

Final

# WATERMAN ROAD REHABILITATION AND BIKE LANES - BOND ROAD TO SHELDON ROAD PROJECT

Initial Study / Mitigated Negative Declaration

Prepared for  
City of Elk Grove  
Department of Public Works

July 2017





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# CHAPTER 1

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## Introduction

### 1.1 Introduction and Regulatory Guidance

California Environmental Quality Act (CEQA) compliance is required for all projects for which a public agency has a discretionary action, unless the project is exempted by statute in an act of the Legislature. CEQA, as amended, requires that public agencies regulate activities which may affect the quality of the environment. This ensures that major consideration is given to preventing damage to the environment. Guidelines for implementation of CEQA are found in the *CEQA Guidelines* (Title 14, Chapter 3 of the California Code of Regulations [CFR]).

The Initial Study/Proposed Mitigated Negative Declaration (IS/MND) is a public document to be used by the City of Elk Grove (City), acting as the CEQA lead agency to determine whether the Waterman Road Rehabilitation and Bike Lanes - Bond Road to Sheldon Road Project (Project) may have a significant effect on the environment pursuant to CEQA. If the lead agency finds substantial evidence that any aspect of the Project, either individually or cumulatively, may have a significant effect on the environment that cannot be mitigated, regardless of whether the overall effect of the Project is adverse or beneficial, the lead agency is required to prepare an environmental impact report (EIR), use a previously prepared EIR and supplement that EIR, or prepare a subsequent EIR to analyze the Project at hand (Public Resources Code Sections 21080[d], 21082.2[d]).

If the agency finds no substantial evidence that the Project or any of its aspects may cause a significant impact on the environment with mitigation, an MND shall be prepared with a written statement describing the reasons why the proposed Project, which is not exempt from CEQA, would not have a significant effect on the environment and therefore why it does not require the preparation of an EIR (State CEQA Guidelines Section 15371).

According to State CEQA Guidelines Section 15070, a Negative Declaration (ND) shall be prepared for a project subject to CEQA when either:

- 1) The IS shows there is no substantial evidence in light of the whole record before the agency, that the project may have a significant effect on the environment, or
- 2) The initial study identifies potentially significant effects, but:
  - a. Revisions in the project plans or proposals made by, or agreed to by the applicant before the proposed MND and initial study are released for public review would avoid the effects or mitigate the effects to the point where clearly no significant effects would occur, and

- b. There is not substantial evidence, in light of the whole record before the agency that the proposed project as revised may have a significant effect on the environment.

This IS/MND has been prepared in accordance with CEQA, Public Resources Code Section 21000 et seq., and the State CEQA Guidelines Title 14 California Code of Regulations (CCR) Section 15000 et seq.

The proposed Project is not exempt from CEQA consideration. The City has determined that the Project involves the potential for significant environmental effects; these potential environmental effects are evaluated in this IS/MND in Chapter 3.0.

The IS concludes that the Project would potentially have significant environmental effects, but that these effects would be reduced to a less than significant level with recommended mitigation measures. Therefore, an MND is anticipated to be prepared.

## 1.2 Lead Agency

The City's Public Works Department has initiated preliminary design of the Project and it requires approval from the Elk Grove City Council. Therefore, in accordance with CEQA Guidelines Section 15051(b)(1), the City is acting as state lead agency for this Project under CEQA. CEQA approval would be achieved with this IS/MND. This IS/MND has been prepared in compliance with CEQA to support the proposed MND and other required permits and approvals.

## 1.3 Purpose and Document Organization

The CEQA Checklist is used to evaluate the potential environmental effects of a project and includes a list of environmental considerations against which the project is evaluated. For each checklist item, a determination is made as to whether the project will involve: 1) No Impact, 2) a Less Than Significant Impact, 3) a Less Than Significant Impact with Mitigation Incorporated, or 4) a Potentially Significant Impact.

- **No Impact:** A No Impact determination applies where a project does not create an impact in the respective checklist category.
- **Less Than Significant:** A Less Than Significant Impact determination applies when the project would not create a significant impact and mitigation is not required to lessen the impact to less than significant.
- **Less Than Significant with Mitigation Incorporated:** A Less Than Significant with Mitigation Incorporated determination applies where the project would potentially result in a significant impact, but mitigation measures have been included to reduce the effect to a less than significant level.
- **Potentially Significant:** A Potentially Significant Impact determination is appropriate when there is substantial evidence that an effect of the project may be significant and mitigation of the impact is either not available or does not reduce the impact to a less than significant level. If there are one or more Potentially Significant Impact entries in the Initial Study, an EIR is required.



This IS/MND prescribes mitigation measures for the potentially significant environmental effects of the Project. Some mitigation measures are regulatory requirements established by the City and other agencies and routinely implemented in conjunction with new development.

This IS/MND describes the proposed Project, its environmental setting, discusses the potential environmental effects of the Project, and identifies feasible mitigation measures that would reduce the potentially significant adverse environmental effects of the Project to a less than significant level. The IS/MND includes the following chapters:

**Chapter 1 Introduction.** This chapter provides an introduction and describes the purpose and organization of this IS/MND.

**Chapter 2 Project Description.** This chapter provides a Project background and a detailed description of the proposed Project, and describes the process used for notifying and involving the public during Project planning and for coordination with relevant agencies and organizations.

**Chapter 3 Initial Study Checklist.** This chapter considers the Project's potential for significant environmental effects in the subject areas identified in Appendix G of the CEQA Guidelines, the CEQA Checklist and provides mitigation measures, where necessary to reduce potentially significant impacts to a less than significant level.

**Chapter 4 List of Mitigation Measures.** This chapter provides a summary of mitigation measures for the proposed Project.

**Chapter 5 List of Preparers.** This chapter identifies staff and consultants responsible for preparation of this document.

**Chapter 6 List of Acronyms.** This chapter provides a list of abbreviations used throughout the document.

**Chapter 7 References.** This chapter identifies resources used in the preparation of this document.

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# CHAPTER 2

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## Project Description

### 2.1 Project Location

The proposed Project is located along Waterman Road between Bond Road and Sheldon Road in the City of Elk Grove in Sacramento County (**Figure 2-1** and **Figure 2-2**). The Project is located in an area of agricultural-residential, agricultural, and various residential land uses in the northeastern region of the City. Near Sheldon Road, the Project connects to an existing roundabout at the intersection of Sheldon Road and Waterman Road.

### 2.2 Project Description

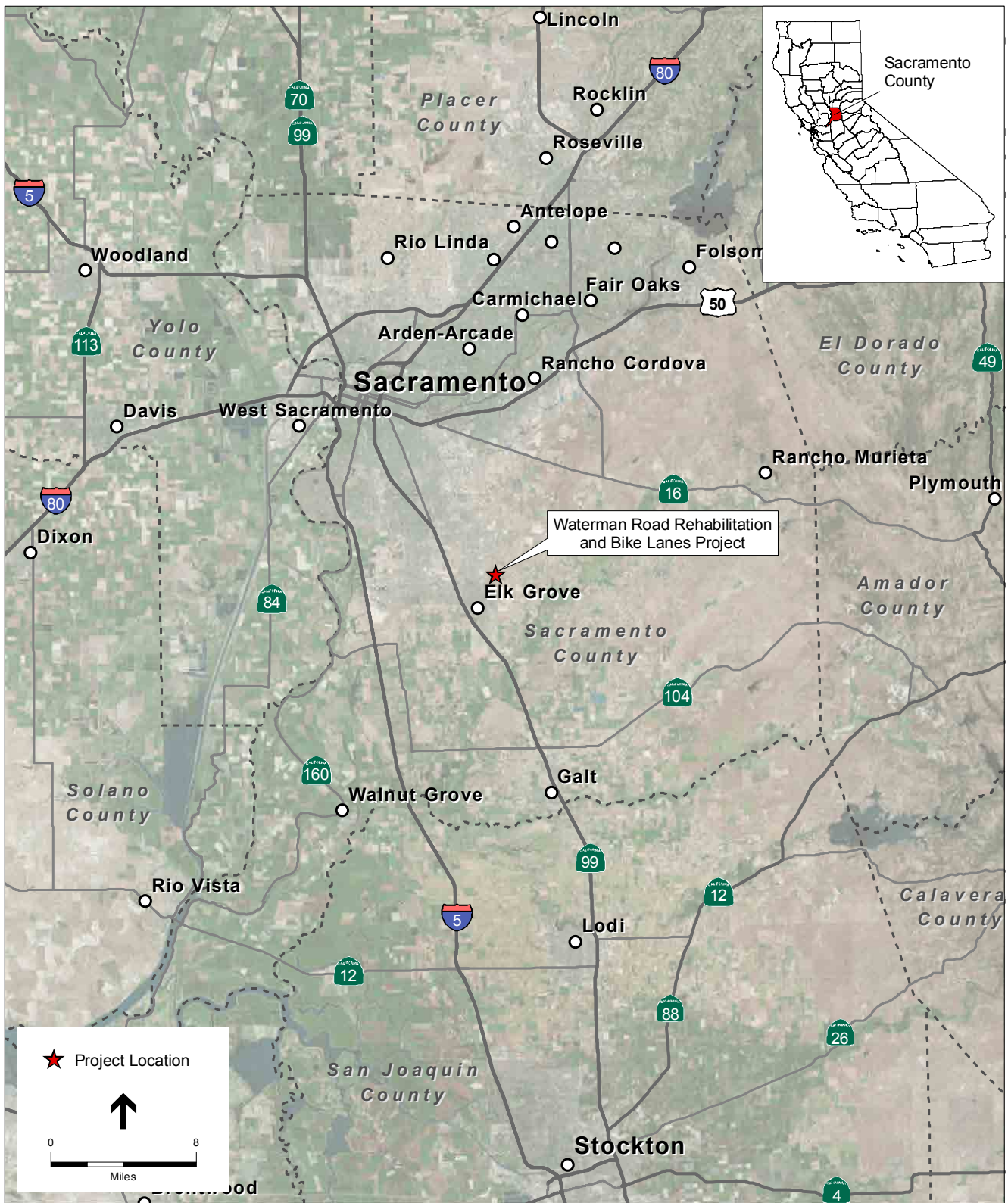
#### 2.2.1 Existing Setting

The proposed Project is located in the Rural Sheldon Area of the City. Existing land uses surrounding the Project area include agricultural-residential, agricultural, low-density residential, estate residential, and commercial/office/multi-family residential. An overhead Western Area Power Administration (WAPA) transmission line crosses over the Project area. Planned and ongoing development in the Project vicinity include: a planned single-family residential development, Silverado Village, is located north of Bond Road and west of Waterman Road and was approved by the City Council in 2014; a commercial development at the northwest corner of Bond and Waterman roads; and the Sheldon and Waterman Subdivision to the east of the northern portion of the Project area, south of Sheldon Road (**Figure 2-3**).

Waterman Road is a two-lane (each 10 feet wide) rural roadway that runs north/south and provides local access to industrial, residential, and agricultural land uses. Waterman Road is ultimately planned as a four-lane arterial in the *City of Elk Grove General Plan Circulation Element*, but traffic volumes would need to reach the level indicated in the *Rural Road Improvement Standards* (City of Elk Grove 2007) before those improvements would be added.

#### 2.2.2 Proposed Project

The City proposes to rehabilitate and improve Waterman Road between Bond Road and Sheldon Road. The proposed Project will accommodate a single vehicle lane in each direction, with bike lanes on the associated shoulders in each direction. The existing lanes will be resurfaced and widened to meet current City rural road design standards. Near Sheldon Road, the Project will connect to an existing roundabout at the intersection of Sheldon Road and Waterman Road (**Figure 2-4**).



SOURCE: i-cubed, 1999; ESRI, 2012; ESA, 2016

Waterman Road Rehabilitation and Bike Lanes IS/MND . 150620

**Figure 2-1**  
Regional Vicinity



SOURCE: Google, 2017; BENEN, 2016; ESA, 2017

Waterman Road Rehabilitation and Bike Lanes IS/MND . 150620

**Figure 2-2**  
Project Location



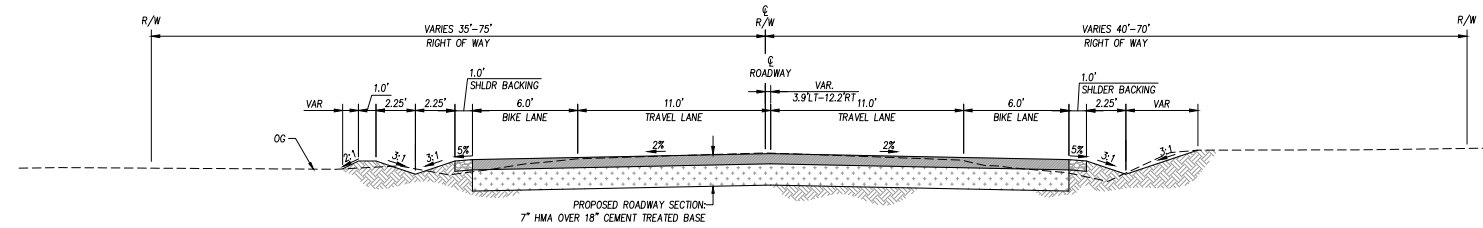


SOURCE: Google, 2017; BENEN, 2016; ESA, 2017

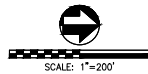
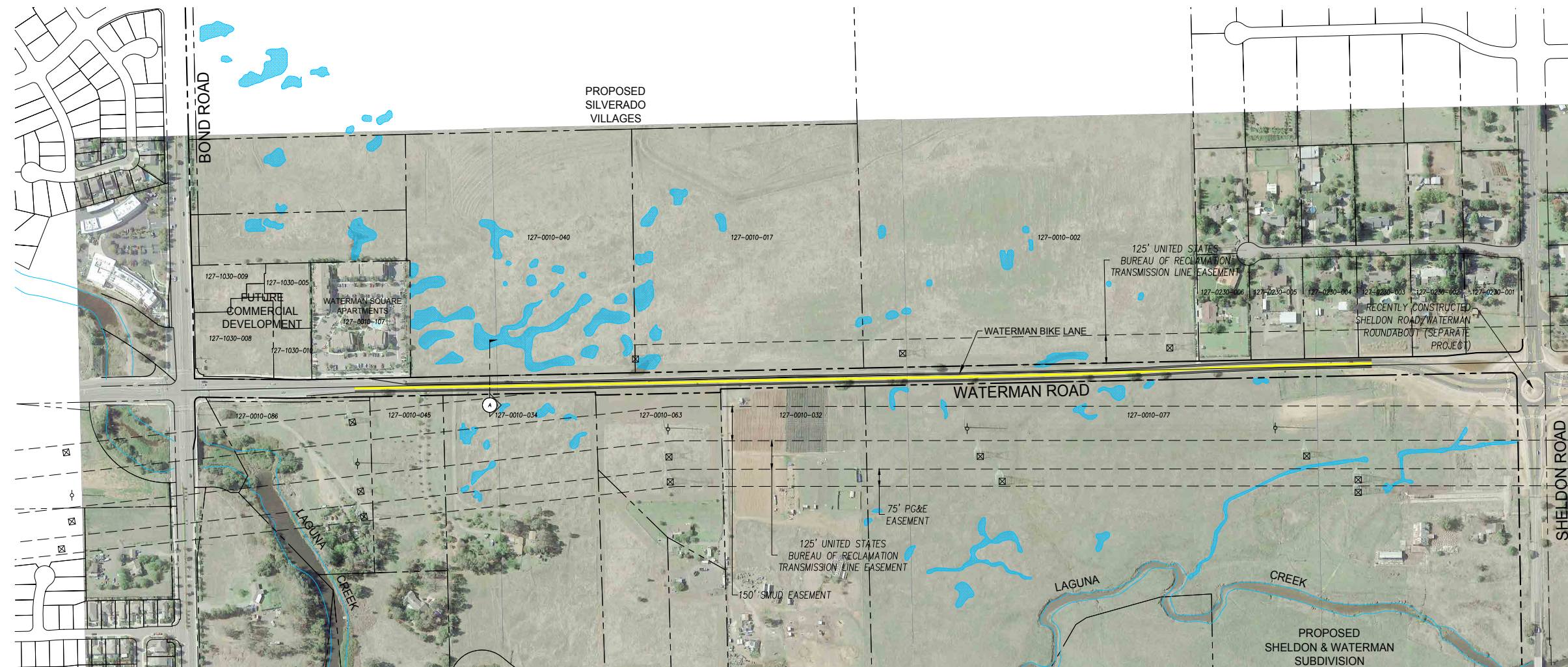
Waterman Road Rehabilitation and Bike Lanes IS/MND . 150620

**Figure 2-3**  
Project Area Development





- LEGEND**
- VERNAL POOL
  - UTILITY TOWER
  - UTILITY POLE
  - RIGHT-OF-WAY
  - PARCEL LINES
  - EASEMENTS



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Within the Project area, Waterman Road currently consists of two, 10-foot wide travel lanes with unpaved roadside shoulders measuring approximately 5-foot wide (including roadside ditches), when present. The proposed Project will widen each vehicle lane to 11 feet wide, and add 6 feet wide bike lanes on the shoulders, and associated 1-foot wide shoulder backing in each direction. Existing roadside ditches will be relocated to between 5 and 10 feet out from their current position to accommodate the expanded road and shoulders.

The existing lanes will also be resurfaced. At the north end of the Project area, the Project will connect to an existing roundabout at the intersection of Sheldon Road and Waterman Road. The Project is expected to occur solely in the current City right-of-way (ROW). Permits to Enter (PTEs) will be obtained in order to conform existing driveways to the new roadway and to reinstall the fencing along the City ROW boundary.

## 2.3 Funding

The City will use local funds and Regional Surface Transportation Program grant funds previously programmed by the Sacramento Area Council of Governments (SACOG) as well as funds from a Rubberized Asphalt Concrete (RAC) Grant through CalRecycle for the use of RAC for the roadway.

## 2.4 Project Construction

Analysis contained in this IS/MND has taken into consideration activities within the entire Project area and all mitigation measures included as part of the Project would be implemented throughout these areas. Construction staging will either be located within the City ROW, or if the contractor elects to conduct construction staging on an adjacent parcel outside of the City ROW, then the construction contractor will obtain the appropriate approvals prior to construction.

Construction would begin with the installation of construction and detour signs (if required), followed by full roadway closure, or partial lane closures, to conduct grinding and road preparation. Existing roadside ditches would be filled and then re-excavated approximately 5 to 10 feet out from the current alignment to allow for an additional 5 to 6 feet of pavement on each side of the roadway in order to accommodate bicycle lanes. Existing manholes and pullboxes may be adjusted, as needed. Existing drainage cross culverts will be replaced. The road would be re-paved and one foot of shoulder backing would also be added as would the relocated unpaved drainage ditches, which would have a slope of approximately 4:1 on the roadside, and 2:1 on the back slope. Staging of equipment would occur within existing City ROW and is included in this analysis, or in parcel(s) adjacent to the Project area, which would be environmentally-cleared by the construction contractor prior to their use. There are no permanent closures of permitted driveways anticipated to be required as part of the Project. There will be temporary closures of driveways for short durations (likely less than 4 hours at a time).

Construction of the Project is anticipated to take approximately 60 to 80 days, and is scheduled for 2018. Full lane closures may occur for up to 30 days with potential partial lane closures

occurring in advance of or after the full lane closure period. Construction will be limited to between 6:00 AM and 8:00 PM on weekdays. Excavators, compactors, grinding machines, backhoes, bobcats, pavement scarifiers, rollers, and scrapers are potential large equipment to be used on the Project. Project construction could occur either at once (continuous) or in stages, depending on timing and scheduling constraints. Utility relocations will be coordinated with the corresponding utility companies and relocated prior to Project construction.

## 2.5 Required Project Approvals

As a requirement for implementation of the Project, the following permits, approvals, and concurrences would be required from the following agencies:

- City of Elk Grove City Council – Adoption of the MND; Mitigation, Monitoring, and Reporting Program (MMRP), and other actions associated with Project approval
- U.S. Fish and Wildlife Service (USFWS) – Federal Endangered Species Act (ESA) Section 7 Biological Opinion (BO)
- Caltrans National Environmental Policy Act (NEPA) Review: Categorical Exclusion (CE)
- Army Corps of Engineers (Corps) – CWA Section 404 Nationwide Permit 14
- Central Valley Regional Water Quality Control Board (CVRWQCB) – Clean Water Act (CWA) Section 401 Water Quality Certification Permit

## 2.6 California Native America Tribal Consultation

California Native American tribes that are traditionally and culturally affiliated with the Project area have requested consultation pursuant to Public Resources Code Section 2100.3.1 and consultation has concluded at the time of this IS/MND. The State of California Native American Heritage Commission (NAHC) was contacted and provided a list of Native American tribes traditionally and culturally affiliated with the Project area. Three of the California Native American tribes identified by the NAHC had previously contacted the City requesting to be notified of and consulted regarding proposed projects within the City's jurisdiction, pursuant to Public Resources Code section 21080.3.1(b)(1): Ione Band of Miwok Indians, United Auburn Indian Community of the Auburn Rancheria, and Wilton Rancheria. Letters with information on the Project and requesting that tribes contact the City with any concerns regarding potential impacts to cultural resources, including tribal cultural resources, were sent to each of the three tribes. Follow-up phone calls were also made to each of the three tribes. None of the tribes expressed concerns regarding potential impacts to tribal cultural resources that could result from the Project. Consultation has been concluded.

## 2.7 Other Project Assumptions

This IS/MND complies with all applicable state, federal, and local codes and regulations including but not limited to the City of Elk Grove Improvement Standards, the Sacramento County Water

Agency Code, the Guidance Manual for On-Site Storm Water Quality Control Measures, the California Health and Safety Code, and the California Public Resources Code.

## 2.8 Technical Studies

The following technical studies were conducted in support of this IS/MND:

- Visual Impact Assessment Memorandum, Environmental Science Associates (ESA), June 2016
- Archaeological Study Report (ASR)/Historic Property Survey Report (HPSR), Environmental Science Associates (ESA), October 2016
- Natural Environment Study (NES), Area West Environmental, December 2016
- Wetland Delineation, Environmental Science Associates (ESA), January 2017
- Biological Assessment (BA), Environmental Science Associates (ESA), February 2017
- Water Quality Technical Memorandum, Environmental Science Associates (ESA), February 2017

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# CHAPTER 3

## Initial Study Checklist

The environmental factors checked below would be potentially affected by this project as indicated by the checklist on the following pages.

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

### DETERMINATION:

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, nothing further is required.

  
 \_\_\_\_\_  
 Signature

10/13/2017  
 \_\_\_\_\_  
 Date

Kevin Bewsey, P.E.  
 \_\_\_\_\_  
 Printed Name

City of Elk Grove  
 \_\_\_\_\_  
 For

### 3.1 Aesthetics

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>1. 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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

This section relies upon the information and findings presented in the Visual Impact Assessment Technical Memorandum prepared for the Project: *Scenic Resource Evaluation and Visual Impact Assessment for the Waterman Road Rehabilitation and Bike Lanes Project [STPL-5479(049)]* (ESA 2016a).

### Environmental Setting

The proposed Project is located in the Rural Sheldon Area of the City. Existing land uses surrounding the Project area include agricultural-residential, agricultural, low-density residential, estate residential, and commercial/office/multi-family residential. Waterman Road is a two-lane rural roadway that runs north to south.

The Project area is situated on the broad, flat plain, and terrain is generally flat. Waterman Road is surrounded by grazing land, with a multi-family complex near Bond Road and utility transmission poles and lines as well as tall metal transmission towers on both sides of the roadway. There are no existing scenic resources or scenic vistas in the Project vicinity and Waterman Road is not a designated scenic route. No state scenic highways are in or adjacent to the Project site.

### Discussion of Impacts

a) *Would the project have a substantial adverse effect on a scenic vista?*

**No Impact.** The Project would not have a substantial adverse effect on a scenic vista. Scenic vistas generally include areas that are designated by a local jurisdiction to have scenic or community value, but may also include areas that have a high level of viewer sensitivity. For the purposes of this analysis, a scenic vista is defined as a vantage point with a broad and expansive view of a significant landscape feature (e.g., a mountain range, lake, or coastline) or of a significant historic or architectural feature (e.g., views of a historic tower). A scenic vista is a location that offers a high quality, harmonious, and visually interesting view. The Project site is generally flat and contains no views of surrounding areas due to topography, existing buildings, and trees. The existing surroundings are not identified as scenic vistas or views in the *City of Elk Grove General Plan* (City of Elk Grove 2003) or by regulatory

agencies with jurisdiction over the Project site. Therefore, the Project would have no impact on a scenic vista.

- b) *Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

**No Impact.** The Project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. No scenic resources were identified within the Project area, as stated in the Visual Impact Assessment Technical Memorandum prepared for the Project (ESA 2016a). The nearest highway to the Project is State Route (SR) 99, which is located approximately 2.45 miles east of the project. Highway 99 is not designated as a state scenic highway by the California Department of Transportation (Caltrans) (Caltrans 2016). The closest designated state Scenic Highway is SR 160, approximately 8.15 miles east of the Project. Therefore, the Project would result in no impact to scenic resources.

- c) *Would the project substantially degrade the existing visual character or quality of the site and its surroundings?*

**Less than Significant with Mitigation.** The proposed Project would rehabilitate the existing roadway and add striped bicycle lanes to the existing Waterman Road. The Project would not result in substantial adverse impacts to the visual environment. Changes to existing vertical clearances from the overhead WAPA transmission line (approximately 40 feet overhead) and the existing horizontal width of the roadway would be minimized and would only slightly alter the current visual landscape since Waterman Road is an existing facility. Re-seeding would restore the site to a natural condition, making it more consistent with the agricultural and rural aesthetic of the area. However, construction and tree removal may contribute to moderate changes to the visual character of the Project site.

The Project will comply with the City's *Rural Road Improvement Policy* and *Rural Road Improvement Standards* (City of Elk Grove 2007), which identifies street design, landscaping, and drainage standards that ensure the visual character of the rural community. As such, materials and design of site features would be appropriate for the rural visual character of the Project surroundings.

Additionally, the proposed Project is consistent with and would comply with the *City of Elk Grove General Plan* (City of Elk Grove 2003) and the City's *Bicycle, Pedestrian, and Trails Master Plan* (City of Elk Grove 2014), which guide development in the City through the implementation of local standards and goals and would, therefore, ensure that the Project does not substantially degrade the existing visual character or quality of the site and its surroundings.

Through compliance with the Rural Road Improvement Standards, the City General Plan, and the City's Bicycle Master Plan in addition to implementation of mitigation measures **MM AES-1, MM AES-2, and MM AES-3**, impact to the visual character or quality of the site and its surroundings would reduce impacts to a less than significant level.

- d) *Would the project create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?*

**Less than Significant with Mitigation.** Existing nighttime light sources in the Project area are limited due to the rural setting with the primary source being from vehicle headlights. There are no existing streetlights or traffic lights within the Project site and no lighting or traffic lights are proposed as a part of the Project. The addition of paved surface area and the removal of vegetation could result in additional glare from vehicle headlights, but the increase in glare would be minimal as the roadway would remain at its existing vehicle capacity. The Project would add approximately 1 acre of additional impervious area to approximately 6 acres of existing impervious area, however the roadway is an existing source of glare and asphalt concrete is considered a low-sheen and non-reflective surface material. It's black color absorbs light unlike much lighter colors such as white. Due to these properties asphalt concrete is not typically considered a source of glare. Implementation of mitigation measures **MM AES-1** and **MM AES-2** would reduce glare from vehicle headlights to the surrounding community to a less than significant level through the avoidance of vegetation removal, where feasible, and reseeded where removal is required. The Project would not create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.

## Mitigation Measures

- MM AES-1** Restore Disturbed Areas to Preconstruction Condition. All areas disturbed or areas used for staging of vehicles and equipment shall be restored to their preconstruction condition upon completion of the Project. This will assist in providing sediment control and soil stabilization, which can best be accomplished by reseeded the disturbed areas to cover bare soil to help prevent soil erosion where feasible.

*Timing/Implementation:* During and after construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

- MM AES-2** Minimize Removal of Established Vegetation. The removal of established vegetation shall be minimized and avoided where feasible. Orange construction fencing shall be installed to identify areas where vegetation is being preserved in areas where vegetation removal may be avoided near the Project site. Locations where this is feasible will be determined during final design.

*Timing/Implementation:* Prior to and during Construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

- MM AES-3** Comply with the City's Land Grading and Erosion Control Chapter of the Elk Grove Municipal Code (Code). The Project shall comply with the City's Land Grading and Erosion Control requirements outlined in Chapter 16.44 of the Elk Grove Municipal Code, which may include seeding, mulching, vegetative buffer strips, sod, plastic covering, burlap covering, watering, and other measures for temporary erosion control of disturbed areas during construction.

*Timing/Implementation:* During Construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department



## 3.2 Agricultural and Forestry Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>2. AGRICULTURAL AND FORESTRY RESOURCES — 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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>

### Environmental Setting

While several land uses within the Project vicinity are related to agriculture, these existing agricultural land uses are considered fallow (vacant or underutilized) and currently do not support crops or other agricultural operations. Parcels in the Project area are not enrolled in a Williamson Act contract and the nearest parcel that is enrolled in an active Williamson Act contract is located at the northeast corner of the Bader Road/Bond Road intersection, which is approximately 1.5 miles east of the Project site (State Department of Conservation 2015a). Parcels adjacent to the Project area are mapped as Other Land and Urban and Built-Up Land by the Farmland Mapping & Monitoring Program (FMMP) (State Department of Conservation 2015b). A parcel approximately 800 feet to the east of the Project site is the nearest parcel zoned for agricultural use and is also considered to be Farmland of Local Importance by the FMMP, but the Project does not impact this parcel.

The existing trees in the Project area are not considered to be forestry resources per definitions of Public Resources Code (PRC) Section 12220(g), timberland as defined by PRC Section 4526, or timberland zoned Timberland Production per Government Code Section 51104(g).

## Discussion of Impacts

- a) *Would the project 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?*

**No Impact.** According to the 2014 FMMP from the State Department of Conservation, the Project site is in an area that is designated as Urban and Built-Up Land and Other Land. These designations are not farmland; therefore, the Project would have no impact on farmlands.

- b) *Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

**No Impact.** As previously described, the parcels adjacent to the Project are not under a Williamson Act contract. The surrounding parcels are not zoned for agricultural use; they are currently zoned for Agricultural Residential (AR-2 and AR-5), Open Space (O), Shopping Center (SC), and Low-Density Residential (RD-4 and RD-5) (City of Elk Grove 2004). The Project involves the rehabilitation of an existing roadway and addition of bicycle lanes within the existing City ROW zoned for this type of Project. The construction of the Project would not result in the conversion of farmland to a nonagricultural use, nor would the Project require any revisions to existing zoning designations. Accordingly, the Project would have no impact on agricultural resources.

- c) *Would the project conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production?*

**No Impact.** The Project site is not used for growing a crop of trees for commercial lumber or other forest products; therefore, the Project site is not considered timberland. PRC Section 12220(g) defines forested land as land that can support 10 percent native tree cover of any species. By this definition, the Project site is not considered forest land. As the Project will be constructed within existing City ROW zoned for this type of Project, the Project would not require any revisions to existing zoning designations. As such, the Project would not conflict with existing zoning for forest land or timberland and no impact would occur.

- d) *Would the project result in the loss of forest land or conversion of forest land to non-forest use?*

**No Impact.** The Project would result in the removal of existing trees; however, these trees are not considered to be part of forest land. As such, the Project would have no impact on the loss of forest land or the conversion of forest land to nonforest use.

- e) *Would the project 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?*

**No Impact.** As discussed above, the Project would not involve changes in the existing environment that could result in the conversion of farmland to nonagricultural use or the conversion of forest land to nonforest use. The Project site does not contain agricultural resources and none are proposed under the Project. Although several trees exist at the Project site, they are not considered a forestry resource. As such, the Project would have no impact on the conversion of agricultural and forest land.

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### 3.3 Air Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>3. AIR QUALITY — Would the project:</b>				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<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"/>

### Environmental Setting

The Project is located within Sacramento County in the Sacramento Valley Air Basin (SVAB) in an area under jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD) at the local level, the California Air Resources Board (ARB) at the state level, and the U.S. Environmental Protection Agency (EPA) at the federal level.

### Regulatory Setting

Commonly used indicators of ambient air quality conditions are existing concentrations of the following criteria pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), lead, and particulate matter (PM). For particulate matter, two types are considered: less than or equal to 10 microns in diameter (PM<sub>10</sub>) and particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>). These criteria pollutants are regulated by the EPA and ARB through national and California ambient air quality standards (NAAQS and CAAQS), respectively. The ARB and SMAQMD are responsible for ensuring these standards are met.

Ozone and NO<sub>2</sub> are considered regional pollutants because they or their precursors affect air quality on a regional scale. Nitrogen oxides (NO<sub>x</sub>) react photochemically with reactive organic gases (ROG) to form ozone. This reaction occurs at some distance downwind of the source of pollutants. Pollutants such as CO, SO<sub>2</sub>, and lead are considered to be local pollutants that tend to accumulate in the air locally. Particulate matter is considered to be a local as well as a regional pollutant. The primary pollutants of concern in the Project area are ozone, ROG, NO<sub>x</sub>, CO, and PM.

In addition, toxic air contaminants (TACs) are of concern in the Project area. Effects from TACs tend to be local rather than regional. The health effects of TACs can result from either acute or chronic exposure. Many types of cancer are associated with chronic TAC exposures. The majority of the estimated health risks from TACs can be attributed to a relatively few compounds,

the most important being particulate matter from diesel-fueled engines (“diesel particulate matter” or DPM). There are no ambient air quality standards established for TACs.

### ***Federal and State Air Quality Regulations***

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act is its companion state law. These laws, and related regulations by the EPA and ARB, set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: CO, NO<sub>2</sub>, ozone (O<sub>3</sub>), PM, and SO<sub>2</sub>. In addition, national and state standards exist for lead (Pb) and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H<sub>2</sub>S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition. Refer to **Table 3.3-1** for State and Federal criteria air pollutant standards, effects, and sources.

### ***Sacramento Metropolitan Air Quality Management District***

The SMAQMD is the regional agency responsible for air quality regulation within the SVAB. The SMAQMD regulates air quality through its planning and review activities and has permit authority over most types of stationary emission sources and can require operators of stationary sources to obtain permits, can impose emission limits, set fuel or material specifications, and establish operational limits to reduce air emissions. The SMAQMD regulates new or modified stationary sources of TACs.

For state air quality planning purposes, Sacramento County is classified as a severe non-attainment area for ozone. The “severe” classification triggers various plan submittal requirements and transportation performance standards. In order to demonstrate the District’s ability to eventually meet the federal ozone standards, the SMAQMD, along with the other air districts in the nonattainment area, maintains the region’s portion of the SIP for ozone. The Sacramento Air Basin’s part of the SIP is a compilation of regulations that govern how the region and State will comply with the FCAA requirements to attain and maintain the federal ozone standard. The compilation of rules that comprises the Sacramento Nonattainment Area’s portion of the SIP is contained in the Sacramento Area Regional Ozone Attainment Plan. The latest revisions made to the SIP include the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2013 SIP Revisions), which addresses attainment of the federal 8-hour ozone standard, as well as the 2009 Triennial Report and Plan Revision, which addresses attainment of the state ozone standard, are the latest plans issued by the SMAQMD.

**TABLE 3.3-1  
STATE AND FEDERAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES**

Pollutant	Averaging Time	State Standard	Federal Standard	Principal Health and Atmospheric Effects	Typical Sources
Ozone (O <sub>3</sub> )	1 hour	0.09 ppm <sup>3</sup>	--- <sup>4</sup>	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NO <sub>x</sub> ) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.
	8 hours	0.070 ppm	0.070 ppm (4th highest in 3 years)		
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.
	8 hours	9.0 ppm <sup>1</sup>	9 ppm		
	8 hours (Lake Tahoe)	6 ppm	---		
Respirable Particulate Matter (PM <sub>10</sub> ) <sup>5</sup>	24 hours	50 µg/m <sup>3</sup> <sup>6</sup>	150 µg/m <sup>3</sup> (expected number of days above standard < or equal to 1)	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic & other aerosol and solid compounds are part of PM <sub>10</sub> .	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.
	Annual	20 µg/m <sup>3</sup>	--- <sup>5</sup>		
Fine Particulate Matter (PM <sub>2.5</sub> ) <sup>5</sup>	24 hours	---	35 µg/m <sup>3</sup>	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the PM <sub>2.5</sub> size range. Many toxic & other aerosol and solid compounds are part of PM <sub>2.5</sub> .	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NO <sub>x</sub> , sulfur oxides (SO <sub>x</sub> ), ammonia, and ROG.
	Annual	12 µg/m <sup>3</sup>	12.0 µg/m <sup>3</sup>		
	24 hours (conformity process <sup>7</sup> )	---	65 µg/m <sup>3</sup>		
	Secondary Standard (annual; also for conformity process <sup>5</sup> )	---	15 µg/m <sup>3</sup> (98th percentile over 3 years)		
Nitrogen Dioxide (NO <sub>2</sub> )	1 hour	0.18 ppm	0.100 ppm <sup>8</sup>	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NO <sub>x</sub> " group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.
	Annual	0.030 ppm	0.053 ppm		
Sulfur Dioxide (SO <sub>2</sub> )	1 hour	0.25 ppm	0.075 ppm <sup>9</sup> (99th percentile over 3 years)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.
	3 hours	---	0.5 ppm <sup>10</sup>		
	24 hours	0.04 ppm	0.14 ppm (for certain areas)		
	Annual	---	0.030 ppm (for certain areas)		

**TABLE 3.3-1 (CONTINUED)**  
**STATE AND FEDERAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES**

Pollutant	Averaging Time	State Standard	Federal Standard	Principal Health and Atmospheric Effects	Typical Sources
Lead (Pb) <sup>11</sup>	Monthly	1.5 µg/m <sup>3</sup>	---	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.
	Calendar Quarter	---	1.5 µg/m <sup>3</sup> (for certain areas)		
	Rolling 3-month average	---	0.15 µg/m <sup>3</sup> <sup>12</sup>		
Sulfate	24 hours	25 µg/m <sup>3</sup>	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.
Hydrogen Sulfide (H <sub>2</sub> S)	1 hour	0.03 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.
Visibility Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more  (Tahoe: 30 miles) at relative humidity less than 70%	---	Reduces visibility. Produces haze.  NOTE: not directly related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	See particulate matter above.  May be related more to aerosols than to solid particles.
Vinyl Chloride <sup>11</sup>	24 hours	0.01 ppm	---	Neurological effects, liver damage, cancer.  Also considered a toxic air contaminant.	Industrial processes

NOTES: ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter; ppb=parts per billion (thousand million)

<sup>1</sup> State standards are "not to exceed" or "not to be equaled or exceeded" unless stated otherwise.

<sup>2</sup> Federal standards are "not to exceed more than once a year" or as described above.

<sup>3</sup> ppm = parts per million

<sup>4</sup> Prior to 6/2005, the 1-hour ozone NAAQS was 0.12 ppm. Emission budgets for 1-hour ozone are still being in use in some areas where 8-hour ozone emission budgets have not been developed, such as the S.F. Bay Area.

<sup>5</sup> Annual PM<sub>10</sub> NAAQS revoked October 2006; was 50 µg/m<sup>3</sup>. 24-hr. PM<sub>2.5</sub> NAAQS tightened October 2006; was 65 µg/m<sup>3</sup>. Annual PM<sub>2.5</sub> NAAQS tightened from 15 µg/m<sup>3</sup> to 12 µg/m<sup>3</sup> December 2012 and secondary annual standard set at 15 µg/m<sup>3</sup>.

