



**Resource Management
Agency
COUNTY OF TULARE
AGENDA ITEM**

BOARD OF SUPERVISORS

KUYLER CROCKER
District One
PETE VANDER POEL
District Two
AMY SHUKLIAN
District Three
EDDIE VALERO
District Four
DENNIS TOWNSEND
District Five

AGENDA DATE: May 7, 2019

Public Hearing Required	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Scheduled Public Hearing w/Clerk	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Published Notice Required	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Advertised Published Notice	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Meet & Confer Required	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Electronic file(s) has been sent	Yes	<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/>
Budget Transfer (Aud 308) attached	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Personnel Resolution attached	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Agreements are attached and signature line for Chairman is marked with tab(s)/flag(s)	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
CONTACT PERSON: Celeste Perez PHONE: (559) 624-7010				

SUBJECT: Adopt the Categorical Exemption for the Avenue 424 Traver Canal Bridge Project

- REQUEST(S):**
That the Board of Supervisors:
1. Adopt the Categorical Exemption prepared pursuant to the California Environmental Quality Act (CEQA) and the State CEQA Guidelines per Section 15302 Replacement or Reconstruction and Section 15300.4, Application by Public Agencies, for the Avenue 424 Traver Canal Bridge Project; and
 2. Authorize the Environmental Assessment Officer, or designee, to sign and file the Notice of Exemption with the County Clerk.

SUMMARY:
In accordance with the California Environmental Quality Act (CEQA), the County of Tulare, acting as the lead agency for the Avenue 424 Traver Canal Bridge Project, must adopt the Categorical Exemption (CE) prior to advertising the project for construction.

The County, in cooperation with Caltrans, proposes to replace the existing functionally obsolete (narrow) bridge on Avenue 424 over Traver Canal. Located approximately 0.25 miles east of Road 64 and 0.7 miles west of the City of Dinuba, the existing bridge (constructed in 1925) will be replaced with an approximately 74-foot long by 36-foot wide, single-span cast-in-place prestressed reinforced concrete flat slab bridge. The replacement bridge will accommodate two 12-foot lanes with 4.25-foot shoulders. Avenue 424 will be repaved approximately 275 feet to the west and 260 feet to the east of the bridge limits. Additionally, Avenue 424 will be closed to through

SUBJECT: Adopt the Categorical Exemption for the Avenue 424 Traver Canal Bridge Project

DATE: May 7, 2019

traffic during construction; however, a short detour will be available.

Construction is anticipated to begin in the fall of 2020, and should take approximately 6 months to complete all work.

In accordance with CEQA, the County has also determined that two categorical exemptions: State CEQA Guidelines (14 Cal. Code Regs.) Section 15302, Replacement or Reconstruction, and Section 15300.4, Application by Public Agencies, are applicable to the proposed action.

FISCAL IMPACT/FINANCING:

No Net County Cost.

A summary of the total estimated project cost for the Avenue 424 Traver Canal Bridge Project is as follows:

No.	Phase	Cost
1	Preliminary Engineering	\$604,000
2	Right of Way	\$100,000
3	Construction	\$2,400,000
Total		\$3,104,000

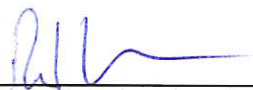
The Highway Bridge Program will fund this project at a 100% reimbursement ratio with the use of "toll credits" (no local match required).

County Road Funds will be used to fund all phases of the project (Preliminary Engineering, Right-of-Way and Construction), but will be fully reimbursed by Federal Highway Bridge Program funds.

LINKAGE TO THE COUNTY OF TULARE STRATEGIC BUSINESS PLAN:

This project will enhance the safety and security of the public by improving the transportation infrastructure for both the general population in the region and the motorists using this facility.

ADMINISTRATIVE SIGN-OFF:



Reed Schenke, P.E.
Director

cc: County Administrative Office

Attachment(s) Attachment A – Vicinity Map
Attachment B – Notice of Exemption

**BEFORE THE BOARD OF SUPERVISORS
COUNTY OF TULARE, STATE OF CALIFORNIA**

IN THE MATTER OF ADOPT THE)
CATEGORICAL EXEMPTION FOR THE) Resolution No. _____
AVENUE 424 TRAVER CANAL BRIDGE) Agreement No. _____
PROJECT)

UPON MOTION OF SUPERVISOR _____, SECONDED BY
SUPERVISOR _____, THE FOLLOWING WAS ADOPTED BY THE
BOARD OF SUPERVISORS, AT AN OFFICIAL MEETING HELD MAY 7, 2019, BY THE
FOLLOWING VOTE:

AYES:
NOES:
ABSTAIN:
ABSENT:

ATTEST: JASON T. BRITT
COUNTY ADMINISTRATIVE OFFICER/
CLERK, BOARD OF SUPERVISORS

BY: _____
Deputy Clerk

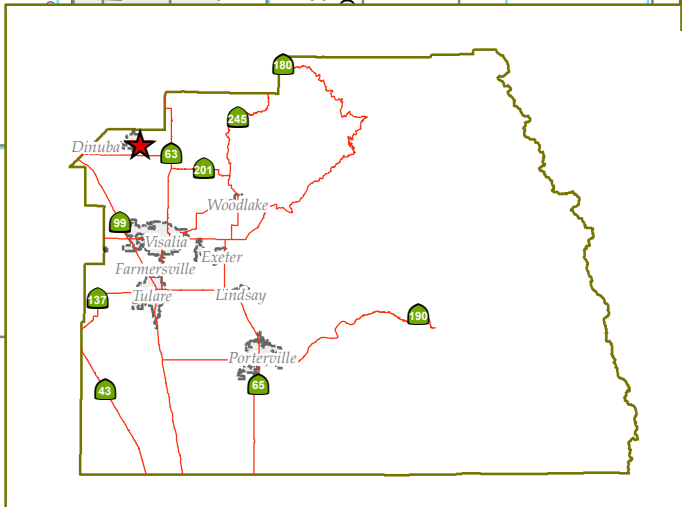
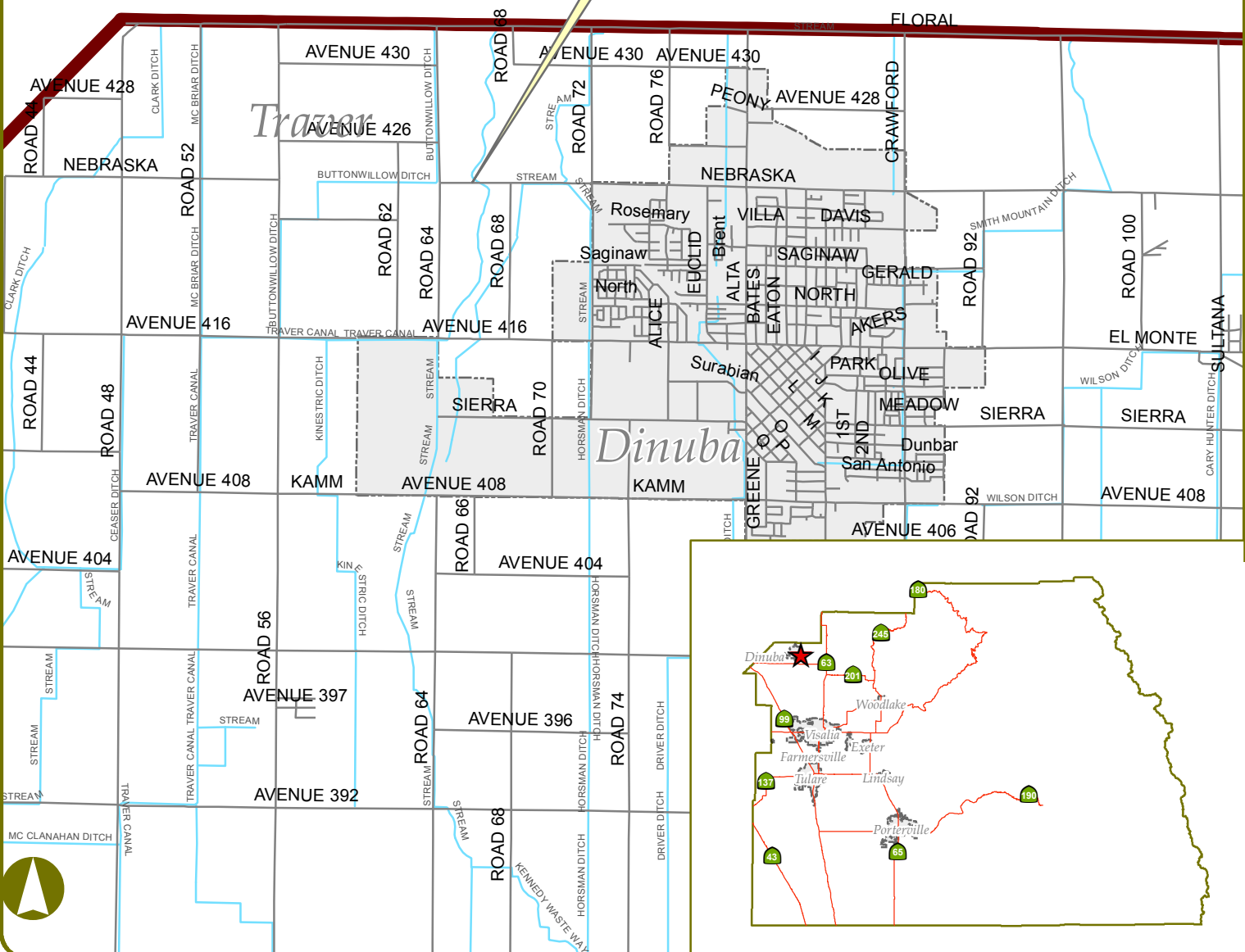
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1. Adopted the Categorical Exemption prepared pursuant to the California Environmental Quality Act (CEQA) and the State CEQA Guidelines per Section 15302 Replacement or Reconstruction and Section 15300.4, Application by Public Agencies, for the Avenue 424 Traver Canal Bridge Project; and
2. Authorized the Environmental Assessment Officer, or designee, to sign and file the Notice of Exemption with the County Clerk.

Attachment A

Vicinity Map

**Ave 424 Traver Canal
Bridge Project**



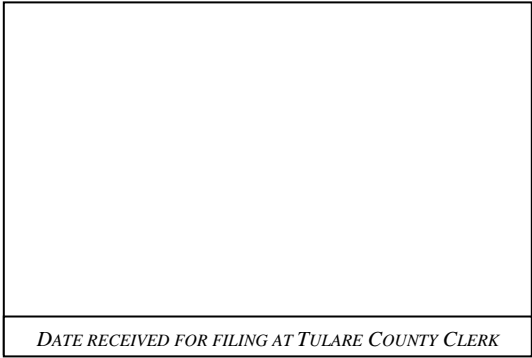
Attachment B

Notice of Exemption

Notice of Exemption

Fee Exempt per Government Code Section 6103

- To: Office of Planning and Research
1400 Tenth Street, Room 121
Sacramento, CA 95814
- X Tulare County Clerk
Room 105, Courthouse
221 S. Mooney Blvd.
Visalia, California 93291



Lead Agency: Tulare County Resource Management Agency
5961 S. Mooney Blvd.
Visalia, CA 93277
Ph: (559) 624-7000
Contact: hguerra@co.tulare.ca.us

Applicant(s): Tulare County Resource Management Agency – Public Works
5961 S. Mooney Blvd.
Visalia, CA 93277
Ph: (559) 624-7220

Project Title: Avenue 424 Traver Canal Bridge (Bridge 46C0219) Replacement

Project Location - Specific: The project site is located approximately 0.7 miles west of the City of Dinuba, approximately 0.25 miles east of Road 64, within unincorporated Tulare County (See Figure 1, Figure 2 and Figure 3 attached). The project will require right-of-way acquisition on three parcels (APNs 012-260-014, 012-260-026, and 012-271-036).

Project Location- Section, Township, Range: Section 1, Township 16S, Range 23E

Project Location - City: N/A, the project within unincorporated Tulare County

Project Location - County: Tulare

Description of Nature, Purpose, and Beneficiaries of Project: The Project consists of the replacement of the existing bridge on Avenue 424 over Traver Canal (Bridge No. 46C0219) to provide a structure that meets current design standards and improves the safety and operations on the facility. The existing bridge is a reinforced concrete slab on reinforced concrete abutments/piers, with two 29-foot spans. The existing bridge is approximately 60-feet long by 23-feet wide and includes two 10-foot wide traffic lanes (one in each direction) over the Traver Canal. The existing bridge will be replaced by an approximately 74-foot long by 36-foot wide cast-in-place prestressed reinforced concrete flat slab bridge. The existing bridge, which was constructed in 1925, has been given a sufficiency rating of 56.5 and flagged as Functionally Obsolete and, because of the existing narrow bridge deck and non-conforming guardrails, Caltrans has determined that the bridge should be replaced.

The replacement bridge will retain two traffic lanes (one in each direction); however, the lane widths would be increased to 12-feet and would include 4.25-foot wide shoulders on both sides. The bridge would taper from 32-feet at the bridge to match the existing 19-foot approach roadways, approximately 260 feet east and 275 feet west of the existing bridge. The project also includes improvements to existing driveway alignments on parcels adjacent to the project area, including parcels at the northeast, northwest, and southwest quadrants of the bridge. Construction is anticipated to begin in the fall of 2020 and will take approximately six months. The proposed Project will provide a structure that meets current design standards and improve the safety and operation of the facility. Thus, this Project will provide a public benefit by improving safety and security of the public by improving the transportation infrastructure for the general population in the region and motorists using these facilities.

Exempt Status: (*check one*)

- Ministerial (Sec. 21080(b)(1); 15268);
- Declared Emergency (Sec. 21080(b)(3); 15269(a));
- Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- General Rule: CEQA guidelines 15061 (b)(3)
- Categorical Exemption: **CEQA Guidelines Class 2 Section 15302 Replacement or Reconstruction (c)**
- Statutory Exemptions:

Reasons why project is exempt: This action is consistent with Class 2 Section 15302, Replacement or Reconstruction (c), as activities associated with the project will include replacement of existing facilities with negligible or no expansion of capacity. Also, consistent with Section 15300.4, Application by Public Agencies, the County of Tulare Board of Supervisors adopted an exemption for the construction of the aforementioned facilities per the Tulare County Guidelines for the Implementation of California Environmental Quality Act of 1970, Number 300 Section 111. CATEGORICAL EXEMPTIONS Class 2: Replacement or Reconstruction (e). As such, Sections 15302 and 15300.4 are applicable and appropriate for this project.

Name of Public Agency Approving Project: County of Tulare, Resource Management Agency

Project Planner/Representative: Jason K. Vivian, Engineer IV **Area Code/Telephone:** 559-624-7135

Signature: _____ Date: _____ Title: Chief Environmental Planner
Hector Guerra

Signature: _____ Date: _____ Title: Environmental Assessment Officer
Reed Schenke P.E. RMA Director

X Signed by Lead Agency

Date filed at State Clearinghouse: N/A

**TULARE COUNTY
RESOURCE MANAGEMENT
AGENCY**



**CATEGORICAL EXEMPTION FOR
AVENUE 424 TRAVER CANAL BRIDGE (46C0219)
REPLACEMENT PROJECT**

April 2019

ENVIRONMENTAL CONSIDERATIONS

DESCRIPTION OF PROJECT/ACTIVITY

The Project/Activity identified below is determined to be exempt from further environmental review requirements, under the California Environmental Quality Act (CEQA) of 1970 and as defined in the State and County guidelines for the implementation of CEQA under Section 21080(b)(1) of the Public Resources Code.

