		Primary and secondary	1 year	53 ppb	Annual mean
Ozone (O₃)		Primary and secondary	8 hours	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particulate matter (PM)	PM <sub>2.5</sub>	Primary	1 year	12.0 µg/m³	Annual mean, averaged over 3 years
		Secondary	1 year	15.0 µg/m³	Annual mean, averaged over 3 years
		Primary and secondary	24 hours	35 µg/m³	98th percentile, averaged over 3 years
	PM <sub>10</sub>	Primary and secondary	24 hours	150 µg/m³	Not to be exceeded more than once per year on average over 3 years
Sulfur dioxide (SO₂)		Primary	1 hour	75 ppb	99th percentile of 1 hour daily maximum concentrations, averaged over 3 years
		Secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Source: U.S. EPA, 2016

**Table 5. CAAQS**

Pollutant		Averaging Time	Concentration Threshold
Carbon monoxide (CO)		8 hours	9.0 ppm
		1 hour	20 ppm
Lead (Pb)		30 Day Average	0.15 µg/m³
Nitrogen dioxide (NO₂)		1 hour	0.18 ppm
		Annual arithmetic mean	0.030 ppm
Ozone (O₃)		8 hours	0.09 ppm
		1 hour	0.070 ppm
Particulate matter (PM)	PM <sub>2.5</sub>	Annual arithmetic mean	12.0 µg/m³
	PM <sub>10</sub>	24 hours	50 µg/m³
		Annual arithmetic mean	20 µg/m³
Sulfur dioxide (SO₂)		1 hour	0.25 ppm
		24 hours	0.04 ppm
Visibility reducing particles		8 hours	Extinction of 0.23 per kilometer
Sulfates		24 hours	25 µg/m³
Hydrogen sulfide		1 hour	0.03 ppm
Vinyl chloride		24 hours	0.01 ppm

Source: ARB, 2016

The Project site is located in an area that is currently in federal nonattainment for ozone (severe) (U.S. EPA, 2018). The Project site is also located in an area that is in state nonattainment for ozone and particulate matter less than 10 microns in diameter (PM<sub>10</sub>) (ARB, 2017).

Roadway Construction Emissions Modeling was performed for the Project, and is located in **Appendix A** of this IS/MND.

#### **4.3.2 Discussion**

- a) **Less-than-Significant Impact.** The Project purpose is to replace the existing Kent Avenue Bridge in order to meet current structural and geometric standards while minimizing adverse impacts to the Canal and the surrounding area. The Project would not increase roadway capacity or service capacities that would induce unplanned growth or remove an existing obstacle to growth. The Project is consistent with the General Plan air quality objectives (by adhering to policies under Goal ER 9), the Sutter County Climate Action Plan (by adhering to the plan's policies that incorporate environmental responsibility), SACOG's air quality objectives, and applicable federal and state air quality plans (Sutter County, 2011a; Sutter County, 2010a; SACOG, 2017a). The Project would not increase long-term traffic levels and there would be no operational impacts to air quality. This impact would be less than significant and no mitigation measures are required.
- b) **Less-than-Significant Impact.** Since the Project would not add lanes or increase capacity, it would only affect local air pollutants during construction (approximately four to six months). The Project would not affect long-term air pollutant emissions in the area or stationary air pollutant sources.

##### **Construction**

The primary impact to local air quality during construction would be from PM<sub>10</sub> emissions from dust-generating activities. The FRAQMD distinguishes two types of projects: Type 1 projects that result in operational phases with air quality emissions and Type 2 projects that do not result in operational phases with air quality emissions (FRAQMD, 2010). Construction phase emissions are the only emissions generated by Type 2 projects and therefore are the only emissions used in impact analyses for Type 2 projects. This Project is a Type 2 project under these FRAQMD guidelines.

Type 2 projects have air quality impacts that are considered less than significant if the average project life emissions do not exceed 25 pounds per day (lbs/day) of nitric oxide and nitrogen dioxide (NO<sub>x</sub>) or reactive organic gases (ROG) and the emissions of 80 lbs/day of PM<sub>10</sub> (FRAQMD, 2010). The Project would emit NO<sub>x</sub>, ROG, and PM<sub>10</sub> levels below these thresholds. Roadway Construction Emissions Modeling of the Project predicts that the Project would have the potential to emit a maximum of 9.52 lbs/day of NO<sub>x</sub>, 4.71 lbs/day of ROG, and 21.77 lbs/day of PM<sub>10</sub> (Huss, K. and Grant, J., 2017). Assumptions made during modeling include: (1) the types and quantities of construction equipment typical of bridge projects would be used; (2) all on-road equipment used for the Project would be year 2010 or newer models; and (3) all construction equipment would meet California Air Resources Board (ARB) Tier 4 requirements. Implementation of **Avoidance and Minimization Measures AQ-1 through AQ-11**, as recommended by FRAQMD (2010), would ensure that potential impacts to air quality from construction emissions would remain less than significant.

- c) **Less-than-Significant Impact.** As a Type 2 Project, the Project would not result in operational air quality emissions. As discussed above in (b), the Project would result in air pollutant emissions considerably less than the threshold of significance for construction emissions, and FRAQMD does not otherwise specify significance thresholds for when air quality emissions from construction become cumulatively considerable (FRAQMD, 2010). Therefore, the Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in

nonattainment under an applicable federal or state ambient air quality standard (ozone and PM<sub>10</sub>). This impact would be less than significant and no mitigation measures are required.

- d) **Less-than-Significant Impact.** Construction activities would occur for a duration of approximately four to six months. Residents located adjacent to the Project site and within the vicinity would be exposed to air pollutant emissions only for the duration of construction. This brief exposure period would substantially limit exposure to hazardous emissions. This brief exposure period would substantially limit exposure to hazardous emissions. This brief exposure period is less than the two-year exposure period typically assumed for health risk analysis for small construction projects, and the three-year exposure period assumed for PM<sub>10</sub> and CO hotspot analysis (Caltrans, 2017). This impact would be less than significant and no mitigation measures are required.
- e) **Less-than-Significant Impact.** Generally, the types of projects or activities that pose potential odor problems include refineries, chemical plants, wastewater treatment plants, landfills, composting facilities, and transfer stations. The types of materials used in bridge construction generally do not produce objectionable odors (i.e. vehicles emissions, cement, and welding equipment). The bridge replacement project is located within an agricultural area and would not create objectionable odors and complaints would not be anticipated from a substantial number of nearby residents that live or work along Kent, Cutting, or McDonald Avenues. This impact would be less than significant and no mitigation measures are required.

#### **4.3.3 Avoidance and Minimization Measures**

Implementation of the following minimization measures recommended by FRAQMD (2010) would ensure that potential impacts to air quality from construction emissions would remain less than significant.

**Avoidance and Minimization Measure AQ-1:** Implement a Fugitive Dust Control Plan.

**Avoidance and Minimization Measure AQ-2:** Ensure that construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 3.0, Visible Emissions limitations (40 percent opacity or Ringelmann 2.0) and ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation, as a responsibility of the contractor. Limit idling time to five minutes (13 CCR §§ 2485, 2449).

**Avoidance and Minimization Measure AQ-3:** Utilize existing power sources (i.e. power poles) or clean fuel generators rather than temporary power generators.

**Avoidance and Minimization Measure AQ-4:** Develop a traffic plan to minimize traffic flow interference from construction activities.

**Avoidance and Minimization Measure AQ-5:** Apply for and receive an ARB Portable Equipment Registration with a state or local district permit as required for applicable portable engines and portable engine-driven equipment units used at the Project site.

**Avoidance and Minimization Measure AQ-6:** Suspend grading operations when winds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.

**Avoidance and Minimization Measure AQ-7:** Have an operational water truck available on site at all times. Water the construction site as directed by the Department of Public Works, FRAQMD, and as necessary to prevent fugitive dust violations. Sweep paved streets weekly, and install wheel washers where Project vehicles exit the Project site and staging area.

**Avoidance and Minimization Measure AQ-8:** Cover onsite dirt piles, install wind breaks, and employ water and/or soil stabilizers to reduce wind-blown dust emissions. Apply chemical soil stabilizers according to manufacturer specifications on all inactive construction areas. Minimize the free fall distance and fugitive dust emissions of all transfer processes.

**Avoidance and Minimization Measure AQ-9:** Reduce traffic speeds on all unpaved surfaces to 15 miles per hour or less, and provide temporary traffic control as needed.

**Avoidance and Minimization Measure AQ-10:** Reestablish ground cover on applicable areas of the construction site as soon as possible through seeding and watering.

**Avoidance and Minimization Measure AQ-11:** Do not conduct open burning of waste (this is legally prohibited).

#### 4.3.4 References

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California Department of Transportation (Caltrans), 2017. Standard Environmental Reference: Chapter 11 – Air Quality. Available at: <http://www.dot.ca.gov/ser/vol1/sec3/physical/ch11air/chap11.htm>. Accessed May 16, 2018.

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U.S. Environmental Protection Agency (U.S. EPA), 2016. NAAQS Table. December 20, 2016. Available at: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>. Accessed May 16, 2018.

U.S. EPA, 2018a. Current Nonattainment Counties for All Criteria Pollutants. January 31, 2018. Available at: <https://www3.epa.gov/airquality/greenbook/ancl.html>. Accessed February 7, 2018.

## 4.4 Biological Resources

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

### 4.4.1 Setting

The Project is located in western Sutter County on Kent Avenue, approximately 0.2 miles west of the Butte County line southeast of the City of Live Oak, approximately 0.5 miles east of SR 99 and 0.05 miles south of McDonald Avenue. The Project is on the Sutter CA United States Geological Survey (USGS) 7.5' Quadrangle within Township 16 North, Range 03 East, Section 16.

The Project lies in the River Alluvium Ecological Subsection, an area on nearly level floodplains and very gently sloping levees. The natural levees have been almost completely replaced by the construction of artificial levees. The subsection elevation range is approximately 15 to 25 feet. Fluvial erosion and deposition are the main geomorphic processes. The predominant natural plant communities are

Fremont cottonwood series and emergent aquatic communities along streams and needlegrass grasslands on levees and floodplains. The annual average precipitation at the National Climatic Data Center Colusa 2 SSW, California weather station (041948) is 16.22 inches, and more than 97 percent of the area's rainfall occurs between October and May (Caltrans, 2017b; Caltrans, 2017c). Elevation of the Project area ranges between 74 to 77 feet above mean sea level.

#### **4.4.2 Data Sources/Methodology**

The Kent Avenue Bridge Replacement Biological Assessment (BA), Natural Environment Study (NES), and Preliminary Delineation of Jurisdictional Waters were prepared for the Project and are available for review at Sutter County Development Services Department during business hours (Caltrans, 2017a; Caltrans, 2017b; Caltrans, 2017c). An evaluation of biological resources was conducted to determine whether any special status plant or wildlife species, or associated sensitive habitat occurs within the Project area. Data on special status species and habitats known in the area was obtained from the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDDB), the United States Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) website, the NOAA Fisheries West Coast Region Species Lists, and the California Native Plant Society's (CNPS) Inventory of Rare Plants. Maps and aerial photographs of the Project area and surrounding areas were reviewed, and field surveys were conducted on May 10, 2017 to determine the habitats present.

#### **4.4.3 Habitats and Regional Species of Concern**

The Project is located in the Central Valley, an area characterized by vast agricultural regions, and dotted with numerous population centers, including the community of Live Oak, the closest unincorporated community located approximately five miles northwest of the Project. Terrestrial habitat types in the Project area include agricultural, ruderal (disturbed), and urban (developed); aquatic habitat types in the Project area include lower perennial riverine habitat (the Canal) (**Figure 6**) (Caltrans, 2017c). The Canal is considered to be waters of the U.S. which is considered sensitive by both federal and state agencies (Caltrans, 2017a).

#### **Special Status Plant Species**

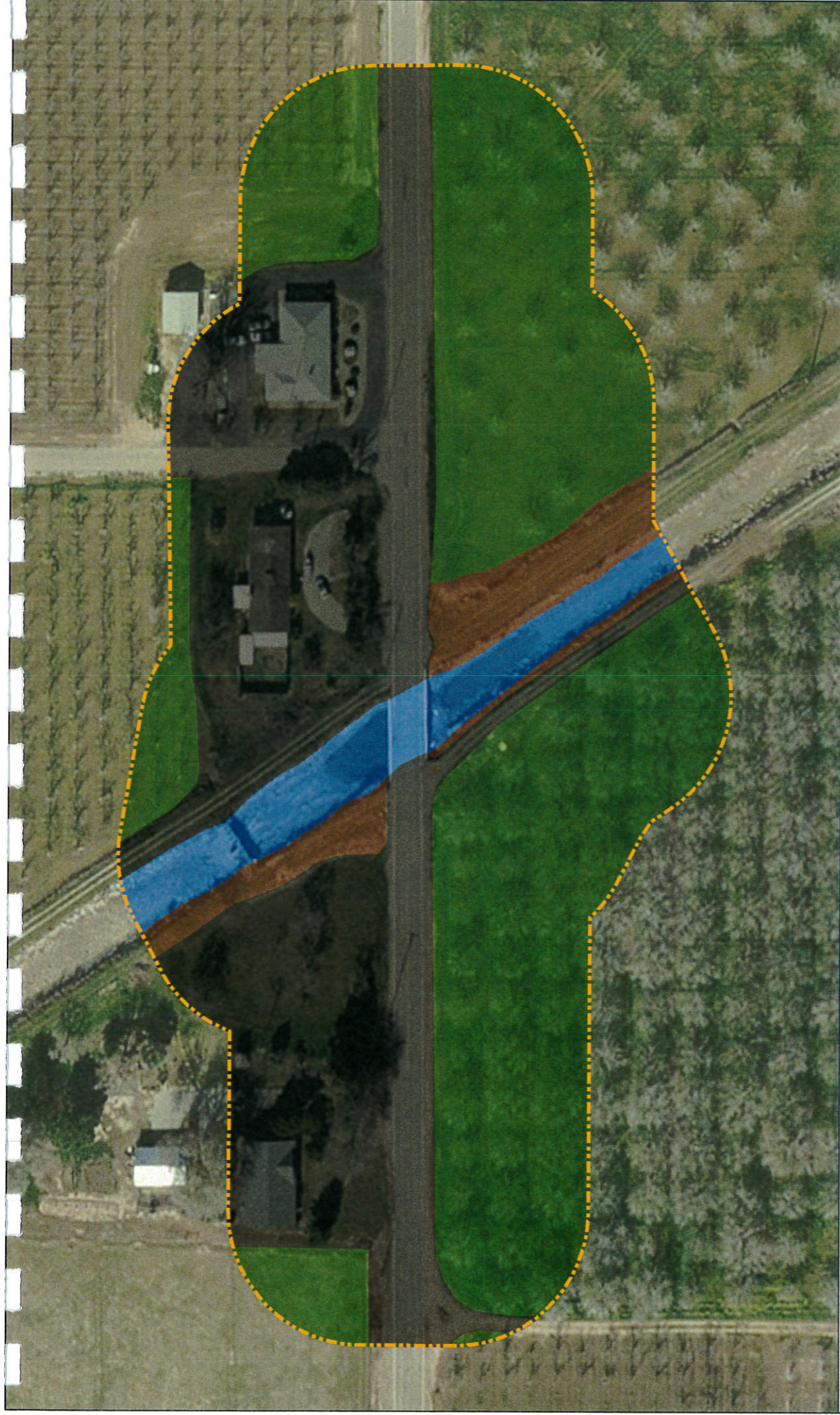
The Project area does not provide suitable habitat for any federal or state listed plant species; however, it does provide suitable habitat for the non-listed special status plant species woolly rose-mallow. Woolly rose-mallow is listed by CNPS as being "fairly endangered" in California, meaning that 20 to 80 percent of the known occurrences are threatened. The banks of the Canal could provide potentially suitable habitat for this species as evidenced by the small patches of freshwater emergent vegetation found above and below the ordinary high water mark. Woolly rose-mallow was not observed during the May 10, 2017 survey (Caltrans, 2017b; Caltrans, 2017c).

#### **Special Status Aquatic and Semi-Aquatic Species**

**Western Pond Turtle (*Emys marmorata*).** Western pond turtle is a California species of special concern. Water is typically present until October when irrigation demand ceases. The presence of aquatic vegetation provides potentially suitable foraging habitat for this species; the slopes of the banks and the floating debris that accumulates on the upstream side of the bridge provide suitable basking habitat. This species was not observed during the May 10, 2017 survey.

**Giant Garter Snake (*Thamnophis gigas*).** Giant garter snake (GGS) is a federally and state-listed threatened species and as such is protected by the federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA), respectively. Aquatic habitat conditions for GGS in the Canal





**Legend**

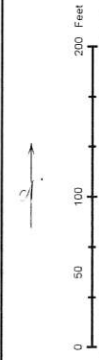


Biological Study Area

**Habitat Type**

- Agriculture
- Riverine

- Ruderal (Disturbed)
- Urban (Developed)



Source: ESRI Online Basemap, Aerial Imagery, 2017, Coordinate System: NAD 83  
 State Plane, California 11195 Data 2 Feet  
 Note: This map was created for administrative and display purposes only.

Kent Avenue over Sutter Butte Canal  
 Bridge (18C-0132) Replacement Project  
 Sutter County, CA

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and the surrounding upland habitat conditions are marginal; however, the channel may be used as aquatic dispersal habitat while the ruderal (disturbed) areas may be used as upland dispersal habitat for the species. Land uses surrounding the segment of the Canal that flows through the Project area are primarily comprised of access roads and agricultural fields consisting of orchards which, unlike rice fields, do not provide suitable habitat for GGS. The ruderal areas are highly disturbed and vegetated with non-native weedy species and burrows were not observed within these areas during the May 2017 survey. Thus, while GGS could use this reach as a dispersal corridor to more suitable foraging habitat, it is not anticipated that the Project area would be used for active breeding or foraging because it lacks important habitat elements, including dense emergent vegetation, nearby rice fields, or adequate escape cover.

#### **Special Status Terrestrial Species**

**Pallid bat (*Antrozous pallidus*).** Pallid bat is a California species of special concern. The trees within the surrounding orchards could provide potentially suitable roosting and overwintering habitat for pallid bat. No bats, or sign of bats, were observed at the time of the May 10, 2017 survey (Caltrans, 2017b; Caltrans, 2017c).

**Swainson's Hawk (*Buteo swainsonii*).** Swainson's hawk is a state-listed threatened species under the CESA. The Project area is located within a predominately agricultural setting supporting orchards which do not provide any habitat value to Swainson's hawk. While there is no suitable nesting habitat within the Project area, suitable nesting habitat is located immediately adjacent and within 0.25 miles of the Project area. Swainson's hawks were not observed during the May 10, 2017 survey (Caltrans, 2017b; Caltrans, 2017c).

**Nesting Songbirds and Raptors.** The more densely vegetated ruderal (disturbed) habitat, as well as the surrounding orchards, provides potential nesting and foraging habitat for birds listed by the Migratory Bird Treaty Act (MBTA). No nests were observed within the ruderal (disturbed) habitat or within the surrounding orchards during the May 10, 2017 survey (Caltrans, 2017b; Caltrans, 2017c). The water levels of the Canal are typically too high for birds to nest underneath the bridge.

#### **4.4.4 Discussion**

- a) **Less-than-Significant Impact with Mitigation.** The following provides a discussion of the potential species that could be present during construction activities, impacts to these species and associated habitat, and the mitigation measures that will be implemented in order to minimize the impacts of construction activities on these species and associated habitat.

Impacts to plant species could include loss of the plant species through trampling or excavation if present within the construction zone or damage to sensitive root systems, through compaction, could occur outside of the construction zone. Therefore, implementation of the Project could have a potentially significant impact on special status plants.

Due to agricultural demand for water, work within the Canal is proposed to be conducted during the GGS inactive period, January through April/May, when demand for water is low and the Canal would be dry. Therefore, neither western pond turtle nor GGS should be present within the Canal during the time of bridge construction; however, although unlikely, there is the potential for western pond turtle and/or GGS to be aestivating within the ruderal (disturbed) areas. Potential impacts include direct harm to species that could potentially

come into contact with construction personnel and/or equipment, temporarily inhibiting movement of western pond turtle and/or GGS through the Project area, and increased chance of predation or physical harm if they were to become trapped in the construction area. Trenches left open during the night could trap GGS and/or western pond turtles moving through the construction area. Lastly, the movement of equipment within uplands and construction of bridge structures could crush GGS and/or western pond turtles or nests containing eggs or young.

Noise associated with construction activities involving heavy equipment operation that occurs during the breeding season (generally between February 1 and August 31) could disturb nesting Swainson's hawks, and other raptors and songbirds if an active nest is located near these activities. Potential impacts could include abandonment of nest sites and the mortality of young. Any disturbance that causes nest abandonment and subsequent loss of eggs or developing young at active nests located near the Project area would violate the CESA (1 FGC §§ 2800, 3503, and 3503.5) and the MBTA.

Implementation of **Mitigation Measure BIO-1** would reduce potential impacts to special status plants to a less-than-significant level.

Implementation of **Mitigation Measures BIO-2 and BIO-3** would reduce potential impacts to special status aquatic and semi-aquatic wildlife species to less than significant.