<sup>6</sup> µg/m<sup>3</sup> = micrograms per cubic meter

<sup>7</sup> The 65 µg/m<sup>3</sup> PM<sub>2.5</sub> (24-hr) NAAQS was not revoked when the 35 µg/m<sup>3</sup> NAAQS was promulgated in 2006. The 15 µg/m<sup>3</sup> annual PM<sub>2.5</sub> standard was not revoked when the 12 µg/m<sup>3</sup> standard was promulgated in 2012. The 0.08 ppm 1997 ozone standard is revoked FOR CONFORMITY PURPOSES ONLY when area designations for the 2008 0.75 ppm standard become effective for conformity use (7/20/2013). Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for newer NAAQS are found adequate. SIP amendments for the newer NAAQS are approved with an emission budget, EPA specifically revokes conformity requirements for an older standard, or the area becomes attainment/unclassified. SIP-approved emission budgets remain in force indefinitely unless explicitly replaced or eliminated by a subsequent approved SIP amendment. During the "Interim" period prior to availability of emission budgets, conformity tests may include some combination of build vs. no build, build vs. baseline, or compliance with prior emission budgets for the same pollutant.

<sup>8</sup> Final 1-hour NO<sub>2</sub> NAAQS published in the Federal Register on 2/9/2010, effective 3/9/2010. Initial area designation for California (2012) was attainment/unclassifiable throughout. Project-level hot spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause re-designation to nonattainment in some areas after 2016.

<sup>9</sup> EPA finalized a 1-hour SO<sub>2</sub> standard of 75 ppb (parts per billion [thousand million]) in June 2010. Nonattainment areas have not yet been designated as of 9/2012.

<sup>10</sup> Secondary standard, set to protect public welfare rather than health. Conformity and environmental analysis address both primary and secondary NAAQS.

<sup>11</sup> The ARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM<sub>10</sub> and, in larger proportion, PM<sub>2.5</sub>. Both the ARB and U.S. EPA have identified lead and various organic compounds that are precursors to ozone and PM<sub>2.5</sub> as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong.

<sup>12</sup> Lead NAAQS are not considered in Transportation Conformity analysis.

SOURCE: Caltrans 2015.

These attainment plans depend heavily on the SMAQMD's permit authority, which is exercised through SMAQMD's rules and regulations. Equipment used during Project construction would be subject to the requirements of SMAQMD Regulation 2 (Permits), Rule 201 (General Permit Requirements); Regulation 4 (Prohibitory Rules), Rule 401 (Ringelmann Chart/Opacity), Rule 402 (Nuisance), Rule 403 (Fugitive Dust), Rule 404 (Particulate Matter), Rule 405 (Dust and Condensed Fumes), Rule 411 (Boiler NOx), Rule 420 (Sulfur Content of Fuels), Rule 442 (Architectural Coatings), and Rule 453 (Cutback and Emulsified Asphalt Paving Materials).

## Existing Ambient Air Quality

As shown in **Table 3.3-2**, the SMAQMD is classified as non-attainment for ozone (state and federal), PM<sub>10</sub> (state and federal), and PM<sub>2.5</sub> (federal). Federal and state air quality laws require regions designated as nonattainment to prepare plans that either demonstrates how the region will attain the standard or that demonstrate reasonable improvement in air quality conditions. As noted, the SMAQMD is responsible for developing attainment plans for the SMAQMD, for inclusion into California's State Implementation Plan (SIP).

**TABLE 3.3-2  
SACRAMENTO AIR QUALITY MANAGEMENT DISTRICT (SMAQMD) ATTAINMENT STATUS**

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone – one hour	No Federal Standard	Nonattainment
Ozone – eight hour	Nonattainment	Nonattainment
PM <sub>10</sub>	Attainment	Nonattainment
PM <sub>2.5</sub>	Nonattainment	Attainment
CO	Attainment/Unclassified	Attainment
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Unclassified	Attainment
Lead	Unclassified/Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified

SOURCE: ARB 2016.

## Discussion of Impacts

- a) *Would the project conflict with or obstruct implementation of the applicable air quality plan?*

**No Impact.** The Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2013 SIP Revisions) (SMAQMD 2013), which addresses attainment of the federal 8-hour ozone standard, and the 2015 Triennial Report and Plan Revision (SMAQMD 2009), are the latest plans issued by the SMAQMD, which incorporate land use assumptions



and travel demand modeling from the Sacramento Area Council of Governments (SACOG). To determine compliance with the applicable air quality plan, the SMAQMD recommends comparing the Project to the SACOG growth projections included in the *Metropolitan Transportation Plan/Sustainable Communities Strategy* (MTP/SCS) (SACOG 2016), a comparison of the Project's projected vehicle-miles travelled (VMT) and population growth rate. There would be no employment, housing units, or population generated by the proposed Project. In addition, the proposed Project would only consist of the resurfacing and widening of Waterman Road to add bicycle lanes and would not result in an increase in daily VMT. In fact the widening would allow for the possibility of reduction in VMTs because it allows individuals to use their bicycles instead of vehicles. Therefore, the proposed Project would not conflict with or obstruct implementation of applicable air quality plans and would result in no impact.

b) *Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

**Less than Significant with Mitigation.** Construction of the proposed Project is anticipated to take approximately 60 to 80 days, and is scheduled for 2018. Construction emissions were estimated for the proposed Project using the methods contained in SMAQMD's *Guide to Air Quality Assessment in Sacramento County* (SMAQMD 2009). The California Emissions Estimator Model (CalEEMod v2016.3.1) was used to quantify construction NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from off-road equipment, haul trucks on-road worker trips associated with roadway construction. The construction emissions for the worst-case day for each construction year compared to SMAQMD significance thresholds can be found in **Table 3.3-3**.

**TABLE 3.3-3  
MAXIMUM DAILY CONSTRUCTION EMISSIONS (POUNDS PER DAY)**

Construction Year	NO <sub>x</sub> (ppd)	PM <sub>10</sub> (ppd)	PM <sub>2.5</sub> (ppd)	PM <sub>10</sub> (tpy)	PM <sub>2.5</sub> (tpy)
2018	48.3	<b>20.8</b>	<b>12.3</b>	<b>0.2</b>	<b>0.1</b>
SMAQMD Thresholds without BMP <sup>3</sup>	85	0	0	0	0
Significant (Yes or No)?	No	Yes	Yes	Yes	Yes
SMAQMD Thresholds with BMP <sup>3</sup>	85	80	82	14.6	15
Significant (Yes or No)?	No	No	No	No	No

NOTES:

- Project construction emissions estimates were made using CalEEMod version 2016.2.1. See Appendix AQ for model outputs and more detailed assumptions.
- Values in bold are in excess of the applicable SMAQMD significance threshold without implement their Best Available Practices (BMP).
- SMAQMD has established a zero emissions threshold for PM<sub>10</sub> and PM<sub>2.5</sub> when a project does not implement their Best Available Practices (BMP).

SOURCE: ESA, 2017

As shown in Table 3.3-3, construction emission of PM<sub>10</sub> and PM<sub>2.5</sub> would exceed the SMAQMD's zero pounds per day significance threshold. Since the Project construction activities would result in PM<sub>10</sub> and PM<sub>2.5</sub> emissions greater than zero pounds per day, the proposed Project would result in a potentially significant impact.

According to the SMAQMD CEQA guidance, Project-related construction emissions that exceed zero pounds per day of PM<sub>10</sub> and PM<sub>2.5</sub> would result in a significant impact, unless all feasible Best Management Practices (BMPs) are implemented. After implementation of all of SMAQMD's BMPs that are feasible to the Project (as specified in **MM AQ-1**), the SMAQMD's significance threshold for PM<sub>10</sub> and PM<sub>2.5</sub> increases to 80 pounds per day (14.6 tons per year) of PM<sub>10</sub> and 82 pounds per day (15 tons per year) of PM<sub>2.5</sub>. As shown in Table 3.3-3, after the implementation of mitigation measure **MM AQ-1**, which requires the applicant to include specific Best Available Control Technology (BACT)/BMPs to control construction emissions through maintenance of the construction site and vehicle restrictions, PM<sub>10</sub> and PM<sub>2.5</sub> emissions generated during Project construction would be below the SMAQMD mitigated threshold.

- c) *Would the project Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?*

**Less than Significant.** Since the SMAQMD is designated as nonattainment for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>, a cumulative significant air quality impact currently exists. According to the SMAQMD's *Guide to Air Quality Assessment in Sacramento County*, if a project's emissions are not anticipated to exceed the SMAQMD criteria pollutant significance thresholds, the project would not be expected to result in a cumulatively considerable contribution to the significant cumulative impact (SMAQMD 2009).

As shown in Table 3.3-3, Project construction emissions of PM<sub>10</sub> and PM<sub>2.5</sub> would exceed SMAQMD's zero pounds per day significance threshold. Although the Project construction emissions of PM would be greater than zero pounds per day, the unmitigated emissions of PM<sub>2.5</sub> and PM<sub>10</sub> would not exceed the SMAQMD's mitigated threshold. In addition, the proposed Project would not conflict with the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan or the 2015 Triennial Report and Plan Revision since the Project would not result in an increase in VMT. Therefore, the Project's contribution would not be cumulatively considerable, and the impact would be considered less than significant.

- d) *Would the project expose sensitive receptors to substantial pollutant concentrations?*

**Less than Significant.** Construction of the Project would result in short-term DPM exhaust emissions from on-site heavy-duty equipment. DPM is a designated TAC. Exposure of sensitive receptors—such as the adjacent and nearby residences—is the primary factor used to determine health risk. Exposure is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. A longer

exposure period would result in a higher exposure level. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the Project. Thus, the duration of the proposed construction activities (up to 80 days) would only constitute a small percentage of the total 30 year exposure period (OEHHA, 2015). Roadway improvements would likely take at most 80 days to complete, resulting in a limited exposure window for a given receptor. Given the short duration of exposure and limited equipment involved, DPM from construction activities is not anticipated to result in the exposure of sensitive receptors to levels that exceed applicable standards. Therefore, this impact would be less than significant impact.

e) *Would the project create objectionable odors affecting a substantial number of people?*

**Less than Significant.** The SMAQMD has identified typical odor sources in its *CEQA Guide to Air Quality Assessment in Sacramento County* (SMAQMD, 2009). These include wastewater treatment plants, sanitary landfills, composting and green waste facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting and coating operations, rendering plants, and food packaging plants. The proposed Project would not include uses that have been identified by SMAQMD as potential sources of objectionable odors. Diesel equipment used during construction can produce odorous exhaust, but equipment use in any one area of the Project site would be temporary and potential odors would not affect a substantial number of people. Therefore, this impact would be less than significant impact.

## Mitigation Measures

**MM AQ-1** SMAQMD Basic Construction Emission Control Practices. City approval of any grading or improvement plans shall include the following SMAQMD Basic Construction Emission Control Practices<sup>1</sup>:

- All exposed surfaces shall be watered two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways shall be covered.
- Use wet power vacuum street sweepers to remove any visible track-out mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.

<sup>1</sup> Despite very recent rain events, there has been historic drought conditions the use of water in these practices may be limited. City would consult with SMAQMD for suitable alternate practices equivalent to those listed above under MM AQ-1.

- Limit vehicle speeds on unpaved roads to 15 miles per hour.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes (as required by the state airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment shall be checked by a certified mechanic and determine to be running in proper condition before it is operated.

*Timing/Implementation: During Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

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## 3.4 Biological Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>4. 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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"/>

### Introduction

For the purposes of this section, the Project area boundary represents the maximum extent of ground disturbance (permanent and temporary) for the Project. The Biological Study Area (BSA) includes the Project area and extends 250 feet from the Project area boundary, in undeveloped areas where property access was granted, to survey for special-status plants and wildlife. The BSA was established to identify potential indirect effects of the Project.

There were two locations within the BSA that were not accessible to biologists during the field surveys; the backyards of private properties in the northwestern portion of the Project, and the southeastern corner adjacent to Laguna Creek. Biologists used a combination of aerial interpretation and binoculars to survey habitat within these locations.

### Data Sources/Methodology

Prior to conducting field surveys, available information regarding biological resources in the BSA was gathered and reviewed, including information on special-status plant and wildlife species with the potential to occur in the vicinity of the Project. Several data sources were reviewed, including:

- a records search of California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDDB) for the Project area and surrounding 10-mile buffer (CNDDDB 2016) (Appendix A);
- a species list for the Project area from the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Conservation database (IPaC) (USFWS 2016) (Appendix A);
- a search of the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants Database for the Elk Grove and eight surrounding USGS quadrangles (CNPS 2016) (Appendix A); and
- a search through the environmental documents prepared for potential future projects in the area: Sheldon Road/Waterman Road Roundabout (City 2015), Sheldon and Waterman Subdivision (City 2009), and Silverado Village (City 2013);
- previously Corps-approved wetland delineation for the Silverado Village project (previously Vintara Park) (City 2013); and
- Potential aquatic features from the Corps' Six County Aquatic Resource Inventory (SCARI).

Lists of special-status plant and wildlife species with the potential to occur in the BSA were developed based on the review of existing information, as identified above. These lists were used to focus the area of investigation on the special-status species and associated habitats with the potential to be present within the BSA. Following a review of the resources listed above, it was determined that field surveys were required to assess the BSA for sensitive biological resources including plants and wildlife. Biological surveys were then conducted to characterize the habitats present in the BSA. Habitats present in the BSA were compared to the habitat requirements of the regionally occurring special-status species and used to determine which of these species had the potential to occur in the BSA. The lists of special-status species obtained from USFWS, CNDDDB, and CNPS are included in Appendix A.

### **Wildlife Surveys**

On March 22, 2016, Area West Environmental, Inc. (AWE) biologists conducted a general wildlife survey within the BSA. The survey focused on identifying and evaluating biological communities in the BSA to determine their suitability to support common and special-status species. Surveys were conducted while walking through the BSA in meandering transects. Trees were scanned for nests using binoculars, and any species of animal observed was identified and recorded. During this time, a survey for nesting raptors (including burrowing owl [*Athene cunicularia*], Cooper's hawk [*Accipiter cooperii*], merlin [*Falco columbarius*], Swainson's hawk [*Buteo swainsoni*], and white-tailed kite [*Elanus leucurus*]) was conducted within a 0.25 mile radius from the Project area.

### **Wetland Delineation**

Prior to field surveys, wetland spatial data was obtained from the Corps-verified Silverado Village wetland delineation and SCARI. The boundaries of these features were then examined in the field to determine if they were present in the BSA and if they could provide habitat for special-status species. Additional aquatic features in the BSA not identified in the Corps-verified wetland delineations that had potential to provide habitat to vernal pool endemic species, in particular special-status plants and large branchiopods, were mapped in the field using a handheld

GPS unit with sub-meter accuracy. These aquatic features were classified based on their biological communities and hydroperiods. The determination of jurisdictional acreages of Waters in the BSA is considered preliminary pending verification by the Corps (ESA 2017).

### **Vegetation Surveys**

A plant inventory of all vascular plant species within the BSA was conducted on March 22, 2016 by AWE biologists Mr. Noyes and Ms. Keller and by Mr. Noyes on March 25, 2016 and is included in Appendix B. Vegetation communities were mapped and described during these surveys. Special-status plant surveys were conducted, following the *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities* (CDFW 2009), by Mr. Noyes and Ms. Bailey, on April 27 and 28, 2016, and Mr. Noyes on May 25, 2016. These surveys were conducted to determine the presence of special-status plant species within the BSA.

### **Environmental Setting**

The BSA is located within a low-density rural residential area in the northeastern portion of the City of Elk Grove. Waterman Road is generally the highest topographical point within the BSA. On the west side of Waterman Road, the terrain is relatively level, and outside the BSA slopes down to the west towards a series of large basins. In the northeastern portion of the BSA, the terrain slopes to the east, eventually leading down to Laguna Creek, which is located just east of that portion the BSA. In the southeastern corner of the BSA, outside of the Project area, the terrain slopes steeply towards Laguna Creek as it flows underneath Bond Road. Two large roadside ditches are present along both sides of Waterman road, which conveys the stormwater flows from the northern half of the roadway into two large vernal pools on the west side of the road via a series of culverts. Stormwater from the southern half of the roadway flows into the existing City storm drain system.

Land use within the BSA consists of low-density residential development in the northwest and southeastern corners of the BSA. A single apartment complex is present in the southwestern portion of the BSA, just north of Bond Road. The northeastern portion of the BSA is utilized for cattle grazing, and a small-scale strawberry farm is also present on the eastern half of the BSA, just south of the cattle pasture.

### **Physical Conditions within the BSA**

The Project area is within the City limits of the City of Elk Grove, which is located in the Sacramento Valley of the greater Central Valley, in southeastern Sacramento County. The Project area consists of a two-lane road (Waterman Road) with 3 to 5 foot wide dirt shoulders, with intermittent segments of the shoulders containing roadside ditches. The Project area consists of approximately 7 acres, while the BSA is 60 acres with elevations that vary between 61 and 75 feet above sea level. Within the BSA, many areas appear to have been historically graded, particularly on the west side of the BSA, where signatures of historic ground disturbance were visible in aerial photographs.

The Project area is located in the Morrison Creek watershed (Hydrologic Unit Code [HUC] 1802016304), which is part of the Lower Sacramento Subbasin (HUC 18020163). Water from the northern half of the road enters two roadside ditches, and is conveyed through a series of culverts

to two vernal pools on the west side of the Waterman Road. Water entering Laguna Creek from the eastern edge of the BSA flows south out of the BSA, and then west, eventually converging with Morrison Creek, before traveling to the Sacramento River. Water from the southern half of the roadway flows into the existing City storm drain system.

### **Biological Conditions within the BSA**

There were nine vegetation communities identified within the BSA. The majority of the BSA consists of annual grassland, developed/ornamental, and agricultural habitat. A riparian area near Laguna Creek, vegetation communities, and potential Waters of the U.S. comprise the remainder of the vegetation and aquatic communities in the BSA (**Table 3.4-1**). A detailed description of each of the vegetation and aquatic communities documented within the BSA is provided below and documented in **Figure 3.4-1**.

**TABLE 3.4-1  
VEGETATION AND AQUATIC COMMUNITIES WITHIN THE BSA AND PROJECT AREA**

<b>Vegetation Community</b>	<b>BSA<sup>1</sup> (acres)</b>	<b>Project Area (acres)</b>
Annual Grassland	42.16	3.03
Developed/Ornamental	12.73	3.66
Agricultural	3.13	0.19
Seasonal Wetland	0.30	0.00
Swale	0.134	0.00
Vernal Pool	1.70	0.00
Vernal Swale	0.082	0.00
Riparian	0.04	0.00
Roadside Ditch	0.30	0.20

<sup>1</sup> Vegetation and aquatic community acreages in the BSA include acreages from the Project area.

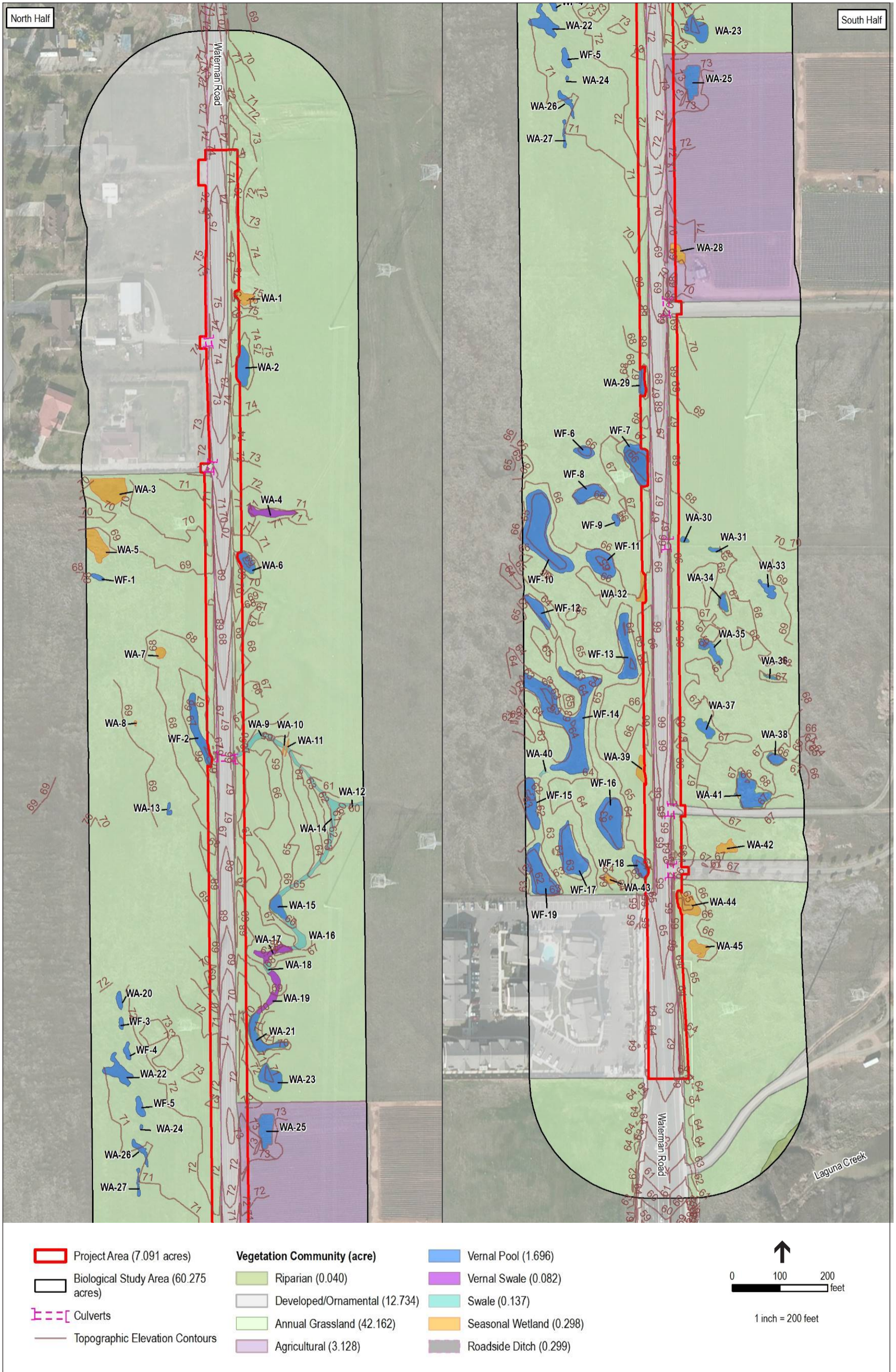
### **Annual Grassland**

A total of 42.16 acres of annual grassland was mapped within the BSA, with 3.03 acres in the Project area. This vegetation community comprises the majority of the BSA, and is interspersed with large sections of developed/ornamental vegetation community and numerous potential Waters. Dominant plant species include long-beak stork's-bill (*Erodium botrys*), soft chess brome (*Bromus hordeaceus*), medusahead (*Elymus caput-medusae*), wild oat (*Avena fatua*), Italian ryegrass (*Festuca perennis*), hare barley (*Hordeum murinum*), and rat-tail six-weeks fescue (*Vulpia myuros*). Within the northeastern portion of the BSA, annual grasslands provide forage for cattle grazing.

### **Developed/Ornamental**

Within the BSA, 12.73 acres of developed/ornamental vegetation community was mapped, with 3.66 acres in the Project area. This vegetation community includes all paved roads, driveways, buildings, and unpaved shoulders but excludes roadside ditches. Vegetation within this community was dominated by non-native ornamentals, including Brazilian pepper tree (*Schinus terebinthifolius*), ornamental pines (*Pinus* sp.), and callery pear (*Pyrus calleryana*). Within private yards along Waterman Road, much of the vegetation consists of regularly mowed annual grasses.







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### Agricultural

Within the BSA, 3.13 acres were mapped as agricultural, with 0.19 acres in the Project area. This vegetation community consists of row crops, primarily strawberries (*Fragaria × ananassa*), with dirt/gravel strips around the field edges for vehicle access. In addition to the agricultural crops identified within this habitat, plant species include non-native annual grasses, prickly lettuce (*Lactuca serriola*), curly dock (*Rumex crispus*), and field bindweed (*Convolvulus arvensis*).

### Seasonal Wetland

Seasonal wetlands total 0.30 acres in the BSA, and are interspersed through the annual grassland habitat with concentrations along both sides of Waterman Road and in the northeast corner of the BSA, where they provide water for cattle. There is less than 0.01 acres of this vegetation community within the Project area. Vegetation in the roadside seasonal wetlands is dominated by Italian ryegrass, lesser hawkbit (*Leontodon saxatilis*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), toad rush (*Juncus bufonius*), and hyssop loosestrife (*Lythrum hyssopifolia*). In the northeastern corner of the BSA, seasonal wetlands appear to have longer ponding durations and are dominated by mat amaranth (*Amaranthus blitoides*), prostrate knotweed (*Polygonum aviculare*), and Bermuda grass (*Cynodon dactylon*) with occasional spiny cocklebur (*Xanthium spinosum*). Water was observed ponding within these features during the field surveys.

### Swale

A total of 0.14 acres and less than 0.01 acres of swale vegetation community occurs within the BSA, and Project area, respectively. Since swales convey, rather than pond water like seasonal wetlands, they are dominated by hydrophytic (water loving) plants typical of wetlands with relatively short hydroperiods including Italian ryegrass and Mediterranean barley. Unlike vernal swales (see below), swales do not support a prevalence of vernal pool indicator plant species, although they are often found in close associated with vernal pools.

### Vernal Pool

Vernal pools comprise 1.70 acres of the BSA, but are not present within the Project area. Within the BSA, vernal pools are interspersed with annual grassland throughout the central and southern portions of the BSA. Vegetation is dominated by common spikerush (*Eleocharis macrostachya*), Italian ryegrass, Carter's buttercup (*Ranunculus bonariensis*), coyote thistle (*Eryngium cantrense*), and stalked popcorn-flower (*Plagiobothrys stipitatus*).

Vernal pools were generally larger and deeper in the southern half of the BSA, with some pools appearing to have longer hydroperiods caused by the grading of the existing Waterman Road and Waterman Squares Apartments. In the northwestern portion of the BSA, some of the vernal pools appeared to have been formed as a result of historic grading, likely from gold mining. These features do not appear to pond water or are extremely shallow and unlikely support vernal pool plants due to an artificially shallow bedrock layer. Hydrologically isolated from the existing roadway due to the presence of the roadside ditches, the majority of these features pond as a result of overland flows from the surrounding BSA or from direct interception of rainfall. Two of the larger vernal pools in the southwestern corner of the BSA receive supplemental hydrologic inputs from the roadside ditches.

### **Vernal Swale**

Vernal swales are present in the southwestern and eastern portions of the BSA, totaling 0.08 acre. No vernal swales are present in the Project area. These features often connect vernal pools, forming large complexes that are hydrologically contiguous. As a result of vernal swales conveying water rather than ponding it, vegetation is hydrophytic, and predominantly consists of vernal pool indicator species more suited to shorter hydroperiods, including stalked popcorn flower, white-tip clover (*Trifolium variegatum*), coyote thistle, Mediterranean barley, and Italian rye grass. Similar to the vernal pools, vernal swales within the BSA are hydrologically isolated from the existing roadway due to the presence of roadside ditches

### **Riparian**

Within the BSA, 0.04 acres was identified as riparian vegetation, with none present within the Project area. This habitat was identified along both banks of Laguna Creek in the southeastern portion of the BSA. The riparian habitat ranges between approximately 10 and 75 feet in width. The riparian bands are bounded by annual grassland to the west, and are bisected by Laguna Creek. Overstory species observed within this habitat include valley oak (*Quercus lobata*), willow (*Salix* sp.), northern California black walnut (*Juglans hindsii*), and Fremont cottonwood (*Populus fremontii*). The understory is predominantly Himalayan blackberry (*Rubus armeniacus*).

### **Roadside Ditch**

Approximately 0.30 acres of roadside ditch was identified in the BSA. Most of the ditches are un-vegetated or have scattered patches of annual herbaceous vegetation. There is 0.20 acres roadside ditch habitat within the Project area. During the field visits on March 22 and 25, 2016, ponding water was observed in parts of this habitat, though no water was flowing. Where vegetation occurs within the roadside ditches, it occurs sparsely, consisting sporadically of Mediterranean barley and hyssop loosestrife. On the edge of this habitat are Brazilian pepper trees. Due to the size and extent of the roadside ditches, the majority of the Waters within the BSA are hydrologically isolated from the existing roadway, because surface flows are along the road within the Project area are intercepted by these ditches, which flows stormwater from the northern half of the roadway through a series of culverts into two large vernal pools on the west side of the road.

### **Sensitive Natural Communities**

A sensitive natural community is a biological community that is regionally rare, provides important habitat opportunities for wildlife, is structurally complex, or is in other ways of special concern to local, state, or federal agencies. Most sensitive natural communities are given special consideration because they perform important ecological functions, such as maintaining water quality and providing essential habitat for plants and wildlife. Some plant communities support a unique or diverse assemblage of plant species and therefore are considered sensitive from a botanical standpoint. CEQA may identify the elimination of such communities as a significant impact.

Sensitive natural communities include: a) areas of special concern to federal, state, or local resource agencies; b) areas regulated under Section 404 of the CWA; c) areas protected under Section 402 of the CWA; and d) areas protected under state and local regulations and policies.

Habitat types on the Project site that would be considered sensitive by regulatory agencies include riverine habitats and riparian scrub.

Riparian habitats are considered by state and federal regulatory agencies to represent a sensitive and declining resource. Riparian areas can serve significant biological functions by providing nesting, breeding, foraging, and spawning habitat for a wide variety of resident and migratory wildlife species. Under Fish and Game Code Section 1600, the CDFW takes jurisdiction over the stream or lake zone which is defined by the top of bank or outside extent of riparian vegetation, whichever is the greatest. There is limited riparian habitat located along both banks of Laguna Creek in the southeastern portion of the BSA.

The BSA supports aquatic habitats/vegetation communities that could qualify as waters of the U.S. and state (Waters), which would be regulated by the U.S. Army Corps of Engineers (USACE), the Porter Cologne Act, and the Regional Water Quality Control Board (RWQCB) under Sections 404 and 401 of the CWA, respectively. Riparian vegetation, which is regulated by the CDFW under Section 1602 of the California Fish and Game Code, is also present within the BSA but not in the Project area, and is considered a natural community of special concern.

### ***Wetlands and Other Waters of the U.S.***

Wetlands are ecologically complex habitats that support a variety of both plant and animal life. In a jurisdictional sense, the federal government defines wetlands in Section 404 of the Clean Water Act as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support (and do support, under normal circumstances) a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR §328.3[b] and 40 CFR §230.3). Under normal circumstances, the federal definition of wetlands requires three wetland identification parameters be present: wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of wetlands include freshwater marsh, seasonal wetlands, and vernal pool complexes that have a hydrologic link to other waters of the U.S (see definition below for “other waters of the U.S.”). The USACE is the responsible agency for regulating wetlands under Section 404 of the CWA, while the EPA has overall responsibility for the CWA. The CDFW does not normally have direct jurisdiction over wetlands unless they are subject to jurisdiction under Streambed Alteration Agreements or they support state-listed endangered species; however, the CDFW has trust responsibility for wildlife and habitats pursuant to California law.

“Other waters of the U.S.” refers to those hydric features that are regulated by the CWA but are not wetlands (33 CFR §328.4). To be considered jurisdictional, these features must exhibit a defined bed and bank and an ordinary high-water mark. Examples of other waters of the U.S. include rivers, creeks, intermittent and ephemeral channels, ponds, and lakes.

Based on the results of the March 22, 2016 habitat mapping and the previous USACE-verified wetland delineation for Silverado Village, the BSA includes four aquatic habitats (vernal pools, vernal swales, swales, and seasonal wetlands) that are regulated as Waters. During the field study, observations regarding vegetation, soils, and hydrology were recorded. The Project area supports less than 0.01 acres of Waters, comprised of two types: swale and seasonal wetland (**Table 3.4-2**).

**TABLE 3.4-2  
WATERS WITHIN THE BSA AND PROJECT AREA**

<b>Aquatic Community</b>	<b>BSA<sup>1</sup> (acres)</b>	<b>Project Area (acres)</b>
Seasonal Wetland	0.30	<0.01
Swale	0.14	<0.01
Vernal Pool	1.70	0.00
Vernal Swale	0.08	0.00

<sup>1</sup> Vegetation community acreages in the BSA include acreages from the Project area.

### ***Movement Corridors***

Wildlife movement corridors are considered an important ecological resource by various agencies (CDFW and USFWS) and under CEQA. Movement corridors may provide favorable locations for wildlife to travel between different habitat areas such as foraging sites, breeding sites, cover areas, and preferred summer and winter range locations. They may also function as dispersal corridors allowing animals to move between various locations within their range. Topography and other natural factors, in combination with urbanization, can fragment or separate large open-space areas. Areas of human disturbance or urban development can fragment wildlife habitats and impede wildlife movement between areas of suitable habitat. This fragmentation creates isolated “islands” of vegetation that may not provide sufficient area to accommodate sustainable populations, and can adversely affect genetic and species diversity. Movement corridors mitigate the effects of this fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished and promotes genetic exchange between separate populations.

### ***Special-Status Species***

Special-status species are legally protected under the state and federal Endangered Species Acts or other regulations or are species that are considered sufficiently rare by the scientific community to qualify for such listing. These species are classified under the following categories:

1. Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (50 CFR §17.12 [listed plants], §17.11 [listed animals] and various notices in the Federal Register [FR] [proposed species]).
2. Species that are candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (61 FR 40, February 28, 1996);
3. Species listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 California Code of Regulations [CCR] §670.5);
4. Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);
5. Animal species of special concern to CDFW;

6. Animals fully protected under Fish and Game Code (California Fish and Game Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]);
7. Species that meet the definitions of rare and endangered under CEQA. CEQA Section 15380 provides that a plant or animal species may be treated as “rare or endangered” even if not on one of the official lists (State CEQA Guidelines, Section 15380); and
8. Plants considered under the CNPS and CDFW to be “rare, threatened or endangered in California” (California Rare Plant Rank [CRPR] 1A, 1B, and 2 in CNPS, 2016) as well as CNPS Rank 3 and 4<sup>2</sup> plant species.

**Tables 3.4-3** and **3.4-4** list the special-status plants and wildlife species that are known to occur or have the potential to occur in the vicinity of the BSA. These species were identified based on the CNDDDB records search (CNDDDB 2016) (**Figure 3.4-2**), CNPS Inventory of Rare and Endangered Plants (CNPS 2016), species lists provided by USFWS (USFWS 2016), and data regarding species distribution and habitat requirements.

### Special-status Plants

During the pre-field investigation, 20 special-status plant species were identified as having potential to occur in the vicinity of the Project area (Table 3.4-3 and Figure 3.4-2). Of the 20 special-status plant species listed in Table 3.4-3, 18 were determined to not have potential to occur in the BSA or do not have the potential to be affected by Project construction because: 1) the BSA lacks suitable habitat, 2) the BSA is outside the species’ known range, and/or 3) field surveys determined that the species is not present. The remaining two special-status species, northern California black walnut and legenera (*Legenera limosa*) were observed within the BSA, but not within the Project area.

### Special-status Wildlife

During the pre-field investigation, 31 special-status wildlife species were identified as having the potential to occur in the vicinity of the Project area (Table 3.4-4 and Figure 3.4-2). Of the 31 special-status wildlife species listed in Table 3.4-4, 23 species were determined to not have potential to occur within the BSA, because the BSA lacks suitable habitat for the species (22 species) or the BSA is outside the species’ known range (one species). There is habitat within the BSA for the remaining eight species, though only vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), western spadefoot (*Spea hammondi*), tricolored blackbird (*Aegialius tricolor*) Swainson’s hawk (*Buteo swainsoni*), loggerhead shrike (*Lanius ludovicianus*), and white-tailed kite (*Elanus leucurus*) were determined to be potentially present within the Project area and have potential to be impacted by the Project.

<sup>2</sup> CRPR 3 and 4 plants may be analyzed under CEQA §15380 if sufficient information is available to assess potential impacts to such plants. Factors such as regional rarity vs. statewide rarity should be considered in determining whether cumulative impacts to a CRPR 3 or 4 plant are significant even if individual project impacts are not. CRPR 3 and 4 plants may be considered regionally significant if, for example, the occurrence is located at the periphery of the species’ range, or exhibits unusual morphology, or occurs in an unusual habitat/substrate. For these reasons, CRPR 3 and 4 plants should be included in the special-status species analysis. CRPR 3 and 4 plants are also included in the California Natural Diversity Database Special Plants, Bryophytes, and Lichens List. [Refer to the current online published list available at: <http://www.dfg.ca.gov/biogeodata>.]

**TABLE 3.4-3  
SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO OCCUR IN THE BIOLOGICAL STUDY AREA**

Common and Scientific Name	Legal Status <sup>1</sup>	Distribution	Habitat Association	Identification Period	Habitat Present/Absent	Species Present/Absent	Survey Results/Rationale <sup>2</sup>
	Federal/State/CNPS						
<b>Watershield</b> <i>Brasenia schreberi</i>	--/--2B.3	El Dorado, Fresno, Kern, Lake, Lassen, Mendocino, Nevada, Plumas, Sacramento, Shasta, Siskiyou, San Joaquin, Sutter, Tehama, Tulare, and Tuolumne counties.	Marshes and swamps (freshwater). 100 – 7,200 feet.	June - September	Habitat Absent	Absent	No potential habitat within the BSA. Only a single CNDDB occurrence occurs approximately 9 miles from the BSA, and the species was not observed during special-status plant surveys. Surveys conducted outside bloom period for this species.
<b>Bristly sedge</b> <i>Carex comosa</i>	--/--2B.1	Known occurrences in Contra Costa, Lake, Mendocino, Sacramento, San Bernardino, Santa Cruz, San Francisco, Shasta, San Joaquin, and Sonoma counties.	Coastal prairie, marshes and swamps (lake margins), and valley and foothill grasslands. 0 – 2050 feet.	May - September	Habitat Present	Absent	No potential habitat within the BSA. Three CNDDB occurrences are approximately 8.5 miles southwest of the BSA. Not observed during special-status plant surveys conducted during the appropriate bloom period.
<b>Bolander's water-hemlock</b> <i>Cicuta maculata</i> var. <i>bolanderi</i>	--/--2B.1	Known extant occurrences in Contra Costa, Marin, Sacramento, and Solano counties.	Marshes (coastal, freshwater or brackish). 0 – 650 feet.	July - September	Habitat Absent	Absent	No potential habitat within the BSA. No CNDDB occurrences within 10 miles of the BSA. Not observed during special-status plant surveys. Surveys conducted outside bloom period for this species.
<b>Peruvian dodder</b> <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	--/--2B.2	Butte, Los Angeles, Merced, San Bernardino, Sonoma and Sutter counties.	Marshes and swamps (freshwater). 50 – 900 feet.	July - October	Habitat Absent	Absent	No potential habitat within the BSA. No CNDDB occurrences within 10 miles of the BSA. Not observed during special-status plant surveys. Surveys conducted outside bloom period for this species.
<b>Dwarf downingia</b> <i>Downingia pusilla</i>	--/--2B.2	Southern Sacramento Valley, northern San Joaquin Valley, and southern North Coast Ranges.	Vernal pools in valley and foothill grasslands. 3 – 1,460 feet.	March - May	Habitat Present	Absent	Potential habitat within the BSA and Project area. There are two CNDDB occurrences within 1 mile of the BSA, and one occurrence within the BSA. Not observed during special-status plant surveys conducted during the appropriate bloom period.
<b>Bogg's Lake hedge hyssop</b> <i>Gratiola heterosepala</i>	--/SE/1B.2	Fresno, Lake, Lassen, Madera, Merced, Modoc, Placer, Sacramento, Shasta, Siskiyou, San Joaquin, Solano, Sonoma, and Tehama counties.	Clay soil in marshes and swamps (lake margins) and vernal pools. 0 – 7,800 feet.	April - August	Habitat Present	Absent	Potential habitat within the BSA and Project area. One known CNDDB occurrence approximately 0.5 mile west of BSA, and six other occurrences within 10 miles. Not observed during special-status plant surveys conducted during the appropriate bloom period.