Location: Avenue 424, approximately 0.7 miles west of the City of Dinuba and approximately 0.25 miles east of Road 64, within unincorporated Tulare County. (See Figure 1 - Activity/Project Area, Figure 2 - Activity/Project Area, and Figure 3 - Construction Easements and Staging Areas)

Project Title: Avenue 424 Traver Canal Bridge (46C0219) Replacement Project

APN(s): 012-260-014, 012-260-026, and 012-271-036

Project Description: The Project consists of the replacement of the existing bridge on Avenue 424 over Traver Canal (Bridge No. 46C0219) to provide a structure that meets current design standards and improves the safety and operations on the facility. The existing bridge is a reinforced concrete slab on reinforced concrete abutments/piers, with two 29-foot spans. The existing bridge is approximately 60-foot long by 23-foot wide and includes two 10-foot wide traffic lanes (one in each direction) over the Traver Canal. The existing bridge will be replaced by a cast-in-place prestressed reinforced concrete flat slab bridge. The replacement bridge will retain two traffic lanes (one in each direction); however, the lane widths would be increased to 12-feet and would include 4.25-foot wide shoulders on both sides. The bridge would taper from 32-feet at the bridge to match the existing 19-foot approach roadways, approximately 260 feet east and 275 feet west of the existing bridge. The Project also includes improvements to existing driveway alignments on parcels adjacent to the project area, including parcels at the northeast, northwest, and southwest quadrants of the bridge. Construction is anticipated to begin in the Fall of 2020 and will take approximately six months. The existing bridge, which was constructed in 1925, has been given a sufficiency rating of 56.5 and flagged as Functionally Obsolete and, because of the existing narrow bridge deck and non-conforming guardrails, Caltrans has determined that the bridge should be replaced. The proposed Project will provide a structure that meets current design standards and improve the safety and operation of the facility. Thus, this Project will provide a public benefit by improving safety and security of the public by improving the transportation infrastructure for the general population in the region and motorists using these facilities.

REASON PROJECT IS EXEMPT

Exempt Status: (check one and describe in Section 1) below)

- Ministerial (Section 21080(b)(1) of the Public Resources Code)
- Statutory
- Categorical Exemption: **CEQA Guidelines Class 2 Section 15302 Replacement or Reconstruction (c)**
- Emergency Project
- No Possibility of Significant Effect Section 15061 (b) (3)

1) Exemption Section Citation

CEQA Guideline Section 15302 “Replacement or Reconstruction” Class 2 consists of the replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced. The key consideration is whether the project involves negligible or no expansion of an existing use. Specifically, at 15302 (c), it states “Replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity.” Also, section 15300.4 “Application by Public Agencies” states; “Each public agency shall, in the course of establishing its own procedures, list those specific activities which fall within each of the exempt classes, subject to the qualification that these lists must be consistent with both the letter and the intent expressed in the classes.” As such, the County of Tulare Board of Supervisors adopted an exemption for the construction of the aforementioned facilities per the Tulare County Guidelines for the Implementation of California Environmental Quality Act of 1970, Number 300 Section 111. CATEGORICAL EXEMPTIONS Class 2: Replacement or Reconstruction (e). Therefore, the application of CEQA Section 15302 and 15300.4 and Tulare County Guidelines for the Implementation of CEQA of 1970, Number 300 Section 111(e) are applicable and appropriate for this Activity/Project.

2) Reasons to support exemption findings

Pursuant to Section 15060 of the Public Resource Code (PRC), Resource Management Agency Staff during and immediately after reviewing the Activity/Project to see whether CEQA applied to this Activity/Project, or not. Staff determined that the Activity/Project is a qualified exemption as stated earlier; and therefore, CEQA does not apply.

Planning staff, in their analysis, found no substantial evidence that there are unusual circumstances (including future activities) resulting in (or which might reasonably result in) significant impacts. Therefore, no further environmental review is required.

EXCEPTIONS TO CATEGORICAL EXEMPTIONS

The following list of Exceptions to Exemptions is reviewed during the preliminary CEQA analysis. The analysis looks at the following **Exceptions to Categorical Exemptions (a-f)**, under CEQA. Pursuant to Section 15300.2 of the State CEQA Guidelines, the *Exceptions* and Planning Staff’s determination of no impact to these exemptions are listed below.

(a) Location. Classes 3, 4, 5, 6, and 11 are qualified by consideration of the Activity/Project’s location. A project that is ordinarily insignificant in its impact on the environment *may*, in a particularly sensitive environment, be significant. If the Activity/ Project is determined to be in one of these Classes, the scrutiny is increased in exempting the project under CEQA.

Not Applicable. This proposed Activity/Project does not involve any of the above cited Classes of categorical exemptions, and is an exempt Activity/Project to be carried out solely by the County of Tulare, and specifically, Mr. Reed Schenke, P.E., RMA Director/Public Works Director, within

the purview of the Tulare County Resource Management Agency. No other categorical exemption's findings are necessary or applicable to the Activity/Project.

(b) Cumulative Impact. All exemptions for these Classes are inapplicable when the cumulative impact of successive projects of the same type, in the same place, or over time, is significant.

Not Applicable. The proposed Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge designed and constructed to meet current safety standards and capable of supporting legal loads. The roadway approaches will be tapered to match the increased width of the replacement bridge and will extend approximately 400 feet in each direction of the bridge. Construction is anticipated to begin in the Fall of 2019. The existing bridge has been flagged as Functionally Obsolete and Caltrans has determined that the bridge should be replaced. Thus, the proposed Activity/Project will provide a public benefit by improving safety and security of the public by improving the transportation infrastructure for the general population in the region and motorists using these facilities.

(c) Significant Effect. A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.

Not Applicable. As noted earlier, the proposed Activity/Project qualifies for an exemption as the proposed Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge to improve safety and operations of the facility. In addition to surface improvements, the proposed Activity/Project will taper the roadway approaches to match the width of the replacement bridge. Construction is anticipated to begin in the Fall of 2019.

(d) Scenic Highways. A categorical exemption shall not be used for a project which *may* result in damage to scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway. *This does not apply to improvements, which are required as mitigation by an adopted negative declaration or certified EIR.*

Not Applicable. The proposed Activity/Project is not located on a State, County, or federal scenic highway or County-designated scenic corridor, nor does it involve changing or impacting scenic resources. The proposed Activity/Project is a qualified categorical exemption action to be carried out solely by the County of Tulare, and specifically, Mr. Reed Schenke, P.E., RMA Director and Public Works Director .

(e) Hazardous Waste Sites. A categorical exemption shall not be used for a project located on any list compiled pursuant to Section 65962.5 of the Government Code. See <http://www.envirostor.dtsc.ca.gov/public/>.

Not Applicable. As stated earlier, the proposed Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and tapering of the roadway approaches to match the width of the replacement bridge. The proposed Activity/Project does not involve the

Exceptions to Categorical Exemptions; therefore, Government Code Section 65962.5 would not apply. Furthermore, Staff finds the Activity/Project is not located on a hazardous waste site.

In reviewing the Cortese List, *EnvironStor*, (California Environmental Protection Agency (CAL EPA) website information), it was noted that the Activity/Project site was not included in the list of cleanup sites. There is one (1) school site investigation site within one mile of the Project site; however, the site requires no further action as of January 14, 2008. There are no other known cleanup or permitted sites located within one mile of the Project site. Therefore, this exception does not apply to this Activity/Project (See <http://www.envirostor.dtsc.ca.gov/public/>)

After reviewing the *GeoTracker* Web Site maintained by the State Water Resources Control Board, it was noted that the Activity/Project site is not included in a list of cleanup sites. There are three (3) Cleanup Program sites and one (1) Leaking Underground Storage Tanks (LUST) site within one (1) mile of the Project site; however these four (4) cleanup cases are closed. There are no other known hazardous or toxic sites within the vicinity (one mile) of the Project site. (See <https://geotracker.waterboards.ca.gov/>)

A search of U.S. EPA Superfund Site Information website, (previously the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) website), indicated that the Activity/Project is not listed as a polluted site. (See <https://cumulis.epa.gov/supercpad/cursites/srchsites.cfm>)

Finally, after reviewing the Superfund Enterprise Management System (SEMS) (US EPA website), the subject property was not found to be on a listed polluted site. (See <https://www.epa.gov/enviro/sems-search>)

(f) Historical Resources. A categorical exemption shall not be used for a project which may cause substantial changes in the significance of a historical resource.

Not Applicable. As stated earlier, the proposed Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and tapering of the approach roadway to match the width of the replacement bridge. The existing bridge, which was constructed in 1935, was previously determined not eligible for the National Register of Historic Places during a Caltrans Historic Bridge Survey.

Figure 1. Activity/Project Vicinity

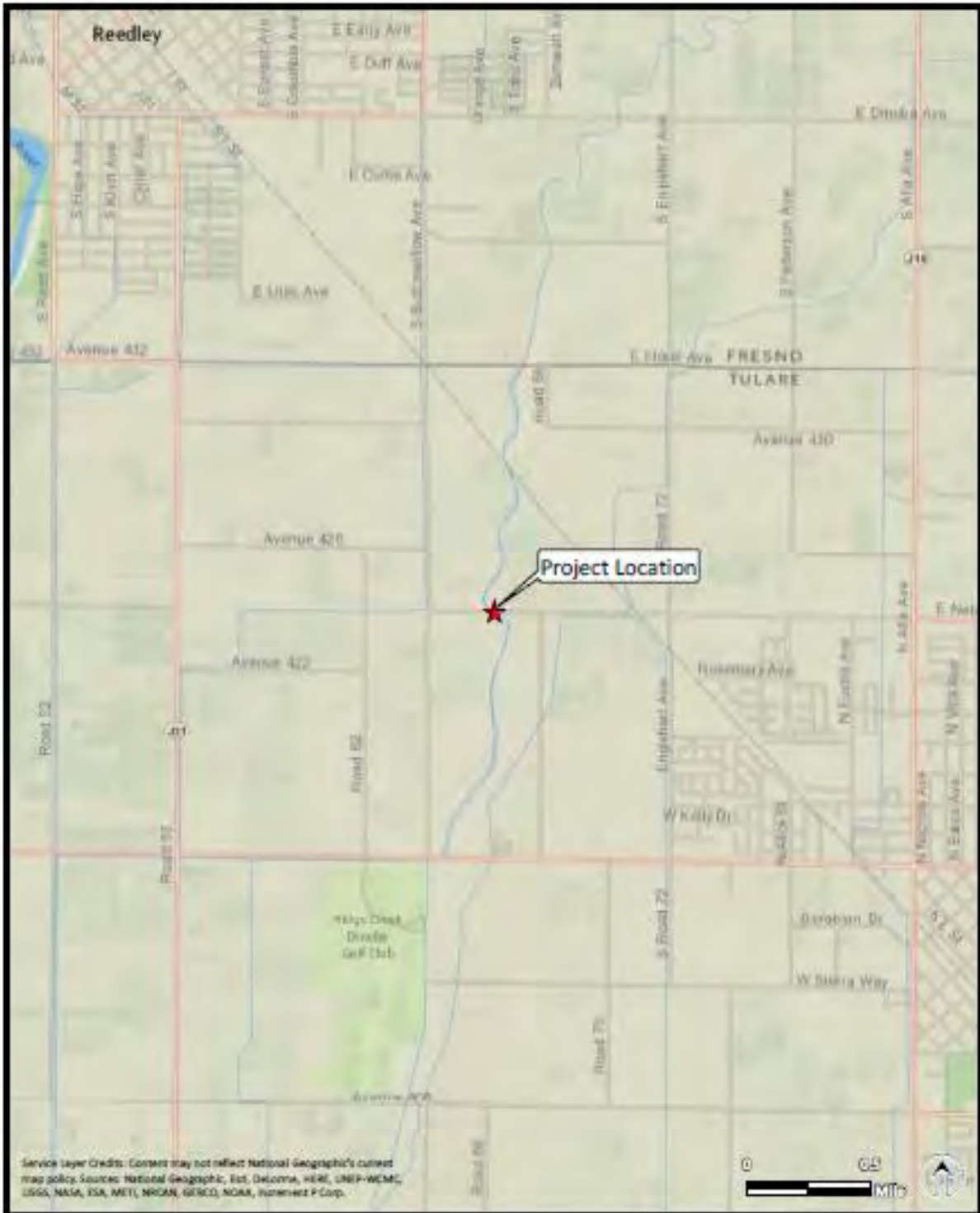


Figure 2. Activity/Project Area



Figure 3. Construction Easements and Staging Areas



Preliminary Environmental Analysis	Discussion of Reasons to Support Finding(s) of Exemption
Aesthetics	<p>Less Than Significant Impact. The proposed Activity/Project will not have a significant direct or cumulative impact, or create an unusual circumstance that will cause the proposed Project to have a significant effect on the aesthetics of the area. The aesthetics in the Activity/Project are generally rural and agricultural in nature. The proposed Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and tapering of the roadway approaches to match the width of the replacement bridge. The proposed replacement bridge does not propose any new developments or changes to the existing land uses. Consequently, the proposed Activity/Project will not be out of character within the aesthetics of the existing area. Based on a search for County, State, and Federal designated Scenic Highways and Byways and Scenic Rivers on February 2019, the proposed Activity/Project is not located along a scenic highway, within a scenic corridor, or along a scenic river, and thus, would not impact scenic resources such as rock outcroppings, or other natural features, pursuant to CEQA Guidelines Section 15300.2 (d).¹ Also, Road 204 is neither a designated state, federal, or County scenic road, nor a County designated scenic corridor (See Attachment “A”).² Further, the Visual Impact Assessment memorandum included in Attachment “A” also supports the determination that only negligible visual changes to the environment would occur as a result of the Project. As such, the proposed Activity/Project will have a less than significant impact on aesthetics.</p>
Agricultural Resources	<p>Less Than Significant Impact. The proposed Activity/Project will not have a significant direct or cumulative impact, or create an unusual circumstance that will cause the proposed Activity/Project to have a significant effect on the agricultural or forestry resources of the area. The proposed Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and tapering of the roadway approaches to match the width of the replacement bridge. The proposed Activity/Project does not propose any new developments or changes to the existing surrounding land uses. Based on a search of Department of Conservation, Farmland Mapping and Monitoring Program (FMMP) maps on August 1, 2017, the Activity/Project site is not located on Prime Farmland, and only approximately 0.17 acres of the site is located on Farmland of Statewide Importance (See Attachment “B”).³ The Activity/Project is not under the Williamson Act. The Activity/Project is not located in forest land or timberland, nor are these resources located in close proximity to the site. As such, the proposed Activity/Project will have a less than significant impact on agricultural or forest lands.</p>
Air Quality	<p>Less Than Significant Impact. The proposed Activity/Project will not have a significant direct or cumulative impact, or create an unusual circumstance that will cause the proposed Project to have a significant effect on the air quality resources of the area. After reviewing the Activity/Project, staff finds that the Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and tapering of the roadway approaches to match the width of the replacement bridge. The proposed replacement bridge does not propose any new</p>

¹ Caltrans, http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/; FHWA, <https://www.fhwa.dot.gov/byways/>; and Tulare County General Plan 2030 Update, Part I, Figure 7-1, <http://generalplan.co.tulare.ca.us/>, accessed February 2019.

² Tulare County General Plan 2030 Update, Part II, Figure 2-1, <http://generalplan.co.tulare.ca.us/>, accessed February 2019.

³ California Department of Conservation, FMMP, ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2014/tul14_so.pdf and <http://maps.conservation.ca.gov/ciff/ciff.html>, accessed February 2019.