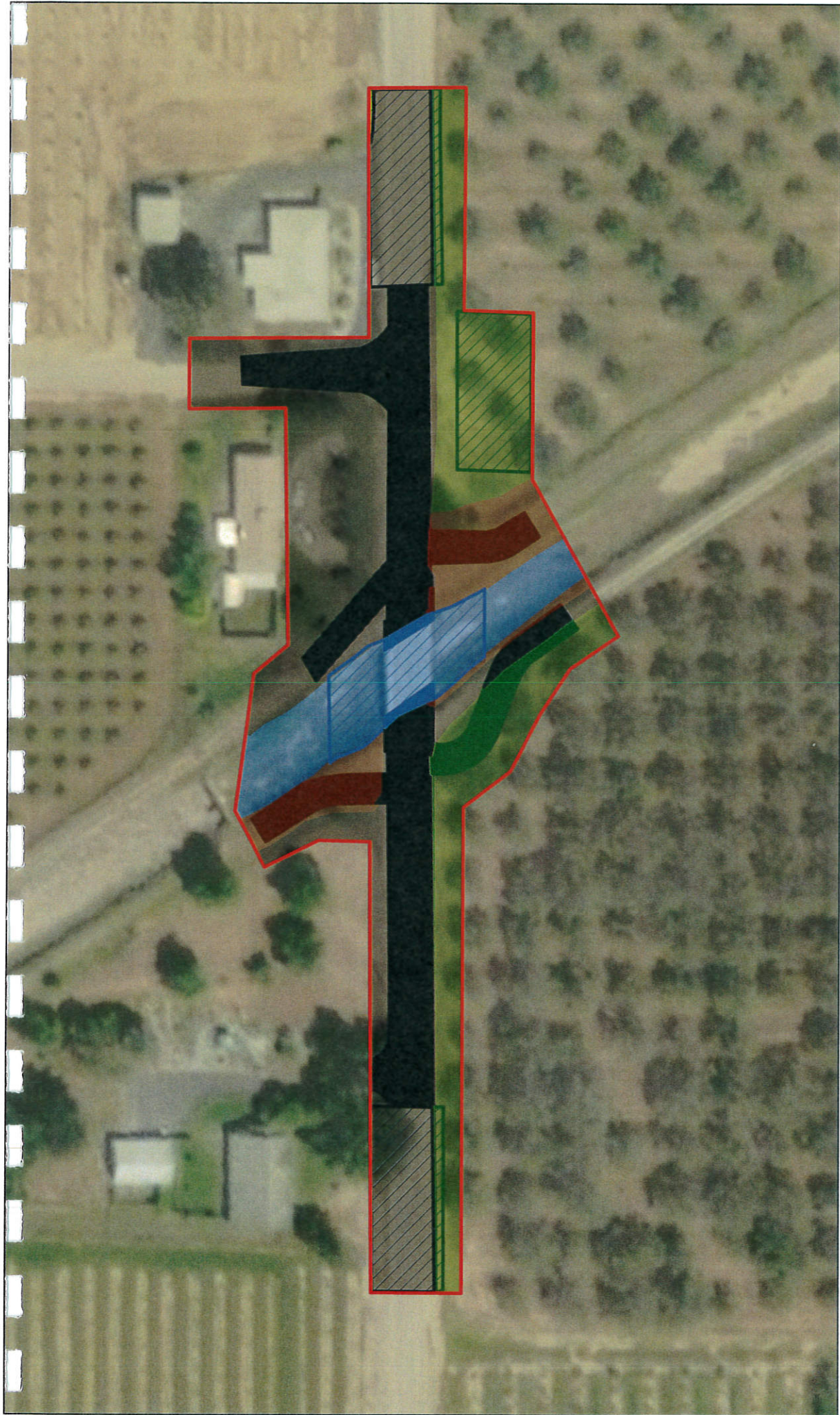
Implementation of **Mitigation Measures BIO-4, BIO-5, and BIO-6** would reduce potential impacts to special status terrestrial wildlife species to less than significant.

- b,c) **Less-than-Significant Impact with Mitigation.** There is no sensitive riparian habitat within the Project area; however, the Canal, an aquatic habitat and a jurisdictional water of the U.S. and the state, would be considered sensitive (Caltrans, 2017a; Caltrans, 2017b; Caltrans, 2017c). In addition, as described above in (a), the Canal provides potentially suitable habitat for several sensitive species, including the USFWS-listed GGS.

This Project would not involve significant permanent modification or alteration of the Canal, as the bridge span abutments would be located at each top of channel location, above the ordinary high water mark. While in-channel work within the Canal would be minimal, approximately 0.1 acres of permanent rock slope protection would be required at the bridge supports on the banks to prevent scour to the new bridge supports.

The Project would temporarily impact approximately 0.14 acres of the Canal. Temporary impacts to the Canal would result from removal of the existing bridge. Implementation of the minimization measures detailed in the Hydrology and Water Quality section of this IS/MND would ensure that potential impacts to the Canal remain less than significant. Project impacts to biological resources are depicted in **Figure 7**.

- d) **Less-than-Significant Impact.** The Project would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. The Project area is not located within an established native resident or migratory wildlife corridor or wildlife nursery site (Caltrans, 2017b; Caltrans, 2017c). However, as discussed



**Legend**



Project Impact Area

**Temporary Impacts**



Agriculture



Riverine

**Permanent Impacts**



Riverine



Ruderal (Disturbed)



Urban (Developed)



Source: ESRI Online Basemap, Aerial Imagery, Data 2017, Coordinate System NAD 83  
 State Plane California II FIPS 31462 Feet  
 Notice: This map was created for informational and display purposes only.

Kent Avenue over Sutter Butte Canal  
 Bridge (18C-0132) Replacement Project  
 Sutter County, CA



above, the Canal may provide a movement corridor for wildlife to disperse. Construction noise could temporarily alter foraging patterns of resident wildlife species and temporarily disrupt wildlife movement within the Project area. This disturbance would only occur during Project construction and the disruption of wildlife movement would be temporary in nature. This impact would be less than significant and no mitigation measures are required.

- e) **No Impact.** There are no tree preservation policies currently established for Sutter County (Sutter County, 2011a; Sutter County, 2016). In addition, no trees would be removed as part of the Project. There would be no impact and no mitigation measures are required.
- f) **No Impact.** The Project is not within the jurisdiction of an adopted habitat conservation plan or natural community conservation plan. Therefore, Project implementation would not conflict with the provisions of an adopted local, regional, or state habitat conservation plan. The closest adopted habitat conservation plan within the vicinity of the Project site is the Natomas Basin Habitat Conservation Plan, which includes part of southeastern Sutter County (City of Sacramento et al., 2003). The Yuba-Sutter Regional Conservation Plan is currently in the planning process; however, it would not have jurisdiction over the Project site and so is not applicable to the Project. There would be no impact and no mitigation measures are required.

#### 4.4.5 Mitigation Measures

**Mitigation Measure BIO-1: *Conduct Preconstruction Surveys.*** A CDFW-approved biologist shall conduct a preconstruction survey for special status plant species within 30 days prior to construction. If special status plant species are not found, then no further measures are necessary. If special status plant species are found in the Project area, notify CDFW at least ten days prior to dewatering or construction impacts in the vicinity of any special status plant species in accordance with the California Native Plant Protection Act of 1977 (10 FGC § 1900-1913) to allow sufficient time to transplant the individuals to a suitable location.

**Mitigation Measure BIO-2: *Protect Giant Garter Snakes.*** Implement the following in order to reduce potential Project effects to GGS:

- Install temporary fencing (or similar devices which lack openings which might cause the GGS to become stranded or otherwise become entangled) at the upstream and downstream limits of the construction area to deter GGS from entering the Project area and being harmed by construction activities. Install the fencing prior to the start of construction to ensure that GGS do not enter the construction zone.
- Have construction personnel participate in a USFWS-approved worker environmental awareness program prior to the onset of construction activities. A CDFW-approved biologist shall inform all construction personnel about the life history of GGS; how to identify species and their habitats; what to do if a GGS is encountered during construction activities; and explain the state and federal laws pertaining to GGS.
- A CDFW-approved biologist shall conduct a preconstruction survey for GGS, no more than 24 hours prior to the start of construction activities (site preparation and grading). If construction activities stop for a period of two or more weeks, complete a new GGS survey no more than 24 hours prior to the reinitiating of construction activities. The biologist shall monitor the site during dewatering activities; if a GGS is encountered during the construction period after the

completion of these dewatering activities, the monitoring biologist shall be notified and shall have the authority to stop localized construction activities until corrective measures have been taken to avoid harm to GGS.

- Confine any vegetation or ground clearing to the minimal area necessary within 200 feet of aquatic habitat to facilitate construction activities. To ensure that construction equipment and personnel do not affect upland and aquatic habitat for GGS outside of the Project area, erect exclusionary fencing to clearly define the GGS habitat to be avoided. This will delineate the environmentally sensitive areas within the Project area. Coordinate the installation techniques and location of the exclusionary fencing with a CDFW-approved wildlife biologist, who shall inspect and approve the fencing prior to commencement of construction.
- Upon completion of construction, hydroseed and stabilize disturbed sections of Sutter Butte Canal.
- If a live GGS is encountered during construction activities, immediately notify the Project biological monitor and USFWS. The biological monitor shall:
  - Stop all construction activity in the vicinity of the GGS, monitor the GGS, and allow the GGS to leave on its own. The monitor will remain in the area for the remainder of the workday to verify the GGS is not harmed or to verify the GGS leaves the site and does not return. Determine escape routes for GGS in advance of construction. If the GGS does not leave on its own within one working day, conduct further consultation with USFWS.
  - Only personnel with a USFWS recovery permit pursuant to the federal Endangered Species Act Section 10 (16 USC § 1539(a)(1)(A)) will have the authority to capture and/or relocate GGS encountered in the Project Impact Area (PIA).
- Upon locating dead, injured or sick GGS, Caltrans shall notify the USFWS Division of Law Enforcement or the Sacramento Fish and Wildlife Office within one working day. Written notification to both offices shall be made within three calendar days and will include the date, time, and location of the finding of a specimen and any other pertinent information.
- Do not employ any plastic, monofilament, jute, or similar erosion control matting that could entangle GGS. Use possible substitutions such as coconut coir matting, tactified hydro seeding compounds, or other material approved by the USFWS.
- Implement standard construction BMPs throughout construction to avoid and minimize adverse effects to Project area water quality. Inspect these BMPs daily to ensure their effectiveness. Install these BMPs per the BMP installation specifications. Maintain or replace BMPs deemed to be ineffective as necessary.

**Mitigation Measure BIO-3: *Protect Western Pond Turtles.*** Implement the following to reduce potential Project effects to western pond turtle:

- If dewatering is necessary, both notify CDFW and dewater the construction area prior to construction activities.
- No more than two weeks prior to the commencement of ground-disturbing activities, the County shall retain a CDFW-approved biologist to perform surveys for western pond turtle within suitable aquatic and upland habitat within the Project area. Surveys will include western pond turtle nests as well as individuals. The biologist (with the appropriate agency permits) will temporarily move any identified western pond turtles upstream of the construction area, and temporary barriers will be placed around the construction area to prevent ingress. Do not proceed with construction until the work area is determined to be

free of turtles. Document the results of these surveys in a technical memorandum to be submitted to CDFW (if turtles are documented).

- Implement standard construction BMPs throughout construction to avoid and minimize adverse effects to the water quality within the Project area.

**Mitigation Measure BIO-4: Conduct Preconstruction Surveys for Swainson's Hawks.** Prior to construction, a CDFW-approved biologist shall conduct surveys to determine presence/absence of nesting Swainson's hawk in and within 0.50 miles of the Project area according to the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (CDFG, 2000). If no Swainson's hawks are found during any of the surveys, no further mitigation will be necessary. If Swainson's hawk nests are found, consult CDFW regarding measures to reduce the likelihood of forced fledging of young or nest abandonment by adult birds. These measures will likely include, but are not limited to, the establishment of a no-work zone around the nest until the young have fledged as determined by a CDFW-approved biologist.

**Mitigation Measure BIO-5: Protect Migratory Birds.** Use the following avoidance and minimization measures when work occurs on or in the vicinity of structures that may be subject to nesting by song sparrow and other migratory raptors and songbirds.

- Avoid Active Nesting Season. If feasible, conduct all tree and shrub removal and grading activities during the non-breeding season (generally September 1 through January 31). If grading and tree removal activities are scheduled to occur during the breeding and nesting season (February 1 through August 31), perform preconstruction surveys for migratory birds prior to the start of Project activities.
- Conduct Preconstruction Nesting Bird Surveys. If construction, grading or other Project-related activities are scheduled during the nesting season (February 1 to August 31), conduct preconstruction surveys for other migratory bird species no less than 14 days and no more than 30 days prior to the beginning of construction within 250 feet of suitable nesting habitat. If the preconstruction surveys do not identify any nesting migratory bird species within areas potentially affected by construction activities, no further mitigation would be required.
- Avoid Active Bird Nest Sites. If active nests are found, establish no-work buffers to limit Project-related construction activities near the nest site. Determine the size of the no-work buffer zone in consultation with CDFW; use a 500-foot buffer when possible. Delineate the no-work buffer zone with highly visible temporary construction fencing. In consultation with CDFW, monitoring of nest activity by a CDFW-approved biologist may be required if the Project-related construction activity has potential to adversely affect the nest or nesting behavior of the bird. Do not commence Project-related construction activity within the no-work buffer area until a CDFW-approved biologist and CDFW confirms that the nest is no longer active.

**Mitigation Measure BIO-6: Protect Special Status Species Bats.** A CDFW-approved biologist shall conduct a survey for roosting bats prior to grubbing and clearing activities. If no roosting bats are found, no further mitigation would be necessary. If bats are not found and there is no evidence of use by pallid bats, construction may proceed. If pallid bats are found or evidence of use by bats is present, consult CDFW for guidance on measures to avoid or minimize disturbance to the colony. Additional measures may include excluding bats from the tree before their hibernation period (mid-October to mid-March) and before construction begins.

#### 4.4.6 References

- California Department of Fish and Game (CDFG), 2000. Recommended timing and methodology for Swainson's Hawk nesting surveys in California's Central Valley. May 31, 2000.
- California Department of Fish and Wildlife (CDFW), 2018. NCCP Plan Summary – Yuba Sutter Regional Conservation Plan. Available at:  
<https://www.wildlife.ca.gov/Conservation/Planning/NCCP/Plans/Yuba-Sutter>. Accessed May 30, 2018.
- California Department of Transportation (Caltrans), 2017a. Kent Avenue Bridge Replacement Project Preliminary Delineation of Jurisdictional Waters. September 2017. Prepared by Drake Haglan and Associates on behalf of Sutter County.
- Caltrans, 2017b. Kent Avenue Bridge Replacement Project Biological Assessment. December 2017. Prepared by Drake Haglan and Associates on behalf of Sutter County.
- Caltrans, 2017c. Kent Avenue Bridge Replacement Project Natural Environment Survey. November 2017. Prepared by Drake Haglan and Associates on behalf of Sutter County.
- City of Sacramento, Sutter County, Natomas Basin Conservancy, Reclamation District No. 1000, Natomas Central Mutual Water Company, 2003. Final Natomas Basin Habitat Conservation Plan. Sacramento and Yuba Cities, California. Prepared for United States Fish and Wildlife Service and the California Department of Fish and Game.
- Sutter County, 2011a. 2030 Sutter County General Plan.
- Sutter County, 2010b. 2030 Sutter County General Plan Final Environmental Impact Report. Prepared by PBS&J.

## 4.5 Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Cultural Resources – Would the project:</b>				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 4.5.1 Setting

A cultural resource is a broad term that includes prehistoric, historic and traditional cultural properties that reflect the physical evidence of past human activity across the landscape. Cultural resources, along with prehistoric and historic human remains and associated grave-goods, must be considered under various federal, state, and local regulations including CEQA, and the National Historic Preservation Act of 1966 (NHPA). Cultural resources that are listed on, or eligible for inclusion in, the National Register of Historic Places (NRHP) are also considered eligible for listing in the California Register of Historical Resources (CRHR). Those cultural resources that are listed in or eligible for inclusion in the CRHR are referred to as historical resources. To be considered a historical resource, or “historically significant,” the resource must meet the criteria for listing in the CRHR, which include the following:

- a) Is associated with the events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- b) Is associated with the lives of persons important to our past;
- c) Embodies the distinctive characteristics of a type, period, region, method of construction, or represents the work of an important creative individual, or possesses high artistic value; or
- d) Has yielded, or may be likely to yield, important information in prehistory or history.

Paleontological resources are the fossilized evidence of organisms preserved in the geologic (rock) record. Fossils are considered a nonrenewable resource that is protected by federal, state, and local environmental laws and regulations. According to the Society of Vertebrate Paleontology standards and guidelines, sedimentary rock units with a high potential for containing significant nonrenewable paleontological resources are those within which vertebrate or significant invertebrate fossils have been previously determined to be present, or likely to be present. The potential paleontological importance of the Project area can be assessed by identifying the rock units that are over 10,000 years old within the underlying landform. An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and it meets at least one of the following criteria:

- A type specimen (i.e., the individual from which a species or subspecies has been described);
- A member of a rare species;
- A species that is part of a diverse assemblage;
- A skeletal element different from, or a specimen more complete than, those now available for its species;
- A complete specimen; or
- At least 10,000 years or older.

An Archaeological Survey Report (ASR) and a Historical Resources Evaluation Report (HRER) were prepared by PAR Environmental Services for the Project and are available for review at the Sutter County Development Services Department during business hours (Caltrans, 2018a; Caltrans, 2018b). Some information from the ASR and the HRER is considered confidential under the California Public Resources Code and Code of Federal Regulations (CFR) in compliance to the Freedom of Information Act and the California Public Records Act in order to protect the integrity of tribal cultural resources, and so would not be available to the public (7 PRC § 21082.3, 36 CFR § 800.11). These documents constitute the cultural resources investigation that was conducted for the Project, which included a records search at the California Historical Resources Information System (CHRIS), background research, Native American consultation, and pedestrian survey. Additionally, geotechnical core samples up to five feet in depth at the Project area were examined for cultural materials (Caltrans, 2018b).

Results of the investigation show no known archaeological or historical resources in the Project area and show that modern agricultural and pasturing use throughout the Project area has caused modification to the natural landscape (Caltrans, 2018a; Caltrans, 2018b). Agricultural areas are repeatedly leveled and exposed to heavy farming machinery that can potentially remove surficial archaeological deposits. Additionally, the construction of the Canal, irrigation ditches, fields, and pastures altered the landscape as it was known and used by prehistoric populations.

#### 4.5.2 Discussion

- a.b) **Less-than-Significant Impact.** Bridge No. 18C-0132, built in 1938, was evaluated for historical significance and was found not eligible for inclusion in the NRHP; therefore, it is not considered a historical resource for the purposes of CEQA (Caltrans, 2018a). Background research and field surveys did not reveal any archaeological or historical resources in the Project area, and the Project area has a low to moderate potential to contain these resources (Caltrans, 2018a; Caltrans, 2018b). Ground disturbance associated with agriculture has disturbed the landscape up to five feet in depth. Compliance with California Public Resources Code (PRC §§ 5097.5, 5097.9 *et seq.*) and construction contract specifications, including halting construction in the vicinity of a potential cultural resources find and notifying the County to allow evaluation of the resource by a qualified archaeologist prior to resuming construction, would ensure any potential impacts on buried or previously undiscovered historical resources are less than significant. No mitigation measures are required.
- c) **Less-than-Significant Impact with Mitigation.** The underlying geologic landform in the Project area is Holocene-age (up to 11,700 years old) alluvium (Helley, E.J. and Harwood, D.S., 1985; Jennings et. al, 1977), which is not considered a unique geologic feature but has the potential to contain paleontological resources. A search of the University of California Museum of Paleontology (UCMP) collections database identified 76 fossil occurrences in the County (UCMP, 2017). The fossils located in the County are primarily from the Eocene epoch

(approximately 56 to 34 million years ago) and include invertebrates and microfossils located near the Sutter Buttes (approximately 5 miles west of the Project area). The only fossilized mammals identified in the County are Quaternary-age vertebrate fossils near Oswald Road (approximately 13 miles south of the Project area), and near Gilsizer Slough (approximately 16 miles south of the Project area) (UCMP, 2017). The disturbed upper sediments deposited by the active river processes, canals, and agriculture activity have a low potential for paleontological resources; however, in the event that paleontological resources are encountered during construction activities, implementation of **Mitigation Measure CUL-1** would reduce the impact to less than significant.

- d) **Less-than-Significant Impact with Mitigation.** Based on the prehistoric and historic uses of the area and the current disturbed nature of the Project area, human remains are not expected to be exposed by Project related ground-disturbing activities. In the event that human remains are discovered during construction activities, implementation of **Mitigation Measure CUL-2** would reduce the impact to less than significant with mitigation.

#### 4.5.3 Mitigation Measures

**Mitigation Measure CUL-1:** *Follow Protocol for the Unanticipated Discovery of Paleontological Resources.* If paleontological resources are encountered during Project-related ground-disturbing activities, the County's construction contractor(s) shall cease all work within 100 feet of the find until the find can be evaluated by a qualified paleontologist. If the paleontologist determines that the resources are significant, the paleontologist shall notify the County and the resource will be avoided, if possible, including permanent preservation of the site and/or permanent preservation of salvaged fossils along with all contextual data in established institutions.

**Mitigation Measure CUL-2:** *Follow Protocol for the Unanticipated Discovery of Cultural Resources or Human Remains.* If buried cultural materials are encountered during construction, stop all work in that area until a qualified archaeologist can evaluate the nature and significance of the find. In the event that human remains or associated funerary objects are encountered during construction, cease all work within the vicinity of the discovery. Contact the County coroner immediately, in accordance with CEQA (Section 1064.5) and the California Health and Safety Code (Section 7050.5). If the human remains are determined to be Native American, the coroner will notify the Native American Heritage Commission, who will notify and appoint a Most Likely Descendent (MLD). The MLD will work with a qualified archaeologist to decide the proper treatment of the human remains and any associated funerary objects.

#### 4.5.4 References

California Department of Transportation (Caltrans), 2018a. Historical Resources Evaluation Report: Kent Avenue over the Sutter Butte Canal Bridge (18C-0132) Replacement Project, Sutter County, California. January 2018. Prepared by PAR Environmental Services, Inc., for Drake Haglan & Associates on behalf of the Sutter County Development Services Department.

Caltrans, 2018b. Negative Archaeological Survey Report for the Kent Avenue Bridge (18C-0132) Replacement Project, Sutter County, California. January 2018. Prepared by PAR Environmental Services, Inc. for Drake Haglan & Associates on behalf of the Sutter County Development Services Department.

Helley E.J. and D.S. Harwood, 1985. Geologic map of the late Cenozoic deposits of the Sacramento Valley and northern Sierran foothills, California. U.S. Geological Survey Miscellaneous Field Studies Map MF-1790: 24 pp., 5 sheets, scale 1:62,500.

Jennings, C.W., Strand, R.G., and Rogers, T.H., 1977. Geologic map of California: California Division of Mines and Geology, scale 1:750,000.

The Society of Vertebrate Paleontology (SVP), 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.

University of California Museum of Paleontology (UCMP), 2017. Collections. Available at: <http://www.ucmp.berkeley.edu/science/collections.php>. Accessed January 1, 2018.

## 4.6 Geology, Soils, and Seismicity

<i>Issues (and Supporting Information Sources):</i>		<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Geology, Soils and Seismicity –Would the project:</b>					
a)	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 4.6.1 Setting

A Draft Foundation Report was prepared for the Project and is available for review at the Sutter County Development Services Department during business hours (Caltrans, 2017a).

The Project site is not located in an Alquist-Priolo Earthquake Fault Zone. Figure 5.1-1 in the General Plan TBR does not identify any active earthquake faults in Sutter County as defined by the California Mining and Geology Board. The faults identified in Sutter County include the Quaternary Faults, located in the northern section of the County within the Sutter Buttes, and the Pre-Quaternary Fault, located in the southeastern corner of the County, just east of where Highway 70 enters the County (Figure 5.1-1 of the General Plan TBR). Both faults are listed as non-active faults but have the potential for seismic activity.

The Project is located in the Sacramento Valley which is within the Great Central Valley geomorphic province. This geomorphic province is generally seismically inactive, with most active faults to the west in the Coast Ranges or to the east in the Sierra Nevada Mountains. The nearest mapped faults are Quaternary (from 1.6 million years old to the present) and pre-Quaternary (more than 1.6 million years

old) faults located within the Sutter Buttes, approximately 7.5 miles west of the Project site (CDC, 2015b). The Prairie Pre-Quaternary fault and the Swan Ravine Quaternary fault are both located approximately 10 miles northeast of the Project site (CDC, 2015b). However, the nearest CDC-designated Earthquake Fault Zone to the Project is the Bangor Quadrangle, located approximately 11 miles northeast of the Project site (CDC, 2015a). The Bangor Quadrangle includes the Swan Ravine Quaternary Fault, the Cleveland Hill Quaternary Fault, and the Paynes Peak Pre-Quaternary Fault. The nearest CDC-designated Landslide and Liquefaction Zone to the Project site is the Bouldin Island Quadrangle, approximately 79 miles south of the Project site (CDC, 2015a).