**TABLE 3.4-3 (CONTINUED)**  
**SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO OCCUR IN THE BIOLOGICAL STUDY AREA**

Common and Scientific Name	Legal Status <sup>1</sup>	Distribution	Habitat Association	Identification Period	Habitat Present/Absent	Species Present/Absent	Survey Results/Rationale <sup>2</sup>
	Federal/State/CNPS						
<b>Woolly rose-mallow</b> <i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	--/1B.2	Butte, Contra Costa, Colusa, Glenn, Sacramento, San Joaquin, Solano, Sutter, and Yolo counties.	Often in riprap on sides of levees in marshes and swamps (freshwater). 0 – 390 feet.	June - September	Habitat Absent	Absent	No potential habitat within the BSA. Seven CNDDDB occurrences are all approximately 7.5 miles west of the BSA. Species not observed during special-status plant surveys. Surveys conducted outside bloom period for this species.
<b>Northern California black walnut</b> <i>Juglans hindsii</i>	--/1B.1	Contra Costa, Napa, Sacramento, Solano, and Yolo counties.	Riparian forest and riparian woodland. 0 – 1,450 feet.	April - May	Habitat Present	Present	Observed within the BSA during special-status plant surveys, though not within the Project area. Trees observed are likely a hybrid with English walnut ( <i>Juglans regia</i> ).
<b>Ahart's dwarf rush</b> <i>Juncus leiospermus</i> var. <i>ahartii</i>	--/1B.2	Sacramento Valley in Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba counties.	Valley and foothill grassland (mesic). 100 – 750 feet.	March - May	Habitat Present	Absent	Potential habitat within the BSA and Project area. The closest CNDDDB occurrences are over 8.5 miles northeast of the BSA. Not observed during special-status plant surveys conducted during the appropriate bloom period.
<b>Delta tule pea</b> <i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	--/1B.2	Contra Costa, Napa, Sacramento, San Joaquin, Solano, Sonoma, and Yolo counties.	Freshwater and brackish marshes and swamps. 0 – 15 feet.	May - September	Habitat Absent	Absent	BSA is not within the known elevation range for the species. There are no CNDDDB occurrences within 10 miles of the BSA. Not observed during special-status plant surveys conducted during the appropriate bloom period.
<b>Legenere</b> <i>Legenere limosa</i>	--/1B.1	Southern Sacramento Valley, south North Coast Ranges in Alameda, Lake, Monterey, Napa, Placer, Sacramento, Santa Clara, Shasta, San Joaquin, San Mateo, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties.	Vernal pools. 3 – 2,900 feet.	April - June	Habitat Present	Present	Observed during special-status plant surveys, during the appropriate bloom period. One CNDDDB occurrence within BSA, and 21 others within 10 miles of the BSA.
<b>Heckard's pepper-grass</b> <i>Lepidium latipes</i> var. <i>heckardii</i>	--/1B.2	Glenn, Merced, Sacramento, Solano, and Yolo counties.	Alkaline flats in valley and foothill grasslands. 7 – 650 feet.	March - May	Habitat Present	Absent	Potential habitat present within the BSA and Project area. Two CNDDDB occurrences, the closest over 8.5 miles southwest of the BSA. Not observed during special-status plant surveys conducted during the appropriate bloom period.

**TABLE 3.4-3 (CONTINUED)**  
**SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO OCCUR IN THE BIOLOGICAL STUDY AREA**

Common and Scientific Name	Legal Status <sup>1</sup>	Distribution	Habitat Association	Identification Period	Habitat Present/Absent	Species Present/Absent	Survey Results/Rationale <sup>2</sup>
	Federal/State/CNPS						
<b>Mason's lilaepsis</b> <i>Lilaeopsis masonii</i>	--/SR/1B.1	Alameda, Contra Costa, Marin, Napa, Sacramento, San Joaquin, Solano, and Yolo counties.	Marshes and swamps (freshwater or brackish) and riparian scrub. 0 – 30 feet.	April - November	Habitat Absent	Absent	No potential habitat within the BSA. No CNDDDB occurrence within 10 miles of the BSA, and Project area is not within the known elevation range for the species. Not observed during special-status plant surveys conducted during the appropriate bloom period.
<b>Delta mudwort</b> <i>Limosella australis</i>	--/--/2B.1	Contra Costa, Sacramento, San Joaquin, and Solano counties.	Usually mud banks in marshes and swamps (freshwater or brackish) and riparian scrub. 0 – 10 feet.	May - August	Habitat Absent	Absent	No potential habitat within the BSA. No CNDDDB occurrence within 10 miles of the BSA, and Project area is not within the known elevation range for the species. Not observed during special-status plant surveys conducted during the appropriate bloom period.
<b>Slender Orcutt grass</b> <i>Orcuttia tenuis</i>	FT/SE/1B.1	Northern Sacramento Valley, Pit River Valley; isolated populations in Lake and Sacramento counties.	Often gravelly soil in vernal pools. 115 – 5,800 feet.	May - October	Habitat Present	Absent	Potential habitat present within the BSA and Project area. Two CNDDDB occurrences within 5 miles of the BSA; Not observed during special-status plant surveys conducted during the appropriate bloom period.  <b>No effect.</b>
<b>Sacramento Orcutt grass</b> <i>Orcuttia viscida</i>	FE/SE/1B.1	Sacramento County.	Vernal pools. 100 to 330 feet.	April - September	Habitat Present	Absent	Potential habitat present within the BSA and Project area. Four CNDDDB occurrences within 5 miles of the BSA. Not observed during special-status plant surveys conducted during the appropriate bloom period.  <b>No effect.</b>
<b>Sandford's arrowhead</b> <i>Sagittaria sanfordii</i>	--/--/1B.2	Scattered locality throughout the Central Valley and adjacent foothills.	Marshes and swamps (assorted shallow freshwater). 0 – 2,100 feet.	May - November	Habitat Absent	Absent	No potential habitat within the BSA. 28 CNDDDB occurrences within 10 miles of the BSA, one occurrence within 1 mile of the BSA. Not observed during special-status plant surveys conducted during the appropriate bloom period.
<b>Marsh skullcap</b> <i>Scutellaria galericulata</i>	--/--/2B.2	El Dorado, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta and San Joaquin counties.	Lower montane coniferous forest, meadows and seeps (mesic), as well as marshes and swamps. 0 – 6,900 feet.	June - September	Habitat Absent	Absent	No potential habitat within the BSA. No CNDDDB occurrences within 10 miles of the BSA. Not observed during special-status plant surveys. Surveys conducted outside bloom period for this species.

**TABLE 3.4-3 (CONTINUED)**  
**SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO OCCUR IN THE BIOLOGICAL STUDY AREA**

Common and Scientific Name	Legal Status <sup>1</sup>	Distribution	Habitat Association	Identification Period	Habitat Present/Absent	Species Present/Absent	Survey Results/Rationale <sup>2</sup>
	Federal/State/CNPS						
<b>Side-flowering skullcap</b> <i>Scutellaria lateriflora</i>	--/--/2B.2	Inyo, Sacramento and San Joaquin counties.	Meadows and seeps (mesic) as well as marshes and swamps. 0 – 1,650 feet.	July – September	Habitat Absent	Absent	No potential habitat within the BSA. No CNDDDB occurrences within 10 miles of the BSA. Not observed during special-status plant surveys. Surveys conducted outside bloom period for this species.
<b>Saline clover</b> <i>Trifolium hydrophilum</i>	--/--/1B.2	Alameda, Contra Costa, Lake, Monterey, Napa, Sacramento, San Benito, Santa Clara, Santa Cruz, San Luis Obispo, San Mateo, Solano, Sonoma and Yolo counties.	Marshes and swamps, valley and foothill grassland (mesic, alkaline), and vernal pools. 0 – 985 feet.	April - June	Habitat Present	Absent	Potential habitat within the BSA and Project area. Not observed during special-status plant surveys conducted during the appropriate bloom period.

<sup>1</sup> Status explanations:  
 -- = no listing.

**Federal**

FE = listed as endangered under the federal Endangered Species Act.  
 FT = listed as threatened under the federal Endangered Species Act.

**State**

SE = listed as endangered under the California Endangered Species Act.  
 SR = listed as rare under the California Endangered Species Act.  
 ST = listed as threatened under the California Endangered Species Act.

**California Native Plant Society**

1B = Rank 1B species: rare, threatened, or endangered in California and elsewhere.  
 2B = Rank 2B species: rare, threatened, or endangered in California but more common elsewhere.  
 0.1 = Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)  
 0.2 = Moderately threatened in California (20%-80% occurrences threatened/moderate degree and immediacy of threat)  
 0.3 = Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

<sup>2</sup> Rationale includes an effects determination under the FESA for all federally listed species.

**TABLE 3.4-4  
SPECIAL-STATUS WILDLIFE WITH THE POTENTIAL TO OCCUR IN THE BIOLOGICAL STUDY AREA**

Common and Scientific Name	Legal Status <sup>1</sup>		Distribution	Habitat Association	Identification Period	Habitat Present/Absent	Species Present/Absent	Rationale <sup>2</sup>
	Federal	State						
<b>Invertebrates</b>								
<b>Vernal pool fairy shrimp</b> <i>Branchinecta lynchi</i>	FT	--	Central Valley, Central and South Coast Ranges from Tehama County to Santa Barbara County; isolated populations also in Riverside County and southern Oregon	Vernal pools and seasonal wetlands; also found in sandstone rock outcrop pools.	November-April for active shrimp, April-November for cysts	Habitat Present	Present	Shrimp species was observed in two vernal pools in the BSA, but a positive species-level identification could not be made by the eye. Potential habitat is present within the BSA. There are two CNDDDB occurrences within 1 mile of the BSA, and numerous occurrences within 10 miles.  <b>May affect, and likely to adversely affect.</b>
<b>Valley elderberry longhorn beetle</b> <i>Desmocerus californicus dimorphus</i>	FT	--	Central Valley and surrounding foothills below 1,500 feet elevations	Dependent on elderberry ( <i>Sambucus nigra</i> ) shrubs as a host plant; potential habitat is shrubs with stems 1 inch in diameter within Central Valley.	Year-round for host plant and exit holes	Habitat Absent	Absent	Habitat not present within the BSA. No elderberry shrubs were observed within the BSA.  <b>No effect.</b>
<b>Vernal pool tadpole shrimp</b> <i>Lepidurus packardii</i>	FE	--	Central Valley from Shasta County south to Merced County	Vernal pools, vernal lakes, and other seasonal wetlands.	November-April for active shrimp, April-November for cysts	Habitat Present	Assumed Present	Potential habitat is present within the BSA. There are numerous CNDDDB occurrences within 10 miles of the BSA.  <b>May affect, and likely to adversely affect.</b>
<b>Amphibians</b>								
<b>California tiger salamander</b> <i>Ambystoma californiense</i>	FT	ST	Central Valley, including Sierra Nevada foothills up to 1,500 feet. The Cosumnes River marks the northern boundary of the species' range, with the exception of an isolated in the Dunnigan Hills in northern Yolo County.	Annual grasslands and valley-foothill woodlands; breeds in seasonal wetlands such as vernal pools and swales. Burrows in underground refugia such as small mammal burrows.	January-May (aquatic)	Habitat Absent	Absent	Habitat absent. Species does not range north of Cosumnes River.  <b>No effect.</b>
<b>California red-legged frog</b> <i>Rana draytonii</i>	FT	ST	Along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County.	Permanent and semi-permanent aquatic habitats, such as creeks and ponds with emergent and submergent vegetation; may aestivate in upland burrow during dry periods.	Year-round	Habitat Absent	Absent	Habitat is not present within the BSA. Not within the known range for the species. There are no CNDDDB occurrences within 10 miles of the BSA.  <b>No effect.</b>

**TABLE 3.4-4 (CONTINUED)**  
**SPECIAL-STATUS WILDLIFE WITH THE POTENTIAL TO OCCUR IN THE BIOLOGICAL STUDY AREA**

Common and Scientific Name	Legal Status <sup>1</sup>		Distribution	Habitat Association	Identification Period	Habitat Present/Absent	Species Present/Absent	Rationale <sup>2</sup>
	Federal	State						
<b>Amphibians (cont.)</b>								
<b>Western spadefoot</b> <i>Spea hammondi</i>	--	SSC	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California.	Shallow streams with riffles and seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands.	January-July (aquatic)	Habitat Present	Assumed Present	Habitat is present within the BSA. There is one CNDDDB occurrence within 10 miles of the BSA.
<b>Reptiles</b>								
<b>Giant garter snake</b> <i>Thamnophis gigas</i>	FT	ST	Central Valley from Fresno County north to the Gridley/Sutter Buttes area; has been extirpated from areas south of Fresno.	Sloughs, canals, and other small waterways where there is a prey base of small fish and amphibians; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter. Utilizes upland habitats within 200 feet from aquatic habitats.	April-October	Habitat Absent	Absent	Aquatic habitat present in Laguna Creek outside the BSA. No upland habitat is present within the BSA within 200 feet of Laguna Creek. There are three CNDDDB occurrences within 5 miles of the BSA, and six other occurrences within 10 miles of BSA.  <b>No effect.</b>
<b>Western pond turtle</b> <i>Emys marmorata</i>	--	SSC	Populations extend throughout the coast and Central Valley of California.	Ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation below 6,000 feet in elevation.	Year-round	Habitat Absent	Absent	No habitat is present within the BSA. There are five CNDDDB occurrences within 10 miles, and one occurrence 1 mile southwest of the BSA.
<b>Birds</b>								
<b>Tricolored blackbird</b> <i>Agelaius tricolor</i>	--	SCT	Largely endemic to California; permanent residents in the Central Valley from Butte County to Kern County; at scattered coastal locations from Marin County south to San Diego County; breeds at scattered locations in Lake, Sonoma, and Solano counties; rare nester in Siskiyou, Modoc, and Lassen counties. Sacramento-San Joaquin Valleys and low foothills of coast ranges and Sierra Nevada.	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grain fields; nesting habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony; requires large foraging areas, including marshes, pastures, agricultural wetlands, dairies, and feedlots, where insect prey is abundant.	March-August	Habitat Present	Assumed Present	Potential foraging habitat within the BSA near Laguna Creek. One CNDDDB occurrence of foraging individuals within one mile of the BSA along Laguna Creek.

**TABLE 3.4-4 (CONTINUED)**  
**SPECIAL-STATUS WILDLIFE WITH THE POTENTIAL TO OCCUR IN THE BIOLOGICAL STUDY AREA**

Common and Scientific Name	Legal Status <sup>1</sup>		Distribution	Habitat Association	Identification Period	Habitat Present/Absent	Species Present/Absent	Rationale <sup>2</sup>
	Federal	State						
<b>Birds (cont.)</b>								
<b>Golden eagle</b> <i>Aquila chrysaetos</i>	BGPA	FP	Foothills and mountains throughout California; uncommon nonbreeding visitor to lowlands such as the Central Valley.	Cliffs and escarpments or tall trees for nesting; annual grasslands, chaparral, and oak woodlands with plentiful medium and large-sized mammals for prey.	Year-round	Habitat Absent	Absent	No nesting habitat within the BSA. There is one CNDDDB occurrence within 10 miles of the BSA.
<b>Short-eared owl</b> <i>Asio flammeus</i>	--	SSC	Permanent resident along the coast from Del Norte County to Monterey County although very rare in summer north of San Francisco Bay, in the Sierra Nevada north of Nevada County, in the plains east of the Cascades, and in Mono County; small, isolated populations also nest in the Central Valley	Freshwater and salt marshes, lowland meadows, and irrigated alfalfa fields; needs dense tules or tall grass for nesting and daytime roosts.	Year-round	Habitat Absent	Absent	No nesting or foraging habitat within the BSA. No CNDDDB occurrences within 10 miles of the BSA.
<b>Burrowing owl</b> <i>Athene cunicularia</i>	--	SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast. Central and southern coastal habitats, and Central Valley.	Open annual grasslands or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Dependent upon burrowing mammals (especially California ground squirrel [ <i>Otospermophilus beecheyi</i> ]) for burrows.	Year-round	Habitat Absent	Absent	Potential habitat is absent within the BSA, because no burrows were observed. There are CNDDDB occurrences within 5 miles of the BSA.
<b>Swainson's hawk</b> <i>Buteo swainsoni</i>	--	ST	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley; the state's highest nesting densities occur near Davis and Woodland, Yolo County.	Nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, and grain fields.	March-September	Habitat Present	Assumed Present	Potential nesting and foraging habitat present within the BSA. CNDDDB occurrences within 1 mile of the BSA.
<b>Western yellow-billed cuckoo</b> <i>Coccyzus americanus occidentalis</i>	FT	SE	More common locations include Sacramento River from Red Bluff to Colusa and the South Fork Kern River from Isabella Reservoir to Canebrake Ecological Reserve.	This species is a riparian obligate, nesting in low to moderate elevation riparian woodlands with native broadleaf trees and shrubs that are 20 hectares (50 acres) or more in extent.	May - September	Habitat Absent	Absent	No habitat within the BSA. One CNDDDB occurrence within 10 miles of the BSA.  <b>No effect.</b>

**TABLE 3.4-4 (CONTINUED)**  
**SPECIAL-STATUS WILDLIFE WITH THE POTENTIAL TO OCCUR IN THE BIOLOGICAL STUDY AREA**

Common and Scientific Name	Legal Status <sup>1</sup>		Distribution	Habitat Association	Identification Period	Habitat Present/Absent	Species Present/Absent	Rationale <sup>2</sup>
	Federal	State						
<b>Birds (cont.)</b>								
<b>White-tailed kite</b> <i>Elanus leucurus</i>	--	FP	Lowland areas west of Sierra Nevada from head of Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border. Central Valley and low foothills of Sierra Nevadas.	Agricultural lands and open stages of most herbaceous habitats. Nests in dense oak, willow, or other tree stands.	Year-round	Habitat Present	Present	A pair was observed on March 22, 2016 foraging in the field just west of the BSA. There are CNDDDB occurrences within 5 and 10 miles of the BSA.
<b>American peregrine falcon</b> <i>Falco peregrinus anatum</i>	DL	DL,SS C	Permanent resident on the north and south Coast Ranges; may summer on the Cascade and Klamath Ranges south through the Sierra Nevada to Madera County; winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range.	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large populations of other bird species.	Winter months	Habitat Absent	Absent	No nesting habitat within the BSA. No CNDDDB occurrences within 10 miles of the BSA.
<b>Bald eagle</b> <i>Haliaeetus leucocephalus</i>	DL, BGPA	SE,FP	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino counties and in the Lake Tahoe Basin; reintroduced into central coast; winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierras, and east of the Sierra Nevada south of Mono County; range is expanding.	In western North America, nests and roosts in coniferous forests within 1 mile of a lake, reservoir, stream, or the ocean.	Year-round	Habitat Absent	Absent	No nesting or foraging habitat present within the BSA. No CNDDDB occurrences within 10 miles of the BSA.
<b>Loggerhead shrike</b> <i>Lanius ludovicianus</i>	--	SSC	Resident and winter visitor in lowlands and foothills throughout California; rare along coastal north to Mendocino County, occurring only in winter.	Open country with scattered shrubs and trees. Sometimes in heavily wooded habitat with large openings and short habitat with few to no trees.	Year-round	Habitat Present	Assumed Present	Potential nesting and foraging habitat is present in the BSA and Project area. No CNDDDB occurrences within 10 miles of the BSA.
<b>California black rail</b> <i>Laterallus jamaicensis coturniculus</i>	--	ST,FP	Known to occur in Alameda, Butte, Contra Costa, Imperial, Marin, Napa, Nevada, Placer, Riverside, Sacramento, San Bernardino, San Joaquin, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, Sutter, and Yuba counties.	Saltwater, brackish, and freshwater marshes.	Year-round	Habitat Absent	Absent	No nesting or foraging habitat within the BSA. There are no CNDDDB occurrences within 10 miles of the BSA.

**TABLE 3.4-4 (CONTINUED)**  
**SPECIAL-STATUS WILDLIFE WITH THE POTENTIAL TO OCCUR IN THE BIOLOGICAL STUDY AREA**

Common and Scientific Name	Legal Status <sup>1</sup>		Distribution	Habitat Association	Identification Period	Habitat Present/Absent	Species Present/Absent	Rationale <sup>2</sup>
	Federal	State						
<b>Birds (cont.)</b>								
<b>Double crested cormorant</b> <i>Phalacrocorax auritus</i> (rookery sites)	--	SSC	Winters along the entire California coast and inland over the Coast Ranges into the Central Valley from Tehama County to Fresno County; a permanent resident along the coast from Monterey County to San Diego County, along the Colorado River, Imperial, Riverside, Kern, and King Counties, and the islands off San Francisco; breeds in Siskiyou, Modoc, Lassen, Shasta, Plumas, and Mono Counties; also breeds in the San Francisco Bay Area and in Yolo and Sacramento Counties.	Rocky coastlines, beaches, inland ponds, and lakes; needs open water for foraging, and nests in riparian forests or on protected islands, usually in snags.	Year-round	Habitat Absent	Absent	No nesting or foraging habitat within the BSA. There are three CNDDDB occurrences within 10 miles of the BSA.
<b>Purple martin</b> <i>Progne subis</i>	--	SSC	Nests in Sacramento County; uncommon or absent elsewhere in the Central Valley; breeds in coastal areas from Del Norte County south to Santa Barbara County; rare in southern California.	Abandoned woodpecker holes in valley oak and cottonwood ( <i>Populus</i> spp.) forests for nesting; also nests in vertical drainage holes under elevated freeways and highway bridges; open areas required for feeding.	Year-round	Habitat Present	Assumed Present	Potential nesting habitat is present within the BSA, outside the Project area. There are two CNDDDB occurrences within 10 miles of the BSA.
<b>Bank swallow</b> <i>Riparia riparia</i>	--	ST	The state's largest remaining breeding populations are along the Sacramento River from Tehama County to Sacramento County and along the Feather and lower American Rivers, in the Owens Valley; nesting areas also include the plains east of the Cascade Range south through Lassen County, northern Siskiyou County, and small populations near the coast from San Francisco County to Monterey County.	Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam to allow digging.	Year-round	Habitat Absent	Absent	Not within the species breeding range, and no nesting habitat present within the BSA. There are no CNDDDB occurrences within 10 miles of the CNDDDB.
<b>Yellow-headed blackbird</b> <i>Xanthocephalus xanthocephalus</i>	--	SSC	Throughout the Central Valley, and along the eastern side of the Sierra Nevada Mountains. Yearlong distribution follows a limited area along the Sacramento River, though summer range is larger, and incorporates much of the Central Valley.	Freshwater wetlands with dense, emergent vegetation like cattails. Often forage in fields, and winter in large open agricultural areas.	Year-round	Habitat Absent	Absent	No nesting habitat is present in the BSA. Emergent Marsh in the BSA is too sparse to provide nesting habitat. There is one CNDDDB occurrence within 10 miles of the BSA.



**TABLE 3.4-4 (CONTINUED)**  
**SPECIAL-STATUS WILDLIFE WITH THE POTENTIAL TO OCCUR IN THE BIOLOGICAL STUDY AREA**

Common and Scientific Name	Legal Status <sup>1</sup>		Distribution	Habitat Association	Identification Period	Habitat Present/Absent	Species Present/Absent	Rationale <sup>2</sup>
	Federal	State						
<b>Mammals</b>								
<b>American badger</b> <i>Taxidea taxus</i>	--	SSC	Central Valley and surrounding foothills.	Grasslands with friable soils; near California ground squirrel populations.	Year-round	Habitat Absent	Absent	Foraging habit is present though denning habitat is not. BSA absent of species and species signs (scat, etc.)  <b>Not likely to adversely effect.</b>
<b>Fish</b>								
<b>Green Sturgeon</b> <i>Acipenser medirostris</i>	FT	SSC	Sacramento and San Joaquin Rivers and tributaries, Sacramento-San Joaquin Delta, San Francisco Bay.	Cool water in larger river reaches; rears in riverine and Delta habitat.	Year-round	Habitat Absent	Absent	No suitable habitat within the BSA. There is one CNDDDB occurrence within 10 miles of the BSA.  <b>No effect.</b>
<b>Delta Smelt</b> <i>Hypomesus transpacificus</i>	FT	SE	Sacramento-San Joaquin Delta and the lower reaches of the two rivers.	Estuarine or brackish waters to 14 parts per thousand (ppt); spawn in shallow brackish water upstream of the mixing zone (zone of saltwater-freshwater interface) where salinity is around 2 ppt.	Year-round	Habitat Absent	Absent	No suitable habitat within the BSA. There are no CNDDDB occurrences within 10 miles of the BSA.  <b>No effect.</b>
<b>Central Valley Steelhead</b> <i>Oncorhynchus mykiss</i>	FT	--	Sacramento and San Joaquin Rivers and tributaries, Sacramento-San Joaquin Delta, San Francisco Bay.	Cool water with moderate size gravel for spawning and cover for rearing.	Year-round	Habitat Absent	Absent	No suitable spawning or rearing habitat within the BSA. There is one CNDDDB occurrence within 10 miles of the BSA.  <b>No effect.</b>
<b>Central Valley Spring-run Chinook Salmon</b> <i>Oncorhynchus tshawytscha</i>	FT	ST	Sacramento and San Joaquin Rivers and tributaries, Sacramento-San Joaquin Delta, San Francisco Bay.	Cool water with moderate size gravel for spawning and cover for rearing.	Year-round	Habitat Absent	Absent	No suitable spawning or rearing habitat within the BSA.  <b>No effect.</b>
<b>Sacramento River Winter-run Chinook Salmon</b> <i>Oncorhynchus tshawytscha</i>	FE	SE	Sacramento and San Joaquin Rivers and tributaries, Sacramento-San Joaquin Delta, San Francisco Bay.	Cool water with moderate size gravel for spawning and cover for rearing.	Year-round	Habitat Absent	Absent	No suitable spawning or rearing habitat within the BSA.  <b>No effect.</b>

**TABLE 3.4-4 (CONTINUED)**  
**SPECIAL-STATUS WILDLIFE WITH THE POTENTIAL TO OCCUR IN THE BIOLOGICAL STUDY AREA**

Common and Scientific Name	Legal Status <sup>1</sup>		Distribution	Habitat Association	Identification Period	Habitat Present/Absent	Species Present/Absent	Rationale <sup>2</sup>
	Federal	State						
<i>Fish (cont.)</i>								
<b>Central Valley Fall/Late Fall-run Chinook Salmon</b> <i>Oncorhynchus tshawytscha</i>	--	SSC	Sacramento and San Joaquin Rivers and tributaries, Sacramento-San Joaquin Delta, San Francisco Bay.	Cool water with moderate size gravel for spawning and cover for rearing.	Year-round	Habitat Absent	Absent	No suitable spawning or rearing habitat within the BSA. <b>No effect.</b>
<b>Longfin Smelt</b> <i>Spirinchus thaleichthys</i>	FCT	ST, SSC	Scattered populations of longfin smelt occur along the Pacific coast from Alaska to the San Francisco Estuary. Sacramento-San Joaquin Delta and the lower reaches of the two rivers.	Longfin smelt larvae and small juveniles are rarely found in water warmer than 71.6 °F (22 °C). Competent-swimming young juveniles disperse toward more-saline and deeper-water habitats. Mature longfin smelt require cool-to-cold [less than 60.8 °F (16 °C)] freshwater habitats for spawning.	Year-round	Habitat Absent	Absent	No suitable habitat within the BSA. There are two CNDDDB occurrences within 10 miles of the BSA. <b>No effect.</b>

<sup>1</sup> Status explanations:

-- = no listing.

Delisted = removed from federal or California Endangered Species Act list.

*Federal*

FC = federal candidate for listing under the federal Endangered Species Act.

FE = listed as endangered under the federal Endangered Species Act.

FT = listed as threatened under the federal Endangered Species Act.

DL = delisted

BGPA = bald and golden eagle protection act

*State*

SCT = state candidate for listing as threatened under the California Endangered Species Act.

SE = listed as endangered under the California Endangered Species Act.

SSC = state species of special concern

ST = listed as threatened under the California Endangered Species Act.

DL = delisted

FP = Fully Protected

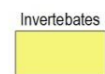
<sup>2</sup> Rationale includes an effects determination under the FESA for all federally listed species.



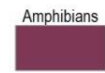
# SPECIAL-STATUS SPECIES RECORDS



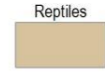
Map Code	Scientific Name	Common Name
1	<i>Brasenia schreberi</i>	watershield
2	<i>Carex comosa</i>	bristly sedge
3	<i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	Peruvian dodder
4	<i>Downingia pusilla</i>	dwarf downingia
5	<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop
6	<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	woollyrose-mallow
7	<i>Juglans hindsii</i>	Northern California black walnut
8	<i>Juncus leiosperrmus</i> var. <i>ahartii</i>	Ahart's dwarf rush
9	<i>Legenere limosa</i>	legenere
10	<i>Lepidium latipes</i> var. <i>heckardii</i>	Heckard's pepper-grass
11	<i>Orcuttia tenuis</i>	slender Orcutt grass
12	<i>Orcuttia viscida</i>	Sacramento Orcutt grass
13	<i>Sagittaria sanfordii</i>	Sanford's arrowhead
14	<i>Trifolium hydrophilum</i>	saline clover



Map Code	Common Name	Scientific Name
15	valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>
16	vernal pool fairy shrimp	<i>Branchinecta lynchi</i>
17	vernal pool tadpole shrimp	<i>Lepidurus packardii</i>



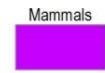
Map Code	Common Name	Scientific Name
18	western spadefoot	<i>Spea hammondi</i>



Map Code	Common Name	Scientific Name
19	giant garter snake	<i>Thamnophis gigas</i>
20	western pond turtle	<i>Emys marmorata</i>



Map Code	Common Name	Scientific Name
21	burrowing owl	<i>Athene cucularia</i>
22	Cooper's hawk	<i>Accipiter cooperii</i>
23	double-crested cormorant	<i>Phalacrocorax auritus</i>
24	ferruginous hawk	<i>Buteo regalis</i>
25	golden eagle	<i>Aquila chrysaetos</i>
26	merlin	<i>Falco columbarius</i>
27	purple martin	<i>Progne subis</i>
28	song sparrow ("Modesto" population)	<i>Melospiza melodia</i>
29	Swainson's hawk	<i>Buteo swainsoni</i>
30	tricolored blackbird	<i>Agelaius tricolor</i>
31	western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>
32	white-tailed kite	<i>Elanus leucurus</i>
33	yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>

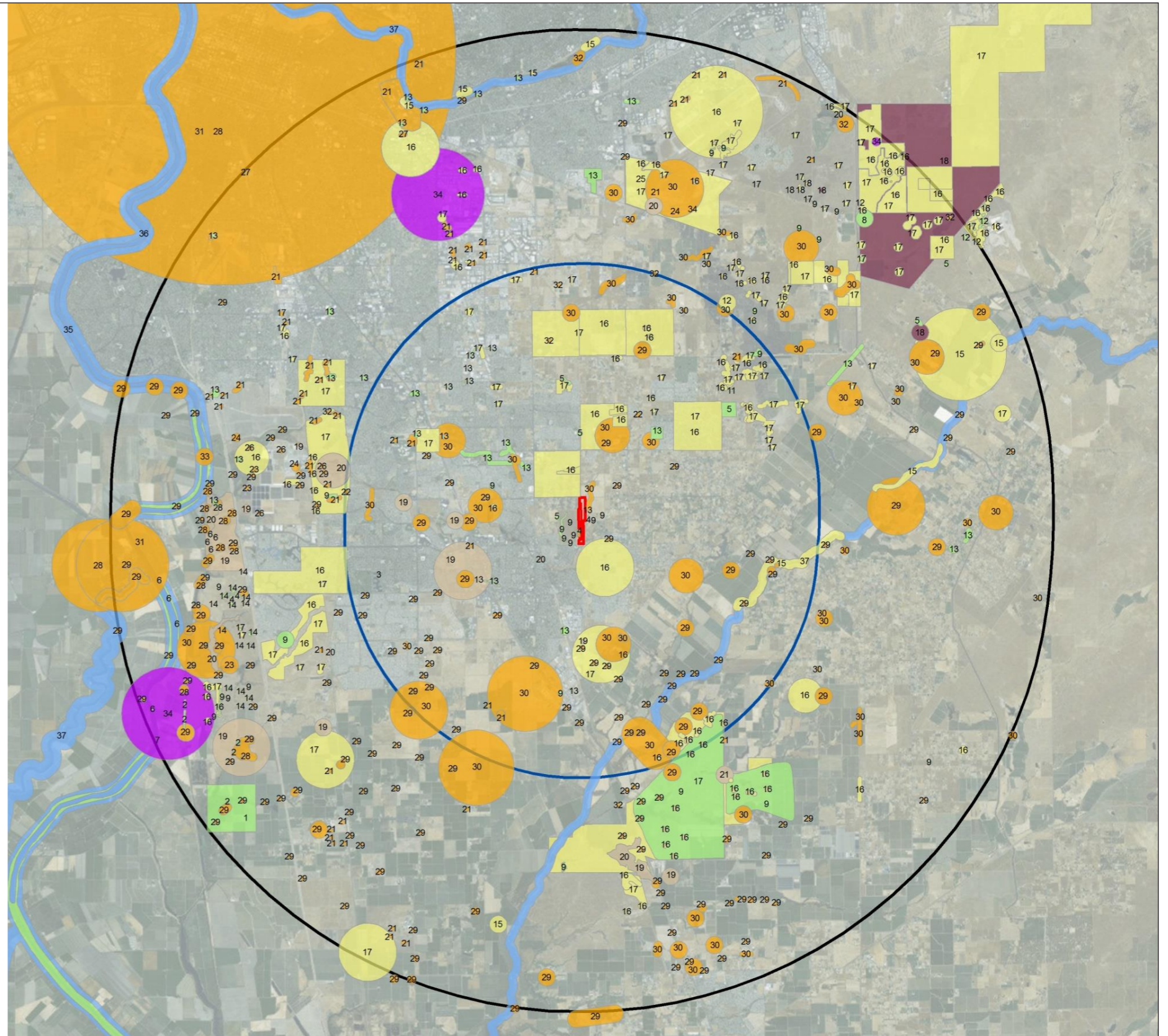
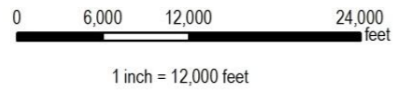


Map Code	Common Name	Scientific Name
34	American badger	<i>Taxidea taxus</i>



Map Code	Common Name	Scientific Name
35	longfin smelt	<i>Spirinchus thaleichthys</i>
36	Sacramento splittail	<i>Pogonichthys macrolepidotus</i>
37	steelhead - Central Valley DPS	<i>Oncorhynchus mykiss irideus</i>

- Project Area
- 10 Mile Buffer
- 5 Mile Buffer





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### **Critical Habitat**

Critical habitat is defined in Section 3(5)A of the federal Endangered Species Act as the specific portions of the geographic area occupied by the species in which physical or biological features essential to the conservation of the species are found and that may require special management considerations or protection. Specific areas outside of the geographic area occupied by the species may also be included in critical habitat designations upon a determination that such areas are essential for the conservation of the species. The BSA is not located within Critical Habitat for any federally listed species.

### **Protected Trees**

Many trees provide habitat and food to numerous bird and wildlife species. The City wants to preserve existing trees when reasonably possible, and has acknowledged the importance of preserving mature trees through adoption of their tree preservation and protection ordinance. The City's tree ordinance protects trees that fall within four categories; landmark trees (19.12.030), trees of local importance (19.12.040), secured trees (19.12.050), and trees in the ROW or on City property (19.12.060).

During surveys conducted on March 22 and 25, and April 27 and 28, 2016, AWE biologists identified and mapped trees within the City ROW within the Project area that could qualify for protection by the City's tree protection ordinance. During the survey, only one species of tree with potential to be affected during construction was identified, the Brazilian pepper tree (*Schinus terebinthifolius*). California black walnut, valley oak, and interior live oak were observed within the BSA, though not within the Project area, so they would not be affected by the Project.

### **Discussion of Impacts**

- a) *Would the project 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?*

**Less than Significant with Mitigation.** After completion of the field surveys and review of existing information on special-status wildlife in the Project vicinity, it was determined that eight special-status wildlife species have the potential to occur within the BSA. The Project area and BSA are outside the current range of Purple martin (*Progne subis*) (Airola, Daniel A. and Brian D. C. Williams Studies of Western Birds 1:293–299, 2008), so it will not be discussed further.

Seven species, including vernal pool fairy shrimp, vernal pool tadpole shrimp, western spadefoot, Swainson's hawk, white-tailed kite, tricolored blackbird, and loggerhead shrike have the potential to occur within the Project area. Each of these species is discussed below.

#### **Vernal Pool Branchiopods**

Because vernal pool fairy shrimp and vernal pool tadpole shrimp have similar life histories and habitat requirements, the analysis of effects to these species is presented together.

Potential vernal pool branchiopod habitat within the BSA includes vernal pools, vernal swales, swales, and seasonal wetlands. Fairy shrimp (potentially vernal pool fairy shrimp) were incidentally observed during the March 22, 2016 site visit in two aquatic features (WA-35 [vernal pool] and WA-39 [seasonal wetland]) (Figure 3.4-1). Various seasonally wet aquatic habitat types (vernal pools, vernal swales, swales, ephemeral drainages, and seasonal wetlands) within the BSA provide suitable habitat for these species. In lieu of conducting USFWS protocol presence/absence surveys, the presence of listed vernal pool branchiopods is being assumed within suitable habitats in the BSA.

A total of 0.044 acre of suitable habitat will be permanently and directly affected from construction fill and grading related to the road widening, extension of road shoulders, and excavation of roadside ditches (**Figure 3.4-3** and **Table 3.4-5** summarizes impacts on these habitats). Unlike Section 404 Waters impacts calculations (see **Table 3.4-6**), direct effects to vernal pool branchiopod habitats were calculated using the total acreages of the affected features rather than just the portions that would be filled. Under USFWS guidance, vernal pool branchiopod impacts are considered “direct impacts” if the project would result in the direct placement of fill into any portion of the pool. These same regulations consider the entire pool to be directly impacted, even if just a portion of the pool will be filled.