Preliminary Environmental Analysis	Discussion of Reasons to Support Finding(s) of Exemption
	<p>developments or changes to the existing surrounding land uses. The equipment used to accomplish the Activity/Project will result in short-term, temporary air emissions. According to the San Joaquin Valley Unified Air Pollution Control District (Air District) <i>Guidance for Assessing and Mitigating Air Quality Impacts</i> (GAMAQI) construction-related thresholds of significance are: 10 tons per year (tpy) ROG, 10 tpy NO_x, 15 tpy PM₁₀, 15 tpy PM_{2.5}; 27 tpy SO_x; and 100 tpy CO.⁴ Pursuant to the Air District’s <i>Frequently Asked Questions Regarding Indirect Source Review for Road Construction and Transit Projects</i>, the Sacramento Metropolitan Air Quality Management District Roadway Construction Emissions Model (Roadway Model) can be used to estimate project emissions if certain project details are known.⁵ RMA Staff evaluated the short-term construction-related emissions using the Roadway Model (See Attachment “C”).⁶ The model indicates that construction-related emissions would not exceed the Air District’s thresholds of significance for any criteria pollutant. This Activity/Project will not add additional lanes as it is not intended to increase the capacity of the road segment. This Activity/Project would provide a public benefit by improving safety and security of the public by improving the transportation infrastructure for the general population in the region and motorists using these facilities. As such, the Activity/Project will not result in any new operational criteria pollutants. Therefore, the Activity/Project will not result in unusual emissions that will have a significant effect on the environment, nor will not result in an impact air quality above any applicable air quality impact thresholds. Furthermore, the Activity/Project will be required to comply with all applicable Air District and Caltrans rules and regulations and will implement Best Management Practices (BMP) and project features as deemed appropriate by said Responsible Agencies. As such, the proposed Activity/Project will have a less than significant impact on air quality.</p>
Biological Resources	<p>Less Than Significant Impact. The proposed Activity/Project will not have a significant direct or cumulative impact, or create an unusual circumstance that will cause the proposed Project to have a significant effect on the biological resources of the area and environment. The Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and tapering of the roadway approaches to match the width of the replacement bridge. The proposed Activity/Project does not propose any new developments or changes to the existing surrounding land uses. The Activity/Project will remain within the County’s existing roadway easement or on areas previously. A Natural Environment Study was prepared by GPA Consulting in May 2017 (see Attachment “D”). The study concluded that no special-status plant species are expected in the Activity/Project area; however, there is potential for special-status animal species to occur. As such, the Activity/Project will be required to comply with all applicable California Department of Fish and Wildlife, Regional Water Quality Control Board, U.S. Fish and Wildlife, and U.S. Army Corps of Engineers rules and regulations and will implement standard conditions, BMPs and project features for the protection of</p>

⁴ San Joaquin Valley Unified Air Pollution Control District thresholds of significance can be online at <http://www.valleyair.org/transportation/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf>.
⁵ San Joaquin Valley Unified Air Pollution Control District, *Frequently Asked Questions Regarding Indirect Source Review for Road Construction and Transit Projects*, http://www.valleyair.org/ISR/Documents/ISR_faq_rc.pdf, accessed February 2019.
⁶ Sacramento Metropolitan Air Quality Management District Roadway Construction Emissions Model (version 8.1.0), <http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/CEQA-Guidance-Tools>, accessed February 2019.

Preliminary Environmental Analysis	Discussion of Reasons to Support Finding(s) of Exemption
	special status species. Therefore, the proposed Activity/Project will have a less than significant impact on biological plant or animal species.
Cultural Resources	No Impact. The proposed Activity/Project will not have a significant direct or cumulative impact, or create an unusual circumstance that will cause the proposed Project to have a significant effect on the cultural resources of the area. The Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and tapering of the roadway approaches to match the width of the replacement bridge. The proposed Activity/Project does not propose any new developments or changes to the existing surrounding land uses. An Archaeological Survey Report (ASR) was prepared by Applied Earth Works, Inc. for the Activity/Project site and the vicinity (See Attachment “E”). Background research was conducted to identify previous studies and recorded cultural resources within, and adjacent to, the APE. The background research consisted of a California Historical Resources Information System (CHRIS) record search, literature and map review, consultation with the Native American Heritage Commission (NAHC), and consultation with Native American Tribal Governments. No previous archaeological studies have occurred within the Activity/Project Area of Potential Effect (APE) and one (1) has occurred within a one-half mile of the APE. There are no previously recorded cultural resources within the APE. A pedestrian field survey was also conducted which resulted in no historical or archaeological resources being identified within the APE. The existing bridge was constructed in 1925 but is listed in the Caltrans Historic Bridge Inventory as not eligible for listing in the National Register. As previously noted, the Activity/Project will be confined within the County’s existing roadway easement or on areas previously disturbed. Any excavation which may occur will be limited to previously excavated areas where no cultural, historical, archaeological, or paleontological resources have been discovered. Furthermore, the Activity/Project will be required to comply with the State CEQA Guidelines, Public Resources Code (§5097.94), and California Health and Safety Code (§7050.5) in connection with addressing any archeological resources, Native American cultural resources, and human remains in the unlikely event of accidental discovery during construction-related activities. As such, the Activity/Project will have no impact on cultural or historical resources.
Energy	No Impact. The Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and tapering of the roadway approaches to match the width of the replacement bridge. The proposed Activity/Project does not propose any new developments or changes to the existing surrounding land uses. The project is a construction-only type project and fuel consumption is limited to the use of diesel and/or gasoline to fuel construction equipment. As such, the proposed Activity/Project will not have a significant direct or cumulative impact, or create an unusual circumstance that will cause the proposed Project to due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction, and it does not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, the Activity/Project will have no impact on energy resources.
Geology/Soils	No Impact. The proposed Activity/Project will not have a significant direct or cumulative impact, or create an unusual circumstance that will cause the proposed Project to have a significant effect on the geological resources of the area. As noted

Preliminary Environmental Analysis	Discussion of Reasons to Support Finding(s) of Exemption
	<p>in the Cultural Resources item, any excavation or other ground disturbance activities which may occur will be confined within the County’s existing roadway easement and previously excavated/disturbed areas. Based on a search of the Tulare County Health and Safety Element (Chapter 10) in the General Plan 2030 Update on August 4, 2017, the proposed Project is located within Zone V1, which, by definition, has a low potential for earthquakes (See Attachment “F”).⁷ The Official Maps of Earthquake Fault Zones (delineated by the California Geological Survey, State of California Department of Conservation, under the Alquist-Priolo Earthquake Fault Zoning Act), indicate that there are no substantial faults known to occur in Tulare County (See Attachment “F”).⁸ The nearest known faults likely to affect the proposed Activity/Project site is in the Owens Valley Fault System (approximately 60 miles to the east) and the San Andreas Fault System (approximately 80 miles to the west).⁹ The Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and tapering of the roadway approaches to match the width of the replacement bridge. The Activity/Project does not propose any new developments or changes to the existing surrounding land uses. The Activity/Project site is relatively flat thus, on-site soils are not subject to collapse or liquefaction; nor is there the possibility of off-site landslides, lateral spreading, subsidence, liquefaction, or collapse (See Attachment “F”).¹⁰ The requirements of the Uniform Building Code are adequate for customary facilities on these soils and these requirements are included in the Tulare County Building Code and made applicable to this proposed Activity/Project. The Activity/Project will also be required to comply with all applicable federal and state rules and regulations pertaining to soil erosion and runoff and will implement BMPs and project features as deemed appropriate by said regulations. Furthermore, the Activity/Project would provide a public benefit by improving safety and security of the public by improving the transportation infrastructure for the general population in the region and motorists using these facilities. Therefore, the Activity/Project will have no impact due to disturbance of or by any geological resources.</p>
Greenhouse Gas Emissions	<p>Less Than Significant Impact: The proposed Activity/Project will not have a significant direct or cumulative impact, or create an unusual circumstance that will introduce or significantly increase greenhouse gas (GHG) emissions. The Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and tapering of the roadway approaches to match the width of the replacement bridge. The equipment used in the construction of the Activity/Project will result in short-term, temporary GHG emissions. As the Activity/Project does not propose any new developments or changes to the existing surrounding land uses, there will be no change in ongoing operational GHG emissions. Therefore, the Activity/Project will not introduce significant amounts of GHG emissions and will not significantly impact climate change.</p>

⁷ Tulare County General Plan 2030 Update, Part 1, Figure 10-5, <http://generalplan.co.tulare.ca.us/>, accessed February 2019 and the Five County Seismic Safety Element (1975).

⁸ California Geologic Survey, Seismic Hazard Zoning Program, CGS Information Warehouse: Regulatory Maps, <http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=regulatorymaps>, accessed February 2019.

⁹ Tulare County General Plan 2030 Update, Part 1, Figure 10-1, <http://generalplan.co.tulare.ca.us/>, accessed February 2019

¹⁰ California Geologic Survey, Seismic Hazard Zoning Program, CGS Information Warehouse: Regulatory Maps, <http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=regulatorymaps>, accessed February 2019.

Preliminary Environmental Analysis	Discussion of Reasons to Support Finding(s) of Exemption
Hazards/ Hazardous Materials	<p>Less Than Significant Impact. The proposed Activity/Project will not have a direct or cumulative impact, or create an unusual circumstance that will introduce hazards or hazardous materials to the area. An online search conducted by RMA Planning staff in February 2019, indicated that the site is not considered a hazardous site. This search included the California Environmental Protection Agency (CalEPA) Cortese List Data Resources website, California Department of Toxic Substances Control (DTSC) <i>Envirostor</i> mapping system, and the State Water Resources Control Board (SWRCB) <i>GeoTracker</i> mapping system, and the U.S. Environmental Protection Agency (US EPA) Superfund Enterprise Management System (SEMS) database.¹¹ Based on this search, the Activity/Project site is not included in any list of polluted or cleanup sites and there are no polluted or cleanup (closed or permitted) sites located within one mile of the Project site. A Hazardous Waste Initial Site Assessment, prepared for the Activity/ Project by Caltrans, confirmed these results (See Attachment “G”). Caltrans is recommending a standard lead compliance plan, notification to the San Joaquin Valley Air Pollution Control District, and consultation/contact with the Department of Toxic Substances Control (DTSC) regarding potential asbestos and to determine soil handling procedures if contaminated soils are discovered. The Activity/Project will be required to comply with all applicable federal, state, regional, and local rules, regulations, and codes pertaining to the handling and disposal of hazardous materials. The Activity/Project will implement BMPs and project features, such as compliance with the Air District’s demolition permit and asbestos notification process and Caltrans’ standard specifications for existing structures that may contain lead or asbestos, to reduce potential exposure to hazardous materials. Therefore, the Activity/Project will not result in significant impacts due to introduction of or exposure to hazards or hazardous material.</p> <p>The Activity/Project is not located within two (2) miles of any public or private use airport. The Activity/Project does not propose any new developments or changes to the existing surrounding land uses. The Activity/Project would provide a public benefit by improving safety and security of the public by improving the transportation infrastructure for the general population in the region and motorists, including emergency services, using these facilities. As such, the Activity/Project would not pose a safety hazard for people residing or working in the area.</p>
Hydrology/ Water Quality	<p>Less Than Significant Impact. The proposed Activity/Project will not have a significant direct or cumulative impact, or create an unusual circumstance that will cause the proposed Project to have a significant effect on the hydrology or water quality of the area. A Water Quality Technical Memo was prepared for the Activity/Project by RMA staff (See Attachment “H”). Short-term impacts to surface waters could occur during construction from exposure of loose soils, construction debris, or fuel spills and leaks during construction-related activities. However, the Activity/ Project will be required to comply with all applicable federal, state, and County requirements pertaining to the protection of water quality, including those of the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, California Department of Fish and Wildlife, State Water Resources</p>

¹¹ CalEPA, <http://www.calepa.ca.gov/SiteCleanup/CorteseList/>; DTSC, <http://www.envirostor.dtsc.ca.gov/public/>; SWRCB, <https://geotracker.waterboards.ca.gov/>; US EPA, <https://www.epa.gov/enviro/sems-search>; accessed February 2019.

Preliminary Environmental Analysis	Discussion of Reasons to Support Finding(s) of Exemption
	<p>Control Board, Regional Water Quality Control Board, Central Valley Flood Protection Board, and Caltrans. The Activity/Project will implement BMPs and project features in compliance with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit, Stormwater Pollution Prevention Plan (SWPPP), and County grading and earthmoving ordinance/code to minimize potential for erosion and water contamination. The Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and tapering of the roadway approaches to match the width of the replacement bridge. The tapering of the roadway approaches will increase the overall amount of impervious surface in the area; however, this nominal increase (500 square feet) is not sufficient to result in a substantial increase in runoff or storm water flow into the Traver Canal. As the Activity/Project does not propose any new developments or changes to the existing surrounding land uses, it will not place housing or new structures within a flood plain. Therefore, the Activity/Project will result in less than significant impacts on water supply and water quality.</p>
Land Use/ Planning	<p>No Impact. The proposed Activity/Project will not have a direct or cumulative impact, or create an unusual circumstance that will cause the proposed Project to have a significant effect on the land use or planning of the area. As noted earlier, the Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and tapering of the roadway approaches to match the width of the replacement bridge. The Activity/Project does not propose any new developments or changes to the existing surrounding land uses. As such, the Activity/Project is within the uses permissible by the permit and will result in no impact on any of the surrounding planning efforts or land uses.</p>
Mineral Resources	<p>No Impact. The proposed Activity/Project will not have a direct or cumulative impact, or create an unusual circumstance that will cause the proposed Activity/Project to have a significant effect on the mineral resources of the area. According to the California Geological Survey (CGS) and Tulare County Environmental Resources Management Element (Chapter 8) in the General Plan 2030 Update, the Activity/Project is not located in a Mineral Resource Zone, which means the area is not located in an area where significant mineral deposits are likely to be located (See Attachment “I”).¹² According to the U.S. Geological Survey (USGS), the nearest active mineral extraction facilities are located at the Ledbetter Borrow Pit (crushed/broken stone operations) located approximately ten (10) miles, east of the Activity/Project site (See Attachment “I”).¹³ As the Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and does not propose any new developments or changes to the existing surrounding land uses, the Activity/Project will not have an impact on the availability of mineral resources in the area. Per the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) and the Tulare County General Plan 2030 Update Background Report, there are no known natural gas or oil fields on or within the vicinity of the Project site. There are two (2) plugged oil and gas production wells approximately one (1) mile from the Project site. The Amerada Hess Corp. Well No. 6-1 is located north of the Project</p>

¹² CGS, ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/OFR_97-01/OFR_97-01_Plate1.pdf and Tulare County General Plan 2030 Update, Part I, Page 8-2 and Figure 8-2, <http://generalplan.co.tulare.ca.us/>, accessed February 2019.

¹³ USGS, <https://mrdata.usgs.gov/general/map.html>, accessed February 2019.

Preliminary Environmental Analysis	Discussion of Reasons to Support Finding(s) of Exemption
	site (in Fresno County) and the Martin Petroleum Co. Well No. 1 is located south of the Project site (See Attachment “T”). ¹⁴ As such, the Activity/Project will result in no impact any mineral resources.
Noise	Less Than Significant Impact. The proposed Activity/Project will not have a direct or cumulative impact, or create an unusual circumstance that will cause the proposed Project to have a significant effect on the noises of the area. A Noise Technical Memorandum was prepared for the Activity/Project by Ambient Air Quality & Noise Consulting (See Attachment “J”). Short term, temporary, and intermittent noise during construction-related activities is inevitable; however these activities would be restricted to weekday daytime hours. Furthermore, the Activity/Project will be required to comply with all applicable Tulare County and Caltrans standard conditions for construction-related noise control. As such, the Activity/Project will not exceed operational noise standards outlined in the General Plan. ¹⁵ Therefore, the Activity/Project will result in a less than significant impact to the Noise resource.
Population/Housing	No Impact. The proposed Activity/Project will not have a direct or cumulative impact, or create an unusual circumstance that will cause the proposed Activity/Project to have a significant effect on the population, or housing of the area. The Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and does not propose any new developments or changes to the existing surrounding land uses. As such, the Activity/Project will not displace an existing population or induce population growth and will result in no impact on Population/Housing.
Public Services	<p>Less Than Significant Impact. The proposed Activity/Project will not have a direct or cumulative impact, or create an unusual circumstance that will cause the proposed Project to have a significant effect on the public services of the area. The Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and does not propose any new developments or changes to the existing surrounding land uses. Based on a review of the Activity/Project’s demands, the Activity/Project will not significantly impact the capacity of the following services and public facilities: police, fire, schools, parks, and other public facilities. The Activity/Project would provide a public benefit by improving safety and security of the public by improving the transportation infrastructure for the population using these public services and public service facilities.</p> <p>This segment of Avenue 424 will be closed to traffic during construction. A detour from Avenue 424 due to road closure will be necessary. The proposed detour route would be provided to maintain continuous access within the area. Persons west of Traver Canal will need to use Road 64 to travel to either West El Monte Way (Avenue 400) or Floral Avenue to cross Traver Canal so they can then travel east. Persons east of Traver Canal will need to travel to either West El Monte Way (Avenue 400) or Floral Avenue to cross Traver Canal as they travel west. East of Traver Canal, Road 68 can be used to travel south; Englehart/Road 72 can be used to travel both north and south. Most travelers would be subject to at most a ±two</p>

¹⁴ DOGGR, <https://maps.conservation.ca.gov/doggr/wellfinder/#close>; and Tulare County General Plan 2030 Update Background Report, Figure 10-3, <http://generalplan.co.tulare.ca.us/>, accessed February 2019.