A search of the United States Department of Agriculture Natural Resource Conservation Service Web Soil Survey identified the following soil types within the Project site (**Figure 8**):

**Conejo-Tisdale loam complex, zero to two percent slopes** (Caltrans, 2017b; Caltrans, 2017c). Conejo series loams have moderate infiltration rates, are deep to moderately deep, moderately well to well drained soils (Caltrans, 2017d). These soils are partially hydric and have a high corrosion potential (Caltrans, 2017d). Tisdale series soils are moderately-deep, well drained soils (USDA, 2003).

**Marcum-Gridley clay loam, zero to one percent slopes** (Caltrans, 2017b; Caltrans, 2017c). Marcum series clay loams have slow infiltration rates and are moderately well-drained (Caltrans, 2017d). These soils are partially hydric and have a high corrosion potential (Caltrans, 2017d). Gridley series clay loams are moderately deep, moderately well-drained soils (USDA, 1997).

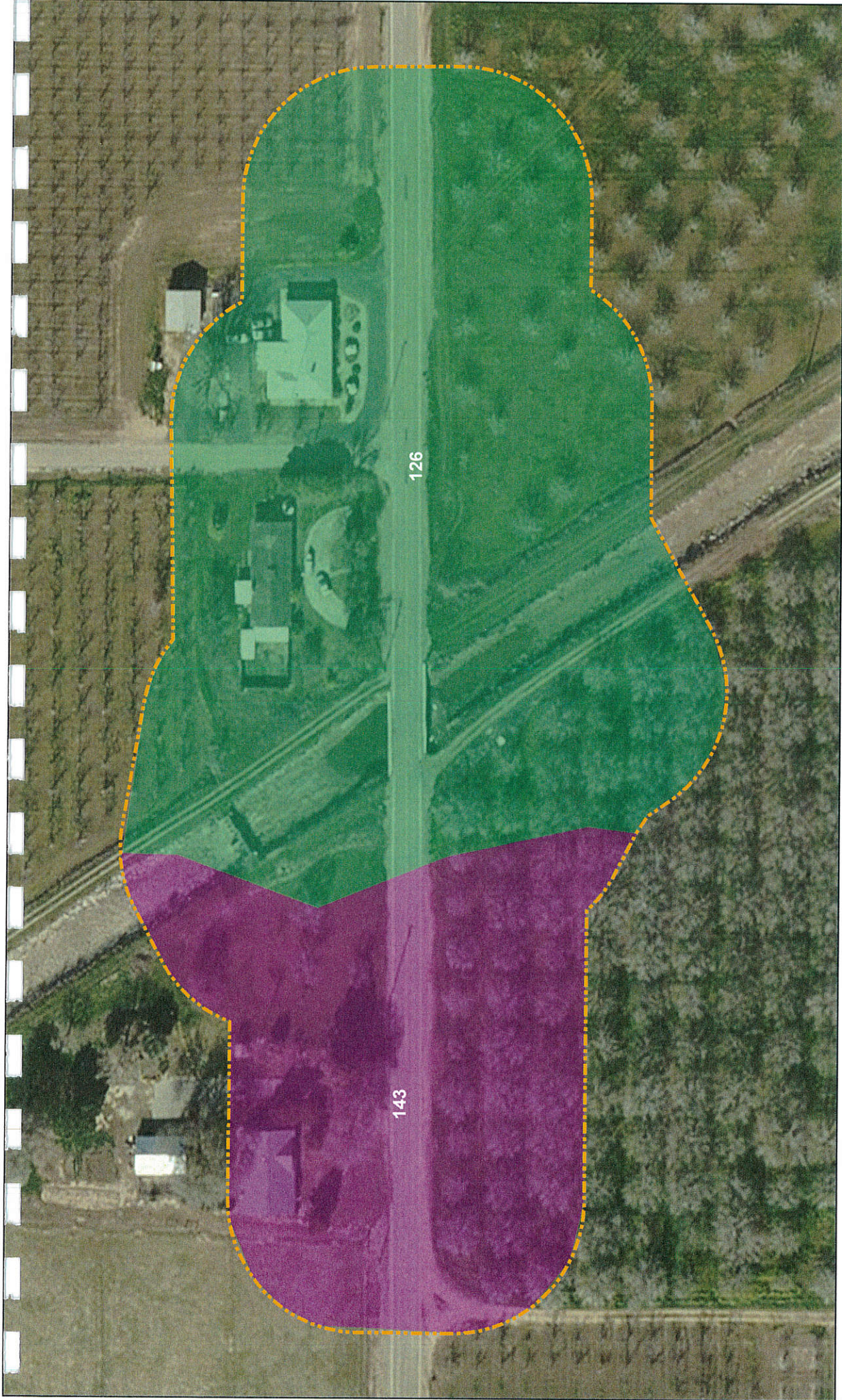
Results of corrosion testing at the Project site from the Draft Foundation Report indicate that the Project site is non-corrosive to buried metal and concrete, as defined by the Caltrans Corrosion Guidelines (Caltrans, 2017a).

#### **4.6.2 Discussion**

- a) **Less-than-Significant Impact.** According to the CDC Fault Activity Map (2015), there are no active faults in the vicinity of the Project site and the Project site is not located within the vicinity of a delineated Alquist-Priolo Earthquake Fault Zone or a Landslide and Liquefaction Zone (CDC, 2015a; CDC, 2015b). As discussed above in the Setting section, the nearest CDC-designated Earthquake Fault Zone to the Project is the Bangor Quadrangle, located approximately 11 miles northeast of the Project site, and the closest faults to the Project site are the Sutter Butte Quaternary and pre-Quaternary faults located approximately 7.5 miles west of the Project site (CDC, 2015a; CDC, 2015b).

Strong seismic ground shaking could contribute to potential landslide activities within the Project site; however, this is unlikely because the nearest CDC-designated Landslide and Liquefaction Zone is the Bouldin Island Quadrangle located approximately 79 miles south of the Project site (CDC, 2015a; CDC, 2015b). In addition, the Project site is located in a relatively flat area. Therefore, while the Project site may experience ground shaking, landslides would be considered to have a low potential to occur.

Liquefaction of granular soils can be caused by strong vibratory motion due to earthquakes. Soils that are highly susceptible to liquefaction are medium to fine-grained, loose, granular and saturated at depths of less than 50 feet below the ground surface. Liquefaction of soils causes surface distress, loss of bearing capacity, and settlement of structures that are founded on the



**Legend**



Biological Study Area

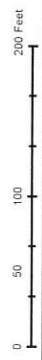
**Soil Map Unit**



126: Conejo-Tisdale complex, 0 to 2 percent slopes



143: Marcum-Gridley clay loams, 0 to 1 percent slopes



Source: Esri, DigitalGlobe, GeoEye, IGN, GeoEye, NRC, 2017, Coordinate System: NAD 83  
 Status: This map was created for informational and display purposes only.

Kent Avenue over Sutter Butte Canal  
 Bridge (18C-0132) Replacement Project  
 Sutter County, CA

Soil Types within the Biological Study Area

[illegible]

soils. The Project is located on loam-type soil and is underlain by lean to fat clay which includes sands that are medium stiff near the surface. These soil types are not known for their susceptibility to liquefaction. In addition, laboratory testing of the Project site soils indicate that the plasticity index of the soils ranged from non-plastic to 24 with a median and mean value of nine (Caltrans, 2017a). Therefore, the probability of soil liquefaction taking place on the Project site is considered to be low (Caltrans, 2017a).

The Project is a bridge replacement and would not expose additional people or structures to substantial adverse effects. The new bridge would comply with the current Caltrans Seismic Design Criteria, which would further minimize the potential effects of ground shaking, liquefaction, and landslides. This impact would be less than significant and no mitigation measures are required.

- b) **Less-than-Significant Impact.** The Project would involve removing the existing bridge and constructing a new bridge over the Canal. Project construction has the potential to expose bare soil and potentially generate other water quality pollutants that could be exposed to precipitation and subsequent entrainment in surface runoff to the Canal. Construction activities involving soil disturbance, excavation, cutting and filling, and grading activities could result in increased erosion and sedimentation to the Canal and waters downstream. Construction materials such as asphalt, concrete, and equipment fluids could be exposed to precipitation and subsequent runoff. If precautions are not taken to contain contaminants, construction could produce contaminated stormwater runoff (nonpoint source pollution), a major contributor to the degradation of water quality. Prior to in channel construction activities, the area of the channel where construction activities would occur would be dewatered through a stream diversion. Potential erosion impacts from construction activities would be less than significant with adherence to the Sutter County Grading Ordinance (Ordinance 1770, Amended, 05/27/2009) and best management practices. No mitigation measures are required.
- c) **Less-than-Significant Impact.** As discussed above in the Settings section and in (a), the Project is not located within a delineated Landslide or Liquefaction Zone (CDC, 2015a). The nearest CDC-designated Landslide and Liquefaction Zone is the Bouldin Island Quadrangle located approximately 79 miles south of the Project site (CDC, 2015a). Laboratory testing of the soils at the Project site confirmed that the Project site does not have loose sandy soil, nor does it contain plastic soils that would be susceptible to lateral spreading, liquefaction, or collapse (Caltrans, 2017a). The potential for landslides along the Canal within the Project site is low. With adherence to all applicable codes and regulations, including the current Caltrans Seismic Design Criteria, the Project's impacts associated with on or offsite landslide would be minimized. This impact would be less than significant and no mitigation measures are required.
- d) **Less-than-Significant Impact.** Expansive soils are those possessing clay particles that react to moisture changes by shrinking (when dry) or swelling (when wet). The extent of shrinking and swelling is influenced by the environment, including the extent of wet or dry cycles, and by the amount of clay in the soil. This physical change in the soils can react unfavorably with building foundations, concrete walkways, swimming pools, roadways, and masonry walls. The Project site is located on loam-type soil and is underlain by lean to fat clay which includes sands that are medium stiff near the surface; these characteristics are not consider characteristics of an expansive soil type. The Project would replace the Kent Avenue Bridge, and would not expose

individuals or properties to adverse effects associated with expansive soil. This impact would be less than significant and no mitigation measures are required.

- e) **No Impact.** The Project does not involve the connection to sewer systems or septic tanks. No impact would occur and no mitigation measures are required.

#### 4.6.3 References

- California Department of Conservation (CDC), 2015a. CGS Information Warehouse. Available at: <http://maps.conservation.ca.gov/cgs/informationwarehouse/>. Accessed on January 4, 2017.
- CDC, 2015b. Fault Activity Map of California (2010). Available at: <http://maps.conservation.ca.gov/cgs/fam/>. Accessed February 8, 2018.
- CDC, 2017a. California Geotours: An Index to Online Geologic Field Trip Guides of California. Available at: <http://www.conservation.ca.gov/cgs/Pages/Geotours.aspx>. Accessed May 16, 2018.
- California Department of Transportation (Caltrans), 2017a. Draft Foundation Report: Kent Avenue Bridge at Sutter Butte Canal Bridge Replacement Project. December 2017. Prepared by WRECO for Drake Haglan & Associates on behalf of Sutter County Development Services Department.
- Caltrans, 2017b. Kent Avenue Bridge Replacement Project Biological Assessment. December 2017. Prepared by Drake Haglan and Associates on behalf of Sutter County.
- Caltrans, 2017c. Kent Avenue Bridge Replacement Project Natural Environment Survey. November 2017. Prepared by Drake Haglan and Associates on behalf of Sutter County.
- Caltrans, 2017d. Kent Avenue Bridge over Sutter Butte Irrigation Canal Replacement Project Initial Site Assessment (BRLO 5918[088]). July 2017. Prepared by Drake Haglan and Associates on behalf of Sutter County.
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Accessed February 8, 2018.

## 4.7 Greenhouse Gas Emissions

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Greenhouse Gas Emissions –Would the project:</b>				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 4.7.1 Setting

California's primary legislation for reducing greenhouse gas (GHG) emissions is the California Global Warming Solutions Act (Assembly Bill [AB] 32). Sutter County adopted a Climate Action Plan in July 2010 (Sutter County, 2010a) and Pre-Screening Measures for GHGs in June 2016 (Sutter County, 2016). According to the Pre-Screening Measures, projects that consist of construction emissions with no or negligible operational emissions, including bridge or roadway replacements that do not increase traffic capacity, are pre-screened out of further greenhouse gas evaluation.

### 4.7.2 Discussion

a, b) **Less-than-Significant Impact.** The Project purpose is to remove the existing structurally deficient bridge and replace it with a new bridge designed to current structural and geometric standards while minimizing adverse impacts to the Canal and the surrounding farmland. As the Project would not include additional through lanes, the Project would not increase roadway facilities or service capabilities that would induce unplanned growth or remove an existing obstacle to growth. The Project would not increase long-term traffic levels and there would be no operational impacts associated with GHG emissions.

Project construction is considered small, short-term in nature and would not generate substantial air quality (including GHG emission) pollutant concentrations as discussed under the Air Quality section. The Project is pre-screened out from the County GHG requirements per the Greenhouse Gas Pre-Screening Measures for Sutter County (Sutter County, 2016). Impacts from the Project would be less than significant. No mitigation measures are required.

### 4.7.3 References

FRAQMD, 2010. Indirect source review guidelines: a technical guide to assess the air quality impact of land use projects under the California Environmental Quality Act. FRAQMD. Yuba City, California.

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Sutter County, 2016. Greenhouse Gas Pre-Screening Measures for Sutter County. Prepared by ESA.

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## 4.8 Hazards and Hazardous Materials

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Hazards and Hazardous Materials –Would the project:</b>				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 4.8.1 Setting

An Initial Site Assessment (ISA) was prepared for the Project and is available at the Sutter County Development Services Department during business hours (Caltrans, 2017e). The ISA was performed in general conformance with the scope and limitations of ASTM Practice E1527-13. The ISA identifies Recognized Environmental Conditions (RECs) for the Project site that may adversely affect roadway and/or bridge construction or right-of-way acquisition. RECs are defined by the ASTM Practice E1527-13 as: "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property:

(1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.” A database report was obtained from Environmental Database Resources, Inc. consisting of information compiled from various government records, such as Geotracker, National Priorities List and Solid Waste Information System, for information regarding the Project area. Based on the results of the records review, no potential RECs have been found in the Project site.

An ISA does not test for asbestos or lead-based paint within the Project site. The Occupational Safety & Health Administration (OSHA) requires that all thermal systems insulation, surfacing materials, and resilient flooring materials installed prior to 1981 be considered presumed Asbestos Containing Materials (ACM) and treated accordingly. Potential ACMs were not observed on the Project site. Bridges built prior to 1981 have the potential to contain ACMs within their rail shim sheet packing, bearing pads, support piers, and/or expansion joint materials. Although the Kent Avenue Bridge was built in 1938, there is no potential to encounter ACMs during demolition because the existing bridge is a single-span bridge that does not contain rail shim sheet packing, bearing pads, support piers, or expansion joint materials. Structures constructed prior to 1978 are presumed to contain lead-based paint (LBP) unless proven otherwise. Since the Kent Avenue Bridge was built in 1938, it is assumed the existing paint on the Kent Avenue Bridge contains concentrations of lead that exceed the threshold values for hazardous waste.

#### 4.8.2 Discussion

- a) **Less-than-Significant Impact.** Construction of the Project would potentially require the use of various types and quantities of hazardous materials. Hazardous materials that are typically used during construction include, but are not limited to, hydraulic oil, diesel fuel, grease, lubricants, solvents, and adhesives. Although equipment used during construction activities could contain various hazardous materials, these materials would be used in accordance with the manufacturers specifications, BMPs, and all applicable regulations. Operation of the Project would not involve the routine storage or use of hazardous materials. With implementation of HYD-1, project impacts would be less than significant.
- b) **Less-than-Significant Impact with Mitigation.** No known RECs or other known contamination have been found on the Project site (Caltrans, 2017e). As stated above, the Project has the potential to encounter variety of hazardous materials.

**Asbestos:** Due to the structure type of the Kent Avenue Bridge, there is no potential to encounter ACMs during demolition of the existing bridge structure. New uses of ACM were banned by the U.S. EPA in 1989, and, thus, new ACMs would not be used in construction of the replacement bridge.

**Lead-based Paint:** Because of the age of the existing structure, there is the potential for LBP to be present in the bridge paint, pavement striping, and thermoplastic paint on the bridge roadway (Caltrans, 2017e). During demolition and construction, hazardous materials associated with the bridge, thermoplastic, or pavement striping yellow paint would be abated by a California-licensed abatement contractor and disposed of as a hazardous waste.

**Aerially Deposited Lead (ADL):** Lead was used as a gasoline additive prior to 1987. Therefore, ADL is commonly located adjacent to heavily traveled roadways in service prior to 1987. Based on a review of aerial photos and topographical maps, Kent Avenue was historically, and is currently, a

local rural road (Caltrans, 2017e). Due to its low vehicular use (500 average daily vehicular traffic trips [ADT] in 2012), historic deposition of vehicle exhaust particulates containing lead are not expected to be significant along Kent Avenue at the Project site (Caltrans, 2016).

**Overall Hazards:** During construction, any existing hazardous materials that may be encountered would pose a hazard for construction workers and the environment. Construction workers typically are at the greatest risk for exposure to contaminated soil. Accidents or spills during transport of hazardous materials or wastes could have the potential to expose the public and the environment to these substances.

Implementation of **Mitigation Measures HAZ-1** and **HAZ-2** would be required to ensure there would not be 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 and reduce the impact to a less-than-significant level.

- c) **No Impact.** There are no schools located within 0.25 miles of the Project site. The closest school to the Project site is Encinal Elementary School, approximately 2.5 miles northeast of the Project site. There would be no impact and no mitigation measures are required.
- d) **Less-than-Significant Impact.** This Project site is not included in the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (Caltrans, 2017e). The closest water body that may be affected is the Canal within the Project site. As discussed in (a) and (b), avoidance, minimization, and/or mitigation measures are proposed as part of the Project for potential hazardous materials that may be present at the Project site. This impact would be less than significant and no mitigation measures are required.
- e) **No Impact.** The Project is not located within an airport land use plan and is not located within two miles of a public airport (SACOG, 2017b). The nearest public airport is Sutter County Airport, located approximately 8.5 miles to the south, and the closest airport land use plan jurisdiction to the Project site is the Sutter County Airport Comprehensive Land Use Plan (SACOG, 2003). The Project is also not located within the Sutter County Airport Safety Zones, as defined by the SACOG Airport Land Use Commission (SACOG, 2017b). There would be no impact and no mitigation measures are required.
- f) **No Impact.** The Project is not located within the vicinity of a private air strip. The nearest private airstrip to the Project is Bowles Airport, located approximately four miles to the northwest. There would be no impact and no mitigation measures are required.
- g) **Less-than-Significant Impact with Mitigation.** During Project construction, the existing bridge would be closed. A detour has been planned along Cutting Avenue, McDonald Avenue, and SR 99 for Project construction. This detour would not significantly interfere with the planned Sutter County evacuation route on SR 99, as all property owners adjacent to the Project would maintain access to Kent Avenue during Project construction and because the detour route is not expected to significantly increase traffic along Cutting Avenue, McDonald Avenue, and SR 99 (Sutter County, 2017d). Also, due to the temporary nature of Project construction and the fact that the detour route is not expected to significantly increase traffic on the adjacent roadways, Project construction would not significantly interfere with the County of Sutter Emergency Operations Plan (Sutter County, 2015). Information about emergency response times is available in the Public

Services section of this document. Implementation of **Mitigation Measure PUB-1** would ensure that impacts to emergency response and evacuation plan routes would remain less than significant.

- h) **Less-than-Significant Impact with Mitigation.** The Project would replace an existing bridge and would not expose additional people or structures to the threat of fire. Construction of the proposed Kent Avenue Bridge structure would be coordinated with the Oswald-Tudor Fire Station and the Sutter County Sheriff's Department through a standard Construction Period Emergency Access Plan. Implementation of **Mitigation Measure PUB-1** would ensure that impacts to individuals from the threat of fire would remain less than significant.

#### **4.8.3 Mitigation Measures**

**Mitigation Measure HAZ-1:** *Develop a Health and Safety Plan (HASP).* Develop a HASP for the Project prior to the start of construction activities. The HASP shall describe appropriate procedures to follow in the event that any contaminated soil or groundwater is encountered during construction activities. Any unknown substances shall be tested, handled, and disposed of in accordance with appropriate federal, state and local regulations.

**Mitigation Measure HAZ-2:** *Follow Procedure for Handling Asbestos and Lead-Based Paint.* A California-licensed abatement contractor will conduct a survey for lead containing materials prior to demolition (including concrete elements) and the contractor will submit a National Emission Standard for Hazardous Air Pollutants (NESHAP) notification. Per the Asbestos NESHAP regulation, all "demolition activity" requires written notification even if there is no asbestos present. This notification shall be typewritten and postmarked or delivered no later than ten days prior to the beginning of the asbestos demolition or removal activity. If asbestos and/or lead containing materials are found, the following will be required:

- Removal, disposal, storage and transportation of materials from the structure that contain asbestos should be performed in compliance with the Project-specific guidelines put forth in 2015 Caltrans Revised Standard Specification 14-11.16 and other federal and state regulations for hazardous waste.
- Building materials associated with paint on structures and paint on utilities should be abated by a California-licensed abatement contractor and disposed of as a hazardous waste in compliance with 2015 Caltrans Standard Specification 14-11.12, 2015 Caltrans Standard Specification 14-11.13, and other federal and state regulations for hazardous waste.
- A Lead Compliance Plan should be prepared by the contractor for the disposal of lead-based paint. The grindings (which consist of the roadway material and the yellow and white color traffic stripes) shall be removed and disposed of in accordance with the appropriate 2015 Caltrans Standard Specifications.

A California-licensed lead contractor shall be required to perform all work that will disturb any lead-based paint as a result of planned or unplanned renovations in the Project area, including the presence of yellow traffic striping and pavement markings that may contain lead-based paint. All such material must be removed and disposed of as a hazardous material in compliance with 2015 Caltrans Standard Specification 14-11.12 and 14-11.13.

**Mitigation Measure PUB-1:** *Develop a Construction Period Standard Emergency Access Plan.* Please see the Public Services section of this document for information about this mitigation measure.