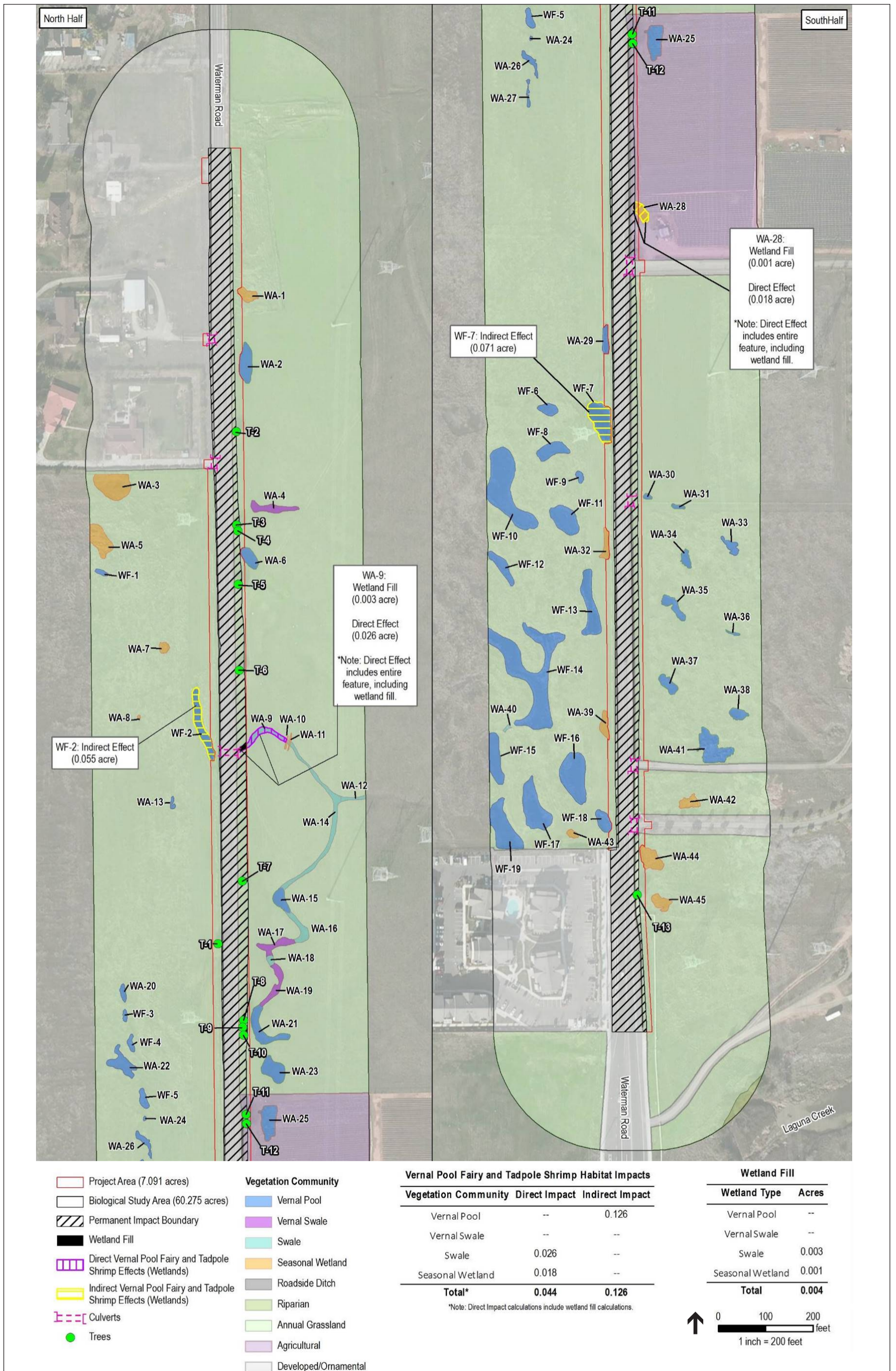
**TABLE 3.4-5  
VERNAL POOL FAIRY SHRIMP AND TADPOLE SHRIMP HABITAT IMPACTS**

<b>Vegetation Community</b>	<b>Direct Impacts (acres)</b>	<b>Indirect Impacts (acres)</b>
Seasonal Wetland	0.02	0
Swale	0.03	0
Vernal Pool	0	0.13
Vernal Swale	0	0
<b>Total</b>	<b>0.05</b>	<b>0.13</b>

This is a potentially significant impact. However, implementation of the following mitigation measures would reduce these impacts to a less than significant level:

- **MM BIO-1** “Conduct Environmental Awareness Training”
- **MM BIO-2** “Install Temporary Barrier Fencing to Protect Environmentally Sensitive Habitat Areas”
- **MM BIO-3** “Conduct Weekly Monitoring Visits”
- **MM BIO-4** “Implement Best Management Practices (BMPs) to Protect Water Quality”
- **MM BIO-5** “No Off-road Vehicle or Equipment Activity Outside of Construction Footprint”
- **MM BIO-7** “Restrict Ground-disturbing Activities to the Dry Season (Between April 15 and October 15)”







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- **MM BIO-8** “Purchase Preservation Credits at Minimum 2:1 Ratio for Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Habitat for Wetlands Directly Affected”
- **MM BIO-9** “Purchase Preservation Credits at a 2:1 Ratio for all Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Habitat for Wetlands Indirectly Affected”

In general, indirect effects include fragmentation of habitat, altered hydrology, introduction of invasive weeds through soil disturbance, and increased disturbance from noise and artificial light. Potential indirect effects to vernal pool branchiopods from this Project may include altered hydrology through increased turbidity and siltation from stormwater runoff, or from the accidental introduction of washwater, solvents, oils, cement, or other pollutants from stormwater exiting the construction area and extending into other features nearby. Indirect effects could occur due to dust from construction activities, though water trucks will be used to minimize dust. To date, no research exists to show disturbance to vernal pool fairy shrimp from noise, vibration, or light.

The majority of Waters within the BSA are hydrologically isolated from Waterman Road due to existing roadside ditches, which convey stormwater flows from the northern half of the roadway into a two large vernal pools on the west side of the BSA. This hydrologic isolation would continue as a result of the construction of the new roadside ditches, resulting in no indirect hydrologic effects to the majority of Waters in the BSA. In order to prevent impacts from occurring to waters outside of the Project area, an erosion control barrier will be placed on the outer edge of the new roadside ditch alignment. The barrier will not be keyed into the ground (no trench will be excavated for the barrier), and construction of the ditches will be performed from the road to avoid ground disturbance beyond the new roadside ditch.

Although most of the Waters are currently isolated from the Project area, indirect effects for vernal pool branchiopods were further assessed on an individual aquatic feature basis using a micro-watershed analysis approach for all potential vernal pool large branchiopod habitats within 250 feet of the Project area (Figure 3.4-3). For each aquatic feature, topography data (1-foot contours) was examined between the edge of the Project area and the edge of the feature. Using this approach, it was determined that in addition to being hydrologically-isolated from Project construction due to the existing/proposed roadside ditches, aquatic features with the following characteristics were considered to not have potential to be indirectly affected by the Project:

- Features located at a higher elevation than the Project area;
- Features located more than 250 feet from the Project area;
- Features located at the same elevation as the Project area, but separated by slope breaks (i.e., changes in elevation greater than one foot, including small rises or depressions that would result in isolating a feature from surface water flows); and
- Features located downhill from the Project area but separated by swales or drainages that would intercept surface water flows from the Project area before they could reach the feature.

Conversely, it was determined that if the roadside ditches were not present, features with the following characteristics would have potential to be affected by the Project:

- Features at the same elevation as the Project area with no slope breaks (rises or depressions [excluding vernal pools and seasonal wetlands] greater than 1 foot); or
- Features located at a lower elevation from the Project area with no swales or drainages (including existing and proposed roadside ditches) that would act as a barrier to surface flows by intercepting surface water flows from the Project area.

Impacts to vernal pool branchiopods could occur during construction disturbance, such as fill and grading, which could bury resting eggs. Additional impacts could result from hydrological alterations related to higher stormwater inputs conveyed into existing vernal pools WF-2 and WF-7 through the proposed roadside ditch construction; although the hydrology of all other vernal pools would remain unchanged. Reductions in water quality could also occur from erosion and siltation; however, this impact would be avoided through the implementation of Mitigation Measure BIO-4, which would implement BMPs. Changes in hydrology resulting from Project construction would result in 0.13 acres of indirect effects to vernal pool branchiopod habitats from road construction. This is a potentially significant impact. However, implementation of mitigation measures **MM BIO-1** through **MM BIO-5** and **MM BIO-7** through **MM BIO-9** would reduce these impacts to a less than significant level. Implementation of measures **MM BIO-1** through **MM BIO-5** will minimize impacts to avian resources in the following ways:

- Trained construction workers will allow the work force to identify and resolve potential impacts quickly.
- Installation of barrier fencing and limited construction vehicles to the construction zone will ensure that resources are not disturbed outside the construction zone.
- Weekly monitoring will ensure that the fencing remains intact ingress has not occurred. Implementation of BMPS will ensure that construction run-off does not affect water quality of offsite creeks.
- Implementation of **MM BIO-7** will minimize impacts to vernal pool inhabitants by ensuring that construction occurs when they are least vulnerable to “take”.
- Finally, implementation of BIO MM-9 ensures that vernal pool habitat is preserved as mitigation for the habitat loss.

### **Western Spadefoot**

Habitat for western spadefoot (vernal pools and seasonal wetlands) is present within the BSA and would be permanently affected by grading related to the road widening, extension of road shoulders, and excavation of roadside ditches. Impacts to western spadefoot individuals could occur during construction fill and grading, which could crush burrowing individuals. Reductions in habitat quality could result from hydrological alterations related to grading or isolating individual habitats through construction of impervious surfaces, which could prevent adults from utilizing the affected habitats for breeding. Reduction in water quality could also occur from the creation of exposed areas of bare soil, although this impact would be avoided

through the implementation of mitigation measure **MM BIO-4**. This is a potentially significant impact. However, implementation of mitigation measures **MM BIO-1** through **MM BIO-7**, and **MM BIO-10** would reduce these impacts to a less than significant level.

### **Swainson's Hawk**

No Swainson's hawks were observed at or within 0.25 mile of the BSA during the March 22, 2016 field survey. Potential Swainson's hawk nesting habitat is present within cottonwood and willow trees along Laguna Creek at the southern end of the BSA and within 0.25 mile from the BSA. The nearest Swainson's hawk nesting record is approximately 2 miles northeast of the BSA, though foraging observations are as close as 0.25 mile from the BSA (CNDDDB 2016). The BSA supports grassland habitat and agricultural fields that provide suitable foraging areas for Swainson's hawk.

A total of 1.11 acres of annual grassland, which could be utilized by Swainson's hawk as foraging habitat, will be permanently impacted by the Project. However, this amount of habitat is relatively small in comparison to the amount of annual grasslands within the BSA and the general region. For this reason, it is not expected to have a substantial effect on any Swainson's hawk that could potentially utilize annual grasslands in the BSA for foraging. In addition, 1.92 acres of annual grassland habitat will be temporarily impacted by activities related to Project construction. These areas will return to pre-Project baseline conditions within one year however, and are not anticipated to have an impact on foraging Swainson's hawks.

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 hawk if an active nest is located near these activities. Within urban areas, CDFW considers 0.25 mile to be a sufficient buffer to avoid disturbance of nesting Swainson's hawks (CDFW 1994). Any disturbance that causes Swainson's hawk nest abandonment and subsequent loss of eggs or developing young at active nests located near the Project area would violate the California Endangered Species Act; California Fish and Game Code Sections 2800, 3503, and 3503.5; and the Migratory Bird Treaty Act. This is a potentially significant impact.

The closest known Swainson's hawk nest area occurs more than 0.25 mile from the BSA, and none were observed during field surveys; therefore, the Project is not expected to adversely affect potentially nesting Swainson's hawk. In addition to known Swainson's hawk nest areas, potential nesting habitats are present within 0.25 mile of the BSA and could be used by Swainson's hawks. Because the BSA occurs within an urban area subject to ongoing noise disturbances and human presence, any Swainson's hawks nesting in this area would likely be habituated to these existing disturbances. Based on the existing level of disturbance/noise in the Project vicinity, and limited ground disturbance associated with the Project, the Project is not likely to result in impacts (nest abandonment and/or death of developing Swainson's hawk eggs or young) to nesting Swainson's hawk if appropriate avoidance measures are implemented.

Implementation of mitigation measures **MM BIO-1**, **MM BIO-3**, **MM BIO-11**, and **MM BIO-12** would reduce these impacts to a less than significant level. Implementation of mitigations measures **MM BIO-1**, **-3** and **-11** will minimize impacts to nesting Swainson's

hawk and implementation of **MM BIO-12** will ensure the loss of Swainson's hawk habitat is mitigated through preservation of similar habitat.

### **Special-Status Birds, Nesting Migratory Birds, and Raptors**

The Project site and the immediate vicinity have the potential to support tricolored blackbird, loggerhead shrike, and white-tailed kite as well as other nesting raptors and migratory birds, on suitable nest trees within and adjacent to the BSA. Migratory birds and raptors observed within the BSA during field surveys that could potentially nest within or adjacent to the BSA included: white-tailed kite, American kestrel (*Falco sparverius*), California towhee (*Melospiza crissalis*), red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus cyaneus*), turkey vulture (*Cathartes aura*), American robin (*Turdus migratorius*), killdeer (*Charadrius vociferus*), mourning dove (*Zenaidura macroura*), northern mockingbird (*Mimus polyglottos*), song sparrow (*Melospiza melodia*), western meadowlark (*Sturnella neglecta*), and western scrub-jay (*Aphelocoma californica*). Additionally, Canada goose (*Branta canadensis*) and mallard (*Anas platyrhynchos*) were observed flying over the BSA, but were not observed on the ground or in the pools. Though not observed during the surveys, loggerhead shrike has potential nesting and foraging habitat and tricolored blackbird has potential foraging habitat within the BSA and Project area. No remnant or active nests were observed during the site visits.

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 migratory birds and raptors if an active nest is located near these activities. Any disturbance that causes migratory bird or raptor nest abandonment and subsequent loss of eggs or developing young at active nests located at or near the Project area would violate California Fish and Game Code Sections 3503 or 3503.5 and the Migratory Bird Treaty Act. Direct impacts on nesting raptors or migratory birds or their habitat such as removal of trees could result in substantial lowered reproductive success or habitat loss, thereby potentially adversely affecting local population levels. The raptor or bird species could be adversely affected if active nesting, roosting, or foraging sites are either removed or exposed to a substantial increase in noise or human presence during Project activities. The impact would be less than significant if construction activities occur during the non-breeding season (i.e., from September 1 through January 31<sup>st</sup>). However, construction activities conducted during the breeding season between February 1 and August 31 could affect the species adversely and result in a potentially significant impact. Implementation of mitigation measures **MM BIO-1**, **MM BIO-3**, and **MM BIO-11** would mitigate the impact to less than significant through minimizing potential impacts avian resources with the training of construction workers to identify and resolve potential impacts quickly, weekly monitoring to ensure that the fencing remains intact ingress has not occurred, and conducting a preconstruction nesting migratory bird and raptor survey to establish no-disturbance buffers, if necessary,

### **Special-Status Plants**

During special-status plant surveys conducted during March 22 and 25, April 27 and 28, and May 25, 2016, two special-status plant species were observed within the BSA. Legenere (a CNPS Rank 1.B1 species) was observed in a vernal pool outside of the Project area, and

Northern California black walnut (a CNPS Rank 1.B1 species) was observed growing along Laguna Creek outside of the Project area. Potential habitat is present within the Project area for two other plant species that are known to occur in the vicinity of the BSA: dwarf downingia and Bogg's Lake hedge hyssop. Dwarf downingia has a CNDDDB occurrence within the BSA. Bogg's Lake hedge hyssop is known from an occurrence approximately 0.5 mile west of the BSA (Table 3.4-3). Neither species was observed during the special-status plant surveys, which were conducted during their bloom periods; therefore, it has been determined that these species are not present and will not be discussed further.

As shown in Table 3.4-3 and per the discussion above, no special-status plant species have potential to be impacted by the Project because they either 1) are not known to occur in the Project area (i.e., legenera), 2) were not detected during special-status plant surveys conducted during the appropriate bloom period, 3) do not have habitat present within the Project area, or 4) do not have habitat present within the BSA. Therefore there is no impact to special-status plant species.

- b) *Would the project 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?*

**No Impact.** Within the BSA, 0.04 acres were identified as riparian vegetation, a habitat type that is considered to be a sensitive natural community by the CDFW. This habitat was identified along both banks of Laguna Creek in the southeastern portion of the BSA. However, this habitat type does not occur within the Project area, as confirmed by the field survey and, therefore, would not be impacted by the Project; therefore there is no impact.

- c) *Would the project 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?*

**Less than Significant with Mitigation.** As shown in Table 3.4-6, there would be less than 0.01, acres of permanent (fill) and no temporary direct impacts to Waters within the Project area. The permanent loss of Waters would result from constructed fill and grading related to the road widening, extension of road shoulders, and excavation of roadside ditches. Temporary impacts to Waters will not occur, because orange barrier fencing will be installed along the boundaries of Waters, rather than through them.

**TABLE 3.4-6  
IMPACTS TO WATERS**

<b>Waters Type</b>	<b>Permanent Impacts (acres)</b>	<b>Temporary Impacts (acres)</b>
Seasonal Wetland	<0.01	0
Swale	<0.01	0
Vernal Pool	0	0
Vernal Swale	0	0
<b>Total</b>	<b>&lt;0.01</b>	<b>0</b>

Protective fencing along the outer edge of the proposed new roadside ditch alignment will be placed prior to construction work commencing. All construction work will be conducted from inside the outer boundary of the new roadside ditch alignments adjacent to vernal pools (i.e., no vehicles or equipment will move beyond outer edges of the new ditches). Staging of equipment would occur within existing City ROW or in parcel(s) adjacent to the Project area, which would be environmentally-cleared by the construction contractor prior to their use.

It is unlikely that the hydrology of the majority of Waters within the BSA will be indirectly impacted by the Project. The new ditches that will be constructed as part of the Project will mimic the existing hydrology present within the Project area by continuing to isolate the majority of Waters in the BSA from the roadway by conveying stormwater flows from the northern half of the roadway into two existing vernal pools (WF-2 and WF-7) via a system of culverts. In this way, Waters surrounding the Project area, with the exception of these two aquatic features (swale WA-9 and seasonal wetland WA-28, which will be partially filled), will be unaffected by grading and increases in the amount of impervious surfaces (roadway widening) associated with the Project, because the proposed excavated roadside ditches will function like the existing roadside ditches by continuing to isolate Waters in the BSA from stormwater flows from the road.

In addition to the Project design, which is recreating the existing hydrology within the BSA, indirect impacts to Waters will be avoided by placing a construction buffer between the edge of the Project area and the outer edge of the excavated ditches (limit of permanent ground disturbance). To accomplish this, all equipment and vehicles will be operated within the outer boundaries of the new ditches. The construction buffer will minimize ground disturbance and the potential for related impacts to water quality and changes to the hydrology of the BSA, because no ground disturbance or vehicular travel will occur outside the limits of permanent ground disturbance (i.e., excavated roadside ditches) or the disturbance associated with installation of fencing. Furthermore, all BMPs (see Mitigation Measure BIO-4) will be left in place until vegetation has reestablished within all temporarily-impacted upland areas, stabilizing the soil to an extent that impacts to water quality, and by extension indirect impacts to Waters, would be avoided.

As described above, impacts to waters of the U.S. are potentially significant. Implementation of mitigation measures **MM BIO-1** through **MM BIO-6** would mitigate the impact to less than significant.

- d) *Would the project 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?*

**No Impact.** Laguna Creek provides a movement corridor for areas between Morrison Creek, the Sacramento River, and areas upstream of the BSA. However, Laguna Creek is not located within the BSA, and the proposed Project would not remove, degrade or otherwise interfere with the structure or function of this wildlife movement corridor. Therefore, no impact is anticipated.

- e) *Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

**No Impact.** The Project will require the removal of 13 Brazilian pepper trees (*Schinus terebinthifolius*) growing within the City's ROW within the Project area. This species has a "limited" classification under the Cal-IPC 2006 invasive species list, and were found to be spreading within the nearby Laguna Creek riparian habitat. While the trees do fall within the City's ROW, the City has determined that the trees do not trigger the need for mitigation under the City's Tree Preservation and Protection Ordinance because the trees are not oaks, landmark, or trees of local importance. Therefore, there would be no impact.

- f) *Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

**No Impact.** The proposed Project would not conflict with an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. The Project is taking place within the proposed South Sacramento County Habitat Conservation Plan planning area, which has not been adopted at this time. There are currently no adopted conservation plans or other approved local, regional, or state habitat conservation plans that cover the Project area. Therefore, the proposed Project would not conflict with the plan, and no impact is anticipated.

## Mitigation Measures

- MM BIO-1** Conduct Environmental Awareness Training. Before any work occurs in the Project area, including grading and equipment staging, all construction personnel shall participate in an environmental awareness training regarding special-status species and sensitive habitats present in the Project area. If new construction personnel are added to the Project, they must receive the mandatory training before starting work. As part of the training, an environmental awareness handout will be provided to all personnel that describe and illustrates sensitive resources to be avoided during Project construction. This would include avoiding Waters outside the Project area.

*Timing/Implementation: Prior to and during Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

- MM BIO-2** Install Temporary Barrier Fencing to Protect Environmentally Sensitive Habitat Areas. Before any ground-disturbing activity occurs within the Project area, the City shall ensure that temporary orange barrier fencing is installed around the Project area adjacent to sensitive habitat areas to be avoided, as appropriate. Construction personnel and construction activities shall avoid areas outside the fencing. The exact location of the fencing shall be determined by the Project engineer coordinating with a qualified biologist, with the goal of protecting sensitive biological habitat and water quality.

The fencing material will consist of temporary plastic mesh-type construction fence (Tensor Polygrid or equivalent) installed between the work area and environmentally sensitive habitat areas (i.e. Waters, special-status plants, special-status wildlife habitat, active bird nests), as appropriate, and will meet Caltrans standards and specifications. To minimize potential ground disturbance, the base of the fencing will not be buried or keyed-in.

Installation of the barrier fence will occur under the supervision of a qualified biologist. The temporary orange barrier fencing will also be installed in a manner that is consistent with applicable water quality requirements contained within the Project's Stormwater Pollution Prevention Plan (SWPPP). The fencing shall be shown on the final construction documents. The fencing shall be checked regularly and maintained until all construction is complete. No construction activity shall be allowed until this condition is satisfied. In addition, a construction buffer will be established, where no construction activities (i.e., vehicle traffic or equipment operation) will occur outside the outer boundaries of the roadside ditches that will be excavated as part of the Project.

*Timing/Implementation: Prior to and during Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

**MM BIO-3** Conduct Weekly Monitoring Visits. A representative from the City will make weekly monitoring visits to construction areas occurring in or adjacent to environmentally sensitive habitat areas. The City will be responsible for ensuring that the contractor maintains the fencing protecting sensitive biological resources. Additionally, the City will retain a qualified biologist on-call to assist the City and the construction crew in complying with all Project implementation restrictions and guidelines as needed.

*Timing/Implementation: During Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

**MM BIO-4** Implement Best Management Practices (BMPs) to Protect Water Quality. The City shall require that the construction contractor implement the following BMPs to protect water quality of Waters adjacent to the Project area.

- Conduct ground disturbing activities adjacent to jurisdictional waters during the dry period (generally between April 15 and October 15) when all jurisdictional features within and adjacent to the Project area are anticipated to be dry.
- Install fiber rolls, or other equivalent erosion and sediment control measures between the Project area and Waters, as necessary, to ensure that construction debris and sediment does not inadvertently enter these Waters. All areas of exposed soil will be covered or otherwise stabilized 48 hours prior to potential precipitation events of greater than 0.5 inch. In addition, in order to minimize ground disturbance, fiber rolls or other equivalent control measures will not be keyed-in or buried.



- Immediately after Project construction is complete, all exposed soil shall be stabilized. Soil stabilization may include, but is not limited to, seeding with a native grass seed mix.
- Fiber rolls, or other equivalent erosion and sediment control measures will not be removed from the Project area until vegetation has reestablished within all temporarily-impacted areas to at least 70 percent of pre-Project vegetation cover conditions or better.
- No refueling, storage, servicing, or maintenance of equipment shall take place within 100 feet of Waters.
- All machinery used during construction of the Project shall be properly maintained and cleaned to prevent spills and leaks that could contaminate soil or water.
- Any spills or leaks from construction equipment (i.e., fuel, oil, hydraulic fluid, and grease) shall be cleaned up in accordance with applicable local, state, and/or federal regulations.
- Before any ground-disturbing activities, the City shall prepare and implement a SWPPP (as required under the State Water Resources Control Board's (SWRCB) General Construction Permit Order 2009-0009-DWQ [and as amended by most current order(s)]) that includes erosion control measures and construction waste containment measures to ensure that waters of the state are protected during and after Project construction. A SWPPP is required when ground disturbance is one acre or more. Due to size of the ground disturbance (>1 acre), a SWPPP will be prepared and implemented. The SWPPP shall include site design to minimize offsite storm water runoff that might otherwise affect adjacent stream habitat.

The SWPPP shall be prepared with the following objectives: (a) to identify pollutant sources, including sources of sediment, that may affect the quality of storm water discharges from the construction of the Project; (b) to identify BMPs to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the site during construction; (c) to outline and provide guidance for BMP monitoring; (d) to identify Project discharge points and receiving waters; (e) to address post-construction BMP implementation and monitoring; and (f) to address sedimentation, siltation, and turbidity.

*Timing/Implementation: Prior to and during Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

- MM BIO-5** No Off-road Vehicle or Equipment Activity Outside of Construction Footprint. To reduce the likelihood of soil and vegetation disturbance outside of the Project footprint, which could impact water quality and hydrology for adjacent Waters and special-status species habitats, no vehicle traffic or heavy equipment activity will occur outside of the Project footprint/construction buffer, defined as the maximum area of permanent ground disturbance (i.e., area of roadway construction and the new ditches areas of excavation).

*Timing/Implementation: During Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

**MM BIO-6** Purchase Creation Credits at a Minimum 1:1 Ratio for Impacts (Fill) to Waters or Make a Payment to the Corps' In-lieu Fee Program. To compensate for permanent impacts (fill) to Waters within the Project area, the City would purchase creation credits from an approved mitigation bank at a minimum 1:1 ratio or make an equivalent payment to the Corps' in-lieu fee program. Based on preliminary Project design, 0.004 acre of Waters would be permanently impacted for the road widening resulting in approximately 0.004 acre of creation credits required to be purchased or the equivalent payment to the Corps' in-lieu fee program.

*Timing/Implementation: Prior to Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

**MM BIO-7** Restrict Ground-disturbing Activities to the Dry Season (Between April 15 and October 15). All ground-disturbing activities associated with construction of the Project will be restricted to the dry season (between approximately April 15 and October 15) to avoid the period when special-status species (vernal pool fairy and tadpole shrimp, and western spadefoot) could be breeding. If construction would need to continue past October 15, the City will request an authorization from USFWS to extend the work period.

*Timing/Implementation: During Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

**MM BIO-8** Purchase Preservation Credits at Minimum 2:1 Ratio for Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Habitat for Wetlands Directly Affected. To compensate for direct effects on vernal pool fairy shrimp and vernal pool tadpole shrimp, the City would purchase preservation credits from a USFWS approved mitigation bank at a 2:1 preservation ratio (2 acres of habitat preserved for every 1 acre) for habitats permanently and directly affected. Based on preliminary Project design, 0.044 acre of habitat would be permanently affected for the road widening resulting in approximately 0.088 acre of preservation credits required to be purchased or preserved.

*Timing/Implementation: Prior to Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

**MM BIO-9** Purchase Preservation Credits at a 2:1 Ratio for all Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Habitat for Wetlands Indirectly Affected. To compensate for indirect effects on vernal pool fairy shrimp and vernal pool tadpole shrimp, the City would purchase credits from a USFWS-approved mitigation bank at a 2:1 preservation ratio (2 acre of habitat preserved for every 1 acre indirectly affected). Based on preliminary Project design, 0.126 acre of

habitat would be indirectly affected for the road widening, resulting in 0.252 acre of preservation credits required to be purchased or preserved.

*Timing/Implementation: Prior to Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

**MM BIO-10** Conduct a Preconstruction Survey for Western Spadefoot. No more than 48 hours prior to construction, preconstruction surveys for western spadefoot shall be conducted within the Project area. If western spadefoot are observed within the Project area, work shall stop until the animal voluntarily leaves the area.

*Timing/Implementation: Prior to Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

**MM BIO-11** Conduct a Preconstruction Nesting Migratory Bird and Raptor Survey and Establish No-disturbance Buffers, if Necessary. If construction (including equipment staging and tree removal) will occur during the breeding season for migratory birds and raptors (generally between February 1 and August 31), the City shall retain a qualified biologist to conduct a preconstruction nesting bird and raptor survey before the onset of construction activities. The preconstruction nesting bird and raptor surveys shall be conducted between February 1 and August 31 within suitable habitat at the Project area. Surveys for raptors nests should also extend 250 feet from the Project area to ensure that nesting raptors are not indirectly affected by construction noise. The survey shall be conducted no more than 30 days before the initiation of construction activities. If no active nests are detected during the survey, no additional mitigation is required and construction can proceed.

If migratory birds or raptors are found to be nesting in or adjacent to the Project area, a 250-foot no-disturbance buffer shall be established around raptor nests and a 50-foot buffer around non-raptor nests to avoid disturbance of the nest area and to avoid take. The buffer shall be maintained around the nest area until the end of the breeding season or until a qualified biologist determines that, the young have fledged and are foraging on their own. The extent of these buffers shall be determined by the biologist (coordinating with the CDFW) and shall depend on the species identified, level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers.

*Timing/Implementation: Prior to Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

**MM BIO-12** Preserve CDFW-approved Foraging Habitat for Swainson's Hawk at a 1:1 Ratio for Permanent Impacts or Submit Payment of a Swainson's Hawk Impact Mitigation Fee to the City of Elk Grove, or purchase credits through the City's

Delta Shores Mitigation Bank. To compensate for permanent loss of Swainson's hawk foraging habitat, the Project shall follow the City's Swainson's Hawk Mitigation Fee program or will purchase credits through the City's Delta Shores Mitigation Bank. Per the program, approved property must be acquired, or a mitigation fee paid to the City prior to the start of construction, as described in Chapter 16.130 of the Elk Grove Municipal Code (City 2016) or City's existing bank.

*Timing/Implementation: Prior to Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

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## 3.5 Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>5. 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 type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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"/>

This section relies upon the information and findings presented in the cultural resources technical reports prepared for the Project: *Archaeological Survey Report for the Waterman Road Rehabilitation Project, Elk Grove, Sacramento County, California* (ESA 2016b). Additional details on background context, Native American correspondence, and cultural resources identified are presented in the technical report.

### Environmental Setting

#### ***CEQA Area of Potential Effects (C-APE)***

For the purposes of this analysis, the horizontal extent of the CEQA Area of Potential Effects (C-APE) is considered to be the entire Project Area. Due to the nature of the Project and its minimal potential for indirect effects, it was determined that the C-APE is the same for archaeological and built environment resources. This C-APE consists of the areas that would be potentially directly and physically impacted by the Project. This includes both the horizontal and vertical maximum extents of potential impacts, and encompasses the Project footprint and staging and access areas. The horizontal extent of the C-APE measures 7.18 acres. The vertical extent of the C-APE is considered to be the maximum depth of ground disturbance associated with Project implementation, anticipated to be four feet below ground surface.

#### ***Native American Correspondence***

ESA and the California State Native American Heritage Commission (NAHC) corresponded in March and April 2016. The NAHC stated that their Sacred Lands File (SLF) has no record of cultural resources in the C-APE. In May and June 2016, the City and ESA sent letters with Project information and made phone calls to Native American contacts provided by the NAHC. In June 2016, ESA responded to a request from one of the contacts with updates on the Project and results of the cultural resources study. During these outreach efforts, none of the contacted parties identified any specific concerns regarding cultural resources and the potential for the Project to impact cultural resources.

### ***Records Search***

On March 14, 2016, at the request of ESA, a records search was conducted at and by the staff of the North Central Information Center (NCIC) of the California Historical Resources Information System (CHRIS), at California State University, Sacramento (File # SAC-16-50). The NCIC records search indicated that no previously recorded cultural resources are present in the C-APE and that four previously recorded cultural resources are outside but within 0.5 mile of the C-APE. These four resources consist of: one prehistoric archaeological site (P-34-000162), one historic-period built environment resource (P-34-001102), and two prehistoric archaeological isolates (P-34 -001103, P-34-001104); none of these has been evaluated for eligibility to qualify as a historical resource or unique archaeological resource, for CEQA purposes.

### ***Field Survey***

In March 2016, ESA conducted a cultural resources pedestrian survey of the entire C-APE. The entire C-APE has experienced significant disturbance from road construction activities. Ground visibility during the survey was virtually 100%, though the visible surface consisted of imported fill and pavement. No cultural resources were identified during the field survey.

### ***Archaeological Sensitivity Analysis***

As part of the cultural resources investigations, ESA conducted a desktop archaeological sensitivity analysis for the Project. The analysis determined that the potential for buried archaeological deposits in the C-APE is very low. Archaeological material associated with prehistoric use of the C-APE, if present, would in all likelihood be in a surficial context; the C-APE's proximity to permanent and seasonal drainages suggests a moderate potential for surficial archaeological deposits in undisturbed sediment or soil. However, the pedestrian survey conducted for the current study covered the entire C-APE and did not identify any cultural resources. Because the entire C-APE has experienced significant disturbance from road construction activities, any surficial (or shallow buried) archaeological deposits in the C-APE existing prior to such activities would have likely been destroyed or heavily damaged.

### ***Paleontological Sensitivity Analysis***

ESA reviewed geologic and soil maps of the C-APE and conducted an online search of the University of California Museum of Paleontology (UCMP) Specimen Search for the Project Area. Geologic maps indicate that the Project Area is underlain by the Laguna Formation, which consists of Pliocene-age (5 to 1.8 million years ago) cobble, sand, and silt from mixed metamorphic, granitic, and volcanic sources (Dawson 2009). The Laguna Formation extends from Oroville south to the northern San Joaquin Valley and has an estimated thickness of 180 to 1,000 feet (Helley and Harwood 1985; Olmsted and Davis 1961).

Soil maps indicate that soils in the Project Area are Redding series gravelly loams, overlain and mixed with modern fill. Redding series gravelly loams are typically up to 40 inches deep (USDA 2016). The UCMP Specimen Search indicates that 126 fossils have been documented within Sacramento County. While their location with respect to the Project Area is unknown, none of the recorded localities come from Pliocene-aged sediments, such as the Laguna Formation. The Laguna

Formation is generally considered to have low potential for significant vertebrate fossils, with an isolated horse tooth as the only published record of a vertebrate fossil from the formation (Stirton, 1939). Therefore, the Project Area is considered to have low potential for paleontological resources.

## Discussion of Impacts

- a) *Would the project cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?*

**No Impact.** CEQA Guidelines § 15064.5 requires the lead agency to consider the effects of a project on historical resources. A historical resource is defined as any building, structure, site, or object listed in or determined to be eligible for listing in the California Register, or determined by a lead agency to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California. The following discussion focuses on architectural and structural resources. Archaeological resources, including archaeological resources that are potentially historical resources according to CEQA Guidelines § 15064.5, are addressed under criterion b, below.

Through a records search, background research, and a field survey, no cultural resources were identified in the Project Area. As such, there are no architectural or structural resources in the Project Area that qualify as historical resources, as defined in CEQA Guidelines § 15064.5; therefore, the Project is not anticipated to impact any historical resources, as defined in CEQA Guidelines § 15064.5.

- b) *Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?*

**Less than Significant with Mitigation.** This section discusses archaeological resources, both as historical resources according to CEQA Guidelines § 15064.5, as well as unique archaeological resources, as defined in PRC § 21083.2(g). A significant impact would occur if the project would cause a substantial adverse change to an archaeological resource through physical demolition, destruction, relocation, or alteration of the resource.

Through a records search, background research, and a field survey, no archaeological resources were identified in the Project Area. As such, the Project is not anticipated to impact any archaeological resources pursuant to CEQA Guidelines § 15064.5.

However, because the Project would include excavation, previously unrecorded archaeological resources may be uncovered during construction. If any previously unrecorded archaeological resource were identified during Project implementation, particularly ground-disturbing construction activities, and were found to qualify as an historical resource per CEQA Guidelines § 15064.5 or a unique archaeological resource, as defined in PRC § 21083.2(g), any impacts to the resource resulting from the Project could be potentially significant. Any such potential significant impacts would be reduced to a less than significant level by implementing mitigation measure **MM CUL-1**.

- c) *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

**Less than Significant with Mitigation.** Through a search and background research, no paleontological resources are known to be in the Project Area. The Project Area is underlain by the Laguna Formation, overlain by Redding series gravely loams overlain or mixed with modern fill. The Laguna Formation is generally considered to have low potential for significant vertebrate fossils; therefore, the Project Area is considered to have low potential for paleontological resources.

The majority of Project ground-disturbing activities would occur in soils, not underlying bedrock, though there is the possibility that Project ground-disturbing activities could impact the underlying Laguna Formation. However, the Laguna Formation is considered to have low potential for paleontological resources; therefore, the Project is not anticipated to directly or indirectly destroy a unique paleontological resources or site or unique geologic feature.

However, because the Project would include excavation, previously unrecorded paleontological resources may be uncovered during construction. In the unlikely case that Project ground-disturbing activities encounter paleontological resources, any impacts to the resource resulting from the Project could be potentially significant. Any such potential significant impacts would be reduced to a less than significant level by implementing mitigation measure **MM CUL-2**.

- d) *Would the project disturb any human remains, including those interred outside of formal cemeteries?*

**Less than Significant with Mitigation.** Through a records search, background research, and a field survey, no human remains are known to exist in the Project Area. Therefore, the Project is not anticipated to impact any human remains, including those interred outside of formal cemeteries.

However, because the Project would include excavation, previously unrecorded human remains may be uncovered during construction. If any previously unknown human remains were encountered during Project implementation, particularly ground-disturbing construction activities, any impacts to the human remains resulting from the Project could be potentially significant. Any such potential significant impacts would be reduced to a less than significant level by implementing mitigation measure **MM CUL-1**.

## Mitigation Measures

- MM CUL-1** Unanticipated Discovery Protocol for Archaeological Resources and Human Remains. If prehistoric or historic-period archaeological resources are encountered during Project implementation, all construction activities within 100 feet shall halt, and a qualified archaeologist, defined as an archaeologist meeting the U.S. Secretary of the Interior's Professional Qualification Standards for Archeology, shall inspect the find within 24 hours of discovery and notify the City of their initial assessment. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile



points, knives, scrapers) or toolmaking debris; culturally darkened soil (“midden”) containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include building or structure footings and walls, and deposits of metal, glass, and/or ceramic refuse.

If the City determines, based on recommendations from a qualified archaeologist, that the resource may qualify as a historical resource or unique archaeological resource (as defined in CEQA Guidelines § 15064.5), the resource shall be avoided if feasible. If avoidance is not feasible, the City shall consult with appropriate Native American tribes (if the resource is Native American-related), and other appropriate interested parties to determine treatment measures to avoid, minimize, or mitigate any potential impacts to the resource pursuant to PRC § 21083.2, and CEQA Guidelines § 15126.4. This shall include documentation of the resource and may include data recovery or other measures. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the Project.

In the event of discovery or recognition of any human remains during Project implementation, Project construction activities within 100 feet of the find shall cease until the Sacramento County Coroner has been contacted to determine that no investigation of the cause of death is required. The Coroner shall contact the NAHC within 24 hours if the Coroner determines the remains to be Native American in origin. The NAHC will then identify the person or persons it believes to be the most likely descendant (MLD) from the deceased Native American (PRC § 5097.98), who in turn would make recommendations to the City for the appropriate means of treating the human remains and any associated funerary objects (CEQA Guidelines § 15064.5[d]).

*Timing/Implementation: During construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

## **MM CUL-2**

Unanticipated Discovery Protocol for Paleontological Resources. If potential fossils are discovered during Project implementation, all earthwork or other types of ground disturbance within 100 feet of the find shall stop immediately until a qualified professional paleontologist, defined as one meeting the Society of Vertebrate Paleontology (SVP) Standards, can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the paleontologist may record the find and allow work to continue, or recommend salvage and recovery of the fossil. The paleontologist may also propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is

required, recommendations will be consistent with SVP guidelines and currently accepted scientific practice. If required, treatment for fossil remains may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and may also include preparation of a report for publication describing the finds.

*Timing/Implementation: During construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

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## 3.6 Geology, Soils, and Seismicity

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>6. GEOLOGY and Soils — Would the project:</b>				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 off-site 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 waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Environmental Setting

### *Regional Geology*

The Project site lies within the Great Valley<sup>3</sup> geomorphic province of California, which is an alluvial plain about 50 miles wide and 400 miles long in the central part of California. The Great Valley geomorphic province is bounded on the north by the Klamath and Cascade mountain ranges, on the east by the Sierra Nevada, and on the west by the California Coast Mountain Range. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic Era (about 160 million years ago).