¹⁵ Tulare County General Plan 2030 Update, Part I, Table 10.1, <http://generalplan.co.tulare.ca.us/>, accessed February 2019.

Preliminary Environmental Analysis	Discussion of Reasons to Support Finding(s) of Exemption
	(2) mile detour which would be affective 24 hours per day throughout the construction period. As this detour will be short-term and temporary in nature, the impact to emergency services (first responders) would be less than significant. Overall, this Activity/Project will not permanently or significantly affect the level of service provided by any of the above facilities or services provided in the areas and will result in a less than significant impact to Public Services.
Recreation	No Impact. The proposed Activity/Project will not have a direct or cumulative impact, or create an unusual circumstance that will cause the proposed Activity/Project to have a significant effect on the recreational facilities in the area. The Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and does not propose any new developments or changes to the existing surrounding land uses. As such, the Activity/Project will not result in new housing or the need for new recreational facilities. The Ridge Creek Golf Club is located approximately one (1) mile southwest of the Activity/Project site; and the nearest parks (which are all located in the City of Dinuba) are located more than one (1) mile southeast of the Activity/Project site. Therefore, this Activity/Project does not affect existing parks or proposed new parks. As such, the Activity/Project will result in no impact any recreational resources in Tulare County.
Transportation / Traffic	No Impact. The proposed Activity/Project will not have a direct or cumulative impact, or create an unusual circumstance that will cause the proposed Project to have a significant effect on the Countywide, or Statewide roadway facilities in the area. As noted earlier, the Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and tapering of the roadway approaches to match the width of the replacement bridge. The Activity/Project does not propose any new developments or changes to the existing surrounding land uses. This Activity/Project will not add additional lanes as it is not intended to increase the capacity of the road segment. As such, this Activity/Project will result in no impact to the Transportation/Traffic resource. Rather, this Activity/Project would provide a public benefit by improving safety and security of the public by improving the transportation infrastructure for the general population in the region and motorists using these facilities.
Tribal Cultural Resources	Less Than Significant Impact. The proposed Activity/Project will not have a significant direct or cumulative impact, or create an unusual circumstance that will cause the proposed Activity/Project to have a significant effect on tribal cultural resources in the area. Pursuant to AB 52, consultation notification to Native American Tribes is not required for this Project because a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report will not be prepared. ¹⁶ Pursuant to SB 18, consultation notification to Native American Tribes is not required for this Project because it does not include an amendment or adoption of a general plan or a specific plan or designation of open space. ¹⁷ However, an Archaeological Survey Report (ASR) was prepared by Applied Earth Works, Inc. for the Activity/Project site and the vicinity and included consultation with Native American Tribes (See Attachment “E”). The Activity/Project will be required to comply with the State CEQA Guidelines, Public Resources Code

¹⁶ Public Resources Code § 21080.3.1

¹⁷ Government Code §§ 65352.3 and 65562.5

Preliminary Environmental Analysis	Discussion of Reasons to Support Finding(s) of Exemption
	<p>(§5097.94), and California Health and Safety Code (§7050.5) in connection with addressing any archeological resources, Native American cultural resources, and human remains in the unlikely event of accidental discovery during construction-related activities. Although tribal cultural resources are not expected to occur within the Activity/Project APE, Tulare County Public Works has included Activity/Project features to reduce potential impacts in the event of accidental discovery during construction-related activities. For example, Tribal Cultural Resources Sensitivity Training for construction workers prior to the start of construction. Therefore, the Activity/Project will result in a less than significant impact to Tribal Cultural resources.</p>
Utilities/Service Systems	<p>No Impact. The proposed Activity/Project will not have a direct or cumulative impact, or create an unusual circumstance that will cause the proposed Activity/Project to have a significant effect on the infrastructure/facilities in the area. The Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and does not propose any new developments or changes to the existing surrounding land uses. As such, the proposed Activity/Project will not have an impact on water (quality, quantity, or facilities), wastewater (treatment or facilities), storm drainage, or solid waste. As the Activity/Project does not propose any changes to existing land uses, it will not generate any demands on the facilities or infrastructure to impact the infrastructure level of service thresholds. Therefore, there will be no impact to Utilities/Service Systems.</p>
Wildfire	<p>No Impact. The proposed Activity/Project will not have a significant direct or cumulative impact, or create an unusual circumstance that would result in significant risks due to wildfires and wildfire safety infrastructure. The proposed Activity/Project consists of the replacement of an existing two-lane bridge with a new two-lane bridge and does not propose any other new developments or any changes to the existing surrounding land uses. According to the State Responsibility Area (SRA) Viewer, the proposed Project site is not located in the SRA (see attachment “K”)¹⁸. The Project does not impair the implementation of any adopted emergency response plan or evacuation plan. The Project will not exacerbate wildfire risks or expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire, due to slope, prevailing winds, and other factors. The Project will not require the installation or maintenance of associated infrastructure (such fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. The Project will not expose people or structures to significant risks, including downslope or downstream flooding, or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Therefore, the proposed Activity/Project will result in no impact related to this resource.</p>
Mandatory Findings of Significance	<p>No Significant Impact. The proposed Activity/Project will not have a significant direct or cumulative impact, or create an unusual circumstance that will cause the proposed Activity/Project to significantly degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife</p>

¹⁸ CalFire, <http://www.fire.ca.gov/firepreventionfee/srviewer>, accessed April 2019.

Preliminary Environmental Analysis	Discussion of Reasons to Support Finding(s) of Exemption
	<p>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 prehistory or history. As discussed in the Biological Resources item, the Project is in the vicinity (within two (2) miles) of the historic range of several special status species. No special status plant species are expected to occur within the Activity/Project area. The Activity/Project will be required to comply with all applicable California Department of Fish and Wildlife, Regional Water Quality Control Board, U.S. Fish and Wildlife, and U.S. Army Corps of Engineers rules and regulations and will implement standard conditions, BMPs and project features for the protection of special status animal species. As discussed in the Cultural Resources item, there are no historical or cultural resources within the Activity/Project area and design features and standard conditions in compliance with all applicable federal, state, and County rules and regulations will be implemented to reduce potential impacts in the event of accidental discovery during construction-related activities.</p> <p>The proposed Activity/Project will result in no significant direct or cumulative impact, or create an unusual circumstance that will cause the proposed Activity/Project to have a significant effect on the environment, directly or incrementally. In addition, this Activity/Project will result in no adverse impact to the public health and safety. Rather, as noted earlier in the Air Quality, Geology/Soils, Hazards/Hazardous Material, Public Services, and Transportation/Traffic items, this Activity/Project would provide a public benefit by improving safety and security of the public by improving the transportation infrastructure for the general population in the region and motorists using these facilities.</p>

**ATTACHMENT “A”
AESTHETICS**

America’s Scenic Byways (originally accessed 8/1/17; validated 2/7/19 and 4/16/19)

National Wild and Scenic Rivers (originally accessed 8/1/17; validated 2/7/19 and 4/16/19)

**California Department of Transportation Officially Designated State Scenic Highways (originally
accessed 8/1/17; validated 2/7/19 and 4/16/19)**

Designated Candidate Scenic State Highways and County Scenic Routes

Tulare County Corridors

Visual Impact Assessment Memorandum

America's Scenic Byways

The screenshot displays the website 'America's Scenic Byways' with a browser window showing the URL 'https://scenicbyways.info/state/CA.html'. The main content area features a map of California with a green line highlighting a scenic byway route through the Sierra Nevada mountains. The map includes labels for 'Black Mountain', 'Midway Mountain', and 'Needham Mountain'. Below the map is a list of scenic byways for California, each with a checkbox and a dropdown arrow.

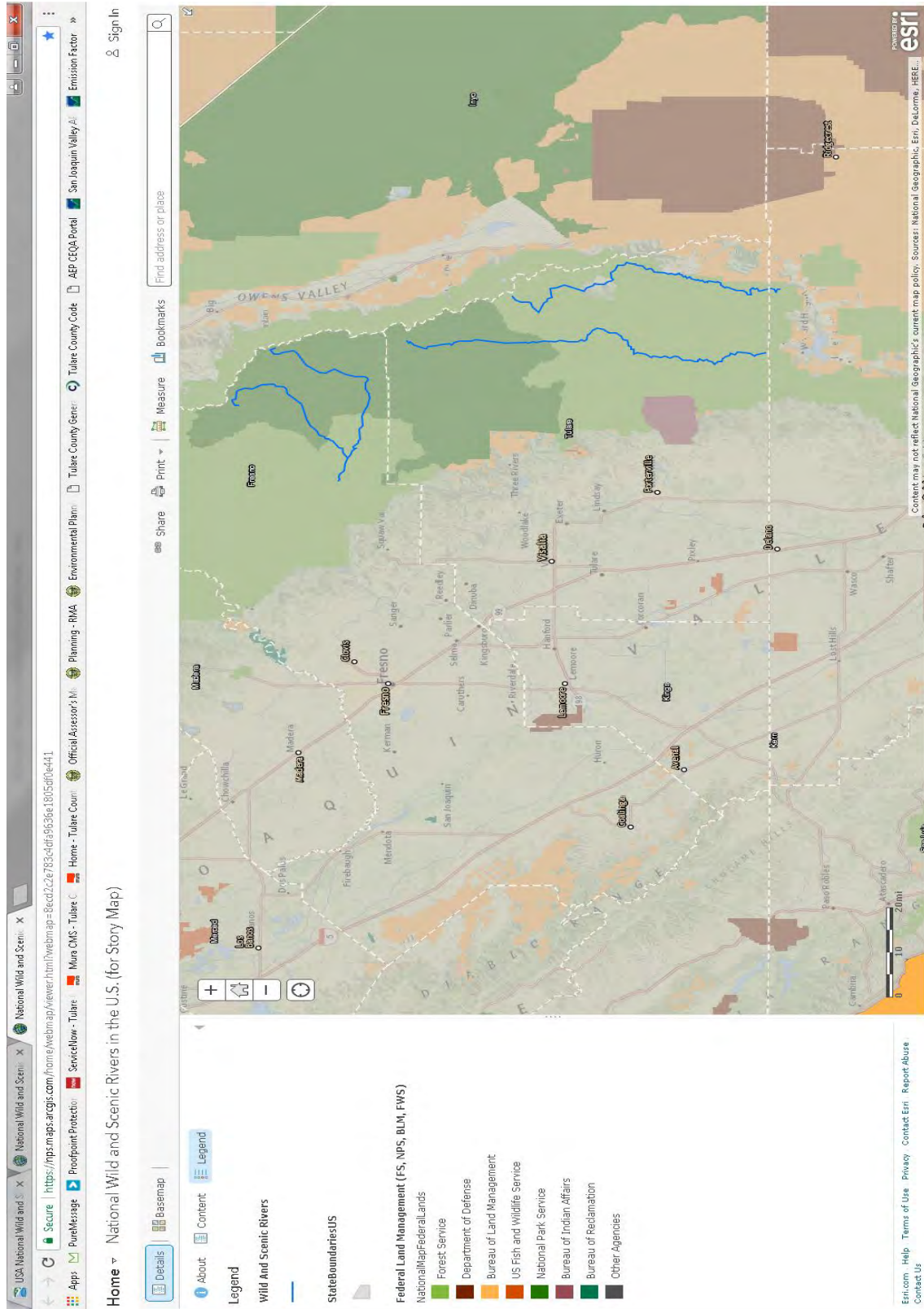
AMERICA'S SCENIC BYWAYS

California

- Ancient Bristlecone Scenic Byway (Route 168)
- Angeles Crest Scenic Byway (Route 2)
- Arroyo Seco Historic Parkway - Route 110
- Barrel Springs Back Country Byway
- Bigfoot Scenic Byway
- Bradshaw Trail
- Buckhorn Back Country Byway
- Carson Pass Highway (Route 88)
- Chimney Peak Back Country Byway
- Death Valley Scenic Byway
- Ebbetts Pass Scenic Byway
- Emigrant Trail
- Feather River Scenic Byway
- Jacinto Reyes Scenic Byway (Route 33)
- Kings Canyon Scenic Byway
- Lassen Scenic Byway
- Lee Vining Canyon Scenic Byway
- Modoc Volcanic Scenic Byway
- Pacific Coast Highway - California's Route 1
- Palms to Pines Scenic Byway
- Parker Dam Road
- Ramona Expressway
- Rim of the World Scenic Byway
- Route 101--Redwood Highway
- Route 116--Sonoma County
- Route 125--Lemon Grove
- Route 12--Valley of the Moon Highway
- Route 140--Mariposa County
- Route 151--Shasta Dam Boulevard
- Route 152--Pacheco Pass Road
- Route 154--San Marcos Pass Road
- Route 156--Monterey County
- Route 160--River Road
- Route 163--Cabrillo Freeway
- Route 1 - Big Sur Coast Highway
- Route 1 - San Luis Obispo North Coast Byway
- Route 24--Alameda County
- Route 280--Father Junipero Serra Freeway
- Route 35--Skyline Boulevard
- Route 395--Inyo County
- Route 395--Mono County
- Route 50--El Dorado County
- Route 580--MacArthur Freeway
- Route 62--Twentynine Palms Highway
- Route 660--Alameda County
- Route 680--Contra Costa County
- Route 68--Monterey County
- Route 74
- Route 75--San Diego-Coronado Bridge and Silver Strand Highway
- Route 78--Anza-Borrego Desert State Park Road
- Route 89--Monitor Pass & Luther Pass Highways & Lake Tahoe Road
- Route 91--Riverstone Freeway
- Route 9--Saratoga-Los Gatos Road
- Routes 5 & 580--West Side Freeway
- Saline Valley Road Back Country Byway
- Sierra Heritage Scenic Byway (Route 168)
- Sierra Vista Scenic Byway
- Smith River Scenic Byway
- State of Jefferson Scenic Byway
- Sunrize Scenic Byway
- Tioga Road/Big Oak Flat Road
- Trinity Heritage Scenic Byway
- Trinity Scenic Byway
- Volcanic Legacy Scenic Byway - California
- Wild Horse Canyon Scenic Backcountry Byway
- Yuba-Donner Scenic Byway

Source: <https://scenicbyways.info/state/CA.html>

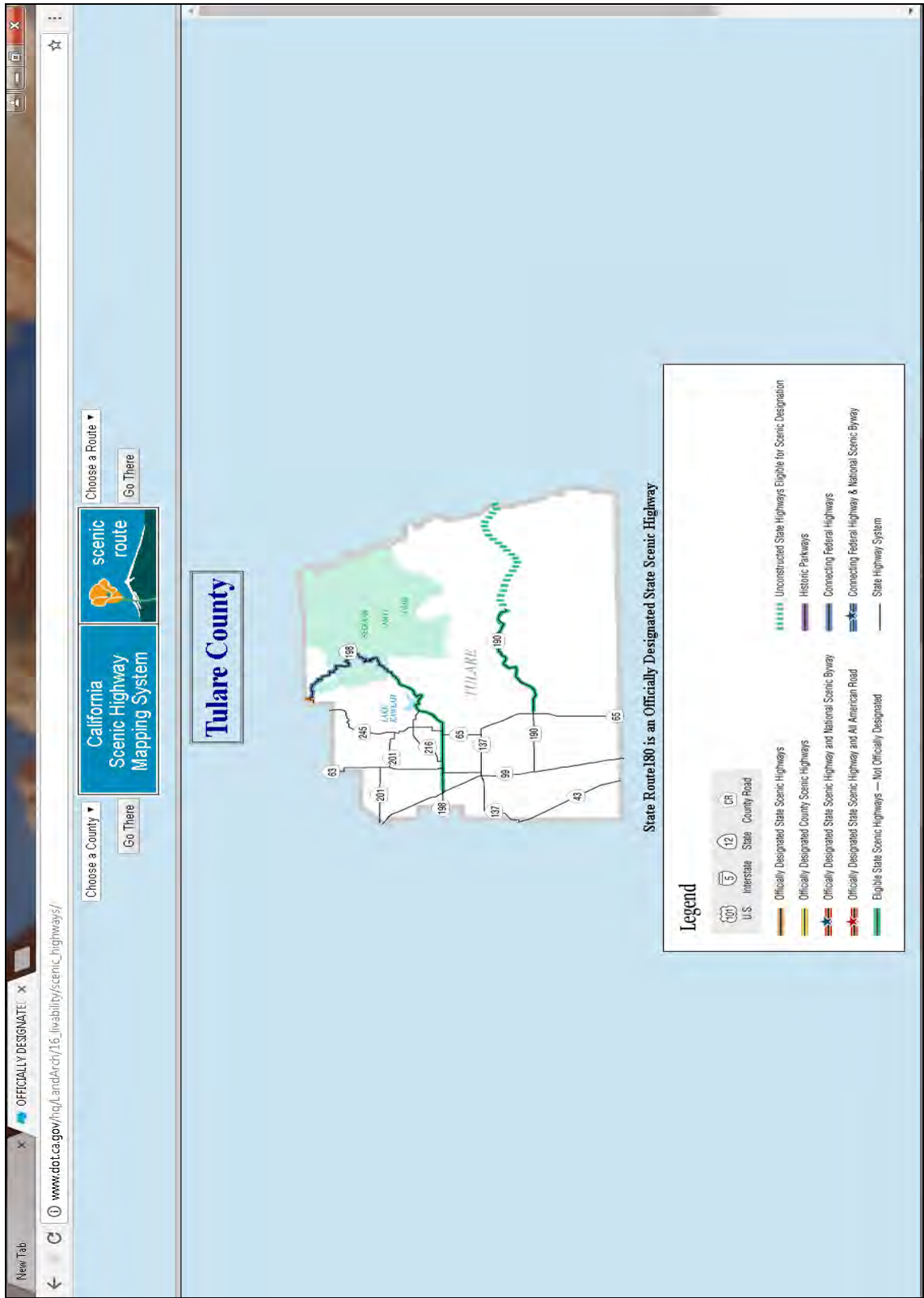
National Wild and Scenic Rivers



Source: <https://nps.maps.arcgis.com/home/webmap/viewer.html?webmap=8ecd2c2e783c4dfa9636e1805df0e441>