#### 4.8.4 References

- ATSM Standard E1527-13. "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process." ASTM International, West Conshohocken, PA, 2003.
- California Department of Transportation (Caltrans), 2017e. Kent Avenue Bridge over Sutter Butte Irrigation Canal Replacement Project Initial Site Assessment (BRLO 5918[088]). July 2017. Prepared for Sutter County.
- Caltrans, 2016. Local Agency Bridge List. October 2016.
- Sacramento Area Council of Governments Airport Land Use Commission (SACOG), 2003. Sutter County Airport Comprehensive Land Use Plan. September 2003.
- SACOG, 2017b. Airport Land Use Commission. Available at: <https://www.sacog.org/post/airport-land-use-commission>. Accessed December 13, 2017.
- Sutter County, 2010b. 2030 Sutter County General Plan Final Environmental Impact Report. Prepared by PBS&J.
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- Sutter County, 2017b. Fire services: stations. Available at: [https://www.suttercounty.org/doc/government/depts/ds/fs/fire\\_stations](https://www.suttercounty.org/doc/government/depts/ds/fs/fire_stations). Accessed December 13, 2017.
- Sutter County, 2017c. Sutter County Development Services Lookup. Accessed January 3, 2017.
- Sutter County, 2017d. Sutter County Evacuation Route Map. Available at: <https://suttercounty.maps.arcgis.com/apps/InformationLookup/index.html?appid=db747339f2af4a37934da0a6c1c654ee>. Updated May 2017. Accessed December 13, 2017.

## 4.9 Hydrology and Water Quality

<i>Issues (and Supporting Information Sources):</i>		<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Hydrology and Water Quality – Would the project:</b>					
a)	Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c)	Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d)	Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f)	Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h)	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j)	Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 4.9.1 Setting

A Preliminary Delineation of Jurisdictional Waters was prepared for the Project and is available for review at the Sutter County Development Services Department during business hours (Caltrans, 2017b).

The Canal belongs to the Honcut Headwaters-Lower Feather hydrologic unit (HUC 18020159) which begins downstream of Lake Oroville and includes the tributary to the Feather River. It flows approximately 60 miles before entering the Sacramento River at Verona. This unit covers approximately 803 square miles (514,000 acres or 2,080 square kilometers) and includes Butte, Yuba, and Sutter Counties. There are approximately 190 miles of major creeks and rivers, 695 miles of minor streams, and 1,266 miles of agricultural water delivery canals in this unit. Hydrology also is influenced by operation of the Sutter Bypass (Caltrans, 2017b). The Sutter Bypass diverts excess water from the Sacramento River between two large levees. It extends from approximately West Butte to Verona and each winter it fills with up to 12 feet of water or more.

The Canal is mapped as a perennial drainage on the Sutter CA USGS 7.5-minute Quadrangle and flows in a northeast to southwest direction through the Project area (Caltrans, 2017b). It flows under Kent Avenue, continuing southwest before eventually draining into the East and West Interceptor Canals. A portion of the Interceptor Canals flows move into the Sutter Bypass through the Wadsworth Canal.

The Sutter Butte Canal is located within the East Butte Subbasin within the Sacramento Valley groundwater basin. The East Butte Subbasin is bounded by the Sutter Buttes to the south, Butte Creek to the west and northwest, the Cascade and Sierra mountain ranges to the northeast, and the Feather River to the southeast (Sutter County, 2010b). The East Butte Subbasin aquifer system consists of late Tertiary to Quaternary aged deposits comprised of Sierra and Cascade sourced material, and in the southern portion of the subbasin around the Sutter Buttes, by volcanic and volcanoclastic rocks (DWR, 2006).

#### 4.9.2 Discussion

a,f) **Less-than-Significant Impact.** Project construction has the potential to expose bare soil and potentially generate other water quality pollutants that could be exposed to precipitation and subsequent entrainment in surface runoff to the Canal. Construction activities involving soil disturbance, excavation, cutting and filling, and grading activities could result in increased erosion and sedimentation to the Canal and waters downstream. Construction materials such as asphalt, concrete, and equipment fluids could be exposed to precipitation and subsequent runoff. If precautions are not taken to contain contaminants, construction could produce contaminated stormwater runoff (nonpoint source pollution), a major contributor to the degradation of water quality. Prior to in channel construction activities, the area of the channel where construction activities would occur would be dewatered through a stream diversion.

- Project construction would take between four to six months. Construction is anticipated to begin the winter of 2020 calendar year and would begin in January, or as determined appropriate by the Sutter Extension Water District and the irrigation needs of its customers, as well as by the USFWS, CDFW, and RWQCB. The Project would be subject to Construction General Permit (Order No. 2009-0009-DWQ [as amended by Order No. 2010-0014-DWQ and 2012-006-DWQ]) requirements, which requires preparation and implementation of a SWPPP. The Project would comply with the National Pollution Discharge Elimination System (NPDES) Construction General

Permit including preparing and implementing a SWPPP that identifies Project-specific BMPs to protect water quality during Project construction. With implementation of **Avoidance and Minimization Measure HYD-1**, below, project impacts would be less than significant.

- b) **Less-than-Significant Impact.** According to the Sutter County General Plan, the Project area is not actively used for groundwater recharge (Sutter County, 2010b; Sutter County, 2011a). The Project is similar in size and scale to the existing bridge and roadway, and, thus, so would not construct a significant amount of new impervious surfaces that would impede surface water drainage into the soil. No wells would be constructed, and construction activities would not intercept or alter groundwater recharge, discharge, or flow conditions. This impact would be less than significant and no mitigation measures are required.
- c-e) **Less-than-Significant Impact.** The Project would not alter the course of the Canal, nor would it significantly alter the existing drainage pattern of the site. The Project is designed to replace the existing bridge structure with one that is similar in size and along a similar alignment. In addition, the new bridge would be designed to divert the flow of stormwater off the bridge and onto the surrounding area, rather than directly into the Canal to further prevent possible direct water contamination from the existing roadway. The drainage of the Project site is not expected to result in substantial on or offsite siltation or erosion.

The Project would not substantially increase the amount or rate of surface runoff such that on- or off-site flooding would occur, nor would it create any additional features or change the surrounding land uses in such a way that would exceed the existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. These impacts would be less than significant and no mitigation measures are required.

- g-j) **Less-than-Significant Impact.** According to the U.S. Department of Homeland Security Federal Emergency Management Agency's (FEMA) Flood Map Service Center, the Project is located in an area that is designated as "Other Flood Areas and Other Areas" and "Zone X." The area to the west of Kent Avenue within the Project site is designated as occurring outside of a 500-year floodplain. The area to the east of Kent Avenue is designated as Zone X, "protected from the one percent annual chance (100 year) flood by levee, dike, or other structures subject to possible failure by overtopping during large floods" (**Figure 9**) (FEMA, 2018). Although the Project is located within a dam or levee failure inundation zone, the Project would not construct additional housing or other structures that would result in the increased exposure of people or structures to 100-year flood hazards, place any additional structures that would redirect or impede flood flows, or alter a levee.

The Project area is not located near any tidally influenced water bodies nor is it near any large bodies of water that could be affected by a tsunami or seiche (Caltrans, 2017b; Sutter County, 2010b; Sutter County, 2011a). Additionally, the Project would not require any modification to nearby slopes, limiting the possibility of a mudflow hazard to the Project area. These impacts would be less than significant and no mitigation measures are required.



[illegible]



### 4.9.3 Avoidance and Minimization Measures

**Avoidance and Minimization Measure HYD-1:** The contractor shall:

- Implement appropriate measures to prevent debris, soil, rock, or other material from entering the water (which may include temporary diversion barrier controls or drainage swales). Use a water truck or other appropriate measures to control dust on applicable access roads, construction areas, and stockpiles.
- Properly dispose of oil or other liquids.
- Fuel and maintain vehicles in a specified area that is designed to capture spills. All fueling and maintenance of vehicles and other equipment (including staging areas), will be located at least 20 meters (65 feet) from the Canal and any other drainages on site.
- Fuels and hazardous materials would not be stored on site.
- Inspect and maintain vehicles and equipment to prevent the dripping of oil or other fluids.
- Schedule construction to avoid the rainy season as much as possible. Ground disturbance activities are expected to begin in the winter of 2020. If rains are forecasted during construction, additional erosion and sedimentation control measures would be implemented in accordance with construction site BMPs.
- Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event.
- Train construction workers in stormwater pollution prevention practices.
- Revegetate disturbed areas in a timely manner to control erosion.

### 4.9.4 References

California Department of Transportation (Caltrans), 2017b. Kent Avenue Bridge Replacement Project Preliminary Delineation of Jurisdictional Waters. September 2017. Prepared by Drake Haglan and Associates on behalf of Sutter County.

California Department of Transportation (Caltrans), 2017e. Kent Avenue Bridge over Sutter Butte Irrigation Canal Replacement Project Initial Site Assessment (BRLO 5918[088]). July 2017. Prepared for Sutter County.

California Department of Water Resources (DWR). 2006. California's Groundwater Bulletin 118: Sacramento Valley Groundwater Basin, East Butte Subbasin.

Sutter County, 2010b. 2030 Sutter County General Plan Final Environmental Impact Report. Prepared by PBS&J.

Sutter County, 2011a. 2030 Sutter County General Plan.

## 4.10 Land Use and Land Use Planning

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Land Use and Land Use Planning – Would the project:</b>				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 4.10.1 Setting

The Project is located in unincorporated Sutter County, and is under the jurisdiction of the General Plan and the Sutter County Zoning Code (Zoning Code) (Sutter County, 2011a; Sutter County, 2018). Sutter County is also a member of SACOG; and therefore, SACOG regional plans are applicable to the Project site. The Project is not within the jurisdiction of the Sutter Pointe Specific Plan or any other specific plans within the County. There are no local coastal programs, habitat conservation plans, or natural community conservation plans that have jurisdiction over the Project vicinity (Sutter County, 2010b; Sutter County, 2011a; CDFW, 2018). There are no land use master plans that have jurisdiction and are applicable to the Project site, and the Project site is outside of the Live Oak Sphere of Influence growth area as designated by the General Plan (Sutter County, 2011a).

### 4.10.2 Discussion

- a) **No Impact.** The Project would consist of the replacement of an existing structurally deficient bridge with a new bridge in the same location and with a similar footprint; therefore, the Project would not divide an established community. There would be no impact and no mitigation measures are required.
- b) **Less-than-Significant Impact.** The Project would replace the existing bridge with a new bridge in the same location with a similar footprint. The Project does not propose any new land uses or changes to land uses, and the Project would result in operational activities similar to existing conditions along Kent Avenue. Therefore, the Project would not result in any land use conflicts, and does not conflict with the General Plan, the Zoning Code, or any other applicable land use plan, policy, or regulations (Sutter County, 2011a; Sutter County, 2018). This impact would be less than significant and no mitigation measures are required.
- c) **No Impact.** The Project is not within the jurisdiction of an adopted habitat conservation plan or natural community conservation plan. Therefore, Project implementation would not conflict with the provisions of an adopted local, regional, or state habitat conservation plan. The closest adopted habitat conservation plan with jurisdiction to the Project site is the Natomas Basin Habitat Conservation Plan, which includes part of southeastern Sutter County (City of Sacramento et al., 2003). The Yuba-Sutter Regional Conservation Plan is currently in the planning process;

however, it would not have jurisdiction over the Project site and therefore is not applicable to the Project. There would be no impact and no mitigation measures are required.

#### **4.10.3 References**

California Department of Fish and Wildlife (CDFW), 2018. NCCP Plan Summary – Yuba Sutter Regional Conservation Plan. Available at:  
<https://www.wildlife.ca.gov/Conservation/Planning/NCCP/Plans/Yuba-Sutter>. Accessed May 30, 2018.

City of Sacramento, Sutter County, Natomas Basin Conservancy, Reclamation District No. 1000, Natomas Central Mutual Water Company; 2003. Final Natomas Basin Habitat Conservation Plan. Sacramento and Yuba Cities, California. Prepared for United States Fish and Wildlife Service and the California Department of Fish and Game.

Feather River Air Quality Management District (FRAQMD), 1995. Yuba-Sutter Bikeway Master Plan. Prepared by Fehr & Peers Associates, Inc.

Sacramento Area Council of Governments Airport Land Use Commission (SACOG), 2017b. Airport Land Use Commission. Available at: <https://www.sacog.org/post/airport-land-use-commission>. Accessed December 13, 2017.

Sutter County, 2010b. 2030 Sutter County General Plan Final Environmental Impact Report. Prepared by PBS&J.

Sutter County, 2011a. 2030 Sutter County General Plan.

Sutter County, 2012. County of Sutter Pedestrian & Bicycle Master Plan (2012). Prepared by Omni-means Engineering Planners.

Sutter County, 2018. Sutter County Zoning Code. June 2018. Available at:  
[https://www.suttercounty.org/assets/pdf/cs/ps/Zoning\\_Code.pdf](https://www.suttercounty.org/assets/pdf/cs/ps/Zoning_Code.pdf). Accessed August 27, 2018.

## 4.11 Mineral Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Mineral Resources – Would the project:</b>				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 4.11.1 Setting

The California Surface Mining and Reclamation Act (SMARA) was enacted by the California Legislature to regulate activities related to mineral resource extraction. The act requires the prevention of adverse environmental effects caused by mining, the reclamation of mined lands for alternative land uses, and the elimination of public health and safety hazards from the effects of mining activities. The California Geological Survey (formerly California Division of Mines and Geology) classifies the regional significance of mineral resources in accordance with SMARA. Mineral Resource Zones (MRZs) have been designated to indicate the significance of mineral deposits. A classification of MRZ-1 signifies an area where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence; MRZ-2 signifies an area where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists; and MRZ-3 signifies an area where the significance of mineral deposits cannot be evaluated from existing data. These designations are intended to preserve known mineral resources for future mining, and to prevent encroachment of urban development that would compromise the resource's value.

Sutter County has areas classified by the state geologist as having little likelihood to present significant mineral resources (MRZ-1) or having mineral deposits whose significance requires further evaluation (MRZ-3). There are no areas within Sutter County that are designated by the state Mining and Geology Board as having regional or statewide significance, and the Project site is not within the vicinity of any current mining operations within the County (Sutter County, 2010b; Sutter County, 2011a). The closest mining operation to the Project site is Bihlman Butte Rock, located approximately 2.1 miles northwest of the Project site (Sutter County, 2010b).

### 4.11.2 Discussion

- a) **No Impact.** The Project is a bridge replacement that would remove the existing bridge and construct a new bridge in the same location with a similar alignment. There are no mining operations within the Project vicinity. The Project site is not designated as having regional or statewide significant, construction activities would be temporary in nature, and operation of the Project would not conflict with or limit access to mineral resources. Project construction would not impact mining operations. There would be no impact and no mitigation measures are required.

- b) **No Impact.** There are no mineral resource recovery sites delineated on the General Plan or any other applicable land use plan within the vicinity of the Project site; therefore, the Project would not result in the loss of a delineated locally important mineral site (Sutter County, 2011a). There would be no impact and no mitigation measures are required.

#### **4.11.3 References**

Sutter County, 2010b. 2030 Sutter County General Plan Final Environmental Impact Report. Prepared by PBS&J.

Sutter County, 2011a. 2030 Sutter County General Plan.

Sutter County, 2018. Sutter County Zoning Code. June 2018. Available at:  
[https://www.suttercounty.org/assets/pdf/cs/ps/Zoning\\_Code.pdf](https://www.suttercounty.org/assets/pdf/cs/ps/Zoning_Code.pdf). Accessed August 27, 2018.

## 4.12 Noise

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Noise – Would the project:</b>				
a) Result in 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 4.12.1 Setting

Noise is defined as unwanted sound, and thus is a subjective reaction to characteristics of a physical phenomenon. A frequency weighting measure that simulates human perception is commonly used to describe noise environments and to assess impacts on noise-sensitive areas. It has been found that A-weighting of sound levels best reflects the human ear's reduced sensitivity to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria and, unless otherwise noted, all references to decibels in this IS/MND will be A-weighted. The decibel (dB) notation used for sound levels describes a logarithmic relationship of acoustical energy, for example, a doubling of acoustical energy results in an increase of three dB, which is considered barely perceptible. A ten-fold increase in acoustical energy equals a ten dB change, which is subjectively like a doubling of loudness. **Table 6** identifies dB levels for common sounds heard in the environment.

**Table 6. Typical Noise Levels**

Common Outdoor Activity	Noise Level (dBA)	Common Indoor Activity
Jet flyover at 1,000 feet	110	Rock band
Gas lawnmower at three feet	100	
Diesel truck at 50 feet at 50 mph	90	Food blender at three feet
Noisy urban area, daytime	80	Garbage disposal at three feet
Gas lawnmower, 100 feet		Vacuum cleaner at ten feet
Commercial area	70	Normal speech at three feet
Heavy traffic at 300 feet	60	Large business office
Quiet urban daytime	50	Dishwasher next room
Quiet urban nighttime	40	Theater, large conference room (background)
Quiet suburban nighttime		
Quiet rural nighttime	30	Library
	20	Bedroom at night, concert hall (background)
	10	Broadcast/recording studio
Lowest threshold of human hearing	0	Lowest threshold of human hearing

Source: Caltrans, 2013

Several time-averaged scales represent noise environments and consequences of human activities. The most commonly used noise descriptors are equivalent A-weighted sound level over a given time period (Leq); day-night 24-hour average sound level with a nighttime increase of ten dBA to account for sensitivity to noise during the nighttime; and community noise equivalent level (CNEL), also a 24-hour average that includes both an evening and a nighttime weighting. Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be adverse levels of noise with respect to public health because of sleep interference.

Land use within and adjacent to the Project site is predominately agricultural with adjacent open space uses.

The nearest sensitive receptor is a residential dwelling approximately 80 feet from the Project site.

#### **4.12.1.1 Local Noise Regulations**

Noise within the County is regulated by Chapter 11 of the General Plan. Chapter 11 states that exterior noise level standard for outdoor activity areas in agricultural land uses is 75 dBA (Sutter County, 2011a). There are no applicable interior noise level standards of agricultural land uses listed in the General Plan (Sutter County, 2011a). The General Plan, as paraphrased, requires noise-sensitive uses to prepare an acoustical study of the use if the use: (1) is located within an existing or future 60 dBA contour of a roadway; (2) is located within 750 feet of an unmapped railroad line, 500 feet of an unmapped principal arterial roadway, or 100 feet of an unmapped minor arterial roadway; (3) within the existing or future 60 dBA CNEL aircraft noise contour; (4) within an area around a stationary noise source that may be subject to noise levels higher than the standards appropriate to the new use; or (5) determined to have the potential to exceed established noise standards specified in the General Plan Noise Element by the Sutter County Community Services Director (Sutter County, 2011a).

#### 4.12.2 Discussion

- a) **Less-than-Significant Impact with Mitigation.** The Project does not (1) occur within an existing 60 dBA noise contour of an existing roadway; (2) occur within 750 feet of a railroad line, 500 feet of a principal arterial roadway, or 100 feet of a minor arterial roadway for which noise contours have not been mapped; (3) occur within an existing future 60 dBA CNEL aircraft noise contour; (4) within an area around a stationary noise source that may be subject to noise levels higher than the standards appropriate to the new use; and (5) has not been determined to have the potential to exceed established noise standards specified in the General Plan Noise Element by the Sutter County Community Services Director (Sutter County, 2011a). Therefore, an acoustical study is not required under the General Plan.

During construction of the Project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Noise from construction activities generally attenuates at a rate of six to 7.5 dBA per doubling distance. Noise at the construction site would be intermittent and its intensity would vary. The degree of construction noise impacts would vary for different areas of the Project site and also vary depending on the construction activities.

Roadway and/or bridge construction is accomplished in several different phases. General construction phases for typical roadway/highway projects and their estimated overall noise levels are summarized in **Table 7** below.

**Table 7. Typical Construction Phases and Noise Levels**

Construction Phase	Noise Level (dBA, Leq at 50 feet)
Ground clearing	84
Excavation	88/78
Foundations	88
Erection	79/78
Finishing	84

Source: U.S. EPA, 1971.

During construction of the Project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction and some of the sensitive receptors in residential developments surrounding the Project study area may be temporarily affected. The majority of construction noise would be from clearing of the Project site along with the placement of the new bridge abutments and structure. Pile driving is proposed as part of the Project.

**Table 8** summarizes noise levels produced by construction equipment that is commonly used on bridge replacement projects and is representative of the equipment necessary for project construction. Construction equipment is expected to generate noise levels ranging from 80 to 90 dB at a distance of 50 feet and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance.

**Table 8. Typical Construction Equipment Noise Levels**

Construction Equipment	Noise Level (dBA, Leq at 50 feet)
Scrapers	85
Bulldozers	85
Heavy trucks	85
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: HMM&H, 2013

No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with the General Plan noise standards, Caltrans Standard Specifications Section 14-8.02 (modified to be compliant with the General Plan standards), and control measures discussed below. Construction noise would be short term and intermittent. Construction operations are anticipated to occur during daylight hours only (Monday to Friday, 7:00 AM to 6:00 PM and Saturdays 8:00 AM to 5:00 PM) and not on Sundays or holidays, pursuant to the General Plan. In addition, the nearest residential dwellings are located 80 feet from the Project site. Implementation of **Mitigation Measure NO-1** would ensure that potential impacts from construction noise would remain less than significant.

- b) **Less-than-Significant Impact with Mitigation.** Equipment associated with high vibration levels (pile drivers) would be used for the Project. The General Plan states that the threshold for groundborne vibrations within the land use category of the Project site (Category 3) is 83 dBA for infrequent events (Sutter County, 2011a). Construction of the Project would use bulldozers and other heavy tracked construction equipment, which may generate a groundborne vibration level of 90 "smoothed" root mean square vibration velocity level in decibels (VdB) at 50 feet from the source. Noise levels for pile driving equipment range from 80 to 100 dBA at 50 feet from the source, according to product specifications. The majority of construction noise would be from clearing of the Project site along with the placement of the new bridge abutments and structure. Project construction would last four to six months. Implementation of **Mitigation Measure NO-1** would ensure that potential impacts caused by groundborne vibration would remain less than significant.
- c) **No Impact.** The Project would replace the existing Kent Avenue Bridge with a new bridge within the same location and with a similar footprint. The Project would only emit increased levels of noise during Project construction that would return to levels similar to the existing noise environment upon Project completion, and would not increase capacity nor induce growth; therefore, the Project would have no long-term effects on noise levels. There would be no impact and no mitigation measures are required.
- d) **Less-than-Significant Impact with Mitigation.** During construction, the Project would temporarily increase ambient noise levels in the Project vicinity. See the discussion regarding construction

noise under (a) and (b,) above. Implementation of **Mitigation Measure NO-1** would ensure that potential impacts due to increased noise levels during construction remain less than significant.

- e) **No Impact.** The Project site is not within two miles of a public-use airport. The nearest public airport is Sutter County Airport, located approximately 8.5 miles to the south. There would be no impact from airports upon people residing or working in the Project vicinity. There would be no impact and no mitigation measures are required.
- f) **No Impact.** There are no private airstrips within two miles of the Project site. The nearest private airstrip to the Project is Bowles Airport, located approximately four miles to the northwest. There would be no impact from airstrips upon people residing or working in the Project vicinity. There would be no impact and no mitigation measures are required.