### *Topography*

The Project area is situated on the broad, flat alluvial plain of the Sacramento River in the Sacramento Valley within the Great Valley. Topography of the site is essentially flat at an elevation of approximately 61 to 75 feet above mean sea level (msl).

<sup>3</sup> The Great Valley is also called the Great Central Valley or the Central Valley when discussing in terms of geography. The common scientific term when discussing in relation to geology is “the Great Valley” as is discussed in this section.

### ***Faults and Seismicity***

There are no active or potentially active faults in the vicinity of the Project and the Project is not exposed to Alquist-Priolo or other fault rupture hazards. The closest known fault to the Project site is the Willows fault zone, which is approximately 10 miles north of the City, but is considered inactive as displacement occurred greater than 1.8 million years ago. The nearest faults with recorded activity within the last 200 years are the Concord, Hayward, and Cleveland Hill faults. The Safety Element Background of the *Sacramento County General Plan* (Sacramento County 2011) identified two major subsurface fault zones on the eastern and western sides of the City. The Midland Fault Zone is located approximately 20 miles west, while the Bear Mountain Fault Zone is located approximately 20 miles east. The closest known active subsurface fault is the Dunnigan Hills fault, located approximately 25 miles northwest of the City.

### ***Ground Shaking***

Ground shaking is motion that occurs as a result of energy released during faulting. Ground shaking is the primary cause of earthquake damage to man-made structures. When the ground shakes strongly, buildings can be damaged or destroyed and their occupants may be injured or killed. The Project area is subject to potentially moderate seismic shaking (OES 2015).

### ***Liquefaction and Soils***

Liquefaction is a process whereby water in unconsolidated sand and other granular materials is subjected to pressure usually caused by ground motion. Since fluids are not compressible and granular materials are compressible, especially when shaken, the water seeks release. As water moves out of materials, such as sand, it causes the granular material to flow and lose strength. Such materials, in effect, behave like quicksand. The ground literally flows out from under structures. Earthquake shaking is a major cause of liquefaction and has resulted in severe damage in parts of California. Soil in the Project area consists of Redding gravelly loam (NRCS 2016), which typically occurs over 0 to 8 percent slopes. The soil is moderately deep and moderately well drained. The shrink-swell potential of this soil is moderate.

## **Discussion of Impacts**

- a) *Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*
  - i) *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?*

**No Impact.** The Project site is not within an Earthquake Fault Zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act, and no known active or potentially active faults exist on the site. Therefore, the Project would result in no impact.

*ii) Strong seismic ground shaking?*

**Less than Significant.** While the Project is not located within an Alquist-Priolo earthquake hazard zone, the Project site is subject to moderate seismic ground shaking caused by the potential of major seismic events in areas with active faults such as the San Francisco Bay Area. The Project proposes to rehabilitate an existing roadway and to add bicycle lanes in both directions. The proposed rehabilitation would not result in the development of structures, including residential or commercial development that would result in people being adversely affected by ground shaking. The improvements would be designed in accordance with the City of Elk Grove Design Guidelines and Standard Construction Specifications. Therefore, the impact is considered to be less than significant.

*iii) Seismic-related ground failure, including liquefaction?*

**No Impact.** As noted above, the Project site's topography is relatively flat and is not located within a delineated Alquist-Priolo Earthquake Fault Zone and is not located in an area known to be susceptible to liquefaction. The Project is located on Redding gravelly soil, which is moderately well drained. No impact would occur.

*iv) Landslides?*

**No Impact.** The Project area is flat and not susceptible to landslide hazards. There would be no impact.

*b) Would the project result in substantial soil erosion or the loss of topsoil?*

**Less than Significant.** Construction activities would involve earth moving activities, such as grading and roadway improvements and could result in short-term wind-driven erosion of soils. The Project site has mostly been previously developed and would not result in substantial loss of topsoil. Proposed Project operations would not result in a significant increase in the potential for soil erosion over existing conditions. Chapter 16.44, Land Grading and Erosion Control, of the City Municipal Code establishes procedures to minimize erosion and sedimentation during construction activities. The RWQCB requires that a National Pollutant Discharge Elimination System (NPDES) construction activity permit be issued prior to construction. The permit requires that the City impose water quality and watershed protection measures for all development projects, including erosion control. Compliance with Municipal Code Chapter 16.44 would reduce impacts associated with soil erosion to a less than significant level.

*c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?*

**Less than Significant.** As discussed above, the Project site's topography is relatively flat and is not located in an area known to be susceptible to liquefaction. The potential for soil liquefaction with earthquake shaking is considered minimal due to the depth of the groundwater beneath the seat at approximately 20 to 30 feet below mean sea level and therefore approximately 85 to 105 feet below ground surface at the Project site (City of Elk Grove 2003). Implementation of the Project with City Design Guidelines and Standard

Construction Specifications related to ground failure, including liquefaction, would result in a less than significant impact.

- d) *Would the project 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?*

**Less than Significant.** Soils with high clay content are usually expansive. Minerals in certain clays swell with increased moisture content and then contract during dry periods. As discussed above, the Project site is underlain with Redding gravelly loam soil, which typically contains low to moderate clay content. Implementation of the Project with City Design Guidelines and Standard Construction Specifications in addition to designing the Project so that grades are constructed in such a way as to prevent water from collecting on or adjacent to pavements, thereby discouraging soil saturation along the roadway and adjacent to existing and planned structures would result in a less than significant impact.

- e) *Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?*

**No Impact.** The Project would not create waste water and would not need to connect to the sewer system or use septic tanks or other alternative waste water disposal systems. Therefore, there is no impact.

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## 3.7 Greenhouse Gas Emissions

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>7. GREENHOUSE GAS EMISSIONS —</b> <b>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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Environmental Setting

CEQA requires lead agencies to evaluate the environmental impacts of projects they are considering for approval. Greenhouse Gas (GHG) emissions have the potential to adversely affect the environment because they contribute to global climate change. In turn, global climate change has the potential to raise sea level, affect rainfall and snowfall, and worsen air pollution levels. An individual project's GHG emissions are minor relative to global GHG emissions but global emissions are what drive climate change.

In September 2006, then-Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32, which requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. AB 32 delegated the authority for implementation to the CARB and directs the CARB to enforce the statewide cap. In accordance with AB 32, CARB prepared the Climate Change Scoping Plan (Scoping Plan) for California, which was approved in 2008 and revised in 2011.

The City adopted the *City of Elk Grove Climate Action Plan (CAP)* on March 27, 2013 to comply with AB 32. The CAP identified how the City and the broader community could reduce regional GHG emissions and included reduction targets, strategies, and specific actions. The City considers a specific project proposal consistent with the Elk Grove CAP if it complies with the GHG reduction measures contained in the adopted CAP.

### Discussion of Impacts

- a) *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

**Less than Significant.** The proposed Project would rehabilitate and improve Waterman Road, between Bond Road and Sheldon Road. The Project includes resurfacing and widening for bicycle lanes allowing Waterman Road to meet current City's rural road design standards, and roadway striping to accommodate bike lanes on the associated shoulders in each direction. The proposed Project would not increase traffic capacity on Waterman Road and the construction of bicycle lanes would encourage alternative modes of transportation and potentially reduce the number of vehicles on the roadway. Consequently, the Project would not increase GHG emissions during Project operation. However, Project construction would



require the use of off-road construction equipment, worker commute trips, and material haul trips, all of which would generate GHG emissions.

The SMAQMD has adopted GHG significance thresholds of 1,100 metric tons of CO<sub>2e</sub> per year for construction and operational phases of projects and 10,000 direct metric tons of CO<sub>2e</sub> per year for stationary source projects (SMAQMD 2009). Since Project construction is not considered a stationary GHG emission source, annual construction emissions that exceed the SMAQMD's GHG significance threshold of 1,000 metric tons of CO<sub>2e</sub> per year would be considered to have a significant GHG impact.

Construction emissions over the full construction duration were estimated using the California Emissions Estimator Model (CalEEMod v.2016.3.1). Model outputs and assumptions can be found in Appendix C. Project construction would generate 108 metric tons of CO<sub>2e</sub>. Project operation would not generate any GHG emissions. GHG emissions generated during construction and operation would not exceed SMAQMD's 1,100 metric tons per year CO<sub>2e</sub> significance threshold. Therefore, the Project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment. This impact would be less than significant.

- b) *Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

**Less than Significance with Mitigation.** The City of Elk Grove has established a GHG reduction plan with GHG reduction strategies focused on land use and mobility, energy, solid waste, water and municipal services and operations (City of Elk Grove 2013). The proposed Project would comply with TACM-5 (Pedestrian and Bicycle Travel) by providing bicycle lanes along Waterman Road. The only other mandatory GHG reduction measures found in the City Elk Grove CAP that applies to the proposed Project are as follows:

**BE-9. Cool Paving Materials:** Encourage the use of high-albedo material for future outdoor surfaces to the greatest extent feasible, including but not limited to parking lots, median barriers, roadway improvements, and sidewalks.

**RC-1. Waste Reduction:** The City shall facilitate recycling, reduction in the amount of waste, and reduce of materials to reduce the amount of solid waste sent to the landfill from Elk Grove and achieve an 80 percent diversion by 2020.

In compliance with the City's CAP and in order to avoid a potential significant impact, the Project would implement mitigation measures **MM GHG-1**, which requires the diversion of 65 percent of waste generated during demolition in an effort to reach the City's goal of reducing the total amount of solid waste sent to the landfill by 80 percent. The Project is also using funding from a CalRecycles grant for rubberized asphalt concrete, which would reduce the impact to a less than significant level because it would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

## Mitigation Measures

**MM GHG-1** Divert 65 Percent of Waste Generated During Demolition. The City of Elk Grove shall require that the Project divert 65 percent of the waste generated during the demolition of existing pavement and construction of new traffic improvement facilities from disposal landfill, consistent with CAP measure RC-1.

*Timing/Implementation: During Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

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## 3.8 Hazards and Hazardous Materials

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>8. 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 checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Environmental Setting

The SWRCB GeoTracker and the California Department of Toxic Substances Control (CDTSC) EnviroStor databases were searched for known hazardous materials or hazardous waste sites in the vicinity of the Project. Two permitted underground storage tanks (USTs) were identified near the Waterman Square Apartments, toward the south end of the Project near Bond Road, as well as an open-inactive Military Cleanup Site at the Waterman Road/Bond Road intersection related to the Mather Air Force Base.

Under Government Code Section 65962.5, the CDTSC maintains a list of hazardous substance sites, referred to as the Cortese List. The Cortese List is a reporting document used by the state, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. The Cortese List includes federal superfund sites, state response sites, non-operating hazardous waste sites, voluntary cleanup sites, and school

cleanup sites. A record search of the Cortese List indicated that there were no such sites within the Project vicinity.

In response to the Oakland Hills fire in 1991 and the passage of AB 337 Bates Bill, the state mapped areas considered Very High Fire Hazard Severity Zones (VHFHSZ). The California Department of Forestry and Fire Protection (CalFire) identified VHFHSZs through a ranking process based on fuels, topography, dwelling density, and weather. The Project site is located outside of the VHFHSZ (CalFire 2008).

The nearest airport to the Project site that is currently in operation is Mather Airport, located approximately 9 miles northeast of the Project site. Mather Airport is a public-use airport facility. There are no private airstrips in the vicinity of the proposed Project.

## Regulatory Setting

Hazardous materials are defined by the California Code of Regulations as substances with certain physical properties that could pose a substantial present or future hazard to human health or the environment when improperly handled, disposed, or otherwise managed. Hazardous materials are grouped into the following four categories, based on their properties.

- Ignitable – able to cause burns
- Toxic – causes human health effects
- Corrosive – causes severe burns or damage to materials
- Reactive – causes explosions or generates toxic gases

The Environmental Compliance Division of the Sacramento County Environmental Management Department (EMD) has been designated by the California Environmental Protection Agency (Cal-EPA) as the Certified Unified Program Agency (CUPA) for Sacramento County. As the CUPA, the Environmental Compliance Division has the primary responsibility to enforce most regulations regarding hazardous materials in the area and is responsible for the implementation of six statewide environmental programs for Sacramento County. These include: Underground storage of hazardous substances (USTs), Hazardous Materials Business Plan (HMP) requirements, Hazardous Waste Generator requirements, California Accidental Release Prevention (Cal-ARP) program, Uniform Fire Code hazardous materials management plan, and the Aboveground Petroleum Storage Spill Prevention Control and Countermeasures Plan (Sacramento County 2017). The EMD adopted the *Area Plan for Emergency Response to Hazardous Materials Incidents in Sacramento County* (Area Plan) (Sacramento County 2016), which describes the responsibilities of local, state, and federal agencies during incidents involving the release and/or threatened release of hazardous materials.

Cosumnes Fire Department acts as first responder to hazardous materials incidents within the City. EMD provides incident response and consultation, safeguards public health through an on-site assessment, ensures proper disposal of hazardous materials, ensures that Sacramento County has an adequate plan for incidents involving hazardous materials, and participates in disaster planning and response. The EMD will refer large cases of hazardous materials contamination or

violations to the CVRWQCB and the CDTSC. SMAQMD and the federal and California Occupational Safety and Health Administrations may also become involved in large cases.

## Discussion of Impacts

- a) *Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

**Less than Significant with Mitigation.** Construction of the proposed Project would potentially require the use of various types and quantities of hazardous materials. Construction activities would involve the use of petroleum-based fuels for maintenance and construction equipment, which would be transported to the site periodically by vehicle and would be present at the site for short periods of time. None of these materials would be permanently stored on site. Furthermore, all hazardous materials used for the construction of the proposed roadway rehabilitation would be used, stored, and transported according to applicable federal, state, and university requirements. While typical road rehabilitation activities (including paint application and recycling) would include the use of a variety of hazardous materials, the construction contractor is obligated to store and handle these materials (and associated wastes) in compliance with all Federal, State, and local regulations, as well as in adherence to Occupational Safety and Health Administration (OSHA) worker safety standards, which includes worker training related to onsite personal safety, hazardous materials storage and handling procedures (including container labeling, completion of material safety data sheets, employee training, and emergency response procedures). Additionally, the construction contractor would be responsible for developing and implementing a SWPPP, including adherence to the State published BMPs (see Hydrology and Water Quality, below), and for compliance with mitigation measure **MM HAZ-1**, which requires the safe removal and proper disposal of materials contaminated by lead. Implementation of the Project would not lead to the direct, long-term use or disposal of any hazardous materials. Therefore, impacts associated with the transport, use, or disposal of hazardous materials, the release of hazardous materials into the environment would be less than significant with mitigation.

- b) *Would the project 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?*

**Less than Significant with Mitigation.** As mentioned under Item “a” above, construction-related hazardous materials that could be used and transported include fuel, solvents, paints, oils, grease, and caulking. It is possible that any of these substances could be released during construction activities. However, compliance with federal, state, and local regulations, in combination with construction BMPs implemented from a SWPPP (as required by the Construction General Permit) and mitigation measure **MM HAZ-1**, would ensure that all hazardous materials are used, removed, stored, and disposed properly, which would minimize potential impacts related to a hazardous materials release during the construction phase of the Project. Implementation of the Project is not expected to 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. No hazardous materials are expected to be used or stored on site during the operational phase of the Project; the impact would be less than significant with mitigation.

- c) *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

**No Impact.** There are no existing or planned schools within one-quarter mile of the Project. The nearest school is Pleasant Grove High School, which is located approximately 0.6 miles east of the Project off Bond Road. Therefore, there would be no impact related to hazardous emissions, materials, substances, or waste within one-quarter mile of an existing or proposed school.

- d) *Would the project 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?*

**No Impact.** As discussed above under Environmental Setting, there are no sites listed on the Cortese List, under Government Code Section 65962.5, within the Project area and no impact would occur.

- 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?*

**No Impact.** The nearest airport to the Project site is the Mather Airport, located approximately 9 miles to the northeast of the Project, so the Project is not located within two miles of a public airport or public use airport. The Project site is not located within an airport land use plan. Therefore, the Project would not result in any safety hazards for people residing or working in the Project area; there would be no impact.

- 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?*

**No Impact.** The Project is not located within the vicinity of a private airstrip. Therefore, the Project would have no impact on public safety related to safety hazards from a private airstrip.

- g) *Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

**Less than Significant.** In addition to the EMD Area Plan, mentioned above under Regulatory Setting, the City is covered under the *Sacramento County Emergency Operations Plan (EOP)* (Sacramento County 2012). The EOP establishes an Emergency Management Organization and assigns functions and tasks consistent with California's Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS). The EOP is the principal guide for the County's response to, and management of real or potential

emergencies and disasters occurring within its designated geographic boundaries. Because the Project may require lane closure and/or detours during construction, the City would require the contractor to coordinate with the fire and police departments ahead of any closures therefore, impacts would be less than significant.

- h) Would the project 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?*

**Less than Significant.** The Project is located in a rural area of the City, adjacent to residential, open space, and commercial/mixed-use land uses. While fire on open space lands is a possibility, the Project area is not remote and the Project is not located in an area designated by CalFire to be a VHFHSZ. The Project does not include the construction of any structures and would not result in the exposure of people to wildland fires. Emergency access would be maintained throughout construction and, in the event of a fire, the Cosumnes Fire Department provides emergency fire services to the Project area. Impacts would be less than significant.

## Mitigation Measures

- MM HAZ-1** Safe Removal and Proper Disposal of Materials Contaminated by Lead. The City shall ensure, through the enforcement of contractual obligations, that work plans address procedures for the safe removal and proper disposal of materials contaminated with lead. Any identified lead-based paint must be removed and disposed of in the proper waste facility.
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## 3.9 Hydrology and Water Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>9. HYDROLOGY AND WATER QUALITY — Would the project:</b>				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Environmental Setting

### Surface Water

The Project area is located in the Morrison Creek watershed within the greater Sacramento River watershed. The Sacramento River watershed is the largest watershed in California with a 27,000 square mile basin. Laguna Creek is the primary natural drainage that flows through Elk Grove, and is located 150 to 1,700 feet east of the Project site. Surface and sub-surface waters in the Project area drain to Laguna Creek. Laguna Creek flows in a southerly direction past the Project site, then easterly through the City, before turning south and ultimately merging with the Sacramento River downstream of the Sacramento Regional San Wastewater Treatment Plant and approximately 19.5 miles downstream of the Project site.

## **Groundwater**

The proposed Project is underlain by the Sacramento Valley aquifer system, within the South American Groundwater Subbasin, which is bounded on the east by the Sierra Nevada, on the west by the Sacramento River, on the north by the American River, and on the south by the Cosumnes and Mokelumne Rivers (CDWR 2004). Aquifers in this area generally consist of sand and gravel with considerable amounts of silt and clay. Streams, subsurface inflows from adjacent areas, percolation of rainfall, and applied water provide recharge to the aquifer system in the City. Groundwater level data are available in the general vicinity of the Project site, but not for the Project site itself. The closest well for which groundwater level data were available was located along Sheldon Road, about one mile northeast of the Project site, and indicated that groundwater levels are generally between 90 and 115 feet below ground surface (CDWR 2016).

## **Floodplain**

The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries. FEMA maps identify the locations of special flood hazard areas, including the 100-year floodplain. The Project site is not located within a FEMA 100-year flood zone (FEMA 2012).

The Pacific Institute has developed a map and corresponding report detailing the expected impacts of sea level rise on the California coast. According to the map released in 2009, the Project site is outside of the sea level rise hazard zone (Pacific Institute 2009).

## **Regulatory Setting**

The SWRCB administers water rights, water pollution control, and water quality functions throughout the state. Regional Water Quality Control Boards (RWQCBs) are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility. The SWRCB regulates the discharge of stormwater through the NPDES permit program. Stormwater runoff from construction sites disturbing one acre or more must be covered under the State's General Construction Activity Stormwater Permit (Order No. R5-2016-0040, NPDES No. CAS0085324) (Construction General Permit), which requires the development and implementation of a SWPPP. The SWPPP is to identify potential pollution sources, needed BMPs, and maintenance and monitoring activities needed to prevent exceedance of applicable water quality standards. The City has a current NPDES General Permit, renewed by the CVRWQCB in November 2016, which regulates stormwater discharges associated with construction activities.

The City of Elk Grove is a joint participant with Sacramento County's NPDES. The permit was renewed in 2008 and allows the City to discharge urban runoff from Municipal Separate Storm Sewer Systems (MS4s) in its municipal jurisdictions. The permit requires that the City impose water quality and watershed protection measures for all development projects. The NPDES also requires every new construction project to have a permit for every new construction project that implements the following measures:

- Eliminate or reduce non-stormwater discharges to stormwater systems and other waters of the nation.

- Develop and implement a SWPPP.
- Perform inspections of stormwater control structures and pollution prevention measures.

Stormwater quality control measures with Elk Grove are guided by the *Sacramento Region Stormwater Quality Design Manual* (May 2014). The manual outlines planning tools and requirements to reduce urban runoff pollution to the maximum extent practicable from new development and redevelopment projects, including the use of porous surfaces on roadways.

Senate Bill (SB) 5 and associated legislation requires protection for a 200-year flood for urban and urbanized areas in the Central Valley. Under SB 5, development in moderate or special hazard areas within the Central Valley is permitted if the local agency can provide substantial evidence that the development would be subject to less than 3 feet of flooding during a 200-year flood event. Based on information provided by the California Department of Water Resources (CDWR), the Project area is not subject to 200-year flood requirements as defined under SB 5 (DWR 2017).

## Discussion of Impacts

- a) *Would the project violate any water quality standards or waste discharge requirements?*

### **Less than Significant with Mitigation.**

**Project Construction.** Project construction activities, such as site grading and stockpiling, could temporarily affect water quality by introducing sediments, turbidity, and pollutants associated with sediments into storm drains or other water bodies. Construction-related activities that expose and move soils are primarily responsible for sediment releases. Non-sediment potential contaminants that could enter water runoff from the construction site include oil, gasoline, petroleum products, and trash.

The Project footprint is approximately 7.18 acres and approximately 1 acre of new impervious surface area would be added. The Project, under mitigation measure **MM HWQ-1**, would be required to obtain a NPDES Construction General Permit and to prepare and implement a SWPPP, in accordance with the General Construction Permit, which requires the development and implementation of a SWPPP on construction sites disturbing one acre or more. The SWPPP will include BMPs to protect stormwater runoff and monitor BMP effectiveness. At a minimum, BMPs will include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The SWPPP would specify properly-designed centralized storage areas that keep these materials out of the rain.

In addition to State requirements, measures would be included in the grading plans to minimize erosion potential and water quality degradation of the Project area in accordance with Elk Grove Municipal Code Title 16, Chapter 16.44, Land Grading and Erosion Control. Chapter 16.44 establishes administrative procedures, minimum standards for review, and implementation and enforcement procedures for controlling erosion, sedimentation, disruption of existing drainage, and related environmental damage caused by land clearing activities, grading, filling, and land excavation. Additionally, the State has published a set of

BMPs for both pre- and post-construction periods, which would be applied to the Project. The City would identify the appropriate BMPs for the proposed Project. Compliance with the NPDES permit and the required City measures, as described above, would reduce the Project's impacts on water quality to a level that is less than significant.

**Project Operation.** Implementation of the Project would result in an expansion of the existing roadway, totaling approximately 1 acre of new impervious surface within the Project site. In contrast to pervious surfaces, impervious surfaces prevent the infiltration of water into the subsurface. Therefore, during storm events, a net increase in impervious surfaces can result in a net increase in stormwater flows, and can also result in an earlier release of peak stormwater flows from a given area. These changes can result in a net increase in the volume of water emanating from a given area during storms. Increases in runoff volume can cause a number of downstream impacts, including increased flooding, as well as increased erosion and sedimentation potential. Additionally, impervious surfaces tend to collect oils, greases, brake dust, and other automobile-related pollutants during the dry season, and readily discharge these into adjacent surface waters during storm events (especially during a first flush event).

Potential impacts associated with increased impervious surfaces under the Project would be partially avoided given existing soil conditions on site and in the vicinity of the Project. The gravelly surficial soils in the Project vicinity are underlain by low-permeability clay layers, typically within 1 to 2 feet of the subsurface. These layers result in ponding and vernal pools observed during the wet season. As a result, infiltration capacity in the Project vicinity is already limited under existing conditions. Therefore, installation of new impervious surfaces would have limited potential to further increase stormwater runoff from the Project site. Potential releases of water quality pollutants from the project site could be mitigated via implementation of treatment BMPs and minimization measures listed above, as well as adherence to required City measures. Adherence to these measures would ensure that operation period impacts would be reduced to less than significant levels.

- b) *Would the project 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)?*

**Less than Significant.** The maximum excavation anticipated to be required for the Project is 4 feet. With groundwater found between 90 and 1150 feet below ground surface, it is unlikely that the Project would reach groundwater level and dewatering is not anticipated.

The Project site is not actively used for groundwater recharge. The ability for groundwater infiltration within the Project area would be only slightly altered from existing conditions. Implementation of the Project would not utilize or deplete local groundwater supplies.

Therefore, the Project would not contribute to depletion of groundwater supply during Project construction or operation resulting in a net deficit in aquifer volume or a lowering of the local groundwater table, and the impact is less than significant

- c) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?*

**Less than Significant with Mitigation.** The proposed Project would not result in the alteration of the course of a stream or river. The rehabilitation of Waterman Road would result in an increase in impervious surfaces, which would alter the existing drainage pattern on the Project site. The Project will result in a total impervious area of approximately 3 acres after construction. Per the Stormwater Quality Design Manual for the Sacramento Region, road projects with an impervious area less than 5 acres are required to implement source control as a stormwater quality control measure. The source control measures identified in the manual for a road project are Efficient Irrigation, Landscaping, and Storm Drain Markings and Signs. The Project is not proposing any irrigation for drainage inlets. The roadside ditches will be hydroseeded with native grasses in accordance with the landscaping source control measure.

The proposed Project would be required to meet the existing NPDES permit requirements, requiring the City to prepare a SWPPP for the proposed Project (mitigation measure **MM HWQ-1**) and submit it to the CVRWQCB in support of NPDES regulations. The proposed Project would be required to implement appropriate BMPs to prevent erosion and provide sedimentation control during construction. Further, the Project would be subject to Chapter 16.44 of the City's Municipal Code. Chapter 16.44 establishes administrative procedures, minimum standards for review, and implementation and enforcement procedures for controlling erosion, sedimentation, disruption of existing drainage and related environmental damage caused by land clearing activities, grading, filling, and land excavation. Compliance with the provisions of the NPDES, SWPPP, and BMPs, as identified in mitigation measure **MM HWQ-1**, and Chapter 16.44 of the Municipal Code would reduce impacts associated with erosion and siltation to a less than significant level.

- d) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?*

**Less than Significant.** The proposed Project would rehabilitate Waterman Road and add bicycle lanes in each direction, which would result in minimal alteration of the existing drainage pattern of the site due to an increase in impervious surfaces. The increase in impervious surfaces may result in an increase in the rate or amount of surface runoff from the Project site. However, this increase will not result in flooding on- or off-site because the Project would not result in a substantial alteration of the existing drainage pattern of the site or area because it would not substantially increase the rate or amount of surface runoff, as the Project involves improvements to an existing roadway. The Project includes slightly raising the profile of the roadway at an existing low spot to alleviate some existing localized flooding and would also upsize and relocate the existing culvert. No streams or rivers would be altered by the proposed Project. This impact is considered less than significant.

- e) *Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

**Less than Significant with Mitigation.** The proposed Project would result in an acre increase in impervious surface area at the Project site, which would result in an increase in the quantity of runoff generated in a storm event. The Project includes slightly raising the profile of the roadway at an existing low spot to alleviate some existing localized flooding and would relocating existing drainage features, but is not expected to require the construction of additional drainage features, as described above under “c”. The proposed Project is not expected to exceed the capacity of the existing stormwater drainage systems in the Project area. Additionally, the Project would slightly raise the profile of the roadway at an existing low spot to alleviate some existing localized flooding and would also upsize and relocate the existing culvert. Compliance with the provisions of the NPDES, SWPPP, and BMPs, as identified in mitigation measure **MM HWQ-1**, and Chapter 16.44 of the City Municipal Code would reduce impacts associated with runoff to a less than significant level.

- f) *Would the project otherwise substantially degrade water quality?*

**Less than Significant with Mitigation.** Refer to discussion of issue “a” of this subsection. The Project is not anticipated to substantially degrade water quality once completed and once implementation of the City’s NPDES permit occurs. Compliance with the provisions of the NPDES, SWPPP, and BMPs, as identified in mitigation measure **MM HWQ-1**, and Chapter 16.44 of the City Municipal Code would reduce impacts associated with water quality to a less than significant level.

- g) *Would the project 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?*

**No Impact.** The Project is not located in a FEMA 100-year flood hazard zone; therefore, the project area is not subject to 100-year flood hazards. Additionally, the project does not involve the construction of housing. As such, the project would have no impact with regard to the placement of housing in a 100-year flood zone.

- h) *Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?*

**No Impact.** The Project is not located in a FEMA 100-year flood hazard zone. Therefore, implementation of the Project would not place a new structure within the 100-year flood zone that could impede or redirect flows. As discussed above under Regulatory Setting, the proposed Project is not subject to the Senate Bill (SB) 5, since it does not fall into a project category that requires SB 5 findings. Although this Project requires a discretionary consideration, this Project would not result in new building construction or an increase in allowed building occupancy. No impact would occur.

- i) *Would the project 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?*

**No Impact.** The Project is not located within a levee protection area (Sacramento County 2011) or within the Folsom Dam Failure Flood Area. The Project would not 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. No impact would occur.

- j) *Would the project inundation by seiche, tsunami, or mudflow?*

**No Impact.** Seiches are waves generated in an enclosed body of water, such as the San Francisco Bay, from seismic activity. Seiches are related to tsunamis for enclosed bays, inlets, and lakes. These tsunami-like waves can be generated by earthquakes, subsidence or uplift of large blocks of land, submarine and onshore landslides, sediment failures and volcanic eruptions. The strong currents associated with these events may be more damaging than inundation by waves. The Project is not located in an area determined to be at risk of seiches or tsunamis as there are no lakes or other large bodies of water nearby that are susceptible to this risk. No impact would occur.

## Mitigation Measures

**MM HWQ-1** Implement Water Quality Best Management Practices (BMPs). The City would ensure that the project contractor comply with the requirements of a NPDES permit from the CVRWQCB. As part of the permit, the contractor would be required to prepare and implement a SWPPP into their construction plans, prior to initiating construction activities, identifying BMPs to be used to avoid or minimize any adverse effects before and during construction to surface waters. The following BMPs would be incorporated into the project as part of the construction specifications:

- 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.
- 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.
- Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event.
- Train construction workers in storm water pollution prevention practices.

- Re-seed disturbed areas in a timely manner to control erosion.

*Timing/Implementation: During Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

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## 3.10 Land Use and Land Use Planning

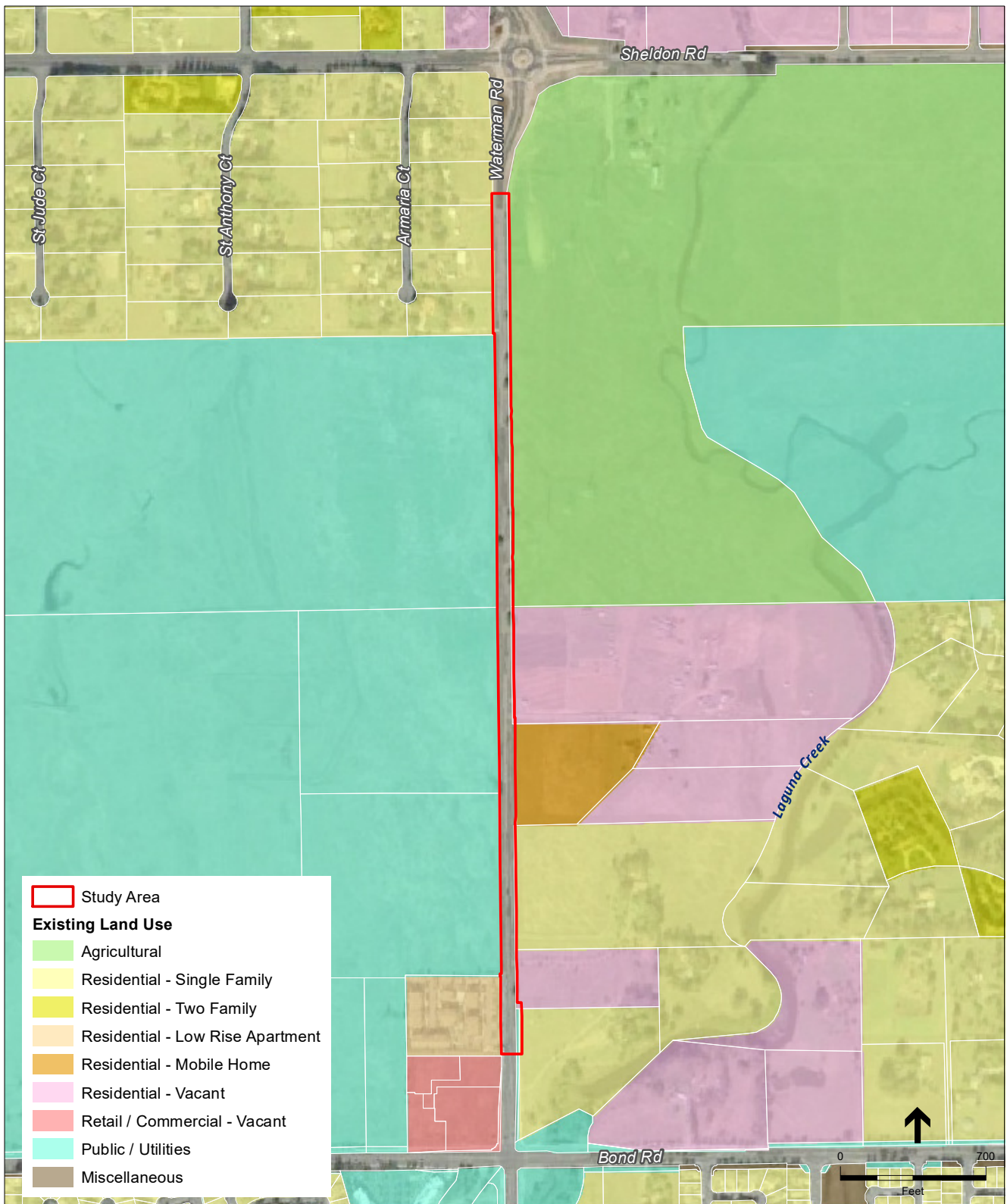
<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>10. LAND USE AND LAND USE PLANNING —</b> <b>Would the project:</b>				
a) Physically divide an established 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"/>

### Environmental Setting

The proposed Project is located in the Rural Sheldon Area of the City. Existing land uses surrounding the Project area include agricultural-residential, agricultural, and commercial/mixed-use (**Figure 3.10-1**). The Elk Grove Zoning Map (City of Elk Grove 2017) indicates that the majority of parcels surrounding the Project area are designated as Agricultural Residential zones AR-2 and AR-5 with the parcel at the northwest corner of Waterman Road and Bone Road intersection designated as Shopping Center (SC) and the location of the future Silverado Village development designated as a Special Planning Area/Specific Plan (SPASP). The City's General Plan Land Use Map identifies the surrounding parcels as Rural Residential, Estate Residential, Low Density Residential, and Commercial/Office/Mixed-Family Residential (**Figure 3.10-2**).

### Regulatory Setting

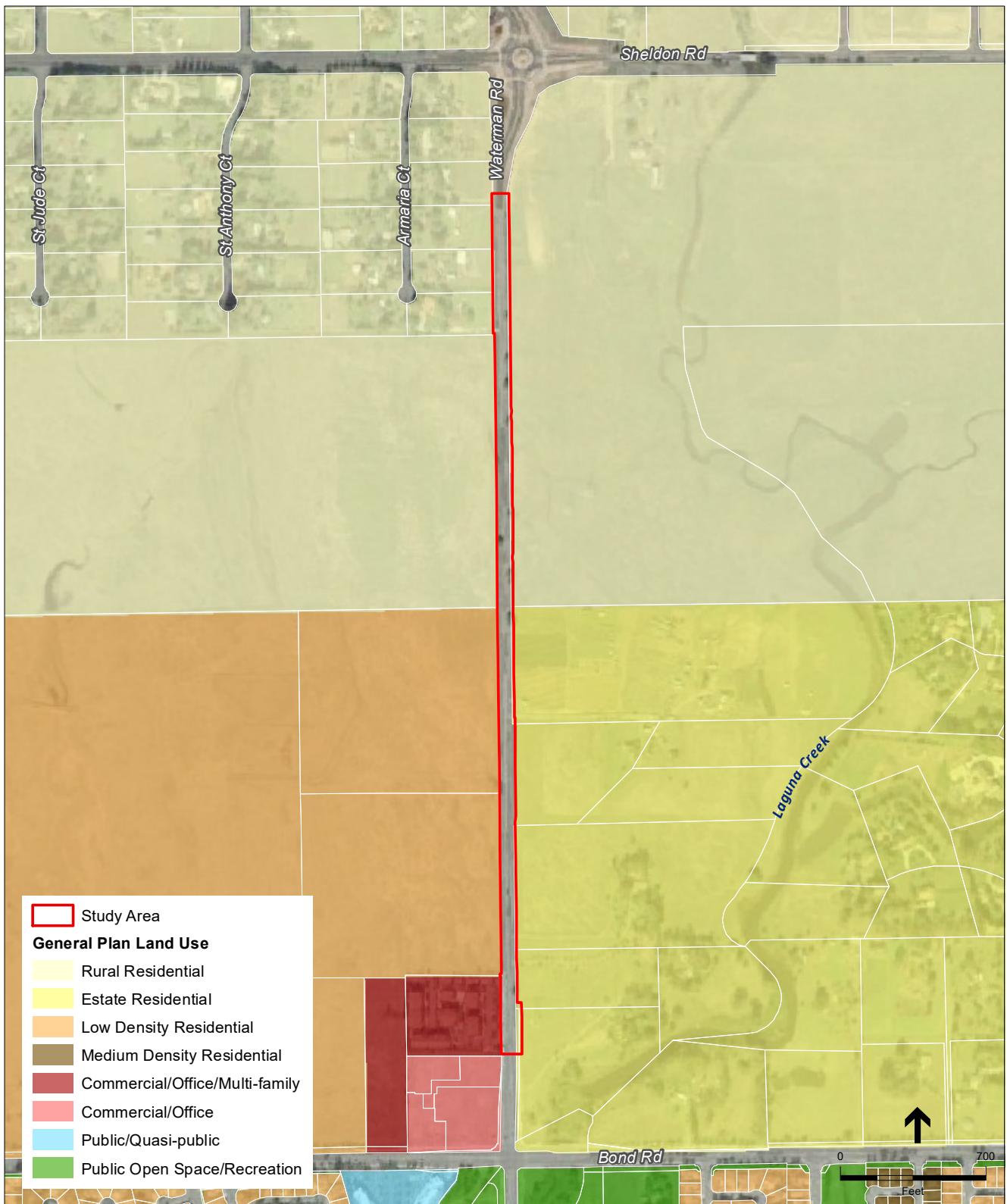
The *City of Elk Grove General Plan* (adopted November 2003 and reflecting amendments through July 2016) (City of Elk Grove 2003) is a broad framework for planning the future of the City of Elk Grove. It is the official policy statement of the City Council to guide the private and public development of the City in a manner to gain the maximum social and economic benefit to the citizens. All other City codes and standards, including Specific Plans and Development Code, must be consistent with the General Plan (City of Elk Grove 2016). The General Plan guides land use planning in the Project area. The Project is taking place within the proposed South Sacramento County Habitat Conservation Plan planning area, which has not been adopted at this time, so there are no habitat conservation plans or natural community conservation plans applicable to the Project. **Table 3.10-1** identifies the City's General Plan Policies relevant to the Project and determines if the Project is consistent with the identified policy.