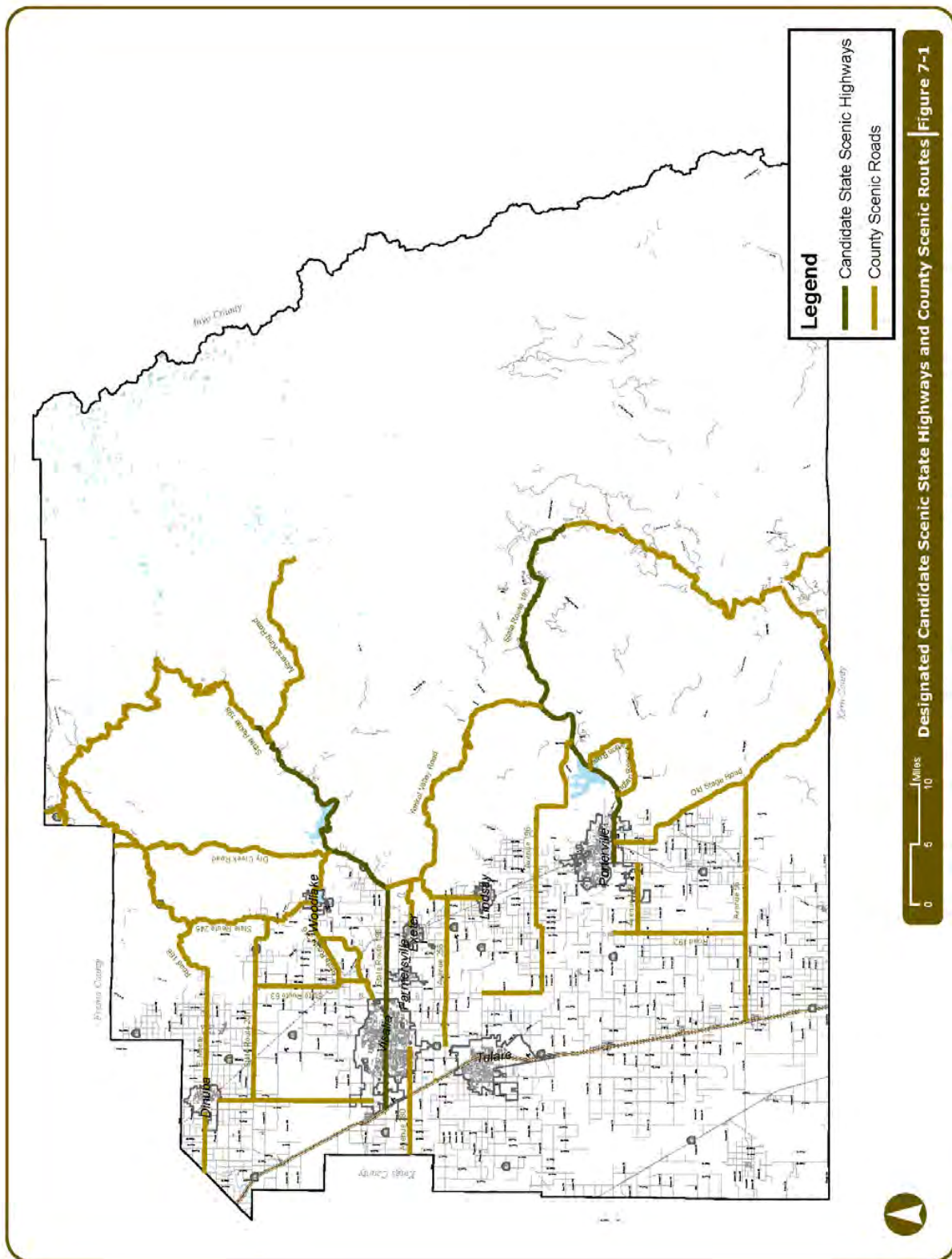
California Department of Transportation

Officially Designated State Scenic Highways



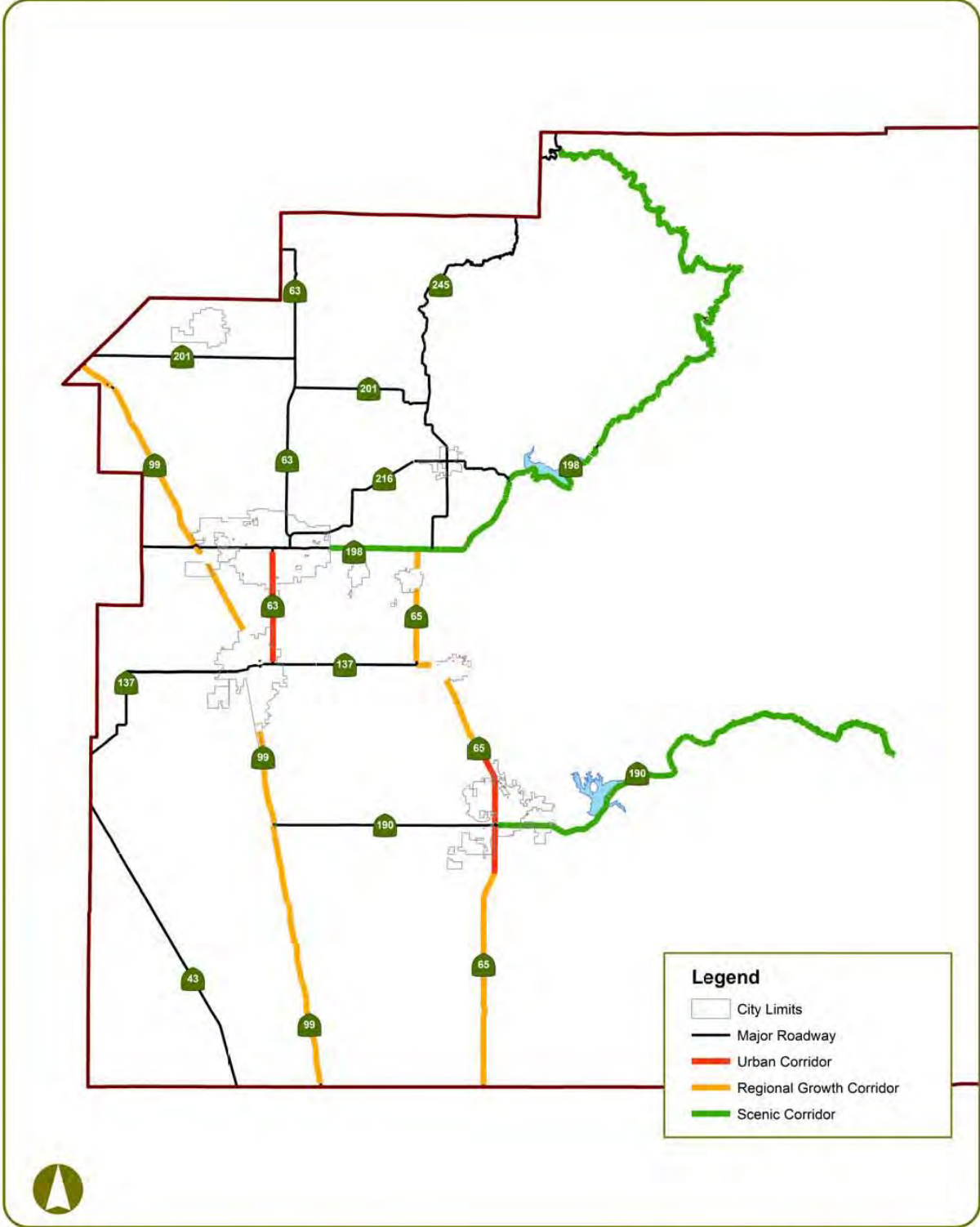
Source: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/.

Designated Candidate Scenic State Highways and County Scenic Roads



Source: Tulare County General Plan

County Designated Corridors



Source: Tulare County General Plan

Memorandum

To: **Pedrum Mafi, Transportation**
Environmental Planning

Date: **September 15, 2017**

From: Aaron R. Bock
B.S. Landscape Architecture
Masters City and Regional Planning,
Juris Doctor,
Chief Planner Tulare County
559-624-7050

File No.: Tulare County – Avenue
424 – PM
Mr. Yinleng Vang, Engineer,
(559) 624-7158

District 6 – TUL
Bridge No. 46C-0219
BRLO-5946(112)

Subject: **Scenic Resource Evaluation and Visual Impact Assessment Memorandum**

The Avenue 424 over Traver Canal Bridge Replacement Project BRLO-5946(112) (project) has been reviewed for potential impacts to visual resources. A Questionnaire to Determine Visual Impact Assessment (VIA) Level was completed as part of the Preliminary Environmental Study (PES) for the project in March 2017; the Project Score was determined to be 11. A score of 11 indicates negligible visual changes to the environment, and only a brief Memorandum (without visual simulations) is required to address visual issues. The need to prepare a Memorandum is primarily due to the fact that the project would receive federal and State permits; the need for these permits elevate the Project Score by 3 points.

The project would include replacing and widening the existing bridge. The existing 60-foot-long bridge would be replaced with a 2-span structure having a total length of approximately 70 feet. The new, widened bridge would be approximately 35 feet wide and would accommodate two 12-foot travel lanes, two 4-foot shoulders, and concrete bridge railing (concrete barrier type 80). The roadway approaches would match the curb-to-curb width of the bridge, and taper to match the existing roadway width approximately 400 feet beyond the bridge approaches.

Avenue 424 through the project limits is not classified as a Country or Designated State Scenic Highway in the Tulare County General Plan or by Caltrans. The Project Location is not along a National Wild or Scenic River Corridor. Though the bridge was constructed in 1925, Caltrans has determined that it is not eligible for listing on in the National Register of Historic Places (Category 5), and it is not considered a historic resource. The banks of the creek are maintained for erosion control by Alta Irrigation Districts (AID). Traver Canal is made up of mostly sand and is heavily traversed by motor bikes and other terrain vehicles. While most area within the project vicinity is barren, there are few plants in the vicinity that do add aesthetic values. There are orchards to the northwest, southeast, and south; a minimal amount of ruderal species along both banks of the creek and roadway (eg. horsetweed, common mallow); and several invasive species in the vicinity including the prickly Russian thistle and Chinese tallow tree.

The visual changes resulting from the project would primarily be associated with changes to the bridge structure. Traffic volumes along Avenue 424 in the project area are low; therefore, changes resulting from the project would be perceived primarily from residents in the immediate area.

Review of the project area and project plans indicate that the project would not result in substantial adverse impacts to the visual environment.

Temporarily disturbed areas would be re-contoured and re-vegetated using native species. Any re-vegetation or erosion control implemented would be completed using non-invasive species.

The project limits, the materials selected for the bridge and slope protection, and overall changes to the contouring, do not represent a significant adverse effect under the CEQA statute or guidelines in general.

This review indicates that the project would not adversely affect any "Designated Scenic Resource" as defined by CEQA statutes or guidelines, or by FHWA guidelines.



Photo 1. Avenue 424 Crossing with flow, Looking North



Photo 2. Avenue 424 Roadway Approaches, Looking West



Photo 3. Avenue 424 Crossing with Flow. Looking South

Questionnaire to Determine Visual Impact Assessment (VIA) Level

Use the following questions and subsequent score as a guide to help determine the appropriate level of VIA documentation. This questionnaire assists the VIA preparer (i.e. Landscape Architect) in estimating the probable visual impacts of a proposed project on the environment and in understanding the degree and breadth of the possible visual issues. The goal is to develop a suitable document strategy that is thorough, concise and defensible.

Enter the project name and consider each of the ten questions below. Select the response that most closely applies to the proposed project and corresponding number on the right side of the table. Points are automatically computed at the bottom of the table and the total score should be matched to one of the five groups of scores at the end of the questionnaire that include recommended levels of VIA study and associated annotated outlines (i.e., minor, moderate, advanced/complex).

This scoring system should be used as a preliminary guide and should not be used as a substitute for objective analysis on the part of the preparer. Although the total score may recommend a certain level of VIA document, circumstances associated with any one of the ten question-areas may indicate the need to elevate the VIA to a greater level of detail. For projects done by others on the State Highway System, the District Landscape Architect should be consulted when scoping the VIA level and provide concurrence on the level of analysis used.

Calculate VIA Level Score

PROJECT NAME: Avenue 424 Traver Bridge Project	
CHANGE TO VISUAL ENVIRONMENT	
<p>1. Will the project result in a noticeable change in the physical characteristics of the existing environment?</p> <p><i>Consider all project components and construction impacts - both permanent and temporary, including landform changes, structures, noise barriers, vegetation removal, railing, signage, and contractor activities.</i></p>	<input type="text" value="Low Level of Change (1 point)"/> ▼
<p>2. Will the project complement or contrast with the visual character desired by the community?</p> <p>Evaluate the scale and extent of the project features compared to the surrounding scale of the community. Is the project likely to give an urban appearance to an existing rural or suburban community? Do you anticipate that the change will be viewed by the public as positive or negative? Research planning documents, or talk with local planners and community representatives to understand the type of visual environment local residents envision for their community.</p>	<input type="text" value="High Compatibility (1 point)"/> ▼
<p>3. What level of local concern is there for the types of project features (e.g., bridge structures, large excavations, sound barriers, or median planting removal) and construction impacts that are proposed?</p> <p>Certain project improvements can be of special interest to local citizens, causing a heightened level of public concern, and requiring a more focused visual analysis.</p>	<input type="text" value="Moderate Concern (2 points)"/> ▼
<p>4. Will the project require redesign or realignment to minimize adverse change or will mitigation, such as landscape or architectural treatment, likely be necessary?</p> <p>Consider the type of changes caused by the project, i.e., can undesirable views be screened or will desirable views be permanently obscured so a redesign should be considered?</p>	<input type="text" value="No Mitigation Likely (0 points)"/> ▼

5. Will this project, when seen collectively with other projects, result in an aggregate adverse change (cumulative impacts) in overall visual quality or character?

Identify any projects (both Caltrans and local) in the area that have been constructed in recent years and those currently planned for future construction. The window of time and the extent of area applicable to possible cumulative impacts should be based on a reasonable anticipation of the viewing public's perception.

Cumulative Impacts Unlikely to Occur (1 point) ▼

VIEWER SENSITIVITY

1. What is the potential that the project proposal will be controversial within the community, or opposed by any organized group?

This can be researched initially by talking with Caltrans and local agency management and staff familiar with the affected community's sentiments as evidenced by past projects and/or current information.