#### 4.12.3 Mitigation Measures

**Mitigation Measure NO-1: *Implement Noise Control Measures.*** The following control measures shall be implemented in order to minimize noise and vibration disturbances at sensitive receptors during periods of construction:

- Construction will only occur Mondays to Fridays, from the hours of 7:00 AM to 6:00 PM and Saturdays from the hours of 8:00 AM to 5:00 PM. Construction will not occur on Sundays or holidays.
- Tier 4 or newer equipment with noise control devices will be used. The contractor will ensure that all equipment items have the manufacturers' recommended noise abatement measures, such as mufflers, engine enclosures, and engine vibration isolators intact and operational will be used. Newer equipment is generally quieter in operation than older equipment. All construction equipment will be inspected by the contractor at periodic intervals to ensure proper maintenance and presence of noise control devices (e.g., mufflers and shrouding).
- Construction methods or equipment that provide the lowest level of noise and ground vibration impact such as alternative low noise pile installation methods will be utilized.
- Idling equipment will be turned off after no more than five minutes, per the California Code of Regulations.

#### 4.12.4 References

California Department of Transportation (Caltrans), 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol. Caltrans. Sacramento, California.

Harris Miller & Hanson (HMM&H), 2006. Transit noise and vibration impact assessment (FTA-VA-90-1003-06). Prepared for the U.S. Department of Transportation, Federal Transit Administration.

Sutter County, 2010b. 2030 Sutter County General Plan Final Environmental Impact Report. Prepared by PBS&J.

Sutter County, 2011a. 2030 Sutter County General Plan. U.S. Environmental Protection Agency (U.S.

EPA), 1971. Noise from construction equipment, operations, building equipment, and home appliances. National Service Center for Environmental Publications (NSCEP). Washington, D.C.

U.S. Environmental Protection Agency (U.S. EPA), 1971. Noise from construction equipment, operations, building equipment, and home appliances. National Service Center for Environmental Publications (NSCEP). Washington, D.C.

## 4.13 Population and Housing

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Population and Housing – Would the project:</b>				
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 4.13.1 Setting

According to the 2010 Census and the 2010 American Community Survey, Sutter County has a population of 94,737 individuals and a total of 33,858 housing units. The Project site is located within census tract number 507.02, which has a population of 6,205 people and a total of 1,882 housing units (U.S. Census Bureau, 2010a, U.S. Census Bureau, 2010b).

### 4.13.2 Discussion

- a) **Less-than-Significant Impact.** The Project would not result in the permanent creation of new jobs or housing that would induce substantial population growth. The bridge would remain two lanes and would not extend or increase capacity on Kent Avenue. Construction workers would be anticipated to come from the surrounding areas and would not relocate to the area for work. Therefore, the Project would not indirectly induce substantial population growth in the surrounding community. This impact would be less than significant and no mitigation measures are required.
- b) **No Impact.** The Project would replace an existing structurally deficient bridge and would not result in the displacement of housing. Replacement housing would not be required. There would be no impact and no mitigation measures are required.
- c) **No Impact.** The Project would replace an existing structurally deficient bridge and would not result in the displacement of people. Replacement housing would not be required. There would be no impact and no mitigation measures are required.

### 4.13.3 References

U.S. Census Bureau, 2010a. 2006-2010 American Community Survey.

U.S. Census Bureau, 2010b. 2010 Census.

## 4.14 Public Services

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Public Services – Would the project:</b>				
Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 4.14.1 Setting

Sutter County is currently divided into four fire County Service Areas (CSAs), two Fire Protection Districts (Meridian and Sutter Basin), and the City of Yuba Fire Department for fire, medical, and hazardous waste protection (Sutter County, 2011a). The Project site is served by CSA F (the Oswald-Tudor Fire Station); the Oswald-Tudor Fire Station is located at 1280 Barry Road in Yuba City, approximately 12 miles south of the Project site. The Project site and vicinity is served by the Sutter County Sheriff's Department. There is a Sutter County Sheriff's Department substation located at 9867 O Street in the City of Live Oak, approximately three miles northwest of the Project site. The headquarters of the Sutter County Sheriff's Department is located approximately 7.4 miles south of the Project site at 1077 Civic Center Boulevard in Yuba City. The Live Oak Unified School District serves the Project site and vicinity; Encinal Elementary School is the closest compulsory educational facility to the Project site, and is located approximately three miles northeast in the City of Live Oak. The Live Oak Soccer Park is located approximately 1.8 miles to the northwest of the Project site.

### 4.14.2 Discussion

- i, ii) **Less-than-Significant Impact with Mitigation.** Construction of the Project could result in accident or emergency incidents that would require emergency response, such as fire, police, medical, or hazardous waste services; however, construction activities would be short in duration, approximately 4 to 6 months. The Project is a bridge improvement project that would not create additional demands on the local fire district or the local sheriff's department during operations. Emergency access to the vicinity of the Project site would continue during construction. The bridge would be closed; however, the detour route alternatives planned on McDonald, Clark, and Cutting Avenues and Paseo Road would not significantly impact emergency response times. In addition, the General Plan does not specific emergency response time standards for fire, medical, police, or hazardous materials response (Sutter County, 2011a). Implementation of **Mitigation Measure PUB-1** would ensure that access to adjacent properties would be maintained and impacts to emergency access would remain less than significant.

- iii) **Less-than-Significant Impact.** The Project would replace an existing structurally deficient bridge with a new bridge in the same location and with a similar footprint; therefore, the Project would not generate any additional demand for schools. Traffic would not be significantly impacted by the McDonald, Clark, and Cutting Avenues and Paseo Road detour options. This impact would be less than significant and no mitigation measures are required.
- iv) **No Impact.** The Project would not require temporary or permanent right-of-way from the Live Oak Soccer Park, and Project construction would not inhibit the use of the park. There would be no impact and no mitigation measures are required.
- v) **No Impact.** The Project would not impact any other public services such as Sutter County Administrative Services. There would be no impact and no mitigation measures are required.

#### 4.14.3 Mitigation Measures

**Mitigation Measure PUB-1:** *Develop a Construction Period Standard Emergency Access Plan.* Prior to the start of construction, the contractor shall coordinate with County Service Area (CSA) F, the Sutter County Sheriff's Department, and local public and private ambulance and paramedic providers in the area to prepare a Construction Period Emergency Access Plan. The Construction Period Emergency Access Plan shall identify phases of the Project and construction scheduling and shall identify appropriate alternative emergency access routes.

#### 4.14.4 References

Sutter County, 2010b. 2030 Sutter County General Plan Final Environmental Impact Report. Prepared byPBS&J.

Sutter County, 2011a. 2030 Sutter County General Plan.

Sutter County, 2017a. County service areas (CSA) & fire protection districts. Available at: [https://www.suttercounty.org/assets/pdf/cs/fs/Fire\\_Districts.pdf](https://www.suttercounty.org/assets/pdf/cs/fs/Fire_Districts.pdf). Accessed December 13, 2017.

Sutter County, 2017b. Fire services: stations. Available at: [https://www.suttercounty.org/doc/government/depts/ds/fs/fire\\_stations](https://www.suttercounty.org/doc/government/depts/ds/fs/fire_stations). Accessed December 13, 2017.

Sutter County, 2017c. Sutter County Development Services Lookup. Accessed January 3, 2017.

Sutter County, 2018. Sutter County Zoning Code. June 2018. Available at: [https://www.suttercounty.org/assets/pdf/cs/ps/Zoning\\_Code.pdf](https://www.suttercounty.org/assets/pdf/cs/ps/Zoning_Code.pdf). Accessed August 27, 2018.

## 4.15 Recreation

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Recreation – Would the project:</b>				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
a) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 4.15.1 Setting

The only recreation facility within the Project vicinity is the Live Oak Soccer Park, located approximately 1.8 miles to the northwest. The Live Oak Soccer Park is a 26-acre neighborhood park with three full sized soccer fields, play structures, and a walking/running trail (Sutter County, 2011a). The nearest regional park is the Live Oak Riverfront Park & Recreation Area located approximately three miles north of the Project. The Live Oak Riverfront Park & Recreation Area is classified as a County river recreation area in the General Plan, is approximately 11.5 acres in size, and offers camping, boat launching, and fishing as recreational activities (Sutter County, 2011a).

### 4.15.2 Discussion

- a) **No Impact.** The Project would replace an existing bridge; it would not contribute to an increase in population, nor would it result in an increase in demand on existing neighborhood or regional parks. No additional neighborhood or regional parks would be required to be created as a result of the Project. The Project would have no impact on the use of the Live Oak Soccer Park or any other existing neighborhood and regional parks. No mitigation measures are required.
- b) **No Impact.** The Project site does not include recreational facilities nor require temporary or permanent right-of-way in any recreational facility. There would be no impact and no mitigation measures are required.

### 4.15.3 References

Sutter County, 2010b. 2030 Sutter County General Plan Final Environmental Impact Report. Prepared by PBS&J.

Sutter County, 2011a. 2030 Sutter County General Plan.

## 4.16 Transportation and Traffic

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Transportation and Traffic – Would the project:</b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 City congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 4.16.1 Setting

Kent Avenue is classified as a rural local road in the General Plan (Sutter County, 2011a). The General Plan defines rural local roads as roads that “(1) serve primarily to provide access to adjacent land; and (2) provide service to travel over relatively short distances as compared to collectors or other higher systems.” The planned detour roadways McDonald, Clark, and Cutting Avenues and Paseo Road are also classified as rural local roads in the General Plan (Sutter County, 2011a). The Project site is also under the jurisdiction of the County of Sutter Pedestrian & Bicycle Master Plan (2012), the Yuba-Sutter Bikeway Master Plan (1995), and the SACOG Metropolitan Transportation Plan for 2035. The average daily traffic (ADT) on Kent Avenue at the Project site in 2012 was 500 vehicles and the projected 2035 ADT is 562 vehicles (Caltrans, 2016).

### 4.16.2 Discussion

- a,b) **Less-than-Significant Impact.** The purpose of the Project is to provide adequate and safe vehicle access and provide a structure that would meet current design standards for the traffic

utilizing this bridge. The Project would not create additional lanes; Therefore, the ADT would be consistent with current volumes on the existing bridge. The Project is not anticipated to create any long term impacts to traffic circulation in the area because the Project would not increase roadway capacity or change traffic patterns. The Project would not conflict with any plan or policy established for measuring the performance of the circulation system, and would not result in impacts to Level of Service (LOS) along Kent, McDonald, Clark, and Cutting Avenues or Paseo Road (Sutter County, 2011a). The detour is minor (5 minutes, 1.6 miles) and temporary/short-term. The ADT is small, so it will not affect many people. In addition, the adjacent SR 99 is the primary north-south route in the Project area, so closure of Kent Avenue would not affect most travelers in the areas. The Project would have a less than significant impact on LOS, and will comply with applicable regulations. No mitigation measures are required.

- c) **No Impact.** The Project does not include structures or uses that would affect air traffic patterns, nor is an airport located in proximity to the Project site (SACOG, 2017b). Refer to Hazards and Hazardous Materials e) and f) for more detail. There would be no impact and no mitigation measures are required.
- d) **Less-than-Significant Impact.** One of the primary purposes of the Project is to provide adequate and safe vehicle access on Kent Avenue and provide a new structure consistent with AASHTO design standards. The new bridge would replace the existing structurally deficient bridge and have a width of 33 feet, five feet wider than the existing bridge, in order to comply with current design standards. No new structural or design features would be added that would increase traffic hazards as a result of the Project. This impact would be less than significant and no mitigation measures are required.
- e) **Less-than-Significant Impact with Mitigation.** The Kent Avenue Bridge would be closed during construction; however, the detour route alternatives planned on McDonald, Clark, and Cutting Avenues and Paseo Road would not significantly impact emergency response times. The General Plan does not specify emergency response time standards for police, fire, medical or hazardous materials response. Refer to hazards and public services sections and the appropriate letter for more detail. Implementation of **Mitigation Measure PUB-1** would ensure that impacts to emergency access remain less than significant.
- f) **No Impact.** The Project would increase safety for Kent Avenue Bridge users, including pedestrians and bicyclists, by making it structurally sufficient, increasing the bridge width, and installing guardrails in order to comply with current design standards. The Project would not conflict with the General Plan Mobility Element, the County of Sutter Pedestrian & Bicycle Master Plan (2012), the Yuba-Sutter Bikeway Master Plan (1995), the SACOG Metropolitan Transportation Plan for 2035, or any other applicable adopted policy, plan, or program supporting alternative transportation. There would be no impact and no mitigation measures are required.

#### 4.16.3 References

California Department of Transportation (Caltrans), 2016. Local Agency Bridge List. October 2016.

Feather River Air Quality Management District (FRAQMD), 1995. Yuba-Sutter Bikeway Master Plan.

Prepared by Fehr & Peers Associates, Inc.

Sacramento Area Council of Governments Airport Land Use Commission (SACOG), 2017b. Airport Land Use Commission. Available at: <https://www.sacog.org/post/airport-land-use-commission>. Accessed December 13, 2017.

Sutter County, 2011a. 2030 Sutter County General Plan.

Sutter County, 2012. County of Sutter Pedestrian & Bicycle Master Plan (2012). Prepared by Omni-means Engineering Planners.

## 4.17 Tribal Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Tribal Cultural Resources – Would the project:</b>				
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resource Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision C, of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resources to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 4.17.1 Setting

Assembly Bill 52 (AB 52) went into effect on July 1, 2015 and establishes a consultation process with all California Native American Tribes on the NAHC List for federal and non-federal tribes. Once the tribe is notified of a project, the tribe has 30 days to request consultation. The consultation process ends when either the parties agree to mitigation measures or avoid a significant effect on tribal cultural resources or a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

An ASR and a HRER were prepared by PAR Environmental Services for the Project and are available for review at the Sutter County Development Services Department during business hours (Caltrans, 2018a; Caltrans, 2018b). Some information from the ASR and the HRER is considered confidential under the California Public Resources Code and CFRs in compliance to the Freedom of Information Act and the California Public Records Act in order to protect the integrity of tribal cultural resources, and, thus, would not be available to the public (7 PRC § 21082.3, 36 CFR § 800.11). Native American consultation efforts are documented in the ASR.

### 4.17.2 Discussion

- a) **Less-than-Significant Impact.** As a part of the effort to identify potentially significant historical and traditional cultural resources that may fall within the Project area, a letter was sent on June 30, 2017 to the Native American Heritage Commission (NAHC) requesting a search of the sacred lands file and contacts with individuals of Native American descent who might hold information concerning the Project and its vicinity. The NAHC responded, and the County provided their AB 52 contacts, resulting in a list of seven individuals and Native American organizations who were contacted via letter on September 8, 2017 and follow-up telephone calls were made on September 15, 2017. A search of the NAHC's Sacred Lands File came back negative for potential tribal cultural resources within the Project site (Caltrans, 2018b). The United Auburn Indian

Rancheria (UAIC) responded with concerns; however, no listed or eligible tribal cultural resources were identified. This impact would be less than significant and no mitigation measures are required.

- b) **Less-than-Significant Impact with Mitigation.** As mentioned in a), the NAHC's Sacred Lands File came back negative for tribal cultural resources (Caltrans, 2018b). A representative from the UAIC indicated that the record search should have come back positive, as there are known tribal cultural resources within the Project vicinity. During a consultation on-site meeting with the County and Drake Haglan and Associates, UAIC requested that tribal cultural resource awareness training for construction workers be conducted. This request is consolidated and summarized in **Mitigation Measure TCR-1, Mitigation Measure CUL-1 and Mitigation Measure CUL-2** incorporate concerns about the unanticipated discovery of tribal cultural resources and Native American human remains. Implementation of **Mitigation Measure TCR-1, Mitigation Measure CUL-1, and Mitigation Measure CUL-2** would ensure that potential impacts to tribal cultural resources remain less than significant.

#### 4.17.3 Mitigation Measures

**Mitigation Measure TCR-1: Conduct Tribal Cultural Resources Awareness Training.** Prior to the start of construction, develop, in coordination with interested Native American tribes, a consultant and construction worker tribal cultural resources awareness brochure and training program for all personnel involved in Project implementation. Distribute this brochure and conduct training, in coordination with qualified cultural resources specialists and Native American representatives from culturally affiliated Native American tribes, before construction commencement. The worker awareness program will include relevant information regarding sensitive tribal cultural resources, including applicable regulations, confidentiality requirements, requirements for the culturally-appropriate treatment of any discovered resources, protocols for avoidance, and consequences of violating state laws and regulations; describe the protocol to avoid and minimize impacts to resources that have the potential to be located on the Project site; and will outline the protocol to follow if any potential archaeological resources or artifacts are encountered.

**Mitigation Measure CUL-1: Follow Protocol for the Unanticipated Discovery of Paleontological Resources.** Please see the Cultural Resources section of this document for information about this mitigation measure.

**Mitigation Measure CUL-2: Follow Protocol for the Unanticipated Discovery of Cultural Resources or Human Remains.** Please see the Cultural Resources section of this document for information about this mitigation measure.

#### 4.17.4 References

California Department of Transportation (Caltrans), 2018a. Historical Resources Evaluation Report: Kent Avenue over the Sutter Butte Canal Bridge (18C-0132) Replacement Project, Sutter County, California. January 2018. Prepared by PAR Environmental Services, Inc., for Drake Haglan & Associates on behalf of the Sutter County Development Services Department.

Caltrans, 2018b. Negative Archaeological Survey Report for the Kent Avenue Bridge (18C-0132) Replacement Project, Sutter County, California. January 2018. Prepared by PAR Environmental Services, Inc. for Drake Haglan & Associates on behalf of the Sutter County Development Services Department.

## 4.18 Utilities and Service Systems

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Utilities and Service Systems – Would the project:</b>				
a) Conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new stormwater drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 4.18.1 Setting

The Project vicinity is served by privately-owned septic systems for wastewater treatment. Stormwater drainage at the Project site and within the Project vicinity is collected in roadside ditches and agricultural drains; there are also a number of drainage facilities owned and operated by a variety of agencies (e.g. the County, reclamation districts, cities, and the state of California) that serve other areas of the County (Sutter County, 2011a). Potable water service within the Project vicinity is served by privately-owned wells. Solid waste services within the Project vicinity are provided by Yuba-Sutter Regional Waste Management Authority in collaboration with Recology Yuba-Sutter (Sutter County, 2011a). Pacific Gas & Electric (PG&E) provides electricity to the County and natural gas to Nicolaus, Yuba City, and Live Oak. Telecommunications infrastructure is provided by AT&T and Comcast (Sutter County, 2010b).

### 4.18.2 Discussion

- a) **No Impact.** The Project would replace a structurally deficient bridge with a new bridge that adheres to current design standards. The Project would not generate any wastewater. There would be no impact and no mitigation measures are required.

- b) **No Impact.** The Project would replace a structurally deficient bridge with a new bridge that adheres to current design standards. The Project would not require the construction of additional wastewater or water treatment facilities. There would be no impact and no mitigation measures are required.
- c) **No Impact.** The Project would replace a structurally deficient bridge with a new bridge that adheres to current design standards. The Project would be designed to divert the flow of stormwater off the bridge and onto surrounding areas; however, the Project would not substantially increase the amount or rate of stormwater runoff such that new facilities would be needed. Thus, the Project would not require construction of new stormwater facilities or require the expansion of existing facilities. There would be no impact and no mitigation measures are required.
- d) **Less-than-Significant Impact.** The Project would replace a structurally deficient bridge with a new bridge that adheres to current design standards. The Project would not require water supply. Some non-potable water use would be required for fugitive dust control during construction activities of the Project. Please see the Air Quality section of this document for more information about fugitive dust control best management practices. This impact would be less than significant and no mitigation measures are required.
- e) **No Impact.** The Project would replace a structurally deficient bridge with a new bridge that adheres to current design standards. The Project would not require wastewater treatment services. There would be no impact and no mitigation measures are required.
- f) **Less-than-Significant Impact.** The Project would generate waste from the temporary construction activities and demolition of the existing Kent Avenue Bridge. Solid waste associated from construction activities would be handled by either the Ponderosa Transfer Station (17219 Ponderosa Way in Brownsville) or the Recology Yuba-Sutter Transfer Station (3001 North Levee Road in Marysville) before being brought to the Ostrom Road Landfill, located at 5900 Ostrom Road in Wheatland. The Ostrom Road Landfill has the capacity to accept waste generated by the Project, and the Project would not result in long-term demands for solid waste disposal services. Solid Waste generation would cease upon completion of construction. All recyclables and organics collected from the Project site by Yuba-Sutter Regional Waste Management Authority in collaboration with Recology Yuba-Sutter would be taken to the appropriate facilities. This impact would be less than significant and no mitigation measures are required.
- g) **No Impact.** The Project would replace a structurally deficient bridge with a new bridge that adheres to current design standards. The Project would comply with all federal, state, and local statutes and regulations related to solid waste. There would be no impact and no mitigation measures are required.

#### 4.18.3 References

Sutter County, 2010b. 2030 Sutter County General Plan Final Environmental Impact Report. Prepared by PBS&J.

Sutter County, 2011a. 2030 Sutter County General Plan.

Sutter County, 2018. Sutter County Zoning Code. June 2018. Available at:  
[https://www.suttercounty.org/assets/pdf/cs/ps/Zoning\\_Code.pdf](https://www.suttercounty.org/assets/pdf/cs/ps/Zoning_Code.pdf). Accessed August 27,  
2018.

## 4.19 Mandatory Findings of Significance

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>Mandatory Findings of Significance – Would the project:</b>				
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 4.19.1 Setting

Per CEQA regulations and guidelines, the lead agency must summarize the findings of significance from earlier sections and must consider potential cumulatively considerable effects for environmental impact reports (EIRs) and in the discussion section below. Even though this environmental document is an IS/MND and not an EIR, the potential for cumulatively considerable effects are analyzed below.

### 4.19.2 Discussion

- a) **Less-than-Significant Impact with Mitigation.** Per the impact discussions in the Biological Resources, Cultural Resources, and Tribal Cultural Resources sections, the potential of the Project to substantially degrade the environment or eliminate major periods of California history or prehistory would be less than significant with incorporated mitigation measures.
- b) **Less-than-Significant Impact.** The Project site is located within Sutter County. The purpose of the Project is to provide adequate and safer vehicular access and meet current design standards for the Kent Avenue Bridge. The impacts of the Project are mitigated to a less-than-significant level, limited to the construction phase of the Project, and are site specific. Upon completion of construction, the Project would be in approximately the same location with a similar footprint. In addition, operations of the replaced bridge would be similar to existing conditions. No other Projects are proposed that would overlap or interact with the Project. This impact would be less than significant and no mitigation measures are required.

- c) **Less-than-Significant Impact with Mitigation.** The Project would not cause substantial adverse effects on human beings. Effects related to biological resources, cultural resources, hazards and hazardous materials, noise, public services, transportation and traffic, and tribal cultural resources are discussed above, and would be temporary in nature and would not result in any significant and unavoidable impacts with the implementation of the mitigation measures identified in this IS/MND.