SOURCE: Google, 2017; BENEN, 2016; Sacramento County, 2016; ESA, 2017

Waterman Road Rehabilitation and Bike Lanes IS/MND . 150620

**Figure 3.10-1**  
Existing Land Use



SOURCE: Google, 2017; BENEN, 2016; City of Elk Grove, 2016; ESA, 2017

Waterman Road Rehabilitation and Bike Lanes IS/MND . 150620

**Figure 3.10-2**  
General Plan Land Use

**TABLE 3.10-1  
CITY OF ELK GROVE GENERAL PLAN POLICIES CONSISTENCY WITH THE PROPOSED PROJECT**

General Plan Policy (as adopted)	Consistency with Project	Analysis
<p><b>Policy CI-1.</b> Circulation planning for all modes of travel (vehicle, transit, bicycle, pedestrian, etc.) shall be coordinated with efforts to reduce air pollution.</p>	Yes	The proposed Project includes the addition of bicycle lanes in each direction along Waterman Road in the Project area.
<p><b>Policy CI-3.</b> The City's efforts to encourage alternative modes of transportation will therefore focus on incentives to reduce vehicle use, rather than disincentives (which are generally intended to make driving and parking less convenient, more costly, or both). Incentives may include:</p> <ul style="list-style-type: none"> <li>• Preferential carpool and vanpool parking,</li> <li>• Bus turnouts, and</li> <li>• Pedestrian-friendly project designs.</li> </ul>	Yes	The proposed Project includes the addition of bicycle lanes in each direction along Waterman Road in the Project area, which is considered an incentive to reduce vehicle use.
<p><b>Policy CI-5.</b> The City shall encourage the use of transportation alternatives that reduce the use of personal motor vehicles.</p> <ul style="list-style-type: none"> <li>• <b>CI-5-Action 3.</b> The City will support positive incentives such as carpool and vanpool parking, bus turnouts, and pedestrian-friendly project designs to promote the use of transportation alternatives.</li> </ul>	Yes	The proposed Project includes the addition of bicycle lanes in each direction along Waterman Road in the Project area.
<p><b>Policy CI-10.</b> The City shall implement the roadway master plan shown in Figure CI-2 [of the General Plan]. The following policies apply to selected roadways:</p> <ul style="list-style-type: none"> <li>• The City may make improvements to roadways in the Rural Area, when warranted, consistent with the provisions of the Rural Roads Improvement Policy.</li> </ul>	Yes	The proposed Project is being designed to the <i>Rural Road Improvement Standards</i> .
<p><b>Policy CI-13.</b> The City shall require that all roadways and intersections in Elk Grove operate at a minimum Level of Service "D" at all times.</p>	Yes	The proposed Project is not identified as operating at Level of Service "D" in the <i>City of Elk Grove General Plan</i> and the Project only proposes to rehabilitate the existing roadway and add bicycle lanes, which is not expected to affect Level of Service.
<p><b>Policy CI-23.</b> All public streets should have sufficient width to provide for parking on both sides of the street and enough remaining pavement width to provide for fire and emergency vehicle access.</p>	Yes	The proposed Project would widen the existing roadway to accommodate bicycle lanes in each direction, which would better allow of emergency vehicle access.
<p><b>Policy CAQ-5.</b> Roads and structures shall be designed, built and landscaped so as to minimize erosion during and after construction.</p>	Yes	The Project would comply with the provisions of the NPDES, SWPPP, BMPs, and Chapter 16.44 of the City Municipal Code.
<p><b>Policy LU-18.</b> Land uses within the "Sheldon" area (generally encompassing the area designated for Rural Residential uses in the eastern part of Elk Grove) shall be consistent with the community's rural character, emphasizing lot sizes of at least two gross acres, roadways which preserve the area's mature trees, and limited commercial services.</p>	Yes	The proposed Project will comply with the <i>Rural Road Improvement Policy</i> and the <i>Rural Road Improvement Standards</i> established by the City, applicable to the Rural Sheldon Area of Elk Grove.

## Discussion of Impacts

a) *Would the project physically divide an established community?*

**No Impact.** The proposed Project is within the City's existing ROW. The proposed Project would include roadway rehabilitation and the addition of bike lanes, which would improve community continuity. Additionally, there would be no barriers to movements installed. The Project would not physically divide an existing community; therefore, no impact would occur.

b) *Would the project 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?*

**Less than Significant.** The proposed Project is in the jurisdiction of the City's General Plan and is also located in an area covered by the City's Rural Road Improvement Standards. The Project would not conflict with any applicable land use plan, policy, or regulation in the General Plan because the Project would not require ROW acquisition from the surrounding parcels. The Project is consistent with the *City of Elk Grove General Plan* policies, as shown in **Table 3.10-1**. Once traffic reaches a certain level, Waterman Road in the Project area is ultimately planned as a four-lane arterial roadway in the *City of Elk Grove General Plan Circulation Element*; the proposed Project would not preclude this expansion. The Project would also be consistent with the City's Rural Road Standards. Therefore, impacts are considered less than significant.

c) *Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?*

**No Impact.** There are currently no applicable habitat conservation plans or natural community conservation plans that cover the Project area. No impact would occur.

## 3.11 Mineral Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>11. 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"/>

### Environmental Setting

The principal legislation addressing mineral resources in California is the Surface Mining and Reclamation Act of 1975 (SMARA), which was enacted in response to land use conflicts between urban growth and essential mineral production. In accordance with SMARA, the California Geological Survey (CGS), formerly the California Division of Mines and Geology, has classified lands within the state into Mineral Resource Zones (MRZs). The MRZ classifications are defined as follows.

- **MRZ-1:** Areas 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:** Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.
- **MRZ-3:** Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
- **MRZ-4:** Areas where available information is inadequate for assignment into any other MRZ.

The Project site is contained entirely in an area that has been classified MRZ-3, which means the Project is in an area containing aggregate deposits, the significance of which cannot be evaluated from available data (California Geological Survey 1999). However, no significant mineral resources have been identified in the City. The City's General Plan EIR (City of Elk Grove 2003) did not identify any mineral resources in the planning area.

### Discussion of Impacts

- a) *Would the project 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?*

**No Impact.** The proposed Project would not result in the use or extraction of any mineral resources and would not restrict access to known mineral resource areas. The Project would not 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. No impact would occur.

- b) *Would the project 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?*

**No Impact.** There are no locally-important mineral resources recovery sites identified on a local general plan, specific plan, or other land use plan. The proposed Project would not 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. No impact would occur.

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## 3.12 Noise

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>12. NOISE — Would the project result in:</b>				
a) Exposure of persons to or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) 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 checked="" type="checkbox"/>	<input type="checkbox"/>
d) 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 or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<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"/>

### Environmental Setting

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. Given that the typical human ear is not equally sensitive to all frequencies of the audible sound spectrum, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes low and extremely high frequencies, referred to as A-weighting, and is expressed in units of A-weighted decibels (dBA).

### Noise Exposure and Community Noise

Noise levels rarely persist consistently over a long period of time. Rather, noise levels at any one location vary with time. Specifically, community noise is the result of many distant noise sources that constitute a relatively stable background noise exposure where the individual contributors are unidentifiable. Throughout the day, short duration single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens) that are readily identifiable to the individual add to the existing background noise level. The combination of the slowly changing background noise and the single-event noise events give rise to a constantly changing community noise environment.



To legitimately characterize a community noise environment and evaluate cumulative noise impacts, community noise levels must be measured over an extended period of time. This time-varying characteristic of environmental noise is described using statistical noise descriptors, including the ones described below:

- $L_{eq}$ : The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The  $L_{eq}$  is the constant sound level that would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).
- $L_{max}$ : The instantaneous maximum noise level measured during the measurement period of interest.
- $L_{dn}$ : The day-night average sound level ( $L_{dn}$ ) is the energy average of the A-weighted sound levels occurring during a 24-hour period, accounting for the greater sensitivity of most people to nighttime noise by weighting (“penalizing”) nighttime noise levels by adding 10 dB to noise between 10:00 p.m. and 7:00 a.m.
- CNEL: Similar to the  $L_{dn}$ , the Community Noise Equivalent Level (CNEL) adds a 5-dB “penalty” for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to the 10 dB penalty between the hours of 10:00 p.m. and 7:00 a.m.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise would be judged by those hearing it. With regard to increases in A-weighted noise levels, the following relationships occur:

- except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived;
- outside of the laboratory, a 3-dB change is considered a just-perceivable difference;
- a change in level of at least 5 dB is required before any noticeable change in human response would be expected; and
- a 10-dB change is subjectively heard as approximately a doubling in loudness, and can cause adverse response.

These relationships occur in part because of the logarithmic nature of the decibel system. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

### ***Fundamentals of Vibration***

As described in the Federal Transit Administration’s (FTA) *Transit Noise and Vibration Impact Assessment*, ground-borne vibration can be a serious concern for nearby neighbors, causing buildings to shake and rumbling sounds to be heard (FTA 2006). In contrast to airborne noise, ground-borne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of ground-borne vibration are trains, buses and heavy trucks on rough roads, and construction activities such as blasting, sheet pile-driving, and operating heavy earth-moving equipment.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (Vdb) is commonly used to express RMS. The decibel notation acts to compress the range of numbers required to describe vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration assessment include structures (especially older masonry structures), people who spend a lot of time indoors (especially residents, students, the elderly, and sick), and vibration sensitive equipment such as hospital analytical equipment and equipment used in computer chip manufacturing.

The effects of ground-borne vibration can include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin. A vibration level that causes annoyance can be well below the damage threshold for normal buildings.

## **Existing Noise Environment**

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication; physiological and psychological stress; and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others. In general, residences, schools, hotels, hospitals, and nursing homes are considered to be the most sensitive to noise. Commercial and industrial uses are considered the least noise-sensitive. Sensitive land uses in the vicinity of the proposed Project area consists of scattered single-family residences and one apartment complex (Waterman Square Apartments) along Waterman Road, between Sheldon Road and Bond Road. The nearest cluster of single-family residences is located at the northern end of the Project site approximately 160 feet west of the center line of Waterman Road. The Waterman Square Apartments is located at the southern end of the Project site, approximately 140 feet west of the centerline of Waterman Road.

The noise environmental in the area surrounding the Project area is characterized by urban roadways, and scattered residences. The ambient noise environment in the vicinity of the Project area was estimated using a relationship population density and ambient noise determined during a research program by the U.S. Environmental Protection Agency (EPA). The U.S. EPA determined that residences residing in a quiet suburban residential area are estimated to be exposed to outdoor ambient noise levels ranging from 48 to 52 dBA  $L_{dn}$  (EPA 1974). Since the area surrounding the Project area can be categorized as a quiet suburban residential, it is assumed that ambient noise levels would range from 48 and 52 dBA  $L_{dn}$ .

## Regulatory Setting

### *City of Elk Grove General Plan*

The Noise Element of the City's General Plan contains policies designed to protect the community from the harmful and annoying effects of exposure to excessive noise. General Plan policies applicable to the proposed Project are summarized below.

**Policy NO-3.** Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of **Table 3.12-1** as measured immediately within the property line of lands designated for noise-sensitive uses.

**NO-3-Action 1.** Limit construction activity to the hours of 7:00 a.m. to 7:00 p.m. whenever such activity is adjacent to residential uses.

**NO-3-Action 3.** The City shall require that stationary construction equipment and construction staging areas be set back from existing noise-sensitive land uses.

**TABLE 3.12-1**  
**PERFORMANCE STANDARDS FOR STATIONARY (NON-TRANSPORTATION) NOISE SOURCES**

Source	Noise Level (Hourly Leq, dBA)	
	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Part 1: Typical Sources <sup>1</sup>	55	45
Part 2: Sources Which are Tonal, Impulsive, Repetitive, or Consist Primarily of Speech or Music <sup>2</sup>	50	40

NOTES: The noise level standards in Parts 1 and 2 do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

The City may impose noise level standards which are more or less restrictive than those specified above based upon determination of existing low or high ambient noise levels.

<sup>1</sup> The standards above will apply generally to noise sources that are not tonal, impulsive, or repetitive in nature. Typical noise sources in this category would include HVAC systems, cooling towers, fans, blowers, etc.

<sup>2</sup> The standards in Part 2 apply to noises which are tonal in nature, impulsive or repetitive, or which consist primarily of speech or music (e.g., humming sounds, outdoor speaker systems). Typical noise sources in this category include pile drivers, drive-through speaker boxes, punch presses, steam valves, and transformer stations.

SOURCE: Elk Grove, 2003, Table NO-A (amended January 5, 2005)

**Policy NO-5.** Noise created by the construction of new transportation noise sources (such as new roadways or new light rail service) shall be mitigated so as not to exceed the levels specified in Table 3 at outdoor activity areas or interior spaces of existing noise-sensitive land uses. Please see Policy NO-6 for discussion of improvements to existing roadways.

**Policy NO-6.** It is anticipated that roadway improvement projects (such as widening of existing roadways) will be needed to accommodate build-out of the General Plan. Therefore, existing noise-sensitive uses may be exposed to increased noise levels due to roadway improvement projects as a result of increased roadway capacity, increases in travel speeds, etc. It may not be practical to reduce increased traffic noise levels consistent with those contained in **Table 3.12-2**. Therefore, the following criteria shall be used as a test of

significance for roadway improvement projects which are not directly tied to a development project:

- Where existing traffic noise levels are less than 60 dBA Ldn at the outdoor activity areas of noise-sensitive uses, a +5 dB increase in noise levels due to roadway improvement projects will be considered significant; and
- Where existing traffic noise levels range between 60 and 65 dBA Ldn at the outdoor activity areas of noise-sensitive uses, a +3 dB increase in noise levels due to roadway improvement projects will be considered significant; and
- Where existing traffic noise levels are greater than 65 dBA Ldn at the outdoor activity areas of noise-sensitive uses, a +1.5 dB increase in noise levels due to roadway improvement projects will be considered significant.

**TABLE 3.12-2  
MAXIMUM ALLOWABLE NOISE EXPOSURE TRANSPORTATION NOISE SOURCES**

Land Use	Outdoor Activity Areas <sup>1</sup> L <sub>dn</sub> /CNEL, dBA	Interior Spaces	
		L <sub>dn</sub> /CNEL, dBA	L <sub>eq</sub> , dBA <sup>2</sup>
Residential	60 <sup>3</sup>	45	--
Residential subject to noise from railroad tracks, aircraft overflights, or similar noise sources which produce clearly identifiable, discrete noise events (the passing of a single train, as opposed to relatively steady noise sources such as roadways)	60 <sup>3</sup>	405	--
Transient Lodging	60 <sup>4</sup>	45	--
Hospitals, Nursing Homes	60 <sup>3</sup>	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	60 <sup>3</sup>	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

NOTES:

- <sup>1</sup> Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. Where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area.
- <sup>2</sup> As determined for a typical worst-case hour during periods of use.
- <sup>3</sup> Where it is not possible to reduce noise in outdoor activity areas to 60 dB Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.
- <sup>4</sup> In the case of hotel/motel facilities or other transient lodging, outdoor activity areas such as pool areas may not be included in the project design. In these cases, only the interior noise level criterion will apply
- <sup>5</sup> The intent of this noise standard is to provide increased protection against sleep disturbance for residences located near railroad tracks.

SOURCE: Elk Grove, 2003, Table NO-C (amended January 5, 2005)

**Policy NO-7.** The City shall not require the installation of soundwalls in front yard areas to reduce noise to acceptable levels in residential areas which were originally constructed without soundwalls. The City shall emphasize other methods to reduce noise levels in these situations.

*NO-7-Action 1.* Consider adopting a citywide noise reduction program to reduce traffic and other noise levels citywide.

**Policy NO-8.** Where noise mitigation measures are required to achieve the standard of Table 3.12-2, the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving the noise standards only after all other practical design-related noise mitigation measures—including the use of distance from noise sources—have been integrated into the project.

### **City of Elk Grove Noise Chapter 6.32**

Elk Grove Municipal Code Title 6, Chapter 6.32, Noise Control, regulates noise generated by non-transportation sources. Section 6.32.100, Exemptions, of the Code restricts construction activities to occur between the hours of 6:00 a.m. and 8:00 p.m., Monday through Friday, and between the hours of 7:00 a.m. and 8:00 p.m. on Saturday and Sunday.

## **Discussion of Impacts**

- a) *Would the project 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?*

**Less than Significant with Mitigation.** Construction activity noise levels at the Project site would fluctuate depending on the particular type, number and duration of use of various pieces of construction equipment. The construction process would begin with the import of construction equipment and potentially detour signs, followed by full or partial lane closures to conduct grinding and road preparation. Existing roadside ditches would be filled and then re-excavated approximately 5 to 10 feet out from their current alignment. There may be an adjustment of existing manholes and pullboxes. Existing drainage cross culverts will be adjusted and lengthened. The road would be re-paved, with an additional five to six feet of pavement added to each side of the road for bike lanes. Two feet of shoulder backing would be also be added as would unpaved drainage ditches. Staging of equipment would within existing City ROW.

The proposed Project would result in a violation of the City's noise standards if construction activity would occur outside of the allowable daytime hours specified by the County's noise ordinance. According to the City's Municipal Code, Title 6, Chapter 6.32.100, Exemptions, of the Code restricts construction activities to occur between the hours of 6:00 a.m. and 8:00 p.m., Monday through Friday, and between the hours of 7:00 a.m. and 8:00 p.m. on Saturday and Sunday.

Construction of the proposed Project is anticipated to take approximately 60 to 80 days, and is scheduled to begin in 2018. Full lane closures may occur for up to 30 days with potential

partial lane closures occurring in advance of or after the full lane closure period. Construction timeframes will be limited as required by City's Municipal Code, Title 6, Chapter 6.32.100, Exemptions. Therefore, this impact would result in a less than significant impact with the implementation of mitigation measures **MM N-1** through **MM N-3**.

The proposed Project would not result in lane additions and no substantial alterations in the vertical or horizontal alignment of the roadway. The proposed Project would not alter the existing horizontal alignment of the roadway that would half the distance between the existing roadway and the nearest receptor. Therefore, the Project would not have any long-term effects on noise levels.

*b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

**Less than Significant.** Construction activities may generate perceptible vibration when heavy equipment or impact tools such as jackhammers or compactors are used. The proposed Project would not include the use of any off-road equipment known to generate a substantial amount of vibration such as pile driving and blasting. According to the FTA's *Transit Noise and Vibration Impact Assessment*, residential land uses exposed to a vibration level of 80 VdB could result in human annoyance and residential buildings exposed to a vibration level of 0.2 PPV (inch/second) could result in building damage (FTA 2006).

The potential use of vibratory roller during roadway compaction would be expected to generate the highest vibration levels during construction. Vibration levels would vary depending on soil conditions, construction methods, and equipment used. Vibratory rollers typically generate vibration levels of 76 VdB and 0.026 PPV (inch/second) at a distance of 100 feet, which would be below the 80 VdB threshold for human annoyance and the 0.2 PPV (inch/second) threshold for building damage. Since there are no sensitive receptors located within 100 feet of the Project site boundary, existing sensitive receptors near the Project site would not be affected by substantial groundborne vibration that would result in annoyance or building damage. This impact would result in a less than significant impact.

*c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

**Less than Significant.** The proposed Project consists of the rehabilitation and improvement of Waterman Road, between Bond Road and Sheldon Road. Major components of the Project include resurfacing and widening of Waterman Road to meet current City Rural road design standards, and roadway striping to accommodate bike lanes on the associated shoulders in each direction. The increase in roadway width would be to accommodate bicycle lanes and would not bring vehicle lanes closer to existing sensitive receptors. Since the proposed rehabilitation and improvements would not increase the traffic capacity along Waterman Road, sensitive land uses located adjacent to Waterman Road would not be exposed to an increase in traffic noise after the proposed roadway improvements have been completed. Therefore, the proposed Project is not expected to result in a substantial permanent increase in ambient noise levels during operation. Impacts are considered less than significant.

- d) *Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

**Less than Significant with Mitigation.** Construction activities associated with the proposed Project would involve excavation, paving, grinding and earth movement. Policy NO-6 of the City's General Plan establishes the maximum allowable noise exposure, as shown in Table 3.12-2. **Table 3.12-3** shows typical reference noise levels of off-road construction equipment likely to be used during Project construction.

**TABLE 3.12-3  
REFERENCE CONSTRUCTION EQUIPMENT NOISE LEVELS  
(50 FEET FROM SOURCE)**

Type of Equipment	L <sub>max</sub> , dBA
Backhoe	80
Grader	85
Pavement Scarifier	85
Concrete Mixer Truck	85
Front Loader	80
Pneumatic Tools	85
Air Compressor	80
Excavator	85
Rollers	85
Scrapers	85

SOURCE: FHWA, 2006.

The operation of each piece of off-road equipment within the Project site would not be constant throughout the day, as equipment would be turned off when not in use. Most of the time over a typical work day, the equipment would be operating at different locations within the proposed Project area and would not likely be operating concurrently. However, for a more conservative approximation of construction noise levels the nearest sensitive receptor would be exposed to, it is assumed for this analysis that two of the loudest construction equipment would be operating at the same time and location within the proposed Project site nearest to the offsite sensitive receptor.

Land uses surrounding the proposed Project site consist of single-family residences located at the northern end of the Project site, approximately 160 feet west of the center line of Waterman Road, and the Waterman Square Apartments located at the southern end of the Project site, approximately 140 feet west of the centerline of Waterman Road. Using the reference noise levels provided in Table 3.12-3, a backhoe and grader running at the same time and place would generate a maximum noise level of 88 dBA at a distance of 50 feet. **Table 3.12-4** shows the maximum construction noise levels at residences located near each construction area assuming a 7.5 dB drop off rate per doubling of distance. These noise levels are above the allowable noise exposure identified in Policy NO-6 of the City's General Plan, shown in Table 3.12-2.

**TABLE 3.12-4  
CONSTRUCTION NOISE LEVELS AT EXISTING LAND USES<sup>1</sup>**

<b>Sensitive Receptors</b>	<b>Distance to Nearest Sensitive Receptor (feet)</b>	<b>Maximum Noise Level, dBA</b>
Single-family residences located north-west of the project area	160	75
Waterman Square Apartments located south-west of the project area	140	77

## NOTES:

<sup>1</sup> Assumed backhoe and grader running at the same time.

SOURCE: ESA, 2017; FHWA, 2006

Although construction activities associated with the proposed Project would be temporary in nature and the maximum noise levels discussed above would be short-term, noise generated during Project construction could temporarily elevate ambient noise levels in and around the Project area. However, implementation of mitigation measures **MM N-1** through **MM N-3** would reduce this potential noise impact by requiring the Project applicant to implement best management practices, such as locating construction staging areas as far away from sensitive receptors as possible, maintaining construction equipment and using mufflers, and shutting down idling construction equipment.

- e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

**No Impact.** The proposed Project does not involve the development of new noise sensitive land uses, and thus, implementation of the Project would not expose people to excessive aircraft noise. In addition, the proposed Project would not be located within 2 miles of a public airport or public use airport. Therefore, there would be no impact.

- 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?*

**No Impact.** The Project is not located in the vicinity of a private airstrip. Therefore, there would be no impact.

## Mitigation Measures

- MM N-1** Construction equipment and equipment staging areas shall be located at the farthest distance possible from adjacent sensitive land uses.

*Timing/Implementation: During construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*



**MM N-2** Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

*Timing/Implementation: During construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

**MM N-3** When not in use, motorized construction equipment shall not be left idling.

*Timing/Implementation: During construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

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### 3.13 Population and Housing

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>13. 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 type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, 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"/>

### Environmental Setting

The population of Elk Grove has seen a steadily growing population since its incorporation in 2000. Since 2000 the population of the City has more than doubled, from 72,665 in 2000 to an estimated 166,913 in 2015 (U.S. Census Bureau 2015). The Project area is surrounded by land that is designated for various residential uses, including the location of the future Silverado Village development. Two new residential developments have also been recently constructed near the intersection of Sheldon Road and Waterman Road, north of the Project area. The Project does not propose the acquisition or revision of any parcels or ROW to or from residential uses.

### Discussion of Impacts

- a) *Would the project 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)?*

**No Impact.** The proposed Project does not include the construction of new residences or businesses. Construction of the Project could provide temporary employment for construction activities, but would not result in the permanent creation of new jobs that would induce substantial population growth. The Project would not increase capacity of the existing roadway and would not encourage population growth in the surrounding areas. Therefore, there is no impact from the Project.

- b) *Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

**No Impact.** The Project would be constructed entirely within existing City ROW. The proposed Project would not displace any residential structures; therefore, no impact would occur.

c) *Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*

**No Impact.** As discussed above, the proposed Project would not remove or necessitate the relocation of any housing. The proposed Project would also not displace any people. Therefore, no impact would occur.

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### 3.14 Public Services

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>14. PUBLIC SERVICES — Would the project:</b>				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>

#### Environmental Setting

The City receives fire protection and emergency services from the Cosumnes Fire Department. The City of Elk Grove Police Department provides law enforcement and general public safety. The nearest fire station is Station 73 at 9607 Bond Road. The police department is located at 8400 Laguna Palms Way.

Public schools in the Project area are within the service area of the Elk Grove Unified School District. The closest public school to the Project area is Pleasant Grove High School at 9531 Bond Road, which is approximately 0.6 miles to the southeast of the Project.

The Cosumnes Community Services District (CSD) oversees all of the parks and related facilities within the City limits. CSD is also responsible for the maintenance of other public facilities. The nearest park to the Project area is Van Doren Park, which is located at 9100 Neponset Drive, which is approximately 0.5 miles to the southwest of the Waterman Road/Bond Road intersection and outside of the Project area.

#### Discussion of Impacts

a) *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government 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, ii) Fire or police protection?*

**Less than Significant.** The proposed Project would rehabilitate the existing roadway and include the addition of bicycle lanes in each direction. This would not increase the population

near the Project area; therefore, there would not be an increased demand for fire and police protection due to the proposed Project. Additionally, the establishment of additional facilities in order to maintain acceptable service ratios would not be necessary. During construction, there may be temporary delays due to closed lanes and construction vehicles; detours may be required. The City will coordinate with the fire and police departments to ensure planned road closures and detours are feasible ahead of time. Therefore, there would be a less than significant impact.

*iii, iv) Schools, parks, or other public facilities?*

**No Impact.** The proposed Project would not include population growth to the area and does not include components that would result in an increase for the demand of additional schools, parks, or other public facilities. No schools, parks, or other public facilities in the area need to be updated accommodated the proposed Project. No disruption of access to schools, parks, or other public facilities would result from the Project. Therefore, no impact would occur.

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### 3.15 Recreation

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>15. RECREATION:</b>				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Environmental Setting

CSD oversees all of the parks and related facilities within the City limits. The nearest park to the Project area is Van Doren Park, which is located at 9100 Neponset Drive, which is approximately 0.5 miles to the southwest of the Waterman Road/Bond Road intersection and outside of the Project area. No parks or recreational facilities are currently in the Project area or adjacent to the Project area.

The City’s General Plan (City of Elk Grove 2003) includes goals and policies established to conserve existing national, State, and regional recreation areas, as well as to encourage the development of additional recreational opportunities to meet the City’s needs. In addition, the *City of Elk Grove Bicycle, Pedestrian, and Trails Master Plan* (City of Elk Grove 2014) includes goals to encourage public use of all available pedestrian and bicycle trails and an exceptional public parks network throughout the City. As the Project includes the addition of bicycle lanes along Waterman Road throughout the Project site in each direction, the Project is consistent with the plans and policies of both the General Plan and the Bike Master Plan

### Discussion of Impacts

a) *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

**No Impact.** Project operation would improve bicycle and pedestrian access to the area. However, it would not result in an increase in population that would result in increased use of or need to expand existing recreational facilities. The Project would not displace any facilities, requiring expansion of existing or new recreational facilities. Further, pedestrian and bicyclist use of the facility is not expected to increase the use of neighborhood parks such that physical deterioration of the facilities would occur. While the Project includes bicycle lanes, the bicycle lanes would be constructed on the shoulder of the roadway and no parklets or other facilities are proposed. Therefore, there would be no impact.

b) *Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

**No Impact.** As discussed above, the Project does not require the construction or expansion of existing recreational facilities. There would be no impact.

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### 3.16 Transportation and Traffic

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>16. TRANSPORTATION/TRAFFIC —</b>				
<b>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 county 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 type="checkbox"/>	<input checked="" 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"/>

### Environmental Setting

The Project is located along Waterman Road, between Sheldon Road and Bond Road. Waterman Road is a north-south two-lane arterial road within the in the Rural Sheldon/Rural Residential Area of the City and covered by the Rural Road Improvement Policy. Regional access for the proposed Project is provided by State Route 99 (SR 99) and local access is provided via Sheldon Road and/or Bond Road to and from SR 99, and locally via Waterman Road. Waterman Road extends from Grant Line Road in the south to north of Calvine Road to the north.

There are no existing pedestrian or bicycle facilities provided along Waterman Road within the Project area. A Class II (striped bicycle lanes along a roadway or shoulder) bicycle lane begins at the approach to Bond Road and continues east/west along Bond Road. The recently constructed roundabout at Waterman and Sheldon Road included the construction of bicycle and pedestrian facilities, so there are also Class II bicycle lanes at the approach to Sheldon Road that then continue west along Sheldon Road. There are no existing or planned public transit routes within the Project area.

The proposed Project would rehabilitate the existing roadway and extend the roadway to add bicycle lanes in the shoulders in each direction. The Project would not add capacity to the



existing roadway or construct new roadways. Waterman Road is ultimately planned as a four-lane arterial in the *City of Elk Grove General Plan Circulation Element*.

## Discussion of Impacts

- a) *Would the project 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?*

**Less than Significant.** There are multiple applicable plan Codes or policies related to the Project in the City’s General Plan and Rural Road Improvement Standards.

Policy CI-5 of the City’s General Plan says that “the City shall encourage the use of transportation alternatives that reduce the use of personal motor vehicles.” As the proposed Project would improve the safety of the roadway for pedestrians and bicyclists, encouraging the use of multimodal transportation, the Project is consistent with this policy.

Policy CI-13 of the City’s General Plan states that “the City shall require that all roadways and intersections in Elk Grove operate at a minimum Level of Service “D” at all times.” The City’s *Traffic Impact Analysis Guidelines* (City of Elk Grove 2000) identify that for a two-lane roadway the maximum daily volume to maintain a Level of Service D is 16,200 vehicles. According to the traffic study prepared for the Sheldon Road/Waterman Road Intersection Improvement Project (Kittelson & Associates 2014), the daily counts along Waterman Road were 4,055 vehicles northbound and 4,481 vehicles southbound, which are substantially below the Level of Service D threshold. The Project would not remove lanes or result in the roadway operating at Level of Service D or below; therefore, the Project is consistent with this policy.

The Project will also be consistent with the policies related to roadways and drainage in the Rural Road Improvement Standards and with the Elk Grove Bicycle, Pedestrian, and Trails Master Plan through the addition of bicycle lanes that would connect to the planned bicycle network in the Project area.

Currently there are no existing or planned public transit routes within the Project area, but the Project would not preclude any transit routes from being added that would travel through the Project area. Therefore, the impact would be less than significant.

- b) *Would the project conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?*

**Less than Significant.**

**Project Construction.** The Project would generate traffic during the construction phase: mobilization and site preparation, demolition, excavation and grading, and site clean-up.

Construction vehicles and workers would access the Project site via Bond Road or Sheldon Road. Workers would park on the Project site, within the designated staging area. Potential lane closures and/or detours during construction could also move traffic to nearby roadways; however, construction is only anticipated to occur for 60 to 80 days. Due to the temporary nature of the disruption and the availability of alternative travel routes in the area, this impact would be less than significant.

**Project Operation.** Policy CI-13 of the City's General Plan states that "the City shall require that all roadways and intersections in Elk Grove operate at a minimum Level of Service "D" at all times." The City's *Traffic Impact Analysis Guidelines* (City of Elk Grove 2000) identify that for a two-lane roadway the maximum daily volume to maintain a Level of Service D is 16,200 vehicles. According to the traffic study prepared for the Sheldon Road/Waterman Road Intersection Improvement Project (Kittelson & Associates 2014), the daily counts along Waterman Road were 4,055 vehicles northbound and 4,481 vehicles southbound, which are substantially below the Level of Service D threshold. The proposed Project would rehabilitate the existing roadway and includes the addition of bicycle lanes in each direction. The Project would not add capacity to the existing roadway or construct new roadways. Therefore, the Project is not anticipated to contribute to degrading the Level of Service of the roadway and the impact would be less than significant.

- c) *Would the project 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?*

**No Impact.** The nearest airport to the Project site is Mather Airport, approximately 9 miles northeast of the Project. The Project would rehabilitate the existing roadway and add bicycle lanes in each direction; no structures would be constructed. The Project would not result in a change in air traffic patterns. No impact would occur.

- d) *Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

**No Impact.** The Project would rehabilitate the existing roadway and increase the width of the roadway to allow for bicycle lanes in each direction. This would serve to improve pedestrian and cyclist safety and to bring the existing facility up to current City of Elk Grove rural road design standards. The Project would be designed in accordance with the City's Design and Improvement Standards and the Project does not include incompatible uses with the surrounding area. The Project would not increase hazards to farm equipment (if they are allowed on the roadway) because the roadway will be widened to accommodate bicycle lanes; therefore, there would be no impact.

- e) *Would the project result in inadequate emergency access?*

**Less than Significant.** Traffic handling during construction of the proposed Project may require temporary partial or full lane closures and/or detours. The City will require the contractor to coordinate with the local fire and police departments before road closures to ensure emergency service providers are aware of any temporary road closures and/or detours

ahead of time. The Project proposes to rehabilitate and expand the existing roadway to include bicycle lanes in each direction; this allows for more space for emergency vehicles to travel through, thus helping to improve emergency vehicle response times. This impact is considered less than significant.

- f) *Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?*

**No Impact.** The proposed Project includes construction of Class II bicycle lanes along Waterman Road. The Project is consistent with adopted policies, plans, and programs supporting alternative transportation including the Elk Grove General Plan and the Elk Grove Bicycle, Pedestrian, and Trails Master Plan, as discussed in discussion “a” above. No impact would occur.

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### 3.17 Tribal Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>17. Tribal Cultural Resources —</b>				
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
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 checked="" type="checkbox"/>	<input 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. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

This section relies, in part, upon the information and findings presented in the cultural resources technical reports prepared for the Project by: *Archaeological Survey Report for the Waterman Road Rehabilitation Project, Elk Grove, Sacramento County, California* (ESA 2016b). Additional details on background context, Native American correspondence, and cultural resources identified are presented in the technical report.

### Environmental Background

Tribal cultural resources are: 1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing in the California Register of Historical Resources (CRHR), or local register of historical resources, as defined in PRC § 5020.1(k); or, 2) a resource determined by the lead CEQA agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC § 5024.1(c). For a cultural landscape to be considered a tribal cultural resource, it must be geographically defined in terms of the size and scope of the landscape (PRC § 21074[b]). Also, an historical resource, as defined in PRC § 21084.1, unique archaeological resource, as defined in PRC § 21083.2(g), or nonunique archaeological resource, as defined in PRC § 21083.2(h), may also be a tribal cultural resource.

### Native American Correspondence

ESA contacted the California State Native American Heritage Commission (NAHC) on March 11, 2016 via email in request of a search of the NAHC’s Sacred Lands File (SLF) and a list of Native American representatives who may have interest in the Project. ESA made a follow-up request to the NAHC, by email, on March 31, 2016. The NAHC replied to ESA by email on April 6, 2016. The NAHC reply indicated that the SLF has no record of any cultural resources within the Project Area, and also included a list of Native American representatives who may be interested in the Project.

Three of the California Native American tribes identified by the NAHC had previously contacted the City requesting to be notified of and consulted regarding proposed projects within the City's jurisdiction, pursuant to PRC § 21080.3.1(b)(1): Ione Band of Miwok Indians, United Auburn Indian Community of the Auburn Rancheria, and Wilton Rancheria. Letters with information on the Project and requesting that tribes contact the City with any concerns regarding potential impacts to tribal cultural resources were sent to each of the three tribes. Follow-up phone calls were also made to each of the three tribes. None of the tribes expressed concerns regarding potential impacts to tribal cultural resources that could result from the Project.

### **Records Search**

On March 14, 2016, at the request of ESA, a records search was conducted at and by the staff of the North Central Information Center (NCIC) of the CHRIS, at California State University, Sacramento (File # SAC-16-50). The purpose of the records search was to determine if any previously recorded cultural resources, including potential tribal cultural resources, were present in or within 0.5 mile of the Project Area. The NCIC records search indicated that no previously recorded cultural resources, including tribal cultural resources, are present in the Project Area and that four previously recorded cultural resources are outside but within 0.5 mile of the Project Area. These four resources consist of: one prehistoric archaeological site (P-34-000162), one historic-period built environment resource (P-34-001102), and two prehistoric archaeological isolates (P-34 -001103, P-34-001104); none of these have been identified as a tribal cultural resource, and none have been evaluated as eligible for listing in the California Register of Historical Resources or a local register of historical resources.

### **Discussion of Impacts**

*Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC § 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 PRC § 5020.1(k)*

**Less than Significant with Mitigation.** Through consultation with California Native American tribes, the NAHC, and an NCIC records search, no known tribal cultural resources listed or determined eligible for listing in the California Register of Historical Resources, or included in a local register of historical resources as defined in PRC § 5020.1(k), pursuant to PRC § 21074(a)(1), would be impacted by the Project.

However, if any previously unrecorded archaeological resource were identified during Project implementation, particularly ground-disturbing construction activities, and were found to qualify as a tribal cultural resource pursuant to PRC § 21074(a)(1) (determined to be eligible for listing in the California Register of Historical Resources or in a local register of historical resources), any impacts to the resource resulting from the Project could be potentially

significant. Any such potential significant impacts would be reduced to a less than significant level by implementing mitigation measure **MM CUL-1**.

- 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 PRC § 5024.1(c). In applying the criteria set forth in PRC § 5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe*

**Less than Significant with Mitigation.** Through consultation with California Native American tribes, the NAHC, and an NCIC records search, the City (lead agency) did not determine any resource that could potentially be affected by the Project to be a tribal cultural resource significant pursuant to criteria set forth in PRC § 5024.1(c). Therefore, the Project is not anticipated to impact any such resources.

However, if any previously unrecorded archaeological resource were identified during Project implementation, particularly ground-disturbing construction activities, and were found to qualify as a tribal cultural resource pursuant to PRC § 21074(a)(2) (determined by the lead agency to be significant pursuant to criteria set forth in PRC § 5024.1(c)), any impacts to the resource resulting from the Project could be potentially significant. Any such potential significant impacts would be reduced to a less than significant level by implementing mitigation measure **MM CUL-1**.

## Mitigation Measures

**MM CUL-1** Unanticipated Discovery Protocol for Archaeological Resources and Human Remains. If prehistoric or historic-period archaeological resources are encountered during Project implementation, all construction activities within 100 feet shall halt, and a qualified archaeologist, defined as an archaeologist meeting the U.S. Secretary of the Interior’s Professional Qualification Standards for Archeology, shall inspect the find within 24 hours of discovery and notify the City of their initial assessment. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (“midden”) containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include building or structure footings and walls, and deposits of metal, glass, and/or ceramic refuse.

If the City determines, based on recommendations from a qualified archaeologist, that the resource may qualify as a historical resource or unique archaeological resource (as defined in CEQA Guidelines § 15064.5), the resource shall be avoided if feasible. If avoidance is not feasible, the City shall consult with appropriate Native American tribes (if the resource is Native American-related), and other appropriate interested parties to determine treatment measures to avoid, minimize, or mitigate any potential impacts to the resource pursuant to PRC § 21083.2, and CEQA Guidelines § 15126.4. This

shall include documentation of the resource and may include data recovery or other measures. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the Project.