Low Potential (1 point) ▼

2. How sensitive are potential viewer-groups likely to be regarding visible changes proposed by the project?

Consider among other factors the number of viewers within the group, probable viewer expectations, activities, viewing duration, and orientation. The expected viewer sensitivity level may be scoped by applying professional judgment, and by soliciting information from other Caltrans staff, local agencies and community representatives familiar with the affected community's sentiments and demonstrated concerns.

Moderate Sensitivity (2 points) ▼

3. To what degree does the project's aesthetic approach appear to be consistent with applicable laws, ordinances, regulations, policies or standards?

Although the State is not always required to comply with local planning ordinances, these documents are critical in understanding the importance that communities place on aesthetic issues. The Caltrans Environmental Planning branch may have copies of the planning documents that pertain to the project. If not, this information can be obtained by contacting the local planning department. Also, many local and state planning documents can be found online at the [California Land Use Planning Network](#).

High Compatibility (1 point) ▼

4. Are permits going to be required by outside regulatory agencies (i.e., Federal, State, or local)?

Permit requirements can have an unintended consequence on the visual environment. Anticipated permits, as well as specific permit requirements - which are defined by the permitted, may be determined by talking with the project Environmental Planner and Project Engineer. Note: coordinate with the Caltrans representative responsible for obtaining the permit prior to communicating directly with any permitting agency.

Yes (3 points) ▼

5. Will the project sponsor or public benefit from a more

detailed visual analysis in order to help reach consensus on a course of action to address potential visual impacts?

No (1 point) ▼

Consider the proposed project features, possible visual impacts, and probable mitigation recommendations.

Calculate Total

[It is recommended that you print a copy of these calculations for the project file.](#)

PROJECT SCORE: 13

Select An Outline Based Upon Project Score

The total score will indicate the recommended VIA level for the project. In addition to considering circumstances relating to any one of the ten questions-areas that would justify elevating the VIA level, also consider any other project factors that would have an effect on level selection.

SCORE 6-9

No noticeable visual changes to the environment are proposed and no further analysis is required. Print out a copy of this completed questionnaire for your project file or Preliminary Environmental Study (PES).

SCORE 10-14

Negligible visual changes to the environment are proposed. A brief [Memorandum](#) (see sample) addressing visual issues providing a rationale why a technical study is not required.

SCORE 15-19

Noticeable visual changes to the environment are proposed. An abbreviated VIA is appropriate in this case. The assessment would briefly describe project features, impacts and any avoidance and minimization measures. Visual simulations would be optional. Go to the [Directions](#) for using and accessing the Minor VIA Annotated Outline.

SCORE 20-24

Noticeable visual changes to the environment are proposed. A fully developed VIA is appropriate. This technical study will likely receive public review. Go to the [Directions](#) for using and accessing the Moderate VIA Annotated Outline.

SCORE 25-30

Noticeable visual changes to the environment are proposed. A fully developed VIA is appropriate that includes photo simulations. It is appropriate to alert the Project Development Team to the potential for highly adverse impacts and to consider project alternatives to avoid those impacts. Go to the [Directions](#) for using and accessing the Advanced/Complex VIA Annotated Outline.

**ATTACHMENT “B”
AGRICULTURAL RESOURCES**



Natural Resources Conservation Service
3530 W. Orchard Court
Visalia, CA 93277

Phone: (559) 734-8732 x3
Fax: (559) 732-2805

June 26, 2017

To: Aaron Bock, Tulare County RMA

JOB NO: BRLO-5946 (112)

Mr. Bock,

Since the replacement bridge is expected to remain within the existing County right-of-way and access routes may temporarily encroach on surrounding farmland, we have determined that no acreage will be converted. The area of interest does contain soil that is considered Prime Farmland or Farmland of Statewide Importance but according to the map of the area you provided, the project area is classified as rural residential land and therefore, the FPPA does not apply.

If you have any questions please feel free to give me a call at (559) 734-8732.

Sincerely,

Joe Williams
District Conservationist
Visalia Field Office

Custom Soil Resource Report for Tulare County, Western Part, California

Ave 424 Traver Canal Bridge



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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Map Unit Legend.....	8
Map Unit Descriptions.....	8
Tulare County, Western Part, California.....	10
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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:1,650 if printed on A landscape (11" x 8.5") sheet.

0 20 40 80 120 Meters


0 50 100 200 300 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)


Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit


 Clay Spot


 Closed Depression

 Gravel Pit


 Gravelly Spot


 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water


 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole

 Slide or Slip


 Sodic Spot


 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals


Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Tulare County, Western Part, California
 Survey Area Data: Version 10, Sep 12, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 12, 2015—May 16, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Tulare County, Western Part, California (CA659)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
110	Delhi loamy sand, 0 to 2 percent slopes, MLRA 17	1.1	100.0%
Totals for Area of Interest		1.1	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Tulare County, Western Part, California

110—Delhi loamy sand, 0 to 2 percent slopes, MLRA 17

Map Unit Setting

National map unit symbol: 2ss9g

Elevation: 30 to 150 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 60 to 64 degrees F

Frost-free period: 225 to 300 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Delhi and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Delhi

Setting

Landform: Sand sheets, alluvial fans, dunes, flood plains

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Rise

Down-slope shape: Linear

Across-slope shape: Linear, convex

Parent material: Alluvium derived from granite

Typical profile

Ap1 - 0 to 3 inches: loamy sand

Ap2 - 3 to 8 inches: loamy sand

A - 8 to 16 inches: loamy sand

C1 - 16 to 26 inches: loamy sand

C2 - 26 to 44 inches: sand

C3 - 44 to 60 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Somewhat excessively drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Honcut

Percent of map unit: 5 percent

Hydric soil rating: No

Tinnin

Percent of map unit: 5 percent

Hydric soil rating: No

Veritas

Percent of map unit: 5 percent

Hydric soil rating: No

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

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Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Tulare County, Western Part, California

110—Delhi loamy sand, 0 to 2 percent slopes, MLRA 17

Map Unit Setting

National map unit symbol: 2ss9g

Elevation: 30 to 150 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 60 to 64 degrees F

Frost-free period: 225 to 300 days

Farmland classification: Farmland of statewide importance

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Landform: Sand sheets, alluvial fans, dunes, flood plains

Landform position (two-dimensional): Summit

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Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Honcut

Percent of map unit: 5 percent

Hydric soil rating: No

Tinnin

Percent of map unit: 5 percent

Hydric soil rating: No

Veritas

Percent of map unit: 5 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: Tulare County, Western Part, California

Survey Area Data: Version 10, Sep 12, 2016

FARMLAND CONVERSION IMPACT RATING

PART I <i>(To be completed by Federal Agency)</i>		Date Of Land Evaluation Request			
Name of Project		Federal Agency Involved			
Proposed Land Use		County and State			
PART II <i>(To be completed by NRCS)</i>		Date Request Received By NRCS		Person Completing Form:	
Does the site contain Prime, Unique, Statewide or Local Important Farmland? <i>(If no, the FPPA does not apply - do not complete additional parts of this form)</i>		YES <input type="checkbox"/>	NO <input type="checkbox"/>	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %		Amount of Farmland As Defined in FPPA Acres: %		
Name of Land Evaluation System Used	Name of State or Local Site Assessment System		Date Land Evaluation Returned by NRCS		
PART III <i>(To be completed by Federal Agency)</i>		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly					
B. Total Acres To Be Converted Indirectly					
C. Total Acres In Site					
PART IV <i>(To be completed by NRCS)</i> Land Evaluation Information					
A. Total Acres Prime And Unique Farmland					
B. Total Acres Statewide Important or Local Important Farmland					
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted					
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value					
PART V <i>(To be completed by NRCS)</i> Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)					
PART VI <i>(To be completed by Federal Agency)</i> Site Assessment Criteria <i>(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)</i>		Maximum Points	Site A	Site B	Site C
1. Area In Non-urban Use		(15)			
2. Perimeter In Non-urban Use		(10)			
3. Percent Of Site Being Farmed		(20)			
4. Protection Provided By State and Local Government		(20)			
5. Distance From Urban Built-up Area		(15)			
6. Distance To Urban Support Services		(15)			
7. Size Of Present Farm Unit Compared To Average		(10)			
8. Creation Of Non-farmable Farmland		(10)			
9. Availability Of Farm Support Services		(5)			
10. On-Farm Investments		(20)			
11. Effects Of Conversion On Farm Support Services		(10)			
12. Compatibility With Existing Agricultural Use		(10)			
TOTAL SITE ASSESSMENT POINTS		160			
PART VII <i>(To be completed by Federal Agency)</i>					
Relative Value Of Farmland <i>(From Part V)</i>		100			
Total Site Assessment <i>(From Part VI above or local site assessment)</i>		160			
TOTAL POINTS <i>(Total of above 2 lines)</i>		260			
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>			
Reason For Selection:					
Name of Federal agency representative completing this form:					Date:

(See Instructions on reverse side)

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

- Step 1 - Federal agencies (or Federally funded projects) involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form. For Corridor type projects, the Federal agency shall use form NRCS-CPA-106 in place of form AD-1006. The Land Evaluation and Site Assessment (LESA) process may also be accessed by visiting the FPPA website, <http://fppa.nrcs.usda.gov/lesa/>.
- Step 2 - Originator (Federal Agency) will send one original copy of the form together with appropriate scaled maps indicating location(s) of project site(s), to the Natural Resources Conservation Service (NRCS) local Field Office or USDA Service Center and retain a copy for their files. (NRCS has offices in most counties in the U.S. The USDA Office Information Locator may be found at http://offices.usda.gov/scripts/ndISAPI.dll/oip_public/USA_map, or the offices can usually be found in the Phone Book under U.S. Government, Department of Agriculture. A list of field offices is available from the NRCS State Conservationist and State Office in each State.)
- Step 3 - NRCS will, within 10 working days after receipt of the completed form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland. (When a site visit or land evaluation system design is needed, NRCS will respond within 30 working days.
- Step 4 - For sites where farmland covered by the FPPA will be converted by the proposed project, NRCS will complete Parts II, IV and V of the form.
- Step 5 - NRCS will return the original copy of the form to the Federal agency involved in the project, and retain a file copy for NRCS records.
- Step 6 - The Federal agency involved in the proposed project will complete Parts VI and VII of the form and return the form with the final selected site to the servicing NRCS office.
- Step 7 - The Federal agency providing financial or technical assistance to the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

(For Federal Agency)

Part I: When completing the "County and State" questions, list all the local governments that are responsible for local land use controls where site(s) are to be evaluated.

Part III: When completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them or other major change in the ability to use the land for agriculture.
2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities planned build out capacity) that will cause a direct conversion.

Part VI: Do not complete Part VI using the standard format if a State or Local site assessment is used. With local and NRCS assistance, use the local Land Evaluation and Site Assessment (LESA).

1. Assign the maximum points for each site assessment criterion as shown in § 658.5(b) of CFR. In cases of corridor-type project such as transportation, power line and flood control, criteria #5 and #6 will not apply and will, be weighted zero, however, criterion #8 will be weighed a maximum of 25 points and criterion #11 a maximum of 25 points.
2. Federal agencies may assign relative weights among the 12 site assessment criteria other than those shown on the FPPA rule after submitting individual agency FPPA policy for review and comment to NRCS. In all cases where other weights are assigned, relative adjustments must be made to maintain the maximum total points at 160. For project sites where the total points equal or exceed 160, consider alternative actions, as appropriate, that could reduce adverse impacts (e.g. Alternative Sites, Modifications or Mitigation).

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, convert the site assessment points to a base of 160.

Example: if the Site Assessment maximum is 200 points, and the alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site A}$$

For assistance in completing this form or FPPA process, contact the local NRCS Field Office or USDA Service Center.

NRCS employees, consult the FPPA Manual and/or policy for additional instructions to complete the AD-1006 form.

**ATTACHMENT “C”
AIR QUALITY**

**Sacramento Metropolitan Air Quality Management District
Roadway Construction Emissions Model (8/1/17)**

Note: As no Project conditions have changed other than the anticipated construction timeframe from 8/1/17 to 8/1/19, the modeling results remain accurate and valid

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Ave 424 Traver Canal Bridge														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.53	10.75	18.19	3.29	0.79	2.50	1.24	0.72	0.52	0.02	2,255.49	0.59	0.02	2,277.57
Grading/Excavation	13.72	92.54	159.40	9.79	7.29	2.50	7.16	6.64	0.52	0.16	16,467.53	4.66	0.16	16,631.76
Drainage/Utilities/Sub-Grade	8.58	64.03	92.33	6.97	4.47	2.50	4.65	4.13	0.52	0.11	10,737.42	2.72	0.10	10,835.35
Paving	1.48	13.43	14.92	0.91	0.91	0.00	0.82	0.82	0.00	0.02	2,241.65	0.56	0.03	2,263.29
Maximum (pounds/day)	13.72	92.54	159.40	9.79	7.29	2.50	7.16	6.64	0.52	0.16	16,467.53	4.66	0.16	16,631.76
Total (tons/construction project)	0.60	4.22	6.83	0.46	0.32	0.14	0.32	0.29	0.03	0.01	738.76	0.20	0.01	745.94

Notes: Project Start Year -> 2018
 Project Length (months) -> 6
 Total Project Area (acres) -> 1
 Maximum Area Disturbed/Day (acres) -> 0
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	200	40
Grading/Excavation	0	32	0	60	1,120	40
Drainage/Utilities/Sub-Grade	0	0	0	0	720	40
Paving	0	0	0	0	320	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Ave 424 Traver Canal Bridge														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.07	0.12	0.02	0.01	0.02	0.01	0.00	0.00	0.00	14.89	0.00	0.00	13.64
Grading/Excavation	0.41	2.75	4.73	0.29	0.22	0.07	0.21	0.20	0.02	0.00	489.09	0.14	0.00	448.12
Drainage/Utilities/Sub-Grade	0.17	1.27	1.83	0.14	0.09	0.05	0.09	0.08	0.01	0.00	212.60	0.05	0.00	194.63
Paving	0.01	0.13	0.15	0.01	0.01	0.00	0.01	0.01	0.00	0.00	22.19	0.01	0.00	20.33
Maximum (tons/phase)	0.41	2.75	4.73	0.29	0.22	0.07	0.21	0.20	0.02	0.00	489.09	0.14	0.00	448.12
Total (tons/construction project)	0.60	4.22	6.83	0.46	0.32	0.14	0.32	0.29	0.03	0.01	738.76	0.20	0.01	676.71

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.
 The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

Input Type


Project Name	Ave 424 Traver Canal Bridge	
Construction Start Year	2018	Enter a Year between 2014 and 2025 (inclusive)
Project Type	3	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	6.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	0.17	miles
Total Project Area	0.50	acres
Maximum Area Disturbed/Day	0.25	acres
Water Trucks Used?	1	1. Yes 2. No

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd ³) (assume 20 if unknown)	Import Volume (yd ³ /day)	Export Volume (yd ³ /day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation	20.00	23.00	8.50
	Drainage/Utilities/Sub-Grade			
	Paving			

Mitigation Options

On-road Fleet Emissions Mitigation	No Mitigation	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer.
Off-road Equipment Emissions Mitigation	No Mitigation	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/ceqa/mitigation.shtml). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard



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

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

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

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

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

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		0.60	10/1/2017	1/1/2018
Grading/Excavation		2.70	10/20/2017	1/20/2018
Drainage/Utilities/Sub-Grade		1.80	1/11/2018	4/13/2018
Paving		0.90	3/7/2018	6/7/2018
Totals (Months)		6		