## 5 LIST OF PREPARERS AND REVIEWERS

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This Draft IS/MND was prepared by Drake Haglan and Associates (DHA) in cooperation with the other members of the environmental study team. DHA was responsible for project management and Draft IS/MND preparation. The Draft IS/MND technical team and other environmental study team members provided technical expertise, as presented below.

### **CEQA Lead Agency: Sutter County Development Service Department**

David Tomm .....Project Engineer

### **Drake Haglan and Associates**

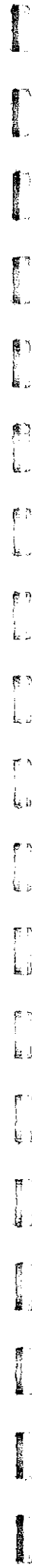
Principal in Charge .....Dennis Haglan  
Project Manager .....Brian Hansen, P.E.  
Environmental Project Manager .....Leslie Haglan  
Senior Biologist/Environmental Planner.....Lindsay Tisch  
Cultural Resources/Environmental Planner.....Anna M. Starkey, M.A., RPA  
Environmental Planner .....Erin Reddy

### **PAR Environmental Services, Inc.**

Archaeological Survey Report/Historic Property Survey Report

# **Appendix A: Roadway Construction Emissions Modeling Data**

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Daily Emission Estimates for <- Kent Avenue Bridge Replacement Program														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.60	12.69	1.31	21.28	0.08	21.20	4.47	0.06	4.41	0.02	2,092.43	0.58	0.02	2,113.66
Grading/Excavation	4.71	89.70	9.52	21.77	0.57	21.20	4.88	0.47	4.41	0.16	15,645.86	4.64	0.15	15,905.77
Drainage/Utilities/Sub-Grade	3.08	68.75	6.55	21.59	0.39	21.20	4.73	0.32	0.11	0.11	10,491.18	2.70	0.10	10,587.71
Paving	0.59	14.13	1.29	0.09	0.09	0.00	0.07	0.07	0.00	0.02	2,113.12	0.56	0.02	2,134.01
Maximum (pounds/day)	4.71	89.70	9.52	21.77	0.57	21.20	4.88	0.47	4.41	0.16	15,645.86	4.64	0.15	15,905.77
Total (tons/construction project)	0.21	4.05	0.43	1.22	0.03	1.19	0.27	0.02	0.25	0.01	707.14	0.20	0.01	714.15
Notes	Project Start Year <- 2019													
	Project Length (months) <- 6													
	Total Project Area (acres) <- 2													
	Maximum Area Disturbed/Day (acres) <- 2													
Water Truck Used? <-	Yes													
Total Material Imported/Exported Volume (yd³/day)														
Daily VMT (miles/day)														
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck								
Grubbing/Land Clearing	0	0	0	0	160	40								
Grading/Excavation	0	0	0	0	1,080	40								
Drainage/Utilities/Sub-Grade	0	0	0	0	680	40								
Paving	0	0	0	0	280	40								
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified														
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.														
CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.														
Total Emission Estimates by Phase for <- Kent Avenue Bridge Replacement Program														
Project Phases	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.08	0.01	0.14	0.00	0.14	0.03	0.00	0.03	0.00	13.81	0.00	0.00	12.66
Grading/Excavation	0.14	2.66	0.28	0.65	0.14	0.63	0.14	0.01	0.13	0.00	464.68	0.14	0.00	425.87
Drainage/Utilities/Sub-Grade	0.06	1.16	0.13	0.43	0.01	0.42	0.09	0.01	0.09	0.00	207.73	0.05	0.00	190.18
Paving	0.01	0.14	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.92	0.01	0.00	19.17
Maximum (tons/phase)	0.14	2.66	0.28	0.65	0.02	0.63	0.14	0.01	0.13	0.00	464.68	0.14	0.00	425.87
Total (tons/construction project)	0.21	4.05	0.43	1.22	0.03	1.19	0.27	0.02	0.25	0.01	707.14	0.20	0.01	647.87
Notes	PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified													
	Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.													
	CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.													
	The CO2e emissions are reported as metric tons per phase.													

## Road Construction Emissions Model

## Data Entry Worksheet

Note: Required data input sections have a yellow background. Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background. The user is required to enter information in cells D10 through G35, and D38 through G41 for all project types. Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

## Input Type

Project Name Kent Avenue Bridge Replacement Program

Construction Start Year 2019 Enter a Year between 2014 and 2025 (inclusive)

Project Type

1) New Road Construction Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway

2) Road Widening Project to add a new lane to an existing roadway

3) Bridge/Overpass Construction Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane

4) Other Linear Project Type Non-roadway project such as a pipeline, transmission line, or levee construction months (assume 22 if unknown)

Working Days per Month 6.00

Predominant Soil/Soil Type Enter 1, 2, or 3

(for project within Sacramento County, follow soil type selection

cells J18 to J22)

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Version 8.1.0



To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

Please note that the soil type instructions, provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see web link below) can be used to determine soil type outside Sacramento County.

[http://www.conservation.ca.gov/cgs/information/geologic\\_mapping/Pages/soilcoverages.aspx#regionalseries](http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/soilcoverages.aspx#regionalseries)

## Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd <sup>3</sup> ) (assume 20.0 if unknown)	Import Volume (yd <sup>3</sup> /day)	Export Volume (yd <sup>3</sup> /day)
Soil	Grubbing/Land Clearing	20.00		
	Grading/Excavation	20.00		
	Drainage/Utilities/Sub-Grade	20.00		
	Paving	20.00		
Asphalt	Grubbing/Land Clearing	20.00		
	Grading/Excavation	20.00		
	Drainage/Utilities/Sub-Grade	20.00		
	Paving	20.00		

## Mitigation Options

On-road Fleet Emissions Mitigation

Off-road Equipment Emissions Mitigation

Will all off-road equipment be tier 4?

Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer. Select "20% NO<sub>x</sub> and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (<http://www.airquality.org/construction/mitigation>).

Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods		Program	Program	Program
	User Override of	Calculated	Default	Default
	Construction Months	Months	Phase Starting Date	Phase Starting Date
Grubbing/Land Clearing		0.60		1/1/2019
Grading/Excavation		2.70		1/20/2019
Drainage/Utilities/Sub-Grade		1.80		4/13/2019
Paving		0.90		6/7/2019
<b>Totals (Months)</b>	<b>6</b>			

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions		Program	Program	Program
	User Override of	Calculated	Default	Default
	Miles/Round Trip	Miles/Round Trip	Round Trips/Day	Calculated
				Daily VMT
Grubbing/Land Clearing		30.00		0.00
Grading/Excavation		30.00		0.00
Drainage/Utilities/Sub-Grade		30.00		0.00
Paving		30.00		0.00
<b>Totals (Months)</b>	<b>6</b>			

2010+ Model Year Mitigation Option Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Grading/Excavation (grams/mile)		0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Drainage/Utilities/Sub-Grade (grams/mile)		0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Paving (grams/mile)		0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
<b>Emissions</b>	<b>ROG</b>										
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Asphalt Hauling emission default values can be overridden in cells D67 through D90, and F67 through F90.

Asphalt Hauling Emissions		Program	Program	Program
	User Override of	Calculated	Default	Default
	Miles/Round Trip	Miles/Round Trip	Round Trips/Day	Calculated
				Daily VMT
Grubbing/Land Clearing		30.00		0.00
Grading/Excavation		30.00		0.00
Drainage/Utilities/Sub-Grade		30.00		0.00
Paving		30.00		0.00
<b>Totals (Months)</b>	<b>6</b>			

2010+ Model Year Mitigation Option Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Grading/Excavation (grams/mile)		0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Drainage/Utilities/Sub-Grade (grams/mile)		0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Paving (grams/mile)		0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
<b>Emissions</b>	<b>ROG</b>										
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D113 through D118.

[illegible]

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

[illegible]

Note: Fugitive dust default values can be overridden in cells D171 through D173

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default		PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
		Maximum Acreage/Day					
Fugitive Dust - Grubbing/Land Clearing		2.12	21.20	0.14	4.41	0.03	
Fugitive Dust - Grading/Excavation		2.12	21.20	0.63	4.41	0.13	
Fugitive Dust - Drilling/Well S. Insert		2.12	21.20	0.42	4.41	0.09	

## Off-Road Equipment Emissions

Off-Road Equipment Emissions																		
Grubbing/Land Clearing		Default		Mitigation Option		Default		CO <sub>2</sub> e										
Override of Default Number of Vehicles	Number of Vehicles	Program estimate	Default Equipment Tier	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e		
							pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	0.00		Tier 4		Tier 4	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Boed/Dial Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4		Tier 4	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4		Tier 4	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4		Tier 4	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4		Tier 4	Crawler Tractors	0.24	4.10	0.47	0.02	0.02	0.01	762.62	0.24	0.01	770.66		
			Tier 4		Tier 4	Crossing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Excavators	0.33	8.08	0.66	0.03	0.03	0.00	1,054.60	0.33	0.01	1,065.73		
			Tier 4		Tier 4	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Pressure Washers	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		Tier 4		Tier 4	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Tier 4		Tier 4	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		Tier 4		Tier 4	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Grubbing/Land Clearing							0.56	12.19	1.13	0.06	0.05	0.02	1,817.22	0.57	0.02
Grubbing/Land Clearing							0.00	0.00	0.01	0.00	0.00	0.00	11.99	0.00	0.00	12.12		

If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Grading/Excavation	Default		Mitigation Option		Default	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Override of Default Number of Vehicles	Number of Vehicles	Default Equipment Tier	Override of Default Equipment Tier (applicable only when Mitigation Option Selected)	Equipment Tier											
User-Defined Off-road Equipment	0.00	0.00	N/A	N/A	Tier 4	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Bored/Pile Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Cranes	0.17	3.01	0.35	0.02	0.02	0.01	558.85	0.18	0.00	564.74
					Tier 4	Crawler Tractors	0.47	8.20	0.95	0.05	0.04	0.02	1,525.24	0.48	0.01	1,541.32
					Tier 4	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Excavators	0.65	16.17	1.31	0.07	0.06	0.02	2,109.20	0.67	0.02	2,131.45
					Tier 4	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Graders	0.38	6.58	0.76	0.04	0.03	0.01	1,297.72	0.39	0.01	1,299.73
					Tier 4	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Rollers	0.24	6.03	0.49	0.02	0.02	0.01	788.79	0.25	0.01	797.10
					Tier 4	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Rubber Tired Dozers	0.57	9.90	1.14	0.06	0.05	0.02	1,828.98	0.58	0.02	1,848.30
					Tier 4	Scrapers	1.84	31.67	3.68	0.18	0.17	0.06	5,917.53	1.87	0.06	5,979.94
					Tier 4	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Tractor/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	621.43	0.30	0.01	627.97
					Tier 4	Trimmers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Tier 4	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.00	0.00	N/A	N/A	Tier 4	pounds per day tons per phase	4.52	86.49	9.06	0.45	0.42	0.15	14,587.73	4.61	0.13	14,741.56
							0.13	2.57	0.27	0.01	0.01	0.00	433.26	0.14	0.00	437.92

Data Entry Worksheet

Paving													
Default Number of Vehicles	Mitigation Option		Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
	Override of Default Equipment Tier applicable only when Tier 4 Mitigation Option Selected	Program estimate											
Override of Default Number of Vehicles			Tier 4	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Other Material Handling Equipment	0.14	0.14	0.28	0.01	0.01	0.00	0.13	0.00	455.93
	1		Tier 4	Pavers	3.68	3.68	0.25	0.01	0.01	0.00	0.00	0.00	404.49
			Tier 4	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Ramps	0.08	2.01	0.16	0.01	0.01	0.00	0.08	0.00	265.70
	1		Tier 4	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0		Tier 4	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Tier 4	Tractors/Loaders/Balloons	0.19	4.73	0.35	0.02	0.02	0.01	0.20	0.01	627.97
			Tier 4	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User Defined Off-road Equipment													
If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab													
Number of Vehicles			Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving					0.54	13.27	1.08	0.05	0.05	0.02	1.735.79	0.55	1,754.09
Paving					0.01	0.13	0.01	0.00	0.00	0.00	17.37	0.01	17.37
Total Emissions all Phases (tons per construction period) =>													
					0.20	3.90	0.41	0.02	0.02	0.01	655.95	0.20	662.65

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		93		8
Air Compressors		78		8
Bore/Drip Rigs		205		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163		8
Forklifts		89		8
Generator Sets		84		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		128		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		265		8
Rubber Tired Loaders		200		8
Scrapers		382		8
Signal Boards		6		8
Skid Steer Loaders		69		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Webbers		46		8

END OF DATA ENTRY SHEET

Year	ROG	Weighted - Grubbing	Weighted - Grading	Weighted - Drainage	Weighted - Paving	CO	Weighted - Grubbing	Weighted - Grading	Weighted - Drainage	Weighted - Paving	NOx
2014	0.0642	-	-	-	-	2.2203	-	-	-	-	0.2535
2015	0.0542	-	-	-	-	1.9680	-	-	-	-	0.2228
2016	0.0451	-	-	-	-	1.7328	-	-	-	-	0.1945
2017	0.0362	-	-	-	-	1.5134	-	-	-	-	0.1685
2018	0.0290	-	-	-	-	1.3269	-	-	-	-	0.1463
2019	0.0242	0.0242	0.0242	0.0242	0.0242	1.1906	1.1906	1.1906	1.1906	1.1906	0.1280
2020	0.0210	-	-	-	-	1.0764	-	-	-	-	0.1134
2021	0.0190	-	-	-	-	0.9903	-	-	-	-	0.1016
2022	0.0172	-	-	-	-	0.9178	-	-	-	-	0.0915
2023	0.0156	-	-	-	-	0.8529	-	-	-	-	0.0825
2024	0.0142	-	-	-	-	0.8010	-	-	-	-	0.0748
2025	0.0130	-	-	-	-	0.7506	-	-	-	-	0.0681
Total		0.0242	0.0242	0.0242	0.0242		1.1906	1.1906	1.1906	1.1906	

#### Heavy-Heavy Duty Diesel Truck

Water Truck Commute Emissions (EMFAC2014- web 1.0.7, T7 Single Unit Construction Truck)

Model Year	ROG	Weighted- Grubbing	Weighted - Grading	Weighted - Drainage	Weighted - Paving	CO	Weighted- Grubbing	Weighted - Grading	Weighted - Drainage	Weighted - Paving	NOx
2014	0.4443	-	-	-	-	1.5669	-	-	-	-	10.5435
2015	0.3630	-	-	-	-	1.2778	-	-	-	-	9.2817
2016	0.2888	-	-	-	-	1.0218	-	-	-	-	7.9708
2017	0.2042	-	-	-	-	0.7425	-	-	-	-	6.5368
2018	0.1428	-	-	-	-	0.5447	-	-	-	-	5.4026
2019	0.1341	0.1341	0.1341	0.1341	0.1341	0.5235	0.5235	0.5235	0.5235	0.5235	4.9686
2020	0.1053	-	-	-	-	0.4360	-	-	-	-	4.1285
2021	0.1016	-	-	-	-	0.4327	-	-	-	-	3.6453
2022	0.0978	-	-	-	-	0.4291	-	-	-	-	3.2324
2023	0.0637	-	-	-	-	0.3718	-	-	-	-	1.3091
2024	0.0640	-	-	-	-	0.3746	-	-	-	-	1.2913
2025	0.0644	-	-	-	-	0.3774	-	-	-	-	1.2796
Total		0.1341	0.1341	0.1341	0.1341		0.5235	0.5235	0.5235	0.5235	

Year	ROG	Weighted - Grubbing	Weighted - Grading	Weighted - Drainage	Weighted - Paving	CO	Weighted - Grubbing	Weighted - Grading	Weighted - Drainage	Weighted - Paving	NOx
name in EMF vlookup index	ROG	ROG_RUNE	ROG_RUNE	ROG_RUNE	ROG_RUNE	CO	CO_RUNEX	CO_RUNEX	CO_RUNEX	CO_RUNEX	NOx_RUNEX
2014	0.0090	-	-	-	-	0.4347	27	-	-	-	0.0459
2015	0.0092	-	-	-	-	0.4481	-	-	-	-	0.0466
2016	0.0093	-	-	-	-	0.4619	-	-	-	-	0.0471
2017	0.0093	-	-	-	-	0.4754	-	-	-	-	0.0470
2018	0.0093	-	-	-	-	0.4880	-	-	-	-	0.0470
2019	0.0092	0.0092	0.0092	0.0092	0.0092	0.5028	0.5028	0.5028	0.5028	0.5028	0.0467
2020	0.0092	-	-	-	-	0.5135	-	-	-	-	0.0463
2021	0.0091	-	-	-	-	0.5231	-	-	-	-	0.0456
2022	0.0089	-	-	-	-	0.5316	-	-	-	-	0.0447
2023	0.0087	-	-	-	-	0.5357	-	-	-	-	0.0434
2024	0.0084	-	-	-	-	0.5363	-	-	-	-	0.0418
2025	0.0081	-	-	-	-	0.5275	-	-	-	-	0.0402
Total		0.0092	0.0092	0.0092	0.0092		0.5028	0.5028	0.5028	0.5028	

#### Heavy-Heavy Duty Diesel Truck

Water Truck Commute Emissions (EMFAC2014- web 1.0.7, T7 Single Unit Construction Truck)

Model Year	ROG	Weighted- Grubbing	Weighted - Grading	Weighted - Drainage	Weighted - Paving	CO	Weighted- Grubbing	Weighted - Grading	Weighted - Drainage	Weighted - Paving	NOx
2014	0.0708	-	-	-	-	0.3424	-	-	-	-	1.9074
2015	0.0681	-	-	-	-	0.3440	-	-	-	-	1.7034
2016	0.0670	-	-	-	-	0.3476	-	-	-	-	1.5954
2017	0.0667	-	-	-	-	0.3529	-	-	-	-	1.5424
2018	0.0668	-	-	-	-	0.3579	-	-	-	-	1.5083
2019	0.0668	0.0668	0.0668	0.0668	0.0668	0.3617	0.3617	0.3617	0.3617	0.3617	1.4760
2020	0.0670	-	-	-	-	0.3671	-	-	-	-	1.4633
2021	0.0669	-	-	-	-	0.3698	-	-	-	-	1.4282
2022	0.0668	-	-	-	-	0.3717	-	-	-	-	1.3902
2023	0.0627	-	-	-	-	0.3699	-	-	-	-	1.2003
2024	0.0632	-	-	-	-	0.3728	-	-	-	-	1.1998
2025	0.0637	-	-	-	-	0.3759	-	-	-	-	1.2027
Total		0.0668	0.0668	0.0668	0.0668		0.3617	0.3617	0.3617	0.3617	



	B	C	D	E	F	G	H	I	J	K	L	M
5	Emissions (g/bhp-hr)		ROG	ROG	ROG	ROG		CO	CO	CO	CO	
6	Aerial Lifts		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
7		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
8	2014	0.2023	-	-	-	-	3.2185	-	-	-	-	3.3728
9	2015	0.1906	-	-	-	-	3.2178	-	-	-	-	3.1134
10	2016	0.1855	-	-	-	-	3.2010	-	-	-	-	2.7222
11	2017	0.1427	-	-	-	-	3.1843	-	-	-	-	2.3637
12	2018	0.1219	-	-	-	-	3.1669	-	-	-	-	2.0838
13	2019	0.1182	0.1182	0.1182	0.1182	0.1182	3.1725	3.1725	3.1725	3.1725	3.1725	1.9766
14	2020	0.1149	-	-	-	-	3.1768	-	-	-	-	1.8686
15	2021	0.1088	-	-	-	-	3.1782	-	-	-	-	1.7437
16	2022	0.1047	-	-	-	-	3.1780	-	-	-	-	1.6266
17	2023	0.1005	-	-	-	-	3.1703	-	-	-	-	1.5481
18	2024	0.1005	-	-	-	-	3.1726	-	-	-	-	1.5279
19	2025	0.0988	-	-	-	-	3.1674	-	-	-	-	1.5108
20	Aerial Lifts Total		0.1182	0.1182	0.1182	0.1182		3.1725	3.1725	3.1725	3.1725	
21												
22												
23												
24	Air Compressors		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
25		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
26	2014	0.9010	-	-	-	-	3.8800	-	-	-	-	5.6080
27	2015	0.8210	-	-	-	-	3.8400	-	-	-	-	5.1900
28	2016	0.7440	-	-	-	-	3.8040	-	-	-	-	4.7900
29	2017	0.6710	-	-	-	-	3.7720	-	-	-	-	4.4120
30	2018	0.6030	-	-	-	-	3.7440	-	-	-	-	4.0500
31	2019	0.5380	0.5380	0.5380	0.5380	0.5380	3.7180	3.7180	3.7180	3.7180	3.7180	3.7060
32	2020	0.4890	-	-	-	-	3.6980	-	-	-	-	3.4000
33	2021	0.4420	-	-	-	-	3.6700	-	-	-	-	3.0830
34	2022	0.4130	-	-	-	-	3.6620	-	-	-	-	2.8440
35	2023	0.3670	-	-	-	-	3.6570	-	-	-	-	2.6310
36	2024	0.3850	-	-	-	-	3.6550	-	-	-	-	2.4810
37	2025	0.3450	-	-	-	-	3.6530	-	-	-	-	2.3130
38	Air Compressors Total		0.5380	0.5380	0.5380	0.5380		3.7180	3.7180	3.7180	3.7180	
39												
40												
41												
42	Bore/Drill Rigs		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
43		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
44	2014	0.2173	-	-	-	-	1.1744	-	-	-	-	3.5245
45	2015	0.2133	-	-	-	-	1.1783	-	-	-	-	3.3245
46	2016	0.1925	-	-	-	-	1.1330	-	-	-	-	2.9021
47	2017	0.1735	-	-	-	-	1.1021	-	-	-	-	2.5215
48	2018	0.1545	-	-	-	-	1.0733	-	-	-	-	2.1531
49	2019	0.1434	0.1434	0.1434	0.1434	0.1434	1.0606	1.0606	1.0606	1.0606	1.0606	1.8943
50	2020	0.1424	-	-	-	-	1.0677	-	-	-	-	1.8073
51	2021	0.1325	-	-	-	-	1.0642	-	-	-	-	1.5510
52	2022	0.1150	-	-	-	-	1.0473	-	-	-	-	1.1829
53	2023	0.1104	-	-	-	-	1.0431	-	-	-	-	1.0465
54	2024	0.1080	-	-	-	-	1.0459	-	-	-	-	0.9754
55	2025	0.1074	-	-	-	-	1.0448	-	-	-	-	0.9572
56	Bore/Drill Rigs Total		0.1434	0.1434	0.1434	0.1434		1.0606	1.0606	1.0606	1.0606	
57												
58												
59												
60	Cement and Mortar Mixers		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
61		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
62	2014	0.6660	-	-	-	-	3.4690	-	-	-	-	4.1910
63	2015	0.6630	-	-	-	-	3.4690	-	-	-	-	4.1680
64	2016	0.6620	-	-	-	-	3.4690	-	-	-	-	4.1530
65	2017	0.6610	-	-	-	-	3.4690	-	-	-	-	4.1450
66	2018	0.6610	-	-	-	-	3.4690	-	-	-	-	4.1420
67	2019	0.6610	0.6610	0.6610	0.6610	0.6610	3.4690	3.4690	3.4690	3.4690	3.4690	4.1420
68	2020	0.6610	-	-	-	-	3.4700	-	-	-	-	4.1420
69	2021	0.6610	-	-	-	-	3.4690	-	-	-	-	4.1420
70	2022	0.6610	-	-	-	-	3.4700	-	-	-	-	4.1420
71	2023	0.6610	-	-	-	-	3.4690	-	-	-	-	4.1420
72	2024	0.6610	-	-	-	-	3.4690	-	-	-	-	4.1420
73	2025	0.6610	-	-	-	-	3.4690	-	-	-	-	4.1420
74	Cement and Mortar Mixers Total		0.6610	0.6610	0.6610	0.6610		3.4690	3.4690	3.4690	3.4690	
75												
76												
77												
78	Concrete/Industrial Saws		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
79		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
80	2014	0.7490	-	-	-	-	3.6750	-	-	-	-	5.1600
81	2015	0.6830	-	-	-	-	3.6470	-	-	-	-	4.7890
82	2016	0.6200	-	-	-	-	3.6200	-	-	-	-	4.4320
83	2017	0.5570	-	-	-	-	3.5850	-	-	-	-	4.0860
84	2018	0.4980	-	-	-	-	3.5710	-	-	-	-	3.7540
85	2019	0.4430	0.4430	0.4430	0.4430	0.4430	3.5500	3.5500	3.5500	3.5500	3.5500	3.4410
86	2020	0.4010	-	-	-	-	3.5350	-	-	-	-	3.1630
87	2021	0.3690	-	-	-	-	3.5230	-	-	-	-	2.9130
88	2022	0.3430	-	-	-	-	3.5140	-	-	-	-	2.6860
89	2023	0.3200	-	-	-	-	3.5070	-	-	-	-	2.4780
90	2024	0.3000	-	-	-	-	3.5000	-	-	-	-	2.3150