In the event of discovery or recognition of any human remains during Project implementation, Project construction activities within 100 feet of the find shall cease until the Sacramento County Coroner has been contacted to determine that no investigation of the cause of death is required. The Coroner shall contact the NAHC within 24 hours if the Coroner determines the remains to be Native American in origin. The NAHC will then identify the person or persons it believes to be the most likely descendant (MLD) from the deceased Native American (PRC § 5097.98), who in turn would make recommendations to the City for the appropriate means of treating the human remains and any associated funerary objects (CEQA Guidelines § 15064.5[d]).

*Timing/Implementation: During construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

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## 3.18 Utilities and Service Systems

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>18. UTILITIES AND SERVICE SYSTEMS —</b>				
<b>Would the project:</b>				
a) Exceed 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 storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<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"/>

## Environmental Setting

### **Water**

Water services in the Project area are provided by the Sacramento County Water Agency and the Elk Grove Water District.

### **Wastewater**

Wastewater collection and treatment is provided the Sacramento Regional County Sanitation District (SRCSD) and the Sacramento Regional Wastewater Treatment Plant located near the City. The SRCSD processes approximately 150 million gallons of wastewater daily (MGD) that is then discharged to the Sacramento River (SRCSD 2017). The Project area falls within the Sacramento County Sanitation District 1 service area.

### **Solid Waste**

Solid waste services for residential in the City are provided by Allied Waste Services of North America, LLC, a subsidiary of Republic Services, Inc. (formerly BFI Waste Services of North America, Inc.) t under an exclusive franchise agreement with the City. Solid waste commercial collection is performed through various franchises. Solid waste collected in the City is generally sent to Kiefer Landfill in Sacramento County, which accepts household waste from the public,



business, and private waste haulers. This facility allows for 744 vehicles per day and 10,815 total tons of refuse per day. The total permitted capacity of the site is 117.4 million cubic yards and is estimated to have 65 years of capacity remaining (Sacramento County 2014).

### ***Electrical, Telephone, and Natural Gas Services***

Electric service and natural gas is provided to the area by the Sacramento Municipal Utility District (SMUD) and Pacific Gas and Electric Company (PG&E). Overhead electric lines are seen within the Project area. Telephone services in the City are provided by Frontier Communications and Pacific Bell.

### ***Utility Relocations***

Existing manholes and pullboxes may require adjustment due to Project construction.

## **Discussion of Impacts**

- a) *Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

**No Impact.** Construction and operation of the proposed Project would not generate wastewater requiring wastewater treatment. Therefore, the Project would not exceed wastewater treatment requirements. There would be no impact.

- b) *Would the project 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?*

**No Impact.** Construction and operation of the proposed Project would not generate wastewater requiring wastewater treatment. Therefore, the Project would not require construction of new water or wastewater treatment facilities or require expansion of existing facilities. There would be no impact.

- c) *Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

**Less than Significant.** The proposed Project would result in an increase of impervious Surface areas along Waterman Road, which may increase stormwater runoff to drainage facilities. Stormwater runoff at the Project site is collected by roadside ditches Waterman Road. Existing roadside ditches would be relocated to between 5 and 10 feet out from their current position to accommodate the expanded road and shoulders. The Project is not anticipated to require the expansion of existing facilities because the Project will result in a total impervious area of approximately 3 acres after construction. Per the Stormwater Quality Design Manual for the Sacramento Region, road projects with an impervious area less than 5 acres are required to implement source control as a stormwater quality control measure. The source control measures identified in the manual for a road project are Efficient Irrigation, Landscaping, and Storm Drain Markings and Signs. The Project is not proposing any

irrigation for drainage inlets. The roadside ditches will be hydroseeded with native grasses in accordance with the landscaping source control measure. Therefore, impacts are considered less than significant.

- d) *Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*

**Less than Significant.** During construction of the proposed Project, there may be a temporary need for water to control dust. However, the proposed Project would not result in an increase in demand for long-term water supply. This impact would be less than significant.

- e) *Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

**No Impact.** The Project would not generate wastewater or demand the service of a wastewater treatment provider. Therefore, there would be no impact on wastewater treatment capacity.

- f) *Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*

**Less than Significant.** The solid waste generated by the Project would be construction and demolition debris, which would be transported to the Kiefer Landfill, which is expected to have capacity for the next 65 years (Sacramento County 2014). Once constructed, the Project would not result in the generation of solid waste. Impacts would be less than significant.

- g) *Would the project comply with federal, state, and local statutes and regulations related to solid waste?*

**No Impact.** The proposed Project would comply with all federal, state, and local statutes and regulations related to solid waste. Specifically, the Project would comply with the California Integrated Waste Management Act of 1989 (AB 939) and the California Solid Waste Re-Use and Recycling Access Act of 1991 (Section 42900-42911 of the Public Resources Code). Additionally, the Project does not include any components that would result in an increase in solid waste. There would be no impact.

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### 3.19 Mandatory Findings of Significance

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>19. MANDATORY FINDINGS OF SIGNIFICANCE —</b>				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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) Does the project have impacts that are individually limited but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### Discussion of Impacts

- a) *Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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?*

**Less than Significant with Mitigation.** Per the impact discussions throughout this IS/MND in subsections 3.1 through 3.18, the potential of the proposed Project to substantially degrade the environment is less than significant with incorporated mitigation measures.

- b) *Does the project have impacts that are individually limited but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

**Less than Significant.** As described in previous discussions, the Project would result in several potentially significant Project-level impacts. However, in all cases, mitigation measures have been identified that would reduce these impacts to less-than-significant levels.

The primary objective of the Project is to reconstruct and rehabilitate Waterman Road between Bond Road and Sheldon Road, to improve pedestrian and cyclist safety and to bring the existing facility up to current City of Elk Grove rural road design standards. The impacts of the Project are mitigated to a less-than-significant level, mostly limited to the construction phase, and generally site specific. No other Projects are proposed that would overlap or

interact with the proposed Project. The cumulative impact of the proposed Project is less than significant.

- c) *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

**Less than Significant with Mitigation.** The Project would not cause substantial adverse effects on human beings. Effects related to aesthetics, air quality, cultural resources, geology, greenhouse gas, hazardous materials, hydrology and water quality, land use, noise, public services, recreation, transportation, and utilities are discussed within this IS/MND. The Project would not result in any significant and unavoidable impacts as any potential significant impact identified in this IS/MND in subsection 3.1 through 3.18 would be mitigated to a less than significant level. Mitigation measures recommended are summarized in Chapter 4.1 of this IS/MND. This impact is considered less than significant with mitigation incorporated.

# CHAPTER 4

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## List of Mitigation Measures

### 4.1 Summary of Mitigation Measures

#### Aesthetics (Subsection 3.1)

**MM AES-1** Restore Disturbed Areas to Preconstruction Condition. All areas disturbed or areas used for staging of vehicles and equipment shall be restored to their preconstruction condition upon completion of the Project. This will assist in providing sediment control and soil stabilization, which can best be accomplished by reseeding the disturbed areas to cover bare soil to help prevent soil erosion where feasible.

*Timing/Implementation:* During and after construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

**MM AES-2** Minimize Removal of Established Vegetation. The removal of established vegetation shall be minimized and avoided where feasible. Orange construction fencing shall be installed to identify areas where vegetation is being preserved in areas where vegetation removal may be avoided near the Project site. Locations where this is feasible will be determined during final design.

*Timing/Implementation:* Prior to and during Construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

**MM AES-3** Comply with the City's Land Grading and Erosion Control Chapter of the Elk Grove Municipal Code (Code). The Project shall comply with the City's Land Grading and Erosion Control requirements outlined in Chapter 16.44 of the Elk Grove Municipal Code, which may include seeding, mulching, vegetative buffer strips, sod, plastic covering, burlap covering, watering, and other measures for temporary erosion control of disturbed areas during construction.

*Timing/Implementation:* During Construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

## Air Quality (Subsection 3.3)

**MM AQ-1** SMAQMD Basic Construction Emission Control Practices. City approval of any grading or improvement plans shall include the following SMAQMD Basic Construction Emission Control Practices<sup>4</sup>:

- All exposed surfaces shall be watered two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways shall be covered.
- Use wet power vacuum street sweepers to remove any visible track-out mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes (as required by the state airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site.

Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment shall be checked by a certified mechanic and determine to be running in proper condition before it is operated.

*Timing/Implementation: During Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

## Biological Resources (Subsection 3.4)

**MM BIO-1** Conduct Environmental Awareness Training. Before any work occurs in the Project area, including grading and equipment staging, all construction personnel shall participate in an environmental awareness training regarding special-status species and sensitive habitats present in the Project area. If new construction personnel are added to the Project, they must receive the mandatory training before starting work. As part of the training, an environmental awareness handout will be provided to all personnel that describe and illustrates sensitive resources to be avoided during Project construction. This would include avoiding Waters outside the Project area.

*Timing/Implementation: Prior to and during Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

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<sup>4</sup> Despite very recent rain events, there has been historic drought conditions the use of water in these practices may be limited. City would consult with SMAQMD for suitable alternate practices equivalent to those listed above under MM AQ-1.

**MM BIO-2** Install Temporary Barrier Fencing to Protect Environmentally Sensitive Habitat Areas. Before any ground-disturbing activity occurs within the Project area, the City shall ensure that temporary orange barrier fencing is installed around the Project area adjacent to sensitive habitat areas to be avoided, as appropriate. Construction personnel and construction activities shall avoid areas outside the fencing. The exact location of the fencing shall be determined by the Project engineer coordinating with a qualified biologist, with the goal of protecting sensitive biological habitat and water quality.

The fencing material will consist of temporary plastic mesh-type construction fence (Tensor Polygrid or equivalent) installed between the work area and environmentally sensitive habitat areas (i.e. Waters, special-status plants, special-status wildlife habitat, active bird nests), as appropriate, and will meet Caltrans standards and specifications. To minimize potential ground disturbance, the base of the fencing will not be buried or keyed-in.

Installation of the barrier fence will occur under the supervision of a qualified biologist. The temporary orange barrier fencing will also be installed in a manner that is consistent with applicable water quality requirements contained within the Project's Stormwater Pollution Prevention Plan (SWPPP). The fencing shall be shown on the final construction documents. The fencing shall be checked regularly and maintained until all construction is complete. No construction activity shall be allowed until this condition is satisfied. In addition, a construction buffer will be established, where no construction activities (i.e., vehicle traffic or equipment operation) will occur outside the outer boundaries of the roadside ditches that will be excavated as part of the Project.

*Timing/Implementation: Prior to and during Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

**MM BIO-3** Conduct Weekly Monitoring Visits. A representative from the City will make weekly monitoring visits to construction areas occurring in or adjacent to environmentally sensitive habitat areas. The City will be responsible for ensuring that the contractor maintains the fencing protecting sensitive biological resources. Additionally, the City will retain a qualified biologist on-call to assist the City and the construction crew in complying with all Project implementation restrictions and guidelines as needed.

*Timing/Implementation: During Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

**MM BIO-4** Implement Best Management Practices (BMPs) to Protect Water Quality. The City shall require that the construction contractor implement the following BMPs to protect water quality of Waters adjacent to the Project area.

- Conduct ground disturbing activities adjacent to jurisdictional waters during the dry period (generally between April 15 and October 15) when all

jurisdictional features within and adjacent to the Project area are anticipated to be dry.

- Install fiber rolls, or other equivalent erosion and sediment control measures between the Project area and Waters, as necessary, to ensure that construction debris and sediment does not inadvertently enter these Waters. All areas of exposed soil will be covered or otherwise stabilized 48 hours prior to potential precipitation events of greater than 0.5 inch. In addition, in order to minimize ground disturbance, fiber rolls or other equivalent control measures will not be keyed-in or buried.
- Immediately after Project construction is complete, all exposed soil shall be stabilized. Soil stabilization may include, but is not limited to, seeding with a native grass seed mix.
- Fiber rolls, or other equivalent erosion and sediment control measures will not be removed from the Project area until vegetation has reestablished within all temporarily-impacted areas to at least 70 percent of pre-Project vegetation cover conditions or better.
- No refueling, storage, servicing, or maintenance of equipment shall take place within 100 feet of Waters.
- All machinery used during construction of the Project shall be properly maintained and cleaned to prevent spills and leaks that could contaminate soil or water.
- Any spills or leaks from construction equipment (i.e., fuel, oil, hydraulic fluid, and grease) shall be cleaned up in accordance with applicable local, state, and/or federal regulations.
- Before any ground-disturbing activities, the City shall prepare and implement a SWPPP (as required under the State Water Resources Control Board's (SWRCB) General Construction Permit Order 2009-0009-DWQ [and as amended by most current order(s)]) that includes erosion control measures and construction waste containment measures to ensure that waters of the state are protected during and after Project construction. A SWPPP is required when ground disturbance is one acre or more. Due to size of the ground disturbance (>1 acre), a SWPPP will be prepared and implemented. The SWPPP shall include site design to minimize offsite storm water runoff that might otherwise affect adjacent stream habitat.

The SWPPP shall be prepared with the following objectives: (a) to identify pollutant sources, including sources of sediment, that may affect the quality of storm water discharges from the construction of the Project; (b) to identify BMPs to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the site during construction; (c) to outline and provide guidance for BMP monitoring; (d) to identify Project discharge points and receiving waters; (e) to address post-construction BMP implementation and monitoring; and (f) to address sedimentation, siltation, and turbidity.

*Timing/Implementation: Prior to and during Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*



**MM BIO-5** No Off-road Vehicle or Equipment Activity Outside of Construction Footprint. To reduce the likelihood of soil and vegetation disturbance outside of the Project footprint, which could impact water quality and hydrology for adjacent Waters and special-status species habitats, no vehicle traffic or heavy equipment activity will occur outside of the Project footprint/construction buffer, defined as the maximum area of permanent ground disturbance (i.e., area of roadway construction and the new ditches areas of excavation).

*Timing/Implementation:* During Construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

**MM BIO-6** Purchase Creation Credits at a Minimum 1:1 Ratio for Impacts (Fill) to Waters or Make a Payment to the Corps' In-lieu Fee Program. To compensate for permanent impacts (fill) to Waters within the Project area, the City would purchase creation credits from an approved mitigation bank at a minimum 1:1 ratio or make an equivalent payment to the Corps' in-lieu fee program. Based on preliminary Project design, 0.004 acre of Waters would be permanently impacted for the road widening resulting in approximately 0.004 acre of creation credits required to be purchased or the equivalent payment to the Corps' in-lieu fee program.

*Timing/Implementation:* Prior to Construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

**MM BIO-7** Restrict Ground-disturbing Activities to the Dry Season (Between April 15 and October 15). All ground-disturbing activities associated with construction of the Project will be restricted to the dry season (between approximately April 15 and October 15) to avoid the period when special-status species (vernal pool fairy and tadpole shrimp, and western spadefoot) could be breeding. If construction would need to continue past October 15, the City will request an authorization from USFWS to extend the work period.

*Timing/Implementation:* During Construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

**MM BIO-8** Purchase Preservation Credits at Minimum 2:1 Ratio for Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Habitat for Wetlands Directly Affected. To compensate for direct effects on vernal pool fairy shrimp and vernal pool tadpole shrimp, the City would purchase preservation credits from a USFWS approved mitigation bank at a 2:1 preservation ratio (2 acres of habitat preserved for every 1 acre) for habitats permanently and directly affected. Based on preliminary Project design, 0.044 acre of habitat would be permanently affected for the road widening resulting in approximately 0.088 acre of preservation credits required to be purchased or preserved.

*Timing/Implementation:* Prior to Construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

**MM BIO-9** Purchase Preservation Credits at a 2:1 Ratio for all Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Habitat for Wetlands Indirectly Affected. To compensate for indirect effects on vernal pool fairy shrimp and vernal pool tadpole shrimp, the City would purchase credits from a USFWS-approved mitigation bank at a 2:1 preservation ratio (2 acre of habitat preserved for every 1 acre indirectly affected). Based on preliminary Project design, 0.126 acre of habitat would be indirectly affected for the road widening, resulting in 0.252 acre of preservation credits required to be purchased or preserved.

*Timing/Implementation:* Prior to Construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

**MM BIO-10** Conduct a Preconstruction Survey for Western Spadefoot. No more than 48 hours prior to construction, preconstruction surveys for western spadefoot shall be conducted within the Project area. If western spadefoot are observed within the Project area, work shall stop until the animal voluntarily leaves the area.

*Timing/Implementation:* Prior to Construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

**MM BIO-11** Conduct a Preconstruction Nesting Migratory Bird and Raptor Survey and Establish No-disturbance Buffers, if Necessary. If construction (including equipment staging and tree removal) will occur during the breeding season for migratory birds and raptors (generally between February 1 and August 31), the City shall retain a qualified biologist to conduct a preconstruction nesting bird and raptor survey before the onset of construction activities. The preconstruction nesting bird and raptor surveys shall be conducted between February 1 and August 31 within suitable habitat at the Project area. Surveys for raptors nests should also extend 250 feet from the Project area to ensure that nesting raptors are not indirectly affected by construction noise. The survey shall be conducted no more than 30 days before the initiation of construction activities. If no active nests are detected during the survey, no additional mitigation is required and construction can proceed.

If migratory birds or raptors are found to be nesting in or adjacent to the Project area, a 250-foot no-disturbance buffer shall be established around raptor nests and a 50-foot buffer around non-raptor nests to avoid disturbance of the nest area and to avoid take. The buffer shall be maintained around the nest area until the end of the breeding season or until a qualified biologist determines that the young have fledged and are foraging on their own. The extent of these buffers shall be determined by the biologist (coordinating with the CDFW) and shall depend on the species identified, level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers.

*Timing/Implementation: Prior to Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

- MM BIO-12** Preserve CDFW-approved Foraging Habitat for Swainson’s Hawk at a 1:1 Ratio for Permanent Impacts or Submit Payment of a Swainson’s Hawk Impact Mitigation Fee to the City of Elk Grove, or purchase credits through the City’s Delta Shores Mitigation Bank. To compensate for permanent loss of Swainson’s hawk foraging habitat, the Project shall follow the City’s Swainson’s Hawk Mitigation Fee program or will purchase credits through the City’s Delta Shores Mitigation Bank. Per the program, approved property must be acquired, or a mitigation fee paid to the City prior to the start of construction, as described in Chapter 16.130 of the Elk Grove Municipal Code (City 2016) or City’s existing bank.

*Timing/Implementation: Prior to Construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

## Cultural Resources (Subsection 3.5)

- MM CUL-1** Unanticipated Discovery Protocol for Archaeological Resources and Human Remains. If prehistoric or historic-period archaeological resources are encountered during Project implementation, all construction activities within 100 feet shall halt, and a qualified archaeologist, defined as an archaeologist meeting the U.S. Secretary of the Interior’s Professional Qualification Standards for Archeology, shall inspect the find within 24 hours of discovery and notify the City of their initial assessment. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (“midden”) containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include building or structure footings and walls, and deposits of metal, glass, and/or ceramic refuse.

If the City determines, based on recommendations from a qualified archaeologist, that the resource may qualify as a historical resource or unique archaeological resource (as defined in CEQA Guidelines § 15064.5), the resource shall be avoided if feasible. If avoidance is not feasible, the City shall consult with appropriate Native American tribes (if the resource is Native American-related), and other appropriate interested parties to determine treatment measures to avoid, minimize, or mitigate any potential impacts to the resource pursuant to PRC § 21083.2, and CEQA Guidelines § 15126.4. This shall include documentation of the resource and may include data recovery or other measures. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific

data contained in the portion(s) of the significant resource to be impacted by the Project.

In the event of discovery or recognition of any human remains during Project implementation, Project construction activities within 100 feet of the find shall cease until the Sacramento County Coroner has been contacted to determine that no investigation of the cause of death is required. The Coroner shall contact the NAHC within 24 hours if the Coroner determines the remains to be Native American in origin. The NAHC will then identify the person or persons it believes to be the most likely descendant (MLD) from the deceased Native American (PRC § 5097.98), who in turn would make recommendations to the City for the appropriate means of treating the human remains and any associated funerary objects (CEQA Guidelines § 15064.5[d]).

*Timing/Implementation:* During construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

**MM CUL-2** Unanticipated Discovery Protocol for Paleontological Resources. If potential fossils are discovered during Project implementation, all earthwork or other types of ground disturbance within 100 feet of the find shall stop immediately until a qualified professional paleontologist, defined as one meeting the Society of Vertebrate Paleontology (SVP) Standards, can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the paleontologist may record the find and allow work to continue, or recommend salvage and recovery of the fossil. The paleontologist may also propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is required, recommendations will be consistent with SVP guidelines and currently accepted scientific practice. If required, treatment for fossil remains may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and may also include preparation of a report for publication describing the finds.

*Timing/Implementation:* During construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

## Greenhouse Gas Emissions (Subsection 3.7)

**MM GHG-1** Divert 65 Percent of Waste Generated During Demolition. The City of Elk Grove shall require that the Project divert 65 percent of the waste generated during the demolition of existing pavement and construction of new traffic improvement facilities, consistent with CAP measure RC-1.

*Timing/Implementation:* During Construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

## Hazards and Hazardous Materials (Subsection 3.8)

**MM HAZ-1** Safe Removal and Proper Disposal of Materials Contaminated by Lead. The City shall ensure, through the enforcement of contractual obligations, that work plans address procedures for the safe removal and proper disposal of materials contaminated with lead. Any identified lead-based paint must be removed and disposed of in the proper waste facility.

## Hydrology and Water Quality (Subsection 3.9)

**MM HWQ-1** Implement Water Quality Best Management Practices (BMPs). The City would ensure that the project contractor comply with the requirements of a NPDES permit from the CVRWQCB. As part of the permit, the contractor would be required to prepare and implement a SWPPP into their construction plans, prior to initiating construction activities, identifying BMPs to be used to avoid or minimize any adverse effects before and during construction to surface waters. The following BMPs would be incorporated into the project as part of the construction specifications:

- 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.
- 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.
- Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event.
- Train construction workers in storm water pollution prevention practices.
- Re-seed disturbed areas in a timely manner to control erosion.

*Timing/Implementation: During construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

## Noise (Subsection 3.12)

**MM N-1** Construction equipment and equipment staging areas shall be located at the farthest distance possible from adjacent sensitive land uses.

*Timing/Implementation: During construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

**MM N-2** Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

*Timing/Implementation:* During construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

**MM N-3** When not in use, motorized construction equipment shall not be left idling.

*Timing/Implementation:* During construction

*Enforcement/Monitoring:* City of Elk Grove Public Works Department

## Tribal Cultural Resources (Subsection 3.17)

**MM CUL-1** Unanticipated Discovery Protocol for Archaeological Resources and Human Remains. If prehistoric or historic-period archaeological resources are encountered during Project implementation, all construction activities within 100 feet shall halt, and a qualified archaeologist, defined as an archaeologist meeting the U.S. Secretary of the Interior's Professional Qualification Standards for Archeology, shall inspect the find within 24 hours of discovery and notify the City of their initial assessment. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include building or structure footings and walls, and deposits of metal, glass, and/or ceramic refuse.

If the City determines, based on recommendations from a qualified archaeologist, that the resource may qualify as a historical resource or unique archaeological resource (as defined in CEQA Guidelines § 15064.5), the resource shall be avoided if feasible. If avoidance is not feasible, the City shall consult with appropriate Native American tribes (if the resource is Native American-related), and other appropriate interested parties to determine treatment measures to avoid, minimize, or mitigate any potential impacts to the resource pursuant to PRC § 21083.2, and CEQA Guidelines § 15126.4. This shall include documentation of the resource and may include data recovery or other measures. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the Project.

In the event of discovery or recognition of any human remains during Project implementation, Project construction activities within 100 feet of the find shall

cease until the Sacramento County Coroner has been contacted to determine that no investigation of the cause of death is required. The Coroner shall contact the NAHC within 24 hours if the Coroner determines the remains to be Native American in origin. The NAHC will then identify the person or persons it believes to be the most likely descendant (MLD) from the deceased Native American (PRC § 5097.98), who in turn would make recommendations to the City for the appropriate means of treating the human remains and any associated funerary objects (CEQA Guidelines § 15064.5[d]).

*Timing/Implementation: During construction*

*Enforcement/Monitoring: City of Elk Grove Public Works Department*

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# CHAPTER 5

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Ecologist

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Biologist/GIS

# CHAPTER 6

## List of Acronyms

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AB	Assembly Bill
ARB	California Air Resources Board
AWE	Area West Environmental, Inc.
BA	Biological Assessment
BACT	Best Available Control Technology
BMP	Best Management Practices
BO	Section 7 Biological Opinion
BSA	Biological Study Area
C-APE	CEQA Area of Potential Effects
Cal-EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CAAQS	California ambient air quality standards
CAP	Climate Action Plan
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDWR	California Department of Water Resources
CDTSC	California Department of Toxic Substances Control
CE	Categorical Exclusion
CEQA	California Environmental Quality Act
CFR	California Code of Regulations
CGS	California Geological Survey
CHRIS	California Historical Resources Information System
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide

Code	Elk Grove Municipal Code
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CSD	Cosumnes Community Services District
CUPA	Certified Unified Program Agency
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
dB	decibels
dba	A-weighted decibels
DPM	diesel particulate matter
EIR	environmental impact report
EMD	Environmental Management Department
EOP	County of Sacramento Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
ESA	Environmental Science Associates
FCAA	Federal Clean Air Act
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FMMP	Farmland Mapping & Monitoring Program
FR	Federal Register
FTA	Federal Transit Administration
GHG	Greenhouse Gas
GPS	Global Positioning System
H <sub>2</sub> S	hydrogen sulfide
HMP	Hazardous Materials Business Plan
HPSR	Historic Property Survey Report
HUC	Hydrologic Unit Code
IS/MND	Initial Study/Mitigated Negative Declaration
L <sub>dn</sub>	day-night average sound level
L <sub>eq</sub>	equivalent sound level
L <sub>max</sub>	maximum noise level
MGD	million gallons of wastewater daily
MLD	most likely descendant

MM	Mitigation Measure
MMRP	Mitigation, Monitoring, and Reporting Program
MRZ	Mineral Resource Zones
msl	mean sea level
MTP/SCS	<i>Metropolitan Transportation Plan/Sustainable Communities Strategy</i>
NAAQS	National ambient air quality standards
NAHC	State of California Native American Heritage Commission
NCIC	North Central Information Center
ND	Negative Declaration
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NIMS	National Incident Management System
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
O <sub>3</sub>	ozone
OEHHA	Office of Environmental Health Hazard Assessment
OES	California Department of Emergency Services
OSHA	Occupational Safety and Health Administration
PB	lead
PG&E	Pacific Gas and Electric Company
PM <sub>10</sub>	10 microns in diameter
PM <sub>2.5</sub>	2.5 microns in diameter
PPV	peak particle velocity
PRC	Public Resources Code
PTE	Permit to Enter
RAC	Rubberized Asphalt Concrete
RMS	root mean square
ROG	reactive organic gases
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SB	Senate Bill
SC	Shopping Center

SCARI	Six County Aquatic Resource Inventory
SEMS	Standardized Emergency Management System
SIP	State Implementation Plan
SLF	Sacred Lands File
SMAQMD	Sacramento Metropolitan Air Pollution Management District
SMARA	Surface Mining and Reclamation Act of 1975
SMUD	Sacramento Municipal Utility District
SO <sub>2</sub>	sulfur dioxide
SPASP	Special Planning Area/Specific Plan
SR	State Route
SRCSD	Sacramento Regional County Sanitation District
SVAB	Sacramento County in the Sacramento Valley Air Basin
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
UCMP	University of California Museum of Paleontology
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
USTS	Underground storage of hazardous substances
VHFHSZ	Very High Fire Hazard Severity Zones
VMT	vehicle-miles travelled
VRP	visibility reducing particles
WAPA	Western Area Power Administration
WPCP	Water Pollution Control Plan

# CHAPTER 7

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# APPENDIX A

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## Biological Resource Agency Lists

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# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office

FEDERAL BUILDING, 2800 COTTAGE WAY, ROOM W-2605

SACRAMENTO, CA 95825

PHONE: (916)414-6600 FAX: (916)414-6713

Consultation Code: 08ESMF00-2017-SLI-0317

February 09, 2017

Event Code: 08ESMF00-2017-E-02587

Project Name: Waterman Road Rehabilitation and Bike Lanes Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

[http://www.nwr.noaa.gov/protected\\_species/species\\_list/species\\_lists.html](http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html)

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2)

of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior  
Fish and Wildlife Service

Project name: Waterman Road Rehabilitation and Bike Lanes Project

## Official Species List

### Provided by:

Sacramento Fish and Wildlife Office  
FEDERAL BUILDING  
2800 COTTAGE WAY, ROOM W-2605  
SACRAMENTO, CA 95825  
(916) 414-6600

**Consultation Code:** 08ESMF00-2017-SLI-0317

**Event Code:** 08ESMF00-2017-E-02587

**Project Type:** TRANSPORTATION

**Project Name:** Waterman Road Rehabilitation and Bike Lanes Project

**Project Description:** The City of Elk Grove, in Sacramento, California proposes to widen and rehabilitate Waterman Road between Bond Road and Sheldon Road. The project will consist of resurfacing and widening the road to include bike lanes.

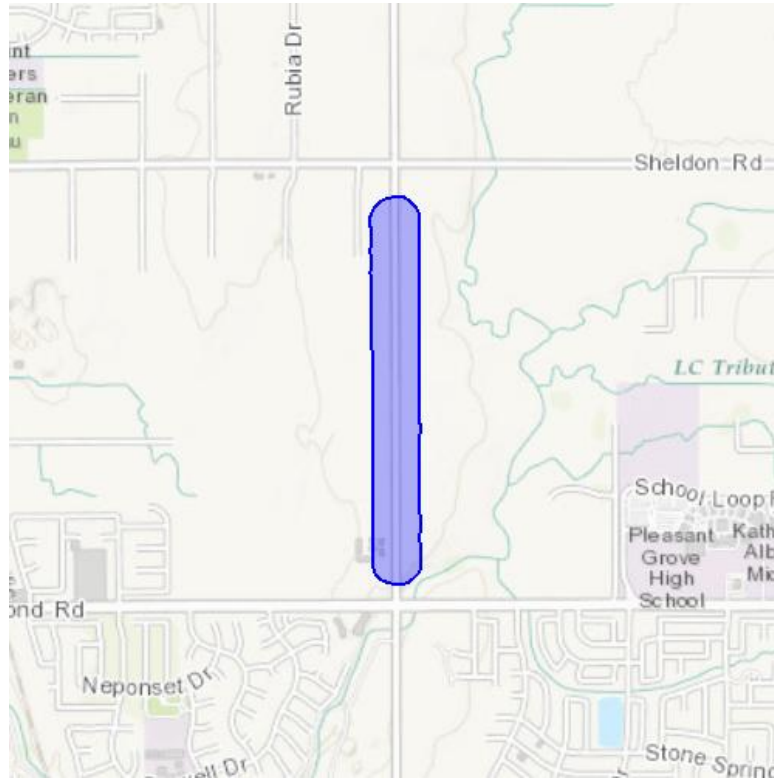
**Please Note:** The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior  
Fish and Wildlife Service

Project name: Waterman Road Rehabilitation and Bike Lanes Project

### Project Location Map:



**Project Coordinates:** The coordinates are too numerous to display here.

**Project Counties:** Sacramento, CA





United States Department of Interior  
Fish and Wildlife Service

Project name: Waterman Road Rehabilitation and Bike Lanes Project

## Endangered Species Act Species List

There are a total of 10 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Amphibians	Status	Has Critical Habitat	Condition(s)
California red-legged frog ( <i>Rana draytonii</i> ) Population: Wherever found	Threatened	Final designated	
California tiger Salamander ( <i>Ambystoma californiense</i> ) Population: U.S.A. (Central CA DPS)	Threatened	Final designated	
<b>Crustaceans</b>			
Vernal Pool fairy shrimp ( <i>Branchinecta lynchi</i> ) Population: Wherever found	Threatened	Final designated	
Vernal Pool tadpole shrimp ( <i>Lepidurus packardi</i> ) Population: Wherever found	Endangered	Final designated	
<b>Fishes</b>			
Delta smelt ( <i>Hypomesus transpacificus</i> ) Population: Wherever found	Threatened	Final designated	
steelhead ( <i>Oncorhynchus (=salmo)</i> )	Threatened	Final designated	



United States Department of Interior  
Fish and Wildlife Service

Project name: Waterman Road Rehabilitation and Bike Lanes Project

<i>mykiss</i> Population: Northern California DPS			
<b>Flowering Plants</b>			
Sacramento Orcutt grass ( <i>Orcuttia viscida</i> ) Population: Wherever found	Endangered	Final designated	
Slender Orcutt grass ( <i>Orcuttia tenuis</i> ) Population: Wherever found	Threatened	Final designated	
<b>Insects</b>			
Valley Elderberry Longhorn beetle ( <i>Desmocerus californicus dimorphus</i> ) Population: Wherever found	Threatened	Final designated	
<b>Reptiles</b>			
Giant Garter snake ( <i>Thamnophis gigas</i> ) Population: Wherever found	Threatened		



United States Department of Interior  
Fish and Wildlife Service

Project name: Waterman Road Rehabilitation and Bike Lanes Project

## **Critical habitats that lie within your project area**

There are no critical habitats within your project area.

**From:** Osmondson, Jennifer A@DOT  
**To:** ["nmfswcrca.specieslist@noaa.gov"](mailto:nmfswcrca.specieslist@noaa.gov)  
**Subject:** FHWA-Caltrans - City of Elk Grove Waterman Road Rehabilitation and Bike Lanes Project  
**Date:** Monday, January 23, 2017 4:12:00 PM

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**NMFS Species List**

Federal Agency: Federal Highway Administration – California Division  
Federal Agency Address: 650 Capitol Mall, Suite 4-100, Sacramento, CA 95814-4708  
Non-Federal Agency Representative: California Department of Transportation  
Non-Federal Agency Representative Address: 703 B Street, Marysville, CA 95901  
Project Name: Waterman Road Rehabilitation and Bike Lanes Project (STPL-5479(049))  
Point-of-Contact: Jennifer Osmondson, [Jennifer\\_Osmondson@dot.ca.gov](mailto:Jennifer_Osmondson@dot.ca.gov), (530) 740-4807

Quad Name **Elk Grove**

Quad Number **38121-D3**

-

**ESA Anadromous Fish**

Central Valley Spring-run Chinook Salmon ESU (T) **X**  
Sacramento River Winter-run Chinook Salmon ESU (E) **X**  
California Central Valley Steelhead DPS (T) **X**

-

**ESA Anadromous Fish Critical Habitat**

*None*

-

**ESA Marine Invertebrates**

*None*

-

**ESA Marine Invertebrates Critical Habitat**

*None*

-

**ESA Sea Turtles**

*None*

-

**ESA Whales**

*None*

-

**ESA Pinnipeds**

*None*

**Essential Fish Habitat**

Chinook Salmon EFH **X**

-

**MMPA Species**

*None*

-

**ESA and MMPA Cetaceans/Pinnipeds**

*None*



# Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad (Bruceville) OR Buffalo Creek OR Carmichael OR Clay OR Elk Grove OR Florin OR Galt OR Sacramento East OR Sloughhouse

Table with 7 columns: Species, Element Code, Federal Status, State Status, Global Rank, State Rank, Rare Plant Rank/CDFW SSC or FP. Lists various species like Accipiter cooperii, Agelaius tricolor, Ambystoma californiense, etc.



Selected Elements by Scientific Name  
California Department of Fish and Wildlife  
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b><i>Downingia pusilla</i></b> dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
<b><i>Dumontia oregonensis</i></b> hairy water flea	ICBRA23010	None	None	G1G3	S1	
<b><i>Elanus leucurus</i></b> white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
<b><i>Elderberry Savanna</i></b> Elderberry Savanna	CTT63440CA	None	None	G2	S2.1	
<b><i>Emys marmorata</i></b> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<b><i>Falco columbarius</i></b> merlin	ABNKD06030	None	None	G5	S3S4	WL
<b><i>Gratiola heterosepala</i></b> Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
<b><i>Great Valley Mixed Riparian Forest</i></b> Great Valley Mixed Riparian Forest	CTT61420CA	None	None	G2	S2.2	
<b><i>Great Valley Valley Oak Riparian Forest</i></b> Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	G1	S1.1	
<b><i>Hibiscus lasiocarpus var. occidentalis</i></b> woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
<b><i>Hydrochara rickseckeri</i></b> Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
<b><i>Juglans hindsii</i></b> Northern California black walnut	PDJUG02040	None	None	G1	S1	1B.1
<b><i>Juncus leiospermus var. ahartii</i></b> Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
<b><i>Lathyrus jepsonii var. jepsonii</i></b> Delta tule pea	PDFAB250D2	None	None	G5T2	S2	1B.2
<b><i>Legenere limosa</i></b> legenere	PDCAM0C010	None	None	G2	S2	1B.1
<b><i>Lepidium latipes var. heckardii</i></b> Heckard's pepper-grass	PDBRA1M0K1	None	None	G4T1	S1	1B.2
<b><i>Lepidurus packardi</i></b> vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
<b><i>Lilaeopsis masonii</i></b> Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
<b><i>Limosella australis</i></b> Delta mudwort	PDSCR10030	None	None	G4G5	S2	2B.1
<b><i>Linderiella occidentalis</i></b> California linderiella	ICBRA06010	None	None	G2G3	S2S3	
<b><i>Melospiza melodia</i></b> song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC



Selected Elements by Scientific Name  
California Department of Fish and Wildlife  
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b>Northern Hardpan Vernal Pool</b> Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
<b>Nycticorax nycticorax</b> black-crowned night heron	ABNGA11010	None	None	G5	S4	
<b>Oncorhynchus mykiss irideus</b> steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
<b>Orcuttia tenuis</b> slender Orcutt grass	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
<b>Orcuttia viscida</b> Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	G1	S1	1B.1
<b>Phalacrocorax auritus</b> double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
<b>Pogonichthys macrolepidotus</b> Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
<b>Progne subis</b> purple martin	ABPAU01010	None	None	G5	S3	SSC
<b>Riparia riparia</b> bank swallow	ABPAU08010	None	Threatened	G5	S2	
<b>Sagittaria sanfordii</b> Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
<b>Scutellaria galericulata</b> marsh skullcap	PDLAM1U0J0	None	None	G5	S2	2B.2
<b>Scutellaria lateriflora</b> side-flowering skullcap	PDLAM1U0Q0	None	None	G5	S2	2B.2
<b>Spea hammondii</b> western spadefoot	AAABF02020	None	None	G3	S3	SSC
<b>Spirinchus thaleichthys</b> longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	SSC
<b>Taxidea taxus</b> American badger	AMAJF04010	None	None	G5	S3	SSC
<b>Thamnophis gigas</b> giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
<b>Trifolium hydrophilum</b> saline clover	PDFAB400R5	None	None	G2	S2	1B.2
<b>Valley Oak Woodland</b> Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	
<b>Xanthocephalus xanthocephalus</b> yellow-headed blackbird	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 59



# CNPS *California Native Plant* Rare and Endangered Plant Inventory

## Plant List

24 matches found. *Click on scientific name for details*

### Search Criteria

Found in 9 Quads around 38121D3

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
<a href="#">Brasenia schreberi</a>	watershield	Cabombaceae	perennial rhizomatous herb	2B.3	S3	G5
<a href="#">Carex comosa</a>	bristly sedge	Cyperaceae	perennial rhizomatous herb	2B.1	S2	G5
<a href="#">Centromadia parryi ssp. rudis</a>	Parry's rough tarplant	Asteraceae	annual herb	4.2	S3	G3T3
<a href="#">Cicuta maculata var. bolanderi</a>	Bolander's water-hemlock	Apiaceae	perennial herb	2B.1	S2	G5T4
<a href="#">Cuscuta obtusiflora var. glandulosa</a>	Peruvian dodder	Convolvulaceae	annual vine (parasitic)	2B.2	SH	G5T4T5
<a href="#">Downingia pusilla</a>	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	GU
<a href="#">Gratiola heterosepala</a>	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B.2	S2	G2
<a href="#">Hesperevax caulescens</a>	hogwallow starfish	Asteraceae	annual herb	4.2	S3	G3
<a href="#">Hibiscus lasiocarpus var. occidentalis</a>	woolly rose-mallow	Malvaceae	perennial rhizomatous herb	1B.2	S3	G5T3
<a href="#">Juglans hindsii</a>	Northern California black walnut	Juglandaceae	perennial deciduous tree	1B.1	S1	G1
<a href="#">Juncus leiospermus var. ahartii</a>	Ahart's dwarf rush	Juncaceae	annual herb	1B.2	S1	G2T1
<a href="#">Lasthenia ferrisiae</a>	Ferris' goldfields	Asteraceae	annual herb	4.2	S3	G3
<a href="#">Lathyrus jepsonii var. jepsonii</a>	Delta tule pea	Fabaceae	perennial herb	1B.2	S2	G5T2
<a href="#">Legenere limosa</a>	legenere	Campanulaceae	annual herb	1B.1	S2	G2
<a href="#">Lepidium latipes var. heckardii</a>	Heckard's pepper-grass	Brassicaceae	annual herb	1B.2	S1	G4T1
<a href="#">Lilaeopsis masonii</a>	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	1B.1	S2	G2
<a href="#">Limosella australis</a>	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	2B.1	S2	G4G5
<a href="#">Navarretia eriocephala</a>	hoary navarretia	Polemoniaceae	annual herb	4.3	S4	G4
<a href="#">Orcuttia tenuis</a>	slender Orcutt grass	Poaceae	annual herb	1B.1	S2	G2
<a href="#">Orcuttia viscida</a>	Sacramento Orcutt grass	Poaceae	annual herb	1B.1	S1	G1
<a href="#">Sagittaria sanfordii</a>	Sanford's arrowhead	Alismataceae		1B.2	S3	G3

			perennial rhizomatous herb			
<a href="#">Scutellaria galericulata</a>	marsh skullcap	Lamiaceae	perennial rhizomatous herb	2B.2	S2	G5
<a href="#">Scutellaria lateriflora</a>	side-flowering skullcap	Lamiaceae	perennial rhizomatous herb	2B.2	S2	G5
<a href="#">Trifolium hydrophilum</a>	saline clover	Fabaceae	annual herb	1B.2	S2	G2

### Suggested Citation

CNPS, Rare Plant Program. 2017. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website <http://www.rareplants.cnps.org> [accessed 09 February 2017].