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

Soil Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
User Input											
Miles/round trip: Grubbing/Land Clearing		30.00			0	0.00					
Miles/round trip: Grading/Excavation		30.00			0	0.00					
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00			0	0.00					
Miles/round trip: Paving		30.00			0	0.00					
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.20	0.74	6.54	0.17	0.10	0.02	1,684.12	0.01	0.06	1,701.31
Grading/Excavation (grams/mile)		0.20	0.72	6.40	0.16	0.10	0.02	1,681.62	0.01	0.06	1,698.77
Drainage/Utilities/Sub-Grade (grams/mile)		0.14	0.54	5.40	0.14	0.07	0.02	1,663.79	0.01	0.06	1,680.70
Paving (grams/mile)		0.14	0.54	5.40	0.14	0.07	0.02	1,663.79	0.01	0.06	1,680.70
Hauling Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
User Input											
Miles/round trip: Grubbing/Land Clearing		30.00			0	0.00					
Miles/round trip: Grading/Excavation		30.00			2	60.00					
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00			0	0.00					
Miles/round trip: Paving		30.00			0	0.00					
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.20	0.74	6.54	0.17	0.10	0.02	1,684.12	0.01	0.06	1,701.31
Grading/Excavation (grams/mile)		0.20	0.72	6.40	0.16	0.10	0.02	1,681.62	0.01	0.06	1,698.77
Drainage/Utilities/Sub-Grade (grams/mile)		0.14	0.54	5.40	0.14	0.07	0.02	1,663.79	0.01	0.06	1,680.70
Paving (grams/mile)		0.14	0.54	5.40	0.14	0.07	0.02	1,663.79	0.01	0.06	1,680.70
Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.03	0.09	0.85	0.02	0.01	0.00	222.44	0.00	0.01	224.71
Tons per const. Period - Grading/Excavation		0.00	0.00	0.03	0.00	0.00	0.00	6.61	0.00	0.00	6.67
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project		0.00	0.00	0.03	0.00	0.00	0.00	6.61	0.00	0.00	6.67

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

Worker Commute Emissions		User Override of Worker Commute Default Values		Default Values		Calculated Daily Trips		Calculated Daily VMT			
User Input											
Miles/ one-way trip			20								
One-way trips/day			2								
No. of employees: Grubbing/Land Clearing			5			10		200.00			
No. of employees: Grading/Excavation			28			56		1,120.00			
No. of employees: Drainage/Utilities/Sub-Grade			18			36		720.00			
No. of employees: Paving			8			16		320.00			
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.04	1.51	0.17	0.05	0.02	0.00	403.73	0.01	0.01	406.12
Grading/Excavation (grams/mile)		0.04	1.49	0.17	0.05	0.02	0.00	402.51	0.01	0.01	404.86
Draining/Utilities/Sub-Grade (grams/mile)		0.03	1.33	0.15	0.05	0.02	0.00	393.83	0.01	0.01	395.91
Paving (grams/mile)		0.03	1.33	0.15	0.05	0.02	0.00	393.83	0.01	0.01	395.91
Grubbing/Land Clearing (grams/trip)		1.28	3.62	0.30	0.00	0.00	0.00	89.60	0.02	0.01	93.79
Grading/Excavation (grams/trip)		1.27	3.57	0.29	0.00	0.00	0.00	89.39	0.02	0.01	93.50
Draining/Utilities/Sub-Grade (grams/trip)		1.17	3.21	0.26	0.00	0.00	0.00	87.83	0.02	0.01	91.49
Paving (grams/trip)		1.17	3.21	0.26	0.00	0.00	0.00	87.83	0.02	0.01	91.49
Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.04	0.75	0.08	0.02	0.01	0.00	179.99	0.01	0.00	181.14
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	1.19	0.00	0.00	1.20
Pounds per day - Grading/Excavation		0.24	4.12	0.45	0.12	0.05	0.01	1,004.91	0.03	0.02	1,011.22
Tons per const. Period - Grading/Excavation		0.01	0.12	0.01	0.00	0.00	0.00	29.85	0.00	0.00	30.03
Pounds per day - Drainage/Utilities/Sub-Grade		0.14	2.36	0.25	0.07	0.03	0.01	632.11	0.02	0.01	635.69
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.05	0.01	0.00	0.00	0.00	12.52	0.00	0.00	12.59
Pounds per day - Paving		0.06	1.05	0.11	0.03	0.01	0.00	280.94	0.01	0.00	282.53
Tons per const. Period - Paving		0.00	0.01	0.00	0.00	0.00	0.00	2.78	0.00	0.00	2.80
Total tons per construction project		0.01	0.18	0.02	0.01	0.00	0.00	46.33	0.00	0.00	46.61

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

Water Truck Emissions		User Override of Program Estimate of		User Override of Truck		Default Values		Calculated			
User Input		Default # Water Trucks	Number of Water Trucks	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Daily VMT				
Grubbing/Land Clearing - Exhaust			1			40.00		40.00			
Grading/Excavation - Exhaust			1			40.00		40.00			
Drainage/Utilities/Subgrade			1			40.00		40.00			
Paving			1			40.00		40.00			
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.20	0.74	6.54	0.17	0.10	0.02	1,684.12	0.01	0.06	1,701.31
Grading/Excavation (grams/mile)		0.20	0.72	6.40	0.16	0.10	0.02	1,681.62	0.01	0.06	1,698.77
Draining/Utilities/Sub-Grade (grams/mile)		0.14	0.54	5.40	0.14	0.07	0.02	1,663.79	0.01	0.06	1,680.70
Paving (grams/mile)		0.14	0.54	5.40	0.14	0.07	0.02	1,663.79	0.01	0.06	1,680.70
Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.02	0.07	0.58	0.01	0.01	0.00	148.51	0.00	0.01	150.03
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00	0.99
Pounds per day - Grading/Excavation		0.02	0.06	0.56	0.01	0.01	0.00	148.29	0.00	0.01	149.81
Tons per const. Period - Grading/Excavation		0.00	0.00	0.02	0.00	0.00	0.00	4.40	0.00	0.00	4.45
Pounds per day - Drainage/Utilities/Sub-Grade		0.01	0.05	0.48	0.01	0.01	0.00	146.72	0.00	0.00	148.21
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.01	0.00	0.00	0.00	2.91	0.00	0.00	2.93
Pounds per day - Paving		0.01	0.05	0.48	0.01	0.01	0.00	146.72	0.00	0.00	148.21
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	1.45	0.00	0.00	1.47
Total tons per construction project		0.00	0.00	0.03	0.00	0.00	0.00	9.74	0.00	0.00	9.84

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

Fugitive Dust		User Override of Max		Default		PM10	PM10	PM2.5	PM2.5
		Acreage Disturbed/Day	Maximum Acreage/Day	Maximum Acreage/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing			0.25			2.50	0.02	0.52	0.00
Fugitive Dust - Grading/Excavation			0.25			2.50	0.07	0.52	0.02
Fugitive Dust - Drainage/Utilities/Subgrade			0.25			2.50	0.05	0.52	0.01

Off-Road Equipment Emissions														
Grubbing/Land Clearing	Default	Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles	Override of	Default											
	Override of Default Number of Vehicles	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier											
	Program-estimate		Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1		Model Default Tier	Crawler Tractors	0.68	2.75	9.09	0.35	0.32	0.01	788.46	0.24	0.01	
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	2		Model Default Tier	Excavators	0.73	6.88	8.08	0.40	0.37	0.01	1,089.21	0.33	0.01	
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1		Model Default Tier	Signal Boards	0.06	0.30	0.36	0.01	0.01	0.00	49.31	0.01	0.00	
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
User-Defined Off-road Equipment					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles		If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00		N/A	Equipment Tier	Type	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing			pounds per day	1.46	9.93	17.53	0.76	0.70	0.02	1,926.98	0.58	0.02	1,946.40
	Grubbing/Land Clearing			tons per phase	0.01	0.07	0.12	0.01	0.00	0.00	12.72	0.00	0.00	12.85

Grading/Excavation	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Override of	Default										
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier										
		Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Cranes	0.64	2.72	7.57	0.34	0.31	0.01	576.10	0.18	0.00	582.00
	2		Model Default Tier	Crawler Tractors	1.34	5.46	17.99	0.69	0.63	0.02	1,573.72	0.48	0.01	1,589.82
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4		Model Default Tier	Excavators	1.43	13.74	15.75	0.77	0.71	0.02	2,174.18	0.67	0.02	2,196.43
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	1.89	9.69	19.06	1.07	0.99	0.01	1,279.61	0.39	0.01	1,292.65
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Rollers	0.92	6.03	8.66	0.62	0.57	0.01	812.95	0.25	0.01	821.27
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Rubber Tired Loaders	1.40	5.37	17.82	0.61	0.56	0.02	1,885.59	0.58	0.02	1,904.91
	4		Model Default Tier	Scrapers	5.13	40.14	64.29	2.58	2.37	0.06	6,098.68	1.87	0.05	6,161.10
	1		Model Default Tier	Signal Boards	0.06	0.30	0.36	0.01	0.01	0.00	49.31	0.01	0.00	49.56
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Tractors/Loaders/Backhoes	0.63	4.82	6.05	0.45	0.42	0.01	641.73	0.20	0.01	648.28
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation			pounds per day	13.43	88.26	157.54	7.14	6.57	0.15	15,091.88	4.62	0.13	15,246.02
	Grading/Excavation			tons per phase	0.40	2.62	4.68	0.21	0.20	0.00	448.23	0.14	0.00	452.81

Drainage/Utilities/Subgrade		Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Override of Default Number of Vehicles		Program-estimate			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
		1		Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Air Compressors	0.40	2.47	2.67	0.20	0.20	0.00	375.27	0.04	0.00	377.00
				Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		1		Model Default Tier	Generator Sets	0.51	3.75	4.11	0.26	0.26	0.01	623.04	0.04	0.00	625.56
		2		Model Default Tier	Graders	1.67	9.39	16.72	0.94	0.86	0.01	1,258.82	0.39	0.01	1,271.83
				Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		1		Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00	34.65
				Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		1		Model Default Tier	Pumps	0.53	3.81	4.17	0.28	0.28	0.01	623.04	0.05	0.00	625.61
				Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		1		Model Default Tier	Rough Terrain Forklifts	0.16	2.31	2.01	0.10	0.09	0.00	346.54	0.11	0.00	350.13
				Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		4		Model Default Tier	Scrapers	4.52	34.67	55.99	2.21	2.03	0.06	6,016.11	1.87	0.05	6,078.54
		1		Model Default Tier	Signal Boards	0.06	0.30	0.36	0.01	0.01	0.00	49.31	0.01	0.00	49.56
				Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		2		Model Default Tier	Tractors/Loaders/Backhoes	0.54	4.72	5.31	0.38	0.35	0.01	632.00	0.20	0.01	638.55
				Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment					<i>If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab</i>										
	Number of Vehicles		Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Drainage/Utilities/Sub-Grade			pounds per day	8.43	61.62	91.60	4.38	4.09	0.10	9,958.59	2.71	0.08	10,051.44	
	Drainage/Utilities/Sub-Grade			tons per phase	0.17	1.22	1.81	0.09	0.08	0.00	197.18	0.05	0.00	199.02	

Paving	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Override of	Default										
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier										
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Pavers	0.32	2.84	3.50	0.17	0.16	0.00	458.58	0.14	0.00	463.33
	1		Model Default Tier	Paving Equipment	0.24	2.52	2.64	0.13	0.12	0.00	406.90	0.13	0.00	411.13
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Rollers	0.26	1.96	2.52	0.17	0.16	0.00	267.21	0.08	0.00	269.98
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Signal Boards	0.06	0.30	0.36	0.01	0.01	0.00	49.31	0.01	0.00	49.56
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Tractors/Loaders/Backhoes	0.54	4.72	5.31	0.38	0.35	0.01	632.00	0.20	0.01	638.55
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment														
If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab														
	Number of Vehicles		Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Paving		pounds per day	1.41	12.34	14.33	0.86	0.80	0.02	1,814.00	0.55	0.02	1,832.55
		Paving		tons per phase	0.01	0.12	0.14	0.01	0.01	0.00	17.96	0.01	0.00	18.14
Total Emissions all Phases (tons per construction period) =>					0.59	4.03	6.75	0.31	0.29	0.01	676.09	0.20	0.01	682.81

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

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163		8
Forklifts		89		8
Generator Sets		84		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET

**ATTACHMENT “D”
BIOLOGICAL RESOURCES**

Natural Environment Study

CNDDDB/BIOS Map

Natural Environment Study

(Minimal Impacts)

STATE OF CALIFORNIA
Department of Transportation
Tulare County Resource Management Agency

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Natural Environment Study

(Minimal Impacts)

Avenue 424 over Traver Canal Bridge
Bridge No. 46C-0219
6-[TUL]-[Avenue 424]
Project Number: BRLO 5946(112)

May 2017

STATE OF CALIFORNIA
Department of Transportation
Tulare County Resource Management Agency

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1.0 INTRODUCTION

1.1 HISTORY

The County of Tulare (County) Resource Management Agency (RMA), in cooperation with the California Department of Transportation (Caltrans), proposes to replace the existing Avenue 424/Traver Canal Bridge (Bridge #46C-0219) (bridge) over Traver Canal, approximately 0.25 mile east of Road 64 on Avenue 424 in Tulare County (see **Figure 1** and **Figure 2**).

1.2 PROJECT PURPOSE AND NEED

This project would replace the existing, functionally obsolete, 2-lane Avenue 424/Traver Canal Bridge with a new wider and longer 2-lane structure. The project would be designed in compliance with current roadway, drainage, and bridge standards and would accommodate the 100-year storm event. Roadway improvements would conform to the County's General Plan and Public Road Standards for the appropriate road classification including design speed, maximum grade, and minimum centerline curve radius. The project would not increase traffic capacity.

1.3 PROJECT DESCRIPTION

The project area is located in a rural area of Tulare County (see **Figure 1**) in the vicinity of Dinuba City. The project area is situated near the southwest corner of the 7.5-foot Reedley United States Geological Survey (USGS) Quadrangle, Section 1 of Township 16S and Range 23E, along Avenue 424.

The existing bridge structure is a reinforced concrete slab on reinforced concrete abutments/piers, with two spans 29 feet in length. It is approximately 60 feet long by 23 feet wide (20 feet wide curb to curb). The bridge has two 10-foot traffic lanes (one in each direction) over Traver Canal with approach roadway widths of 19 feet on both sides. In the most recent Bridge Inspection Report, Caltrans gave the bridge a Sufficiency Rating of 56.5, and it was flagged as "Functionally Obsolete" because of the narrow bridge deck and non-conforming bridge guardrails.

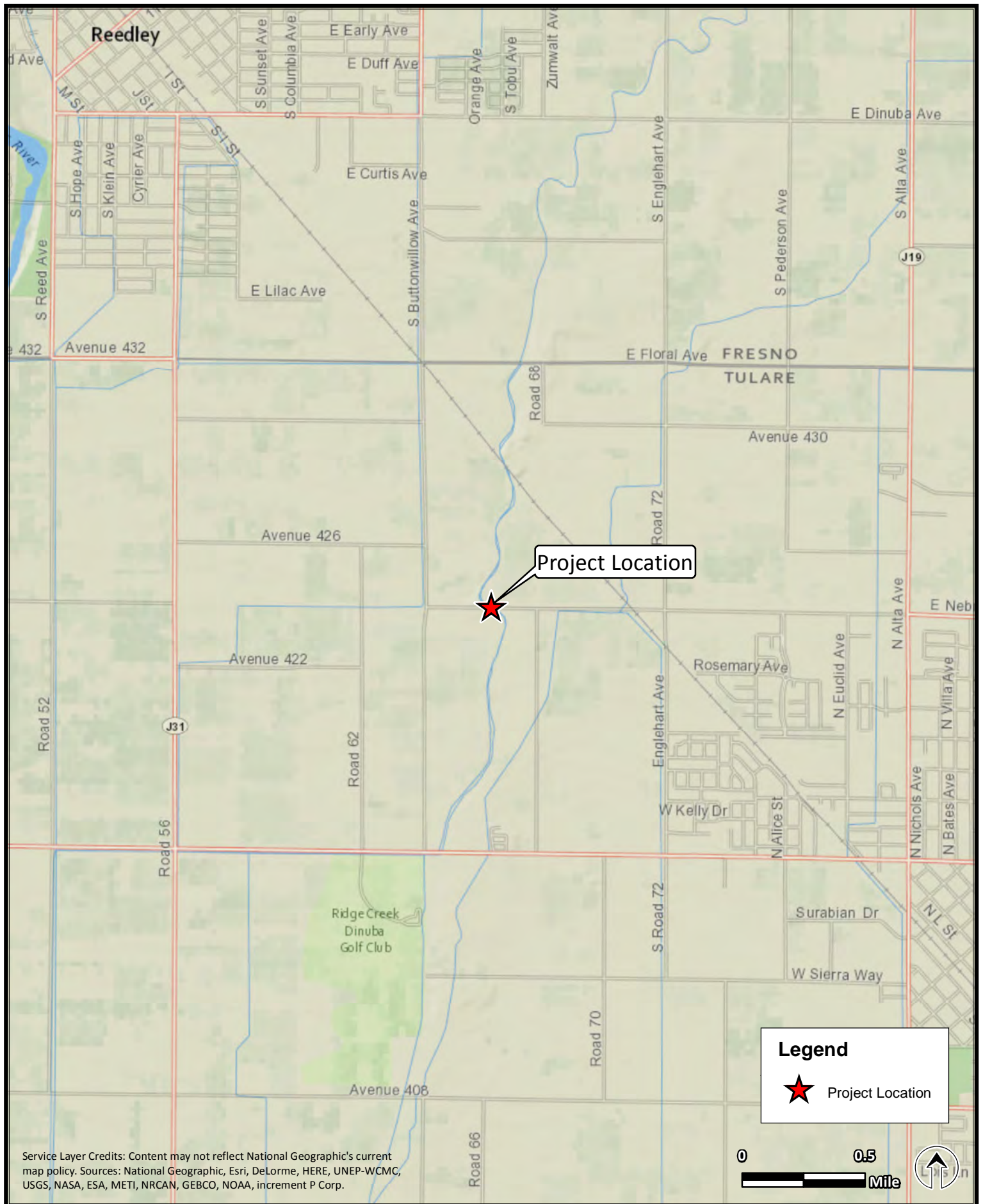
The proposed bridge structure is a cast-in-place reinforced concrete flat slab bridge with two spans 35 feet long. The proposed bridge would be approximately 70 feet long by 35.5 feet wide (32 feet curb to curb). The bridge would maintain two traffic lanes (one in each direction); however, the lane widths would be increased to 12 feet and would include 4-foot shoulders on both sides. The bridge would taper from 32 feet at the bridge to match the existing 19-foot approach roadways. The project may include improvements to the approach roadways, between approximately 400 feet east of the bridge to 400 feet west of the existing bridge.