[illegible]

	B	C	D	E	F	G	H	I	J	K	L	M
132	Crushing/Proc. Equipment		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
133		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	- Paving	NOx
134	2014	0.8770	-	-	-	-	3.8980	-	-	-	-	5.4680
135	2015	0.7970	-	-	-	-	3.8590	-	-	-	-	5.0400
136	2016	0.7200	-	-	-	-	3.8230	-	-	-	-	4.5310
137	2017	0.6470	-	-	-	-	3.7910	-	-	-	-	4.2440
138	2018	0.5800	-	-	-	-	3.7630	-	-	-	-	3.8810
139	2019	0.5190	0.5190	0.5190	0.5190	0.5190	3.7390	3.7390	3.7390	3.7390	3.7390	3.5440
140	2020	0.4730	-	-	-	-	3.7220	-	-	-	-	3.2480
141	2021	0.4380	-	-	-	-	3.7110	-	-	-	-	2.9690
142	2022	0.4100	-	-	-	-	3.7040	-	-	-	-	2.7580
143	2023	0.3850	-	-	-	-	3.7000	-	-	-	-	2.5520
144	2024	0.3840	-	-	-	-	3.6970	-	-	-	-	2.3690
145	2025	0.3450	-	-	-	-	3.6940	-	-	-	-	2.2480
146	Crushing/Proc. Equipment Total		0.5190	0.5190	0.5190	0.5190		3.7390	3.7390	3.7390	3.7390	
147												
148												
149												
150	Excavators		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
151		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	- Paving	NOx
152	2014	0.3900	-	-	-	-	3.1544	-	-	-	-	4.6570
153	2015	0.3637	-	-	-	-	3.1576	-	-	-	-	4.4807
154	2016	0.3575	-	-	-	-	3.1577	-	-	-	-	4.0810
155	2017	0.3339	-	-	-	-	3.1509	-	-	-	-	3.6987
156	2018	0.2731	-	-	-	-	3.0934	-	-	-	-	2.9236
157	2019	0.2462	0.2462	0.2462	0.2462	0.2462	3.0816	3.0816	3.0816	3.0816	3.0816	2.5326
158	2020	0.2314	-	-	-	-	3.0860	-	-	-	-	2.2784
159	2021	0.2164	-	-	-	-	3.0898	-	-	-	-	2.0336
160	2022	0.1912	-	-	-	-	3.0740	-	-	-	-	1.6781
161	2023	0.1782	-	-	-	-	3.0765	-	-	-	-	1.4625
162	2024	0.1702	-	-	-	-	3.0834	-	-	-	-	1.3248
163	2025	0.1578	-	-	-	-	3.0780	-	-	-	-	1.1537
164	Excavators Total		0.2462	0.2462	0.2462	0.2462		3.0816	3.0816	3.0816	3.0816	
165												
166												
167												
168	Forklifts		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
169		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	- Paving	NOx
170	2014	0.7945	-	-	-	-	4.0794	-	-	-	-	6.8483
171	2015	0.7684	-	-	-	-	4.0835	-	-	-	-	6.6009
172	2016	0.7228	-	-	-	-	4.0231	-	-	-	-	6.2219
173	2017	0.6719	-	-	-	-	3.9768	-	-	-	-	5.8177
174	2018	0.5874	-	-	-	-	3.8582	-	-	-	-	5.0153
175	2019	0.5095	0.5095	0.5095	0.5095	0.5095	3.8039	3.8039	3.8039	3.8039	3.8039	4.5497
176	2020	0.4587	-	-	-	-	3.7585	-	-	-	-	4.1330
177	2021	0.4120	-	-	-	-	3.7200	-	-	-	-	3.7559
178	2022	0.3818	-	-	-	-	3.6751	-	-	-	-	3.3602
179	2023	0.3286	-	-	-	-	3.6465	-	-	-	-	3.0569
180	2024	0.3000	-	-	-	-	3.6291	-	-	-	-	2.8143
181	2025	0.2768	-	-	-	-	3.6114	-	-	-	-	2.6073
182	Forklifts Total		0.5095	0.5095	0.5095	0.5095		3.8039	3.8039	3.8039	3.8039	
183												
184												
185												
186	Generator Sets		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
187		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	- Paving	NOx
188	2014	0.7210	-	-	-	-	3.5320	-	-	-	-	5.1470
189	2015	0.6510	-	-	-	-	3.4890	-	-	-	-	4.7690
190	2016	0.5830	-	-	-	-	3.4690	-	-	-	-	4.4100
191	2017	0.5200	-	-	-	-	3.4420	-	-	-	-	4.0720
192	2018	0.4610	-	-	-	-	3.4180	-	-	-	-	3.7520
193	2019	0.4050	0.4050	0.4050	0.4050	0.4050	3.3960	3.3960	3.3960	3.3960	3.3960	3.4460
194	2020	0.3640	-	-	-	-	3.3800	-	-	-	-	3.1730
195	2021	0.3250	-	-	-	-	3.3610	-	-	-	-	2.8880
196	2022	0.3010	-	-	-	-	3.3530	-	-	-	-	2.6710
197	2023	0.2790	-	-	-	-	3.3470	-	-	-	-	2.4770
198	2024	0.2800	-	-	-	-	3.3420	-	-	-	-	2.3210
199	2025	0.2430	-	-	-	-	3.3380	-	-	-	-	2.1850
200	Generator Sets Total		0.4050	0.4050	0.4050	0.4050		3.3960	3.3960	3.3960	3.3960	
201												
202												
203												
204	Graders		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
205		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	- Paving	NOx
206	2014	0.8469	-	-	-	-	3.9508	-	-	-	-	8.7021
207	2015	0.8439	-	-	-	-	3.9585	-	-	-	-	8.6374
208	2016	0.8097	-	-	-	-	3.9182	-	-	-	-	8.2497
209	2017	0.7571	-	-	-	-	3.8452	-	-	-	-	7.8627
210	2018	0.6614	-	-	-	-	3.7098	-	-	-	-	6.9047
211	2019	0.6088	0.6088	0.6088	0.6088	0.6088	3.6559	3.6559	3.6559	3.6559	3.6559	6.0135
212	2020	0.5667	-	-	-	-	3.6210	-	-	-	-	5.5305
213	2021	0.5053	-	-	-	-	3.5590	-	-	-	-	4.8395
214	2022	0.4403	-	-	-	-	3.4928	-	-	-	-	4.1249
215	2023	0.3898	-	-	-	-	3.4501	-	-	-	-	3.5479
216	2024	0.3638	-	-	-	-	3.4324	-	-	-	-	3.2022
217	2025	0.3288	-	-	-	-	3.4176	-	-	-	-	2.7740
218	Graders Total		0.6088	0.6088	0.6088	0.6088		3.6559	3.6559	3.6559	3.6559	

	B	C	D	E	F	G	H	I	J	K	L	M
219												
220												
221												
222	Off-Highway Tractors		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
223		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
224	2014	0.4242	-	-	-	-	3.2651	-	-	-	-	5.0253
225	2015	0.4017	-	-	-	-	3.2642	-	-	-	-	4.7237
226	2016	0.3910	-	-	-	-	3.2781	-	-	-	-	4.5109
227	2017	0.3559	-	-	-	-	3.2589	-	-	-	-	4.0259
228	2018	0.3149	-	-	-	-	3.2191	-	-	-	-	3.4976
229	2019	0.2941	0.2941	0.2941	0.2941	0.2941	3.2190	3.2190	3.2190	3.2190	3.2190	3.2076
230	2020	0.2710	-	-	-	-	3.2151	-	-	-	-	2.8903
231	2021	0.2587	-	-	-	-	3.2195	-	-	-	-	2.6596
232	2022	0.2312	-	-	-	-	3.1859	-	-	-	-	2.2388
233	2023	0.2010	-	-	-	-	3.1433	-	-	-	-	1.7848
234	2024	0.1826	-	-	-	-	3.1328	-	-	-	-	1.4958
235	2025	0.1752	-	-	-	-	3.1425	-	-	-	-	1.3486
236	Off-Highway Tractors Total		0.2941	0.2941	0.2941	0.2941		3.2190	3.2190	3.2190	3.2190	
237												
238												
239												
240	Off-Highway Trucks		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
241		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
242	2014	0.3934	-	-	-	-	2.0752	-	-	-	-	4.6858
243	2015	0.3845	-	-	-	-	2.0367	-	-	-	-	4.5279
244	2016	0.3514	-	-	-	-	1.8852	-	-	-	-	4.0480
245	2017	0.3253	-	-	-	-	1.7477	-	-	-	-	3.6584
246	2018	0.2870	-	-	-	-	1.5595	-	-	-	-	3.0900
247	2019	0.2635	0.2635	0.2635	0.2635	0.2635	1.4835	1.4835	1.4835	1.4835	1.4835	2.6685
248	2020	0.2481	-	-	-	-	1.4142	-	-	-	-	2.3488
249	2021	0.2249	-	-	-	-	1.3378	-	-	-	-	1.9536
250	2022	0.1991	-	-	-	-	1.2466	-	-	-	-	1.4899
251	2023	0.1870	-	-	-	-	1.2208	-	-	-	-	1.3243
252	2024	0.1845	-	-	-	-	1.2084	-	-	-	-	1.2352
253	2025	0.1773	-	-	-	-	1.1823	-	-	-	-	1.0938
254	Off-Highway Trucks Total		0.2635	0.2635	0.2635	0.2635		1.4835	1.4835	1.4835	1.4835	
255												
256												
257												
258	Other Construction Equipment		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
259		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
260	2014	0.5885	-	-	-	-	3.3852	-	-	-	-	6.3719
261	2015	0.5571	-	-	-	-	3.3818	-	-	-	-	6.2305
262	2016	0.5244	-	-	-	-	3.3567	-	-	-	-	5.8175
263	2017	0.5004	-	-	-	-	3.3377	-	-	-	-	5.4942
264	2018	0.4364	-	-	-	-	3.2635	-	-	-	-	4.7550
265	2019	0.4121	0.4121	0.4121	0.4121	0.4121	3.2562	3.2562	3.2562	3.2562	3.2562	4.4331
266	2020	0.3877	-	-	-	-	3.2353	-	-	-	-	4.1120
267	2021	0.3295	-	-	-	-	3.1828	-	-	-	-	3.4385
268	2022	0.2851	-	-	-	-	3.1554	-	-	-	-	2.9944
269	2023	0.2735	-	-	-	-	3.1415	-	-	-	-	2.6682
270	2024	0.2805	-	-	-	-	3.1495	-	-	-	-	2.5202
271	2025	0.2347	-	-	-	-	3.1385	-	-	-	-	2.1674
272	Other Construction Equipment Total		0.4121	0.4121	0.4121	0.4121		3.2562	3.2562	3.2562	3.2562	
273												
274												
275												
276	Other General Industrial Equipment		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
277		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
278	2014	0.7887	-	-	-	-	4.8901	-	-	-	-	6.7228
279	2015	0.7607	-	-	-	-	4.8811	-	-	-	-	6.5016
280	2016	0.7155	-	-	-	-	4.0454	-	-	-	-	6.1441
281	2017	0.6600	-	-	-	-	3.9981	-	-	-	-	5.7214
282	2018	0.5573	-	-	-	-	3.8763	-	-	-	-	4.9546
283	2019	0.4997	0.4997	0.4997	0.4997	0.4997	3.8213	3.8213	3.8213	3.8213	3.8213	4.4967
284	2020	0.4480	-	-	-	-	3.7707	-	-	-	-	4.0608
285	2021	0.4037	-	-	-	-	3.7403	-	-	-	-	3.7177
286	2022	0.3387	-	-	-	-	3.6682	-	-	-	-	3.1997
287	2023	0.3076	-	-	-	-	3.6470	-	-	-	-	2.9239
288	2024	0.2872	-	-	-	-	3.6393	-	-	-	-	2.7078
289	2025	0.2575	-	-	-	-	3.6120	-	-	-	-	2.4389
290	Other General Industrial Equipment Total		0.4997	0.4997	0.4997	0.4997		3.8213	3.8213	3.8213	3.8213	
291												
292												
293												
294	Other Material Handling Equipment		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
295		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
296	2014	0.5283	-	-	-	-	3.4306	-	-	-	-	5.7976
297	2015	0.5251	-	-	-	-	3.4330	-	-	-	-	5.6445
298	2016	0.4888	-	-	-	-	3.4182	-	-	-	-	5.2115
299	2017	0.4259	-	-	-	-	3.3512	-	-	-	-	4.4881
300	2018	0.3285	-	-	-	-	3.2180	-	-	-	-	3.3323
301	2019	0.2796	0.2796	0.2796	0.2796	0.2796	3.1852	3.1852	3.1852	3.1852	3.1852	2.7737
302	2020	0.2520	-	-	-	-	3.1709	-	-	-	-	2.3665
303	2021	0.2488	-	-	-	-	3.1964	-	-	-	-	2.2463
304	2022	0.2256	-	-	-	-	3.1761	-	-	-	-	1.8938
305	2023	0.2159	-	-	-	-	3.1707	-	-	-	-	1.7690

	B	C	D	E	F	G	H	I	J	K	L	M
306	2024	0.2083	-	-	-	-	3.1811	-	-	-	-	1.6386
307	2025	0.1892	-	-	-	-	3.1679	-	-	-	-	1.3968
308	Other Material Handling Equipment Total		0.2796	0.2796	0.2796	0.2796		3.1852	3.1852	3.1852	3.1852	
309												
310												
311												
312	Pavers		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
313		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
314	2014	0.5024	-	-	-	-	3.1146	-	-	-	-	5.7363
315	2015	0.4854	-	-	-	-	3.1156	-	-	-	-	5.5367
316	2016	0.4332	-	-	-	-	3.0802	-	-	-	-	4.8740
317	2017	0.3989	-	-	-	-	3.0628	-	-	-	-	4.3531
318	2018	0.3387	-	-	-	-	3.0391	-	-	-	-	3.7472
319	2019	0.2988	0.2988	0.2988	0.2988	0.2988	3.0132	3.0132	3.0132	3.0132	3.0132	3.2447
320	2020	0.2728	-	-	-	-	3.0097	-	-	-	-	2.9183
321	2021	0.2557	-	-	-	-	3.0166	-	-	-	-	2.6946
322	2022	0.2148	-	-	-	-	2.9948	-	-	-	-	2.1796
323	2023	0.1893	-	-	-	-	2.9940	-	-	-	-	1.9552
324	2024	0.1907	-	-	-	-	3.0042	-	-	-	-	1.8088
325	2025	0.1805	-	-	-	-	3.0071	-	-	-	-	1.6440
326	Pavers Total		0.2988	0.2988	0.2988	0.2988		3.0132	3.0132	3.0132	3.0132	
327												
328												
329												
330	Paving Equipment		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
331		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
332	2014	0.4151	-	-	-	-	3.0989	-	-	-	-	6.2157
333	2015	0.4108	-	-	-	-	3.1040	-	-	-	-	4.9858
334	2016	0.3718	-	-	-	-	3.0811	-	-	-	-	4.3217
335	2017	0.3425	-	-	-	-	3.0732	-	-	-	-	3.8963
336	2018	0.2837	-	-	-	-	3.0260	-	-	-	-	3.1721
337	2019	0.2541	0.2541	0.2541	0.2541	0.2541	3.0109	3.0109	3.0109	3.0109	3.0109	2.6924
338	2020	0.2475	-	-	-	-	3.0239	-	-	-	-	2.5550
339	2021	0.2281	-	-	-	-	3.0323	-	-	-	-	2.3151
340	2022	0.2127	-	-	-	-	3.0378	-	-	-	-	2.0733
341	2023	0.2037	-	-	-	-	3.0506	-	-	-	-	1.9126
342	2024	0.1956	-	-	-	-	3.0562	-	-	-	-	1.7851
343	2025	0.1752	-	-	-	-	3.0384	-	-	-	-	1.5090
344	Paving Equipment Total		0.2541	0.2541	0.2541	0.2541		3.0109	3.0109	3.0109	3.0109	
345												
346												
347												
348	Plate Compactors		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
349		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
350	2014	0.6510	-	-	-	-	3.4690	-	-	-	-	4.1420
351	2015	0.6510	-	-	-	-	3.4690	-	-	-	-	4.1420
352	2016	0.6510	-	-	-	-	3.4690	-	-	-	-	4.1420
353	2017	0.6510	-	-	-	-	3.4690	-	-	-	-	4.1420
354	2018	0.6510	-	-	-	-	3.4700	-	-	-	-	4.1420
355	2019	0.6510	0.6510	0.6510	0.6510	0.6510	3.4690	3.4690	3.4690	3.4690	3.4690	4.1420
356	2020	0.6510	-	-	-	-	3.4690	-	-	-	-	4.1420
357	2021	0.6510	-	-	-	-	3.4690	-	-	-	-	4.1420
358	2022	0.6510	-	-	-	-	3.4690	-	-	-	-	4.1420
359	2023	0.6510	-	-	-	-	3.4690	-	-	-	-	4.1420
360	2024	0.6510	-	-	-	-	3.4690	-	-	-	-	4.1420
361	2025	0.6510	-	-	-	-	3.4690	-	-	-	-	4.1420
362	Plate Compactors Total		0.6510	0.6510	0.6510	0.6510		3.4690	3.4690	3.4690	3.4690	
363												
364												
365												
366	Pressure Washers		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
367		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
368	2014	0.7830	-	-	-	-	3.7230	-	-	-	-	5.3690
369	2015	0.7470	-	-	-	-	3.6570	-	-	-	-	5.1410
370	2016	0.7200	-	-	-	-	3.6220	-	-	-	-	4.9780
371	2017	0.6990	-	-	-	-	3.5990	-	-	-	-	4.8470
372	2018	0.6790	-	-	-	-	3.5800	-	-	-	-	4.7260
373	2019	0.6620	0.6620	0.6620	0.6620	0.6620	3.5620	3.5620	3.5620	3.5620	3.5620	4.6170
374	2020	0.6460	-	-	-	-	3.5460	-	-	-	-	4.5160
375	2021	0.6340	-	-	-	-	3.5310	-	-	-	-	4.4410
376	2022	0.6260	-	-	-	-	3.5190	-	-	-	-	4.3900
377	2023	0.6180	-	-	-	-	3.5080	-	-	-	-	4.3450
378	2024	0.6120	-	-	-	-	3.4990	-	-	-	-	4.3050
379	2025	0.6070	-	-	-	-	3.4810	-	-	-	-	4.2690
380	Pressure Washers Total		0.6620	0.6620	0.6620	0.6620		3.5620	3.5620	3.5620	3.5620	
381												
382												
383												
384	Pumps		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -	
385		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	Paving	NOx
386	2014	0.7510	-	-	-	-	3.5870	-	-	-	-	5.2260
387	2015	0.6790	-	-	-	-	3.5540	-	-	-	-	4.8420
388	2016	0.6100	-	-	-	-	3.5230	-	-	-	-	4.4780
389	2017	0.5460	-	-	-	-	3.4950	-	-	-	-	4.1340
390	2018	0.4850	-	-	-	-	3.4710	-	-	-	-	3.8089
391	2019	0.4290	0.4290	0.4290	0.4290	0.4290	3.4490	3.4490	3.4490	3.4490	3.4490	3.4970
392	2020	0.3660	-	-	-	-	3.4320	-	-	-	-	3.2190

	B	C	D	E	F	G	H	I	J	K	L	M
393	2021	0.3470	-	-	-	-	3.4120	-	-	-	-	2.9280
394	2022	0.3210	-	-	-	-	3.4040	-	-	-	-	2.7060
395	2023	0.2990	-	-	-	-	3.3980	-	-	-	-	2.5110
396	2024	0.2790	-	-	-	-	3.3930	-	-	-	-	2.3520
397	2025	0.2610	-	-	-	-	3.3880	-	-	-	-	2.2130
398	Pumps Total		0.4290	0.4290	0.4290	0.4290		3.4490	3.4490	3.4490	3.4490	
399												
400												
401												
402	Rollers		Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted	
403		ROG	Grubbing	Grading	Drainage	Paving	CO	Grubbing	Grading	Drainage	- Paving	NOx
404	2014	0.6950	-	-	-	-	3.8092	-	-	-	-	6.3904
405	2015	0.6833	-	-	-	-	3.8089	-	-	-	-	6.2716
406	2016	0.6282	-	-	-	-	3.7554	-	-	-	-	5.8056