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#### Contributors

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## **APPENDIX B**

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# List of Vascular Plants and Wildlife Observed within the Biological Study Area

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*Appendix B. List of Vascular Plants and Wildlife Observed within the Biological Study Area*

**Vascular Plant Species Observed**

<b>Scientific Name<sup>1</sup></b>	<b>Common Name</b>	<b>Family</b>	<b>Nativity</b>	<b>Invasive Rating<sup>2</sup></b>	<b>Wetland Indicator Status<sup>3</sup></b>
<i>Acmispon americanus</i>	Spanish lotus	Fabaceae	Native	NL	NL
<i>Acmispon</i> sp.	Lotus	Fabaceae	Native	NL	NL
<i>Alisma triviale</i>	Water plantain	Alismataceae	Native	NL	OBL
<i>Allium</i> sp.	Onion	Alliaceae	Native	NL	NL
<i>Alopecurus saccatus</i>	Pacific foxtail	Poaceae	Native	NL	OBL
<i>Amaranthus blitoides</i>	Mat amaranth	Amaranthaceae	Native	NL	FACU
<i>Ambrosia psilostachya</i>	Western ragweed	Asteraceae	Native	NL	FACU
<i>Amsinckia menziesii</i>	Menzies' fiddleneck	Boraginaceae	Native	NL	NL
<i>Artemisia douglasiana</i>	Douglas' mugwort	Asteraceae	Native	NL	FAC
<i>Asclepias fascicularis</i>	Narrow leaf milkweed	Apocynaceae	Native	NL	FAC
<i>Baccharis pilularis</i>	Coyote brush	Asteraceae	Native	NL	NL
<i>Baccharis salicifolia</i>	Mule fat	Asteraceae	Native	NL	FAC
<i>Blennosperma nanum</i>	Common sticky seed	Asteraceae	Native	NL	FACW
<i>Briza minor</i>	Little rattlesnake grass	Poaceae	Naturalized	NL	FAC
<i>Brodiaea minor</i>	Dwarf brodiaea	Themidaceae	Native	NL	NL
<i>Calandrinia ciliata</i>	Red maids	Montiaceae	Native	NL	FACU
<i>Callitriche marginata</i>	Winged water-starwort	Plantaginaceae	Native	NL	OBL
<i>Calochortus luteus</i>	Yellow Mariposa lily	Liliaceae	Native	NL	NL
<i>Capsella bursa-pastoris</i>	Shepherd's-purse	Brassicaceae	Naturalized	NL	FACU
<i>Carduus pycnocephalus</i>	Italian thistle	Asteraceae	Naturalized	NL	NL
<i>Centromadia pungens</i>	Common spikeweed	Asteraceae	Native	NL	FAC
<i>Chenopodium album</i>	Lamb's quarters	Chenopodiaceae	Naturalized	NL	FACU
<i>Chlorogalum pomeridianum</i>	Soap plant	Agavaceae	Native	NL	NL
<i>Cinnamomum camphora</i>	Camphortree	Lauraceae	Naturalized	NL	UPL
<i>Convolvulus arvensis</i>	Field bindweed	Convolvulaceae	Naturalized	NL	NL
<i>Cotinus coggygria</i>	Smoke bush	Anacardiaceae	Naturalized	NL	NL
<i>Crassula aquatica</i>	Water pygmyweed	Crassulaceae	Native	NL	OBL
<i>Crassula connata</i>	Sand Pygmy	Crassulaceae	Native	NL	FAC
<i>Croton setigerus</i>	Dove weed	Euphorbiaceae	Native	NL	NL
<i>Crypsis schoenoides</i>	Swamp picklegrass	Poaceae	Naturalized	NL	FACW
<i>Cyperus eragrostis</i>	Tall flatsedge	Cyperaceae	Native	NL	FACW

*Appendix B. List of Vascular Plants and Wildlife Observed within the Biological Study Area*

**Vascular Plant Species Observed**

Scientific Name <sup>1</sup>	Common Name	Family	Nativity	Invasive Rating <sup>2</sup>	Wetland Indicator Status <sup>3</sup>
<i>Damasonim californicum</i>	California damsonium	Alismataceae	Native	NL	NL
<i>Daucus carota</i>	Wild carrot	Apiaceae	Naturalized	NL	UPL
<i>Deschampsia danthonioides</i>	Annual hairgrass	Poaceae	Native	NL	FACW
<i>Dichelostemma capitatum</i>	Blue dicks	Themidaceae	Native	NL	FACU
<i>Downingia bicornuta</i>	Bristled downingia	Campanulaceae	Native	NL	OBL
<i>Eleocharis acicularis</i>	Needle spikerush	Cyperaceae	Native	NL	OBL
<i>Eleocharis macrostachya (palustris)</i>	Common spikerush	Cyperaceae	Native	NL	NL
<i>Elymus caput-medusae</i>	Medusahead	Poaceae	Naturalized	NL	NL
<i>Elymus triticoides</i>	Beardless wild rye	Poaceae	Native	NL	NL
<i>Epilobium brachycarpum</i>	Annual fireweed	Onagraceae	Native	NL	NL
<i>Epilobium ciliatum</i>	Fringed willowherb	Onagraceae	Native	NL	NL
<i>Epilobium cleistogamum</i>	Selfing willowherb	Onagraceae	Native	NL	OBL
<i>Erigeron bonariensis</i>	Flax-leaved horseweed	Asteraceae	Naturalized	NL	FACU
<i>Erodium botrys</i>	Long-beak stork's-bill	Geraniaceae	Naturalized	NL	FACU
<i>Erodium moschatum</i>	White stemmed filaree	Geraniaceae	Naturalized	NL	NL
<i>Eryngium castrense</i>	Coyote thistle	Apiaceae	Native	NL	OBL
<i>Eschscholzia californica</i>	California poppy	Papaveraceae	Native	NL	NL
<i>Eschscholzia lobbii</i>	Frying pans	Papaveraceae	Native	NL	NL
<i>Euphorbia maculata</i>	Spotted spurge	Euphorbiaceae	Naturalized	NL	UPL
<i>Euthamia occidentalis</i>	Western goldenrod	Asteraceae	Native	NL	FACW
<i>Festuca (Vulpia) myuros</i>	Six-weeks grass	Poaceae	Naturalized	NL	NL
<i>Festuca perennis</i>	Italian ryegrass	Poaceae	Naturalized	NL	NL
<i>Foeniculum vulgare</i>	Sweet fennel	Apiaceae	Naturalized	High	NL
<i>Fragaria × ananassa</i>	Strawberry	Rosaceae	Native	NL	NL
<i>Galium aparine</i>	Bedstraw	Rubiaceae	Native	NL	FACU
<i>Galium porrigens</i>	Climbing bedstraw	Rubiaceae	Native	NL	NL
<i>Geranium dissectum</i>	Cutleaf geranium	Geraniaceae	Naturalized	Limited	NL
<i>Glyceria declinata</i>	Waxy mannagrass	Poaceae	Naturalized	Moderate	FACW
<i>Gratiola ebracteata</i>	Bractless hedge hyssop	Plantaginaceae	Native	NL	OBL
<i>Hirschfeldia incana</i>	Wild mustard	Brassicaceae	Naturalized	Moderate	NL
<i>Holocarpha virgata</i>	Tarweed	Asteraceae	Native	NL	NL

*Appendix B. List of Vascular Plants and Wildlife Observed within the Biological Study Area*

**Vascular Plant Species Observed**

<b>Scientific Name<sup>1</sup></b>	<b>Common Name</b>	<b>Family</b>	<b>Nativity</b>	<b>Invasive Rating<sup>2</sup></b>	<b>Wetland Indicator Status<sup>3</sup></b>
<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Mediterranean barley	Poaceae	Naturalized	NL	NL
<i>Hordeum murinum</i> ssp. <i>leporinum</i>	Wall barley	Poaceae	Naturalized	NL	FACU
<i>Hypochaeris glabra</i>	Smooth cat's ears	Asteraceae	Naturalized	Limited	NL
<i>Hypochaeris radicata</i>	Hairy cats ear	Asteraceae	Naturalized	Moderate	FACU
<i>Iris</i> sp.	Ornamental iris	Iridaceae	Native	NL	NL
<i>Juglans hindsii</i>	Northern California walnut	Juglandaceae	Waif	NL	FAC
<i>Juncus bufonius</i>	Toad rush	Juncaceae	Native	NL	FACW
<i>Juncus effusus</i>	Bog rush	Juncaceae	Native	NL	FACW
<i>Juncus patens</i>	Spreading rush	Juncaceae	Native	NL	FACW
<i>Kickxia elatine</i>	Sharp leaved fluellin	Plantaginaceae	Naturalized	NL	UPL
<i>Lactuca serriola</i>	Prickly lettuce	Asteraceae	Naturalized	NL	FACU
<i>Lasthenia fremontii</i>	Fremont's Goldfields	Asteraceae	Native	NL	OBL
<i>Lasthenia glaberrima</i>	Smooth goldfields	Asteraceae	Native	NL	OBL
<i>Layia carnosa</i>	Beach tidy tips	Asteraceae	Native	NL	NL
<i>Layia fremontii</i>	Fremont's tidy tips	Asteraceae	Native	NL	NL
<i>Leersia oryzoides</i>	Rice cutgrass	Poaceae	Native	NL	OBL
<i>Legenere limosa</i>	Legenere	Campanulaceae	Native	NL	OBL
<i>Leontodon saxatilis</i>	Lesser hawkbit	Asteraceae	Naturalized	NL	FACU
<i>Lepidium latifolium</i>	Perennial pepperweed	Brassicaceae	Naturalized	High	FAC
<i>Lepidium nitidum</i>	Peppergrass	Brassicaceae	Native	NL	FAC
<i>Limnanthes alba</i>	White meadowfoam	Limnanthaceae	Native	NL	FACW
<i>Logfia filaginoides</i>	California cottonrose	Asteraceae	Native	NL	NL
<i>Ludwigia peploides</i>	Marsh purslane	Onagraceae	Native	High	OBL
<i>Lupinus bicolor</i>	Bicolored lupine	Fabaceae	Native	NL	NL
<i>Lysimachia arvensis</i>	Scarlet pimpernel	Myrsinaceae	Naturalized	NL	FAC
<i>Lythrum hyssopifolium</i>	Hyssop loosestrife	Lythraceae	Naturalized	Limited	OBL
<i>Lythrum portula</i>	Broad leaved loosestrife	Lythraceae	Naturalized	NL	OBL
<i>Malva neglecta</i>	Common mallow	Malvaceae	Naturalized	NL	NL
<i>Matricaria discoidea</i>	Pineapple weed	Asteraceae	Native	NL	FACU
<i>Medicago polymorpha</i>	Bur clover	Fabaceae	Naturalized	Limited	FACU

*Appendix B. List of Vascular Plants and Wildlife Observed within the Biological Study Area*

**Vascular Plant Species Observed**

<b>Scientific Name<sup>1</sup></b>	<b>Common Name</b>	<b>Family</b>	<b>Nativity</b>	<b>Invasive Rating<sup>2</sup></b>	<b>Wetland Indicator Status<sup>3</sup></b>
<i>Narcissus</i> sp.	Daffodils	Amaryllidaceae	Naturalized	NL	NL
<i>Navarretia intertexta</i>	Needleleaf navarretia	Polemoniaceae	Native	NL	FACW
<i>Navarretia leucocephala</i>	Whitehead navarretia	Polemoniaceae	Native	NL	OBL
<i>Nerium oleander</i>	Oleander	Apocynaceae	Naturalized	NL	NL
<i>Paspalum dilatatum</i>	Dallisgrass	Poaceae	Naturalized	NL	FAC
<i>Persicaria lapathifolia</i>	Common knotweed	Polygonaceae	Native	NL	FACW
<i>Phalaris aquatica</i>	Hardinggrass	Poaceae	Naturalized	Moderate	FACU
<i>Phoenix dactylifera</i>	Date palm	Areaceae	Waif	NL	NL
<i>Pinus muricata</i>	Bishop pine	Pinaceae	Native	NL	NL
<i>Pinus</i> sp.	Ornamental pine	Pinaceae	Native	NL	--
<i>Plagiobothrys stipitatus micranthus</i>	Stalked popcorn-flower	Boraginaceae	Native	NL	NL
<i>Plantago major</i>	Common plantain	Plantaginaceae	Naturalized	NL	FAC
<i>Platanus × acerifolia</i>	London plane tree	Plantanaceae	Naturalized	NL	NL
<i>Poa annua</i>	Annual bluegrass	Poaceae	Naturalized	NL	FAC
<i>Pogogyne ziziphoroides</i>	Sacramento beardstyle	Lamiaceae	Native	NL	OBL
<i>Polygonum aviculare</i>	Prostrate knotweed	Polygonaceae	Naturalized	NL	FAC
<i>Polypogon monspeliensis</i>	Rabbitsfoot grass	Poaceae	Naturalized	Limited	FACW
<i>Populus fremontii</i>	Fremont cottonwood	Salicaceae	Native	NL	NL
<i>Prunus cerasifera</i>	Cherry plum tree	Rosaceae	Naturalized	Limited	NL
<i>Prunus dulcis</i>	Almond	Rosaceae	Naturalized	NL	NL
<i>Prunus persica</i> , var. <i>nectarina</i>	Nectarine	Rosaceae	Naturalized	NL	NL
<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed	Asteraceae	Naturalized	NL	FAC
<i>Psilocarphus brevissimus</i>	Woolly marbles	Asteraceae	Native	NL	FACW
<i>Psilocarphus oregonus</i>	Oregon woolly heads	Asteraceae	Native	NL	OBL
<i>Pyracanthas</i> sp.	Firethorn	Rosaceae	Naturalized	NL	NL
<i>Pyrus calleryana</i>	Capital pear	Rosaceae	Naturalized	Red Alert	NL
<i>Quercus lobata</i>	Valley oak	Fagaceae	Native	NL	FACU
<i>Quercus wislizeni</i>	Interior live oak	Fagaceae	Native	NL	NL
<i>Ranunculus bonariensis</i>	Carter's buttercup	Ranunculaceae	Native	NL	OBL
<i>Ranunculus muricatus</i>	Spiny-fruit buttercup	Ranunculaceae	Naturalized	NL	FACW
<i>Raphanus sativus</i>	Wild radish	Brassicaceae	Naturalized	Limited	NL



*Appendix B. List of Vascular Plants and Wildlife Observed within the Biological Study Area*

**Vascular Plant Species Observed**

<b>Scientific Name<sup>1</sup></b>	<b>Common Name</b>	<b>Family</b>	<b>Nativity</b>	<b>Invasive Rating<sup>2</sup></b>	<b>Wetland Indicator Status<sup>3</sup></b>
<i>Rubus armeniacus</i>	Himalayan blackberry	Rosaceae	Naturalized	High	FAC
<i>Rumex crispus</i>	Curly dock	Polygonaceae	Naturalized	Limited	FAC
<i>Rosa</i> sp.	Ornamental rose	Rosaceae	Native	NL	--
<i>Rosmarinus officinalis</i>	Rosemary	Lamiaceae	Naturalized	NL	NL
<i>Rumex pulcher</i>	Fiddle dock	Polygonaceae	Naturalized	NL	FAC
<i>Salix</i> sp.	Willow	Salicaceae	Native	NL	FACW
<i>Sanicula bipinnatifida</i>	Purple sanicle	Apiaceae	Native	NL	NL
<i>Schinus terebinthifolius</i>	Brazilian pepper tree	Anacardiaceae	Naturalized	Limited	NL
<i>Schoenoplectus acutus</i>	Tule	Cyperaceae	Native	NL	OBL
<i>Senecio vulgaris</i>	Old-man-of-the-Spring	Asteraceae	Naturalized	NL	FACU
<i>Sidalcea calycosa</i>	Vernal pool checkerbloom	Malvaceae	Native	NL	OBL
<i>Silybum marianum</i>	Milk thistle	Asteraceae	Naturalized	Limited	NL
<i>Solanum</i> sp.	California nightshade	Solanaceae	Naturalized	NL	--
<i>Sonchus oleraceus</i>	Common sow thistle	Asteraceae	Naturalized	NL	UPL
<i>Spergularia rubra</i>	Purple sand spurry	Caryophyllaceae	Native	NL	FAC
<i>Spergularia</i> sp.	Sand spurry	Caryophyllaceae	Native	NL	--
<i>Stellaria media</i>	Common chickweed	Caryophyllaceae	Naturalized	NL	FACU
<i>Stipa pulchra</i>	Purple needlegrass	Poaceae	Native	NL	NL
<i>Tragopogon porrifolius</i>	Oster plant	Asteraceae	Naturalized	NL	NL
<i>Triadica sebifera</i>	Chinese tallowtree	Euphorbiaceae	Naturalized	NL	FAC
<i>Tribulus terrestris</i>	Puncture vine	Zygophyllaceae	Naturalized	NL	NL
<i>Trichostema lanceolatum</i>	Vinegarweed	Lamiaceae	Native	NL	FACU
<i>Trifolium depauperatum</i>	Cowbag clover	Fabaceae	Native	NL	FAC
<i>Trifolium hirtum</i>	Rose clover	Fabaceae	Naturalized	Limited	NL
<i>Trifolium subterraneum</i>	Subterranean clover	Fabaceae	Naturalized	NL	NL
<i>Trifolium tomentosum</i>	Woolly clover	Fabaceae	Naturalized	NL	NL
<i>Trifolium variegatum</i>	White-tip clover	Fabaceae	Native	NL	FAC
<i>Trifolium willdenovii</i>	Tomcat clover	Fabaceae	Native	NL	NL
<i>Triglochin scilloides</i>	Flowering-quillwort	Juncaginaceae	Native	NL	OBL
<i>Triphysaria eriantha</i>	Butter 'n' eggs	Orobanchaceae	Native	NL	NL
<i>Triteleia hyacinthina</i>	White brodiaea	Themidaceae	Native	NL	FAC

*Appendix B. List of Vascular Plants and Wildlife Observed within the Biological Study Area*

**Vascular Plant Species Observed**

Scientific Name <sup>1</sup>	Common Name	Family	Nativity	Invasive Rating <sup>2</sup>	Wetland Indicator Status <sup>3</sup>
<i>Triteleia laxa</i>	Ithuriel's spear	Themidaceae	Native	NL	NL
<i>Typha</i> sp.	Cattail	Typhaceae	Native/Naturalized	NL	OBL
<i>Urtica dioica</i>	Stinging nettle	Urticaceae	Native	NL	FAC
<i>Veronica anagallis-aquatica</i>	Water speedwell	Plantaginaceae	Naturalized	NL	OBL
<i>Veronica peregrina</i>	Neckweed	Plantaginaceae	Native	NL	FAC
<i>Vicia villosa</i>	Winter vetch	Fabaceae	Naturalized	NL	NL
<i>Vulpia bromoides</i>	Six-weeks brome	Poaceae	Naturalized	NL	FACU
<i>Wyethia mollis</i>	Mule ears	Asteraceae	Native	NL	NL
<i>Xanthium spinosum</i>	Spiny cocklebur	Asteraceae	Native	NL	FACU

<sup>1</sup>Scientific nomenclature follows The Jepson Manual: Baldwin, B.G. (ed.). 2012. The Jepson Manual: Vascular Plants of California, 2nd Edition. University of California Press. Berkeley, California.

<sup>2</sup>CAL-IPC Invasive Species Ratings. Definitions are provided below (CAL-IPC 2006)

Inventory Category

NL	Not Listed
Limited	Invasive, but ecological impacts are minor on a statewide level.
Moderate	Substantial and apparent, but not severe ecological impacts. Moderate to high dispersal.
High	Severe ecological impacts. High rates of dispersal and establishment. Widely distributed.

<sup>3</sup>Wetland indicator status follows Arid West Region. Definitions are provided below (Lichvar 2016)

Indicator Category

Wetland Occurrence

--	Multiple status options available for genus (not keyed to species)
OBL (Obligate Wetland Plants)	Almost always occur in wetlands.
FACW (Facultative Wetland Plants)	Usually occur in wetlands, but may occur in nonwetlands.
FAC (Facultative Wetland Plants)	Occur in wetlands and nonwetlands.
FACU (Facultative Upland Plants)	Usually occur in nonwetlands, but may occur in wetlands.
UPL (Obligate Upland Plants)	Almost never occur in wetlands.
NL (Not listed)	Not listed in the Lichvar 2016 document

# **APPENDIX C**

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## **Annual and Daily Construction Emissions**

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Waterman Road - Construction Only - Sacramento County, Summer

**Waterman Road - Construction Only**  
**Sacramento County, Summer**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	442.00	1000sqft	10.15	442,000.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2020
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MW hr)</b>	590.31	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase - Assumed two weeks of site preparation and 80 days of paving.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Assumed a total of 10 haul trips during the paving construction phase.

## Waterman Road - Construction Only - Sacramento County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	80.00
tblConstructionPhase	NumDays	10.00	11.00
tblConstructionPhase	PhaseEndDate	5/31/2018	10/5/2018
tblConstructionPhase	PhaseEndDate	5/31/2018	6/15/2018
tblConstructionPhase	PhaseStartDate	6/1/2018	6/18/2018
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	HaulingTripNumber	0.00	10.00

## 2.0 Emissions Summary

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Waterman Road - Construction Only - Sacramento County, Summer

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1945	4.2000e-004	0.0454	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0967	0.0967	2.6000e-004		0.1032
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
<b>Total</b>	<b>0.1945</b>	<b>4.2000e-004</b>	<b>0.0454</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>1.6000e-004</b>		<b>0.0967</b>	<b>0.0967</b>	<b>2.6000e-004</b>	<b>0.0000</b>	<b>0.1032</b>

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1945	4.2000e-004	0.0454	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0967	0.0967	2.6000e-004		0.1032
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
<b>Total</b>	<b>0.1945</b>	<b>4.2000e-004</b>	<b>0.0454</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>1.6000e-004</b>		<b>0.0967</b>	<b>0.0967</b>	<b>2.6000e-004</b>	<b>0.0000</b>	<b>0.1032</b>



Waterman Road - Construction Only - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Paving	Paving	6/18/2018	10/5/2018	5	80	
2	Site Preparation	Site Preparation	6/1/2018	6/15/2018	5	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 10.15

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

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40

#### Trips and VMT

Waterman Road - Construction Only - Sacramento County, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Paving	6	15.00	0.00	10.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

**3.2 Paving - 2018**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6437	17.5209	14.7964	0.0228		0.9561	0.9561		0.8797	0.8797		2,294.0887	2,294.0887	0.7142		2,311.9432
Paving	0.3324					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.9761</b>	<b>17.5209</b>	<b>14.7964</b>	<b>0.0228</b>		<b>0.9561</b>	<b>0.9561</b>		<b>0.8797</b>	<b>0.8797</b>		<b>2,294.0887</b>	<b>2,294.0887</b>	<b>0.7142</b>		<b>2,311.9432</b>

Waterman Road - Construction Only - Sacramento County, Summer

**3.2 Paving - 2018**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1900e-003	0.0399	0.0103	1.0000e-004	2.1800e-003	1.8000e-004	2.3500e-003	6.0000e-004	1.7000e-004	7.7000e-004		10.8389	10.8389	6.3000e-004		10.8547
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0773	0.0439	0.6032	1.2800e-003	0.1141	8.4000e-004	0.1149	0.0303	7.7000e-004	0.0310		127.1038	127.1038	4.3700e-003		127.2131
<b>Total</b>	<b>0.0785</b>	<b>0.0837</b>	<b>0.6135</b>	<b>1.3800e-003</b>	<b>0.1163</b>	<b>1.0200e-003</b>	<b>0.1173</b>	<b>0.0309</b>	<b>9.4000e-004</b>	<b>0.0318</b>		<b>137.9427</b>	<b>137.9427</b>	<b>5.0000e-003</b>		<b>138.0678</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6437	17.5209	14.7964	0.0228		0.9561	0.9561		0.8797	0.8797	0.0000	2,294.0887	2,294.0887	0.7142		2,311.9432
Paving	0.3324					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.9761</b>	<b>17.5209</b>	<b>14.7964</b>	<b>0.0228</b>		<b>0.9561</b>	<b>0.9561</b>		<b>0.8797</b>	<b>0.8797</b>	<b>0.0000</b>	<b>2,294.0887</b>	<b>2,294.0887</b>	<b>0.7142</b>		<b>2,311.9432</b>

Waterman Road - Construction Only - Sacramento County, Summer

**3.2 Paving - 2018**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1900e-003	0.0399	0.0103	1.0000e-004	2.1800e-003	1.8000e-004	2.3500e-003	6.0000e-004	1.7000e-004	7.7000e-004		10.8389	10.8389	6.3000e-004		10.8547
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0773	0.0439	0.6032	1.2800e-003	0.1141	8.4000e-004	0.1149	0.0303	7.7000e-004	0.0310		127.1038	127.1038	4.3700e-003		127.2131
<b>Total</b>	<b>0.0785</b>	<b>0.0837</b>	<b>0.6135</b>	<b>1.3800e-003</b>	<b>0.1163</b>	<b>1.0200e-003</b>	<b>0.1173</b>	<b>0.0309</b>	<b>9.4000e-004</b>	<b>0.0318</b>		<b>137.9427</b>	<b>137.9427</b>	<b>5.0000e-003</b>		<b>138.0678</b>

**3.3 Site Preparation - 2018**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
<b>Total</b>	<b>4.5627</b>	<b>48.1988</b>	<b>22.4763</b>	<b>0.0380</b>	<b>18.0663</b>	<b>2.5769</b>	<b>20.6432</b>	<b>9.9307</b>	<b>2.3708</b>	<b>12.3014</b>		<b>3,831.6239</b>	<b>3,831.6239</b>	<b>1.1928</b>		<b>3,861.4448</b>

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**3.3 Site Preparation - 2018**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0928	0.0526	0.7238	1.5300e-003	0.1369	1.0100e-003	0.1379	0.0363	9.3000e-004	0.0373		152.5246	152.5246	5.2500e-003		152.6557
<b>Total</b>	<b>0.0928</b>	<b>0.0526</b>	<b>0.7238</b>	<b>1.5300e-003</b>	<b>0.1369</b>	<b>1.0100e-003</b>	<b>0.1379</b>	<b>0.0363</b>	<b>9.3000e-004</b>	<b>0.0373</b>		<b>152.5246</b>	<b>152.5246</b>	<b>5.2500e-003</b>		<b>152.6557</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
<b>Total</b>	<b>4.5627</b>	<b>48.1988</b>	<b>22.4763</b>	<b>0.0380</b>	<b>18.0663</b>	<b>2.5769</b>	<b>20.6432</b>	<b>9.9307</b>	<b>2.3708</b>	<b>12.3014</b>	<b>0.0000</b>	<b>3,831.6239</b>	<b>3,831.6239</b>	<b>1.1928</b>		<b>3,861.4448</b>

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**3.3 Site Preparation - 2018**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0928	0.0526	0.7238	1.5300e-003	0.1369	1.0100e-003	0.1379	0.0363	9.3000e-004	0.0373		152.5246	152.5246	5.2500e-003		152.6557
<b>Total</b>	<b>0.0928</b>	<b>0.0526</b>	<b>0.7238</b>	<b>1.5300e-003</b>	<b>0.1369</b>	<b>1.0100e-003</b>	<b>0.1379</b>	<b>0.0363</b>	<b>9.3000e-004</b>	<b>0.0373</b>		<b>152.5246</b>	<b>152.5246</b>	<b>5.2500e-003</b>		<b>152.6557</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

Waterman Road - Construction Only - Sacramento County, Summer

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

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971

5.0 Energy Detail

Historical Energy Use: N

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**5.1 Mitigation Measures Energy**

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

**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

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



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**5.2 Energy by Land Use - NaturalGas**

**Mitigated**

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

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1945	4.2000e-004	0.0454	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0967	0.0967	2.6000e-004		0.1032
Unmitigated	0.1945	4.2000e-004	0.0454	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0967	0.0967	2.6000e-004		0.1032

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**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0337					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1566					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.2700e-003	4.2000e-004	0.0454	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0967	0.0967	2.6000e-004		0.1032
<b>Total</b>	<b>0.1945</b>	<b>4.2000e-004</b>	<b>0.0454</b>	<b>0.0000</b>		<b>1.6000e-004</b>	<b>1.6000e-004</b>		<b>1.6000e-004</b>	<b>1.6000e-004</b>		<b>0.0967</b>	<b>0.0967</b>	<b>2.6000e-004</b>		<b>0.1032</b>

**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0337					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1566					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.2700e-003	4.2000e-004	0.0454	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0967	0.0967	2.6000e-004		0.1032
<b>Total</b>	<b>0.1945</b>	<b>4.2000e-004</b>	<b>0.0454</b>	<b>0.0000</b>		<b>1.6000e-004</b>	<b>1.6000e-004</b>		<b>1.6000e-004</b>	<b>1.6000e-004</b>		<b>0.0967</b>	<b>0.0967</b>	<b>2.6000e-004</b>		<b>0.1032</b>

**7.0 Water Detail**

## Waterman Road - Construction Only - Sacramento County, Summer

**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**10.0 Stationary Equipment****Fire Pumps and Emergency Generators**

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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**Waterman Road - Construction Only**  
**Sacramento County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	442.00	1000sqft	10.15	442,000.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2020
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MW hr)</b>	590.31	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase - Assumed two weeks of site preparation and 80 days of paving.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Assumed a total of 10 haul trips during the paving construction phase.

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Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	80.00
tblConstructionPhase	NumDays	10.00	11.00
tblConstructionPhase	PhaseEndDate	5/31/2018	10/5/2018
tblConstructionPhase	PhaseEndDate	5/31/2018	6/15/2018
tblConstructionPhase	PhaseStartDate	6/1/2018	6/18/2018
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	HaulingTripNumber	0.00	10.00

## 2.0 Emissions Summary

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-1-2018	8-31-2018	0.8100	0.8100
2	9-1-2018	9-30-2018	0.2106	0.2106
		Highest	0.8100	0.8100

**2.2 Overall Operational**  
**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0353	5.0000e-005	5.6800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0110	0.0110	3.0000e-005	0.0000	0.0117
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0353</b>	<b>5.0000e-005</b>	<b>5.6800e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0110</b>	<b>0.0110</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0117</b>

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**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0353	5.0000e-005	5.6800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0110	0.0110	3.0000e-005	0.0000	0.0117
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0353</b>	<b>5.0000e-005</b>	<b>5.6800e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0110</b>	<b>0.0110</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0117</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Paving	Paving	6/18/2018	10/5/2018	5	80	
2	Site Preparation	Site Preparation	6/1/2018	6/15/2018	5	11	



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**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 10.15**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Paving	6	15.00	0.00	10.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

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**3.2 Paving - 2018**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0658	0.7008	0.5919	9.1000e-004		0.0383	0.0383		0.0352	0.0352	0.0000	83.2465	83.2465	0.0259	0.0000	83.8944
Paving	0.0133					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0791</b>	<b>0.7008</b>	<b>0.5919</b>	<b>9.1000e-004</b>		<b>0.0383</b>	<b>0.0383</b>		<b>0.0352</b>	<b>0.0352</b>	<b>0.0000</b>	<b>83.2465</b>	<b>83.2465</b>	<b>0.0259</b>	<b>0.0000</b>	<b>83.8944</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	1.6500e-003	4.2000e-004	0.0000	8.0000e-005	1.0000e-005	9.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.3909	0.3909	2.0000e-005	0.0000	0.3915
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6700e-003	1.9400e-003	0.0206	5.0000e-005	4.4100e-003	3.0000e-005	4.4400e-003	1.1700e-003	3.0000e-005	1.2000e-003	0.0000	4.1699	4.1699	1.4000e-004	0.0000	4.1735
<b>Total</b>	<b>2.7200e-003</b>	<b>3.5900e-003</b>	<b>0.0210</b>	<b>5.0000e-005</b>	<b>4.4900e-003</b>	<b>4.0000e-005</b>	<b>4.5300e-003</b>	<b>1.1900e-003</b>	<b>4.0000e-005</b>	<b>1.2300e-003</b>	<b>0.0000</b>	<b>4.5608</b>	<b>4.5608</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>4.5649</b>

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**3.2 Paving - 2018**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0658	0.7008	0.5919	9.1000e-004		0.0383	0.0383		0.0352	0.0352	0.0000	83.2464	83.2464	0.0259	0.0000	83.8943
Paving	0.0133					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0791</b>	<b>0.7008</b>	<b>0.5919</b>	<b>9.1000e-004</b>		<b>0.0383</b>	<b>0.0383</b>		<b>0.0352</b>	<b>0.0352</b>	<b>0.0000</b>	<b>83.2464</b>	<b>83.2464</b>	<b>0.0259</b>	<b>0.0000</b>	<b>83.8943</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	1.6500e-003	4.2000e-004	0.0000	8.0000e-005	1.0000e-005	9.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.3909	0.3909	2.0000e-005	0.0000	0.3915
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6700e-003	1.9400e-003	0.0206	5.0000e-005	4.4100e-003	3.0000e-005	4.4400e-003	1.1700e-003	3.0000e-005	1.2000e-003	0.0000	4.1699	4.1699	1.4000e-004	0.0000	4.1735
<b>Total</b>	<b>2.7200e-003</b>	<b>3.5900e-003</b>	<b>0.0210</b>	<b>5.0000e-005</b>	<b>4.4900e-003</b>	<b>4.0000e-005</b>	<b>4.5300e-003</b>	<b>1.1900e-003</b>	<b>4.0000e-005</b>	<b>1.2300e-003</b>	<b>0.0000</b>	<b>4.5608</b>	<b>4.5608</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>4.5649</b>

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**3.3 Site Preparation - 2018**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0994	0.0000	0.0994	0.0546	0.0000	0.0546	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0251	0.2651	0.1236	2.1000e-004		0.0142	0.0142		0.0130	0.0130	0.0000	19.1180	19.1180	5.9500e-003	0.0000	19.2667
<b>Total</b>	<b>0.0251</b>	<b>0.2651</b>	<b>0.1236</b>	<b>2.1000e-004</b>	<b>0.0994</b>	<b>0.0142</b>	<b>0.1135</b>	<b>0.0546</b>	<b>0.0130</b>	<b>0.0677</b>	<b>0.0000</b>	<b>19.1180</b>	<b>19.1180</b>	<b>5.9500e-003</b>	<b>0.0000</b>	<b>19.2667</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.2000e-004	3.3900e-003	1.0000e-005	7.3000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6880	0.6880	2.0000e-005	0.0000	0.6886
<b>Total</b>	<b>4.4000e-004</b>	<b>3.2000e-004</b>	<b>3.3900e-003</b>	<b>1.0000e-005</b>	<b>7.3000e-004</b>	<b>1.0000e-005</b>	<b>7.3000e-004</b>	<b>1.9000e-004</b>	<b>1.0000e-005</b>	<b>2.0000e-004</b>	<b>0.0000</b>	<b>0.6880</b>	<b>0.6880</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.6886</b>

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**3.3 Site Preparation - 2018**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0994	0.0000	0.0994	0.0546	0.0000	0.0546	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0251	0.2651	0.1236	2.1000e-004		0.0142	0.0142		0.0130	0.0130	0.0000	19.1179	19.1179	5.9500e-003	0.0000	19.2667
<b>Total</b>	<b>0.0251</b>	<b>0.2651</b>	<b>0.1236</b>	<b>2.1000e-004</b>	<b>0.0994</b>	<b>0.0142</b>	<b>0.1135</b>	<b>0.0546</b>	<b>0.0130</b>	<b>0.0677</b>	<b>0.0000</b>	<b>19.1179</b>	<b>19.1179</b>	<b>5.9500e-003</b>	<b>0.0000</b>	<b>19.2667</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.2000e-004	3.3900e-003	1.0000e-005	7.3000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6880	0.6880	2.0000e-005	0.0000	0.6886
<b>Total</b>	<b>4.4000e-004</b>	<b>3.2000e-004</b>	<b>3.3900e-003</b>	<b>1.0000e-005</b>	<b>7.3000e-004</b>	<b>1.0000e-005</b>	<b>7.3000e-004</b>	<b>1.9000e-004</b>	<b>1.0000e-005</b>	<b>2.0000e-004</b>	<b>0.0000</b>	<b>0.6880</b>	<b>0.6880</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.6886</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

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

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971







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**5.3 Energy by Land Use - Electricity**

**Unmitigated**

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

**Mitigated**

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

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0353	5.0000e-005	5.6800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0110	0.0110	3.0000e-005	0.0000	0.0117
Unmitigated	0.0353	5.0000e-005	5.6800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0110	0.0110	3.0000e-005	0.0000	0.0117

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	6.1500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0286					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.3000e-004	5.0000e-005	5.6800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0110	0.0110	3.0000e-005	0.0000	0.0117
<b>Total</b>	<b>0.0353</b>	<b>5.0000e-005</b>	<b>5.6800e-003</b>	<b>0.0000</b>		<b>2.0000e-005</b>	<b>2.0000e-005</b>		<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0110</b>	<b>0.0110</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0117</b>

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**6.2 Area by SubCategory**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	6.1500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0286					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.3000e-004	5.0000e-005	5.6800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0110	0.0110	3.0000e-005	0.0000	0.0117
<b>Total</b>	<b>0.0353</b>	<b>5.0000e-005</b>	<b>5.6800e-003</b>	<b>0.0000</b>		<b>2.0000e-005</b>	<b>2.0000e-005</b>		<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0110</b>	<b>0.0110</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0117</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

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**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

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

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**Fire Pumps and Emergency Generators**

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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