	N	O	P	Q	R	S	T	U	V
5	NOx	NOx	NOx	NOx		PM10	PM10	PM10	PM10
6	Weighted	Weighted	Weighted	Weighted		Weighted	Weighted	Weighted	Weighted
7	-Grubbing	-Grading	-Drainage	-Paving	PM10	-Grubbing	-Grading	-Drainage	-Paving
8	-	-	-	-	0.1608	-	-	-	-
9	-	-	-	-	0.1431	-	-	-	-
10	-	-	-	-	0.1119	-	-	-	-
11	-	-	-	-	0.0834	-	-	-	-
12	-	-	-	-	0.0571	-	-	-	-
13	1.9766	1.9766	1.9766	1.9766	0.0485	0.0485	0.0485	0.0485	0.0485
14	-	-	-	-	0.0416	-	-	-	-
15	-	-	-	-	0.0333	-	-	-	-
16	-	-	-	-	0.0302	-	-	-	-
17	-	-	-	-	0.0267	-	-	-	-
18	-	-	-	-	0.0265	-	-	-	-
19	-	-	-	-	0.0258	-	-	-	-
20	1.9766	1.9766	1.9766	1.9766		0.0485	0.0485	0.0485	0.0485
21									
22									
23									
24	Weighted	Weighted	Weighted	Weighted		Weighted	Weighted	Weighted	Weighted
25	-Grubbing	-Grading	-Drainage	-Paving	PM10	-Grubbing	-Grading	-Drainage	-Paving
26	-	-	-	-	0.4850	-	-	-	-
27	-	-	-	-	0.4460	-	-	-	-
28	-	-	-	-	0.3970	-	-	-	-
29	-	-	-	-	0.3500	-	-	-	-
30	-	-	-	-	0.3040	-	-	-	-
31	3.7060	3.7060	3.7060	3.7060	0.2600	0.2600	0.2600	0.2600	0.2600
32	-	-	-	-	0.2240	-	-	-	-
33	-	-	-	-	0.1900	-	-	-	-
34	-	-	-	-	0.1650	-	-	-	-
35	-	-	-	-	0.1430	-	-	-	-
36	-	-	-	-	0.1230	-	-	-	-
37	-	-	-	-	0.1040	-	-	-	-
38	3.7060	3.7060	3.7060	3.7060		0.2600	0.2600	0.2600	0.2600
39									
40									
41									
42	Weighted	Weighted	Weighted	Weighted		Weighted	Weighted	Weighted	Weighted
43	-Grubbing	-Grading	-Drainage	-Paving	PM10	-Grubbing	-Grading	-Drainage	-Paving
44	-	-	-	-	0.1049	-	-	-	-
45	-	-	-	-	0.0896	-	-	-	-
46	-	-	-	-	0.0852	-	-	-	-
47	-	-	-	-	0.0725	-	-	-	-
48	-	-	-	-	0.0608	-	-	-	-
49	1.8943	1.8943	1.8943	1.8943	0.0537	0.0537	0.0537	0.0537	0.0537
50	-	-	-	-	0.0521	-	-	-	-
51	-	-	-	-	0.0470	-	-	-	-
52	-	-	-	-	0.0373	-	-	-	-
53	-	-	-	-	0.0339	-	-	-	-
54	-	-	-	-	0.0321	-	-	-	-
55	-	-	-	-	0.0314	-	-	-	-
56	1.8943	1.8943	1.8943	1.8943		0.0537	0.0537	0.0537	0.0537
57									
58									
59									
60	Weighted	Weighted	Weighted	Weighted		Weighted	Weighted	Weighted	Weighted
61	-Grubbing	-Grading	-Drainage	-Paving	PM10	-Grubbing	-Grading	-Drainage	-Paving
62	-	-	-	-	0.1770	-	-	-	-
63	-	-	-	-	0.1710	-	-	-	-
64	-	-	-	-	0.1670	-	-	-	-
65	-	-	-	-	0.1650	-	-	-	-
66	-	-	-	-	0.1630	-	-	-	-
67	4.1420	4.1420	4.1420	4.1420	0.1620	0.1620	0.1620	0.1620	0.1620
68	-	-	-	-	0.1610	-	-	-	-
69	-	-	-	-	0.1610	-	-	-	-
70	-	-	-	-	0.1610	-	-	-	-
71	-	-	-	-	0.1610	-	-	-	-
72	-	-	-	-	0.1610	-	-	-	-
73	-	-	-	-	0.1610	-	-	-	-
74	4.1420	4.1420	4.1420	4.1420		0.1620	0.1620	0.1620	0.1620
75									
76									
77									
78	Weighted	Weighted	Weighted	Weighted		Weighted	Weighted	Weighted	Weighted
79	-Grubbing	-Grading	-Drainage	-Paving	PM10	-Grubbing	-Grading	-Drainage	-Paving
80	-	-	-	-	0.4120	-	-	-	-
81	-	-	-	-	0.3720	-	-	-	-
82	-	-	-	-	0.3330	-	-	-	-
83	-	-	-	-	0.2940	-	-	-	-
84	-	-	-	-	0.2560	-	-	-	-
85	3.4410	3.4410	3.4410	3.4410	0.2200	0.2200	0.2200	0.2200	0.2200
86	-	-	-	-	0.1900	-	-	-	-
87	-	-	-	-	0.1660	-	-	-	-
88	-	-	-	-	0.1440	-	-	-	-
89	-	-	-	-	0.1230	-	-	-	-
90	-	-	-	-	0.1060	-	-	-	-

[illegible]

	N	O	P	Q	R	S	T	U	V
132	Weighted	Weighted	Weighted	Weighted		Weighted	Weighted	Weighted	Weighted
133	- Grubbing	- Grading	- Drainage	- Paving	PM10	- Grubbing	- Grading	- Drainage	- Paving
134	-	-	-	-	0.4810	-	-	-	-
135	-	-	-	-	0.4300	-	-	-	-
136	-	-	-	-	0.3790	-	-	-	-
137	-	-	-	-	0.3300	-	-	-	-
138	-	-	-	-	0.2840	-	-	-	-
139	3.5440	3.5440	3.5440	3.5440	0.2410	0.2410	0.2410	0.2410	0.2410
140	-	-	-	-	0.2060	-	-	-	-
141	-	-	-	-	0.1760	-	-	-	-
142	-	-	-	-	0.1540	-	-	-	-
143	-	-	-	-	0.1320	-	-	-	-
144	-	-	-	-	0.1120	-	-	-	-
145	-	-	-	-	0.0950	-	-	-	-
146	3.5440	3.5440	3.5440	3.5440		0.2410	0.2410	0.2410	0.2410
147	-	-	-	-		-	-	-	-
148	-	-	-	-		-	-	-	-
149	-	-	-	-		-	-	-	-
150	Weighted	Weighted	Weighted	Weighted		Weighted	Weighted	Weighted	Weighted
151	- Grubbing	- Grading	- Drainage	- Paving	PM10	- Grubbing	- Grading	- Drainage	- Paving
152	-	-	-	-	0.2289	-	-	-	-
153	-	-	-	-	0.2212	-	-	-	-
154	-	-	-	-	0.2008	-	-	-	-
155	-	-	-	-	0.1820	-	-	-	-
156	-	-	-	-	0.1418	-	-	-	-
157	2.5326	2.5326	2.5326	2.5326	0.1221	0.1221	0.1221	0.1221	0.1221
158	-	-	-	-	0.1104	-	-	-	-
159	-	-	-	-	0.0986	-	-	-	-
160	-	-	-	-	0.0811	-	-	-	-
161	-	-	-	-	0.0716	-	-	-	-
162	-	-	-	-	0.0653	-	-	-	-
163	-	-	-	-	0.0588	-	-	-	-
164	2.5326	2.5326	2.5326	2.5326		0.1221	0.1221	0.1221	0.1221
165	-	-	-	-		-	-	-	-
166	-	-	-	-		-	-	-	-
167	-	-	-	-		-	-	-	-
168	Weighted	Weighted	Weighted	Weighted		Weighted	Weighted	Weighted	Weighted
169	- Grubbing	- Grading	- Drainage	- Paving	PM10	- Grubbing	- Grading	- Drainage	- Paving
170	-	-	-	-	0.5737	-	-	-	-
171	-	-	-	-	0.5545	-	-	-	-
172	-	-	-	-	0.5203	-	-	-	-
173	-	-	-	-	0.4800	-	-	-	-
174	-	-	-	-	0.4002	-	-	-	-
175	4.5497	4.5497	4.5497	4.5497	0.3525	0.3525	0.3525	0.3525	0.3525
176	-	-	-	-	0.3079	-	-	-	-
177	-	-	-	-	0.2668	-	-	-	-
178	-	-	-	-	0.2226	-	-	-	-
179	-	-	-	-	0.1889	-	-	-	-
180	-	-	-	-	0.1625	-	-	-	-
181	-	-	-	-	0.1396	-	-	-	-
182	4.5497	4.5497	4.5497	4.5497		0.3525	0.3525	0.3525	0.3525
183	-	-	-	-		-	-	-	-
184	-	-	-	-		-	-	-	-
185	-	-	-	-		-	-	-	-
186	Weighted	Weighted	Weighted	Weighted		Weighted	Weighted	Weighted	Weighted
187	- Grubbing	- Grading	- Drainage	- Paving	PM10	- Grubbing	- Grading	- Drainage	- Paving
188	-	-	-	-	0.3850	-	-	-	-
189	-	-	-	-	0.3470	-	-	-	-
190	-	-	-	-	0.3090	-	-	-	-
191	-	-	-	-	0.2740	-	-	-	-
192	-	-	-	-	0.2390	-	-	-	-
193	3.4460	3.4460	3.4460	3.4460	0.2060	0.2060	0.2060	0.2060	0.2060
194	-	-	-	-	0.1790	-	-	-	-
195	-	-	-	-	0.1530	-	-	-	-
196	-	-	-	-	0.1340	-	-	-	-
197	-	-	-	-	0.1170	-	-	-	-
198	-	-	-	-	0.1010	-	-	-	-
199	-	-	-	-	0.0870	-	-	-	-
200	3.4460	3.4460	3.4460	3.4460		0.2060	0.2060	0.2060	0.2060
201	-	-	-	-		-	-	-	-
202	-	-	-	-		-	-	-	-
203	-	-	-	-		-	-	-	-
204	Weighted	Weighted	Weighted	Weighted		Weighted	Weighted	Weighted	Weighted
205	- Grubbing	- Grading	- Drainage	- Paving	PM10	- Grubbing	- Grading	- Drainage	- Paving
206	-	-	-	-	0.4884	-	-	-	-
207	-	-	-	-	0.4857	-	-	-	-
208	-	-	-	-	0.4635	-	-	-	-
209	-	-	-	-	0.4304	-	-	-	-
210	-	-	-	-	0.3713	-	-	-	-
211	6.0135	6.0135	6.0135	6.0135	0.3365	0.3365	0.3365	0.3365	0.3365
212	-	-	-	-	0.3065	-	-	-	-
213	-	-	-	-	0.2700	-	-	-	-
214	-	-	-	-	0.2293	-	-	-	-
215	-	-	-	-	0.1953	-	-	-	-
216	-	-	-	-	0.1768	-	-	-	-
217	-	-	-	-	0.1521	-	-	-	-
218	6.0135	6.0135	6.0135	6.0135		0.3365	0.3365	0.3365	0.3365

	N	O	P	Q	R	S	T	U	V
219									
220									
221									
222	Weighted	Weighted	Weighted	Weighted	-	Weighted	Weighted	Weighted	Weighted
223	- Grubbing	- Grading	- Drainage	Paving	PM10	- Grubbing	- Grading	- Drainage	- Paving
224	-	-	-	-	0.2577	-	-	-	-
225	-	-	-	-	0.2393	-	-	-	-
226	-	-	-	-	0.2290	-	-	-	-
227	-	-	-	-	0.2048	-	-	-	-
228	-	-	-	-	0.1758	-	-	-	-
229	3.2076	3.2076	3.2076	3.2076	0.1586	0.1586	0.1586	0.1586	0.1586
230	-	-	-	-	0.1402	-	-	-	-
231	-	-	-	-	0.1286	-	-	-	-
232	-	-	-	-	0.1073	-	-	-	-
233	-	-	-	-	0.0854	-	-	-	-
234	-	-	-	-	0.0715	-	-	-	-
235	-	-	-	-	0.0647	-	-	-	-
236	3.2076	3.2076	3.2076	3.2076		0.1586	0.1586	0.1586	0.1586
237									
238									
239									
240	Weighted	Weighted	Weighted	Weighted	-	Weighted	Weighted	Weighted	Weighted
241	- Grubbing	- Grading	- Drainage	Paving	PM10	- Grubbing	- Grading	- Drainage	- Paving
242	-	-	-	-	0.1795	-	-	-	-
243	-	-	-	-	0.1730	-	-	-	-
244	-	-	-	-	0.1527	-	-	-	-
245	-	-	-	-	0.1362	-	-	-	-
246	-	-	-	-	0.1128	-	-	-	-
247	2.6685	2.6685	2.6685	2.6685	0.0970	0.0970	0.0970	0.0970	0.0970
248	-	-	-	-	0.0855	-	-	-	-
249	-	-	-	-	0.0717	-	-	-	-
250	-	-	-	-	0.0542	-	-	-	-
251	-	-	-	-	0.0479	-	-	-	-
252	-	-	-	-	0.0445	-	-	-	-
253	-	-	-	-	0.0380	-	-	-	-
254	2.6685	2.6685	2.6685	2.6685		0.0970	0.0970	0.0970	0.0970
255									
256									
257									
258	Weighted	Weighted	Weighted	Weighted	-	Weighted	Weighted	Weighted	Weighted
259	- Grubbing	- Grading	- Drainage	Paving	PM10	- Grubbing	- Grading	- Drainage	- Paving
260	-	-	-	-	0.3332	-	-	-	-
261	-	-	-	-	0.3264	-	-	-	-
262	-	-	-	-	0.3059	-	-	-	-
263	-	-	-	-	0.2903	-	-	-	-
264	-	-	-	-	0.2502	-	-	-	-
265	4.4331	4.4331	4.4331	4.4331	0.2335	0.2335	0.2335	0.2335	0.2335
266	-	-	-	-	0.2170	-	-	-	-
267	-	-	-	-	0.1798	-	-	-	-
268	-	-	-	-	0.1582	-	-	-	-
269	-	-	-	-	0.1405	-	-	-	-
270	-	-	-	-	0.1300	-	-	-	-
271	-	-	-	-	0.1121	-	-	-	-
272	4.4331	4.4331	4.4331	4.4331		0.2335	0.2335	0.2335	0.2335
273									
274									
275									
276	Weighted	Weighted	Weighted	Weighted	-	Weighted	Weighted	Weighted	Weighted
277	- Grubbing	- Grading	- Drainage	Paving	PM10	- Grubbing	- Grading	- Drainage	- Paving
278	-	-	-	-	0.5739	-	-	-	-
279	-	-	-	-	0.5528	-	-	-	-
280	-	-	-	-	0.5178	-	-	-	-
281	-	-	-	-	0.4705	-	-	-	-
282	-	-	-	-	0.3917	-	-	-	-
283	4.4967	4.4967	4.4967	4.4967	0.3429	0.3429	0.3429	0.3429	0.3429
284	-	-	-	-	0.2959	-	-	-	-
285	-	-	-	-	0.2559	-	-	-	-
286	-	-	-	-	0.1991	-	-	-	-
287	-	-	-	-	0.1685	-	-	-	-
288	-	-	-	-	0.1459	-	-	-	-
289	-	-	-	-	0.1181	-	-	-	-
290	4.4967	4.4967	4.4967	4.4967		0.3429	0.3429	0.3429	0.3429
291									
292									
293									
294	Weighted	Weighted	Weighted	Weighted	-	Weighted	Weighted	Weighted	Weighted
295	- Grubbing	- Grading	- Drainage	Paving	PM10	- Grubbing	- Grading	- Drainage	- Paving
296	-	-	-	-	0.3128	-	-	-	-
297	-	-	-	-	0.3060	-	-	-	-
298	-	-	-	-	0.2795	-	-	-	-
299	-	-	-	-	0.2379	-	-	-	-
300	-	-	-	-	0.1725	-	-	-	-
301	2.7737	2.7737	2.7737	2.7737	0.1388	0.1388	0.1388	0.1388	0.1388
302	-	-	-	-	0.1181	-	-	-	-
303	-	-	-	-	0.1138	-	-	-	-
304	-	-	-	-	0.1028	-	-	-	-
305	-	-	-	-	0.0659	-	-	-	-

	N	O	P	Q	R	S	T	U	V
306	-	-	-	-	0.0880	-	-	-	-
307	-	-	-	-	0.0724	-	-	-	-
308	2.7737	2.7737	2.7737	2.7737		0.1388	0.1388	0.1388	0.1388
309									
310									
311									
312	Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -
313	Grubbing	Grading	Drainage	Paving	PM10	Grubbing	Grading	Drainage	Paving
314	-	-	-	-	0.2869	-	-	-	-
315	-	-	-	-	0.2774	-	-	-	-
316	-	-	-	-	0.2422	-	-	-	-
317	-	-	-	-	0.2142	-	-	-	-
318	-	-	-	-	0.1831	-	-	-	-
319	3.2447	3.2447	3.2447	3.2447	0.1589	0.1589	0.1589	0.1589	0.1589
320	-	-	-	-	0.1419	-	-	-	-
321	-	-	-	-	0.1302	-	-	-	-
322	-	-	-	-	0.1036	-	-	-	-
323	-	-	-	-	0.0920	-	-	-	-
324	-	-	-	-	0.0845	-	-	-	-
325	-	-	-	-	0.0770	-	-	-	-
326	3.2447	3.2447	3.2447	3.2447		0.1589	0.1589	0.1589	0.1589
327									
328									
329									
330	Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -
331	Grubbing	Grading	Drainage	Paving	PM10	Grubbing	Grading	Drainage	Paving
332	-	-	-	-	0.2488	-	-	-	-
333	-	-	-	-	0.2423	-	-	-	-
334	-	-	-	-	0.2145	-	-	-	-
335	-	-	-	-	0.1948	-	-	-	-
336	-	-	-	-	0.1583	-	-	-	-
337	2.6924	2.6924	2.6924	2.6924	0.1336	0.1336	0.1336	0.1336	0.1336
338	-	-	-	-	0.1278	-	-	-	-
339	-	-	-	-	0.1143	-	-	-	-
340	-	-	-	-	0.1011	-	-	-	-
341	-	-	-	-	0.0930	-	-	-	-
342	-	-	-	-	0.0862	-	-	-	-
343	-	-	-	-	0.0746	-	-	-	-
344	2.6924	2.6924	2.6924	2.6924		0.1336	0.1336	0.1336	0.1336
345									
346									
347									
348	Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -
349	Grubbing	Grading	Drainage	Paving	PM10	Grubbing	Grading	Drainage	Paving
350	-	-	-	-	0.1610	-	-	-	-
351	-	-	-	-	0.1610	-	-	-	-
352	-	-	-	-	0.1610	-	-	-	-
353	-	-	-	-	0.1610	-	-	-	-
354	-	-	-	-	0.1610	-	-	-	-
355	4.1420	4.1420	4.1420	4.1420	0.1610	0.1610	0.1610	0.1610	0.1610
356	-	-	-	-	0.1610	-	-	-	-
357	-	-	-	-	0.1610	-	-	-	-
358	-	-	-	-	0.1610	-	-	-	-
359	-	-	-	-	0.1610	-	-	-	-
360	-	-	-	-	0.1610	-	-	-	-
361	-	-	-	-	0.1610	-	-	-	-
362	4.1420	4.1420	4.1420	4.1420		0.1610	0.1610	0.1610	0.1610
363									
364									
365									
366	Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -
367	Grubbing	Grading	Drainage	Paving	PM10	Grubbing	Grading	Drainage	Paving
368	-	-	-	-	0.2960	-	-	-	-
369	-	-	-	-	0.2800	-	-	-	-
370	-	-	-	-	0.2540	-	-	-	-
371	-	-	-	-	0.2500	-	-	-	-
372	-	-	-	-	0.2370	-	-	-	-
373	4.6170	4.6170	4.6170	4.6170	0.2240	0.2240	0.2240	0.2240	0.2240
374	-	-	-	-	0.2120	-	-	-	-
375	-	-	-	-	0.2010	-	-	-	-
376	-	-	-	-	0.1930	-	-	-	-
377	-	-	-	-	0.1860	-	-	-	-
378	-	-	-	-	0.1810	-	-	-	-
379	-	-	-	-	0.1780	-	-	-	-
380	4.6170	4.6170	4.6170	4.6170		0.2240	0.2240	0.2240	0.2240
381									
382									
383									
384	Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -
385	Grubbing	Grading	Drainage	Paving	PM10	Grubbing	Grading	Drainage	Paving
386	-	-	-	-	0.4030	-	-	-	-
387	-	-	-	-	0.3640	-	-	-	-
388	-	-	-	-	0.3250	-	-	-	-
389	-	-	-	-	0.2870	-	-	-	-
390	-	-	-	-	0.2520	-	-	-	-
391	3.4970	3.4970	3.4970	3.4970	0.2170	0.2170	0.2170	0.2170	0.2170
392	-	-	-	-	0.1890	-	-	-	-

	N	O	P	Q	R	S	T	U	V
393	-	-	-	-	0.1620	-	-	-	-
394	-	-	-	-	0.1420	-	-	-	-
395	-	-	-	-	0.1230	-	-	-	-
396	-	-	-	-	0.1070	-	-	-	-
397	-	-	-	-	0.0920	-	-	-	-
398	3.4970	3.4970	3.4970	3.4970		0.2170	0.2170	0.2170	0.2170
399									
400									
401									
402	Weighted -	Weighted -	Weighted -	Weighted -		Weighted -	Weighted -	Weighted -	Weighted -
403	Grubbing	Grading	Drainage	Paving	PM10	Grubbing	Grading	Drainage	Paving
404	-	-	-	-	0.4759	-	-	-	-
405	-	-	-	-	0.4674	-	-	-	-
406	-	-	-	-	0.4275	-	-	-	-

# Off-road Equipment Tier 4 Emission Factors

HP Bin	Emission Factor (g/bhp-hr)					
	Low HP	High HP	ROG	CO	NOx	PM2.5
0	11	0.30	6.00	5.32	0.30	0.28
11	25	0.30	4.90	5.32	0.30	0.28
25	50	0.19	4.10	3.33	0.02	0.02
50	75	0.19	3.70	3.33	0.02	0.02
75	100	0.15	3.70	0.30	0.02	0.01
100	175	0.15	3.70	0.30	0.02	0.01
175	300	0.15	2.60	0.30	0.02	0.01
300	600	0.15	2.60	0.30	0.02	0.01
600	750	0.15	2.60	0.30	0.02	0.01
750	1200	0.15	2.60	2.60	0.03	0.03
1200	9999	0.15	2.60	2.60	0.03	0.03

92 % of PM2.5 in PM10 (from CEIDARS)

95 % of NOx in NMHC+NOx (from [http://www.arb.ca.gov/msprog/moyer/guidelines/2005\\_Carl\\_Moyer\\_Guidelines\\_Part4.pdf](http://www.arb.ca.gov/msprog/moyer/guidelines/2005_Carl_Moyer_Guidelines_Part4.pdf))

1.07 VOC/NMHC

## Note:

1. Tier 4 Emission Factors are converted from EPA Non-road Diesel Engine Standards. Available at [www.arb.ca.gov/msprog/ordiesel/documents/Off-Road\\_Diesel\\_Stds.xls](http://www.arb.ca.gov/msprog/ordiesel/documents/Off-Road_Diesel_Stds.xls)
2. Assume PM2.5 is 92% of PM10.