The project area is limited to existing County right of way (ROW); therefore, no permanent ROW would be required for the project. Temporary construction easements and staging locations would be necessary to complete the project.

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**FIGURE 1. REGIONAL LOCATION
Avenue 424 over Traver Canal Bridge**



Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



**FIGURE 2. PROJECT LOCATION
Avenue 424 over Traver Canal Bridge**

1.4 CONSTRUCTION SCHEDULE AND STAGING

Construction is anticipated to begin in the fall of 2018 and last approximately six months. Construction is expected to be complete within the dry season for the Traver Canal, which is approximately late October to early May. Access to the canal bottom to assist with bridge demolition and new construction would be required. A graded work pad would be provided in the canal on top of corrugated metal pipes to convey occasional storm flow.

1.4.1 Construction Staging Plan

The first stage would include the road closure, providing detour and closure signage. The bridge would be closed for the duration of construction, and a detour route approximately three miles long would be provided to allow for continuous access in the area.

The existing bridge and canal would then be prepared for demolition. For demolition, a back hoe or loader and an excavator mounted with a hydraulic impact breaker would be staged for the work. The excavator mounted hydraulic impact breaker would be used to break apart the existing concrete superstructure, letting the debris fall into the prepared area of the canal. With the superstructure demolished, loaders would be used to haul the debris away to the staging area, where it would be hauled away with trucks and properly disposed. This activity is expected to last approximately one week.

An excavator would then be staged within the channel to excavate the proposed bridge foundations. The foundations would be excavated to below the existing canal invert. When excavation is complete the excavator would be removed from the channel and replaced with a small crane and pile driving rig. The crane would be used to pick and place steel or concrete piles for driving. Pile driving would be necessary at each abutment, and continuous pile driving is expected for a duration of four days (two days per abutment). If overhead lines interfere with pile driving equipment, they would need to be relocated before this stage.

With the piles installed, formwork for the footings would be built by hand and erected with the assistance of the crane. Footing reinforcement may be installed by hand or with the help of the crane if a prefabricated rebar cage is used. When the foundations are formed, a concrete pump would be staged at the adjacent approach. The concrete pump would be staged on the west approach to install the west footing and on the east approach to install the east footing.

To construct the abutments, plywood abutment forms would be built and a backhoe would be used to set them in place. Once the abutment forms are in place, reinforcement would be placed. Concrete would then be poured at one abutment, and then the other, which would complete abutment construction.

Assuming that a precast structure is used, a large crane would then be staged on one approach behind the new abutment. Precast elements would be delivered on tractor trailers. The crane would be used to pick the precast elements from the truck trailer and place them onto the bridge abutment bearings. This stage is expected to last approximately one day.

Once the precast elements are in place, forms for the internal and end diaphragms would be constructed. Forms and reinforcement would be placed by hand. Deck construction would include erecting either plywood or stay-in-place metal formwork between the precast elements and hand placing deck reinforcement. When the deck is ready for the concrete pour, concrete pumps would be staged at one side of the bridge.

When the deck concrete cures, the plywood forms would be removed and the required utilities would be hung under the bridge. Utilities would be installed under the bridge and casings would be installed through the abutments and extending through the approach slab. While the deck forms are removed and the utilities are installed, formwork for the concrete curbs and barriers would be constructed. Rebar would be hand placed within the forms and concrete would be poured from a truck staged on the bridge deck. Within a few days the forms would be removed.

Approach work would then begin and the new structure would be used as access for crews and vehicles from one side of the project site to the other. If needed, additional structure backfill would be hauled in and grading would be completed behind the abutment backwalls and wingwalls. Self-propelled rollers and hand-guided compactors would be used to achieve backfill compaction requirements. The base material for approach slabs would then be laid down and compacted in a similar fashion. The reinforced concrete approach slabs would be formed, rebar placed and then cast against the side forms. The guard rails would be installed. A dump truck would deliver rock slope protection and it would be placed around the abutments using a backhoe.

Materials and equipment would then be removed from the new bridge and approaches. The existing asphalt at the north and south tie in points would first be removed, then new roadway base material and asphalt would be placed to construct the new roadbed. Final signage and striping would then be added and the bridge would be opened to traffic.

2.0 STUDY METHODS

The following discussion provides a summary of state and federal laws and regulations pertaining to the project, environmental permits that are required for the project, and study methods that were undertaken as required by resource agencies and environmental laws.

2.1 REGULATORY REQUIREMENTS

Certain ecological communities, plants, and animal species may be designated as “sensitive” or “protected” based on their low abundance, risk of extinction, restricted distribution, and/or unique habitat requirements. Several state and federal regulations have been created to ensure projects do not affect listed species and their habitats. The following discussion provides a synopsis of state and federal laws and regulations that may pertain to sensitive or protected species and their habitats within or near the project area.

2.1.1 Clean Water Act

Activities within inland streams, wetlands, and riparian areas in California are regulated by agencies at the federal, state, and regional levels. At the federal level, the United States Army Corps of Engineers (USACE) Regulatory Program regulates activities within federal wetlands and waters of the United States (U.S.) pursuant to Section 404 of the federal Clean Water Act (CWA).

Waters of the U.S. are divided into several categories as defined by the Code of Federal Regulations (CFR). Under the CFR (CFR 33 Section 328.3), waters of the U.S. include, but are not limited to:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce (including sightseeing or hunting), including all waters subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats; sand flats; wetlands; sloughs; prairie potholes; wet meadows; playa lakes; or natural ponds where the use, degradation, or destruction of which could affect interstate or foreign commerce. This includes any such waters which are or could be used by interstate or foreign travelers for recreational or other purposes, and from which fish or shellfish could be taken and sold in interstate or foreign commerce, or which are used or could be used for industrial purposes in interstate commerce.

The limits of USACE jurisdiction extend to the ordinary high water mark. No discharge of dredged or fill material into jurisdictional features is permitted unless authorized under an USACE Nationwide Permit or Individual Permit. For all work subject to an USACE Section 404 permit, project proponents must obtain a Water Quality Certification from the applicable Regional Water Quality Control Board (RWQCB) under CWA Section 401 stating that the project would comply with applicable water quality regulations.

2.1.2 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) was established in 1973 to provide a framework to conserve and protect endangered and threatened species and their habitat. Section 10 of the FESA allows for the “incidental take” of endangered and threatened wildlife species by non-federal entities. Incidental take is defined by the FESA as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. The term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Section 10(a)(1)(B) of the FESA authorizes the taking of federally listed wildlife or fish through an incidental take permit. Section 10(a)(2)(A) of the FESA requires an applicant for an incidental take permit to submit a conservation plan that specifies, among other things, the impacts likely to result from the taking of the species, and the measures the permit applicant will take to minimize and mitigate impacts on the species.

2.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (50 CFR Part 10 and Part 21) protects migratory birds, their occupied nests, and their eggs from disturbance and/or destruction. “Migratory birds” include all nongame, wild birds found in the U.S. except for the house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and rock pigeon (*Columba livia*).

2.1.4 Executive Order 13112

Executive Order 13112 directs all federal agencies to refrain from authorizing, funding, or carrying out actions or projects that may spread invasive species. This order further directs federal agencies to prevent the introduction of invasive species, control and monitor existing invasive species populations, restore native species to invaded ecosystems, research and develop prevention and control methods for invasive species, and promote public education on invasive species.

2.1.5 Porter-Cologne Act

The RWQCB also asserts authority over waters of the state under the Porter-Cologne Act, which establishes a regulatory program to protect water quality and to protect beneficial uses of state waters. The Porter-Cologne Act empowers the RWQCB to formulate and adopt a Water Quality Control Plan that designates beneficial uses and establishes such water quality objectives that in its judgment will ensure reasonable protection of beneficial uses. Each RWQCB establishes water quality objectives that will ensure the reasonable protection of beneficial uses and the prevention of water quality degradation. Dredge or fill activities with the potential to affect water quality in these waters must comply with Waste Discharge Requirements (WDR) issued by the RWQCB. Waters of the state are defined by the Porter-Cologne Act as any surface or subsurface water or groundwater, including saline waters, within the boundaries of the state.

2.1.6 California Fish and Game Code

Section 1602 of the California Fish and Game Code governs construction activities that substantially divert or obstruct natural stream flow or substantially change the bed, channel, or bank of any river, stream, or lake under the jurisdiction of California Department of Fish and Wildlife (CDFW). Under the California Fish and Game Code, the limits of CDFW's jurisdiction within streams and other drainages extends from the top of the stream bank to the top of the opposite bank, to the outer drip line in areas containing riparian vegetation, and/or within the 100-year floodplain of a stream or river system containing fish or wildlife resources. Streams are defined in the California Code of Regulations (CCR) (14 CCR Section 1.72) as "a body of water that follows at least periodically or intermittently through a bed or channel having banks and that support fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." Under Section 1602, a Streambed Alteration Agreement must be issued by the CDFW prior to the initiation of construction activities that may substantially divert or obstruct the natural flow of any river, stream, or lake; substantially change or use any material from the bed, channel, or bank, of any river, stream, or lake; or deposit debris, waste, or other materials that could pass into any river, stream, or lake under CDFW's jurisdiction.

The CDFW has jurisdictional authority over waters of the state, including wetlands. In practice, CDFW follows the United States Fish and Wildlife Service (USFWS) definition of wetlands in Classification of Wetlands and Deepwater Habitats of the United States: "Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: 1) at least periodically, the land supports hydrophytes; 2) the substrate is predominantly undrained hydric soil; and 3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year" (Cowardin et al. 1979).

Section 2126 of the California Fish and Game Code states that it is unlawful for any person to take any mammal that are identified within Section 2118, including all species of bats.

Sections 3503, 3513, and 3800 of the California Fish and Game Code prohibit the take of birds protected under the MBTA, and protects their occupied nests. State-listed species and those petitioned for listing by the CDFW are fully protected under the California Endangered Species Act (CESA). Under Section 2080.1 of the California Fish and Game Code, if a project would result in take of a species that is both federally and state listed, a consistency determination with the findings of the FESA determination is required. Under Section 2081, if a project would result in take of a species that is state-only listed as threatened or endangered, then an incidental take permit from the CDFW is required.

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code prohibit the take or possession of 37 fully protected bird, mammal, reptile, amphibian, and fish species. Each of the statutes states that no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to "take" the species, and states

that no previously issued permit or licenses for take of the species “shall have any force or effect” for authorizing take or possession. The CDFW will not authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species.

2.2 STUDIES REQUIRED

2.2.1 LITERATURE SEARCH

Prior to conducting the biological survey, available literature was reviewed to identify any special status plants, wildlife, and/or sensitive habitats previously recorded within or near the Biological Study Area (BSA). Sources used to identify special status species and/or habitats with potential to be in or near the BSA include the following:

- The CDFW’s California Natural Diversity Database (CNDDDB) (CDFW, 2017) for the Reedley, Burris Park, Monson, Orange Cove North, Orange Cove South, Sanger, Selma, Traver, and Wahtoke 7.5-foot topographic quadrangles (see **Appendix A**);
- United States Fish and Wildlife Service (USFWS) Information for Planning and Conservation Database (USFWS, 2017) (see **Appendix A**).
- The Natural Resources Conservation Service (NRCS) Web Soils Survey for the Tulare County, Western Part, California (Natural Resource Conservation Service, 2016);

2.2.2 FIELD REVIEWS

After a review of the results of the CNDDDB query and related information described above, a biological survey of the BSA was conducted by Senior Biologist Marieka Schrader and Senior Biologist Sheri Mayta on July 26, 2016. Weather conditions during the survey were sunny and clear with a temperature of approximately 102 degrees Fahrenheit at start time (3:00 PM) and 104 degrees Fahrenheit at end time (5:00 PM).

Survey Methods

The BSA was visually surveyed on foot, to the extent feasible, and all plant and animal species within the BSA were identified to determine the potential for protected species to be in the BSA. Based on the existing conditions within the BSA, no focused plant or wildlife surveys were completed. Nomenclature for common, widespread plants and animals conforms to the Jepson eFlora (Jepson Flora Project, 2015) and the CNDDDB. Species observed in the BSA during the July 26, 2016 biological survey are included in **Appendix B**.

Personal Survey Dates

A biological survey was conducted in the BSA by Senior Biologist Marieka Schrader and Associate Biologist Sheri Mayta on July 26, 2016. Representative photographs of the BSA were taken during the survey and are included in **Appendix C**.

2.2.3 Agency Coordination and Professional Contacts

No agency coordination has been conducted other than the online database literature searches. No professional inquiries beyond internal staff have been made regarding this project.

2.2.4 Limitations That May Influence Results

Not all of the plant species in the BSA were blooming during the biological survey conducted on July 26, 2016. There were no other limitations or constraints that might influence the results of this analysis, or the survey conducted on July 26, 2016.

3.0 RESULTS: ENVIRONMENTAL SETTING

3.1 DESCRIPTION OF THE EXISTING BIOLOGICAL AND PHYSICAL CONDITIONS

3.1.1 Biological Study Area

The BSA is approximately 2.46 acres, and includes portions of Avenue 424, Traver Canal, and adjacent land (see **Figure 3**). The limits of the BSA include the roadway approximately 400 feet east of the bridge, 450 feet west of the bridge, and the canal 75 feet upstream of the bridge, and 170 feet downstream of the bridge. The BSA also includes two potential staging areas to the northwest of the bridge and southwest of the bridge.

3.1.2 Physical Conditions

Topography

The project area is within the Central Valley of California. The elevation within the BSA varies from 30 to 150 feet above mean sea level (msl). The land around the canal is flat, with the exception of a debris pile in the northwest portion of the BSA.

Climate

The climate in the BSA, which is typical of most areas west of the Sierra Nevada Ranges, is described as a Mediterranean climate (Ornduff, 1974). The BSA is within the California Energy Commission's Climate Zone 13, which includes the southeastern portion of California's Central Valley (Pacific Energy Center, 2006).

According to the Pacific Energy Center, in Climate Zone 13 summer daytime temperatures are high, sunshine is almost constant during growing season, and growing season is long. Summer humidity is higher here, than in other parts of the Central Valley. The winter cold can be intense, and piercing north winds can blow for several days at a time in the winter. Tule fog (extremely thick low fog) blankets the region for days in the winter.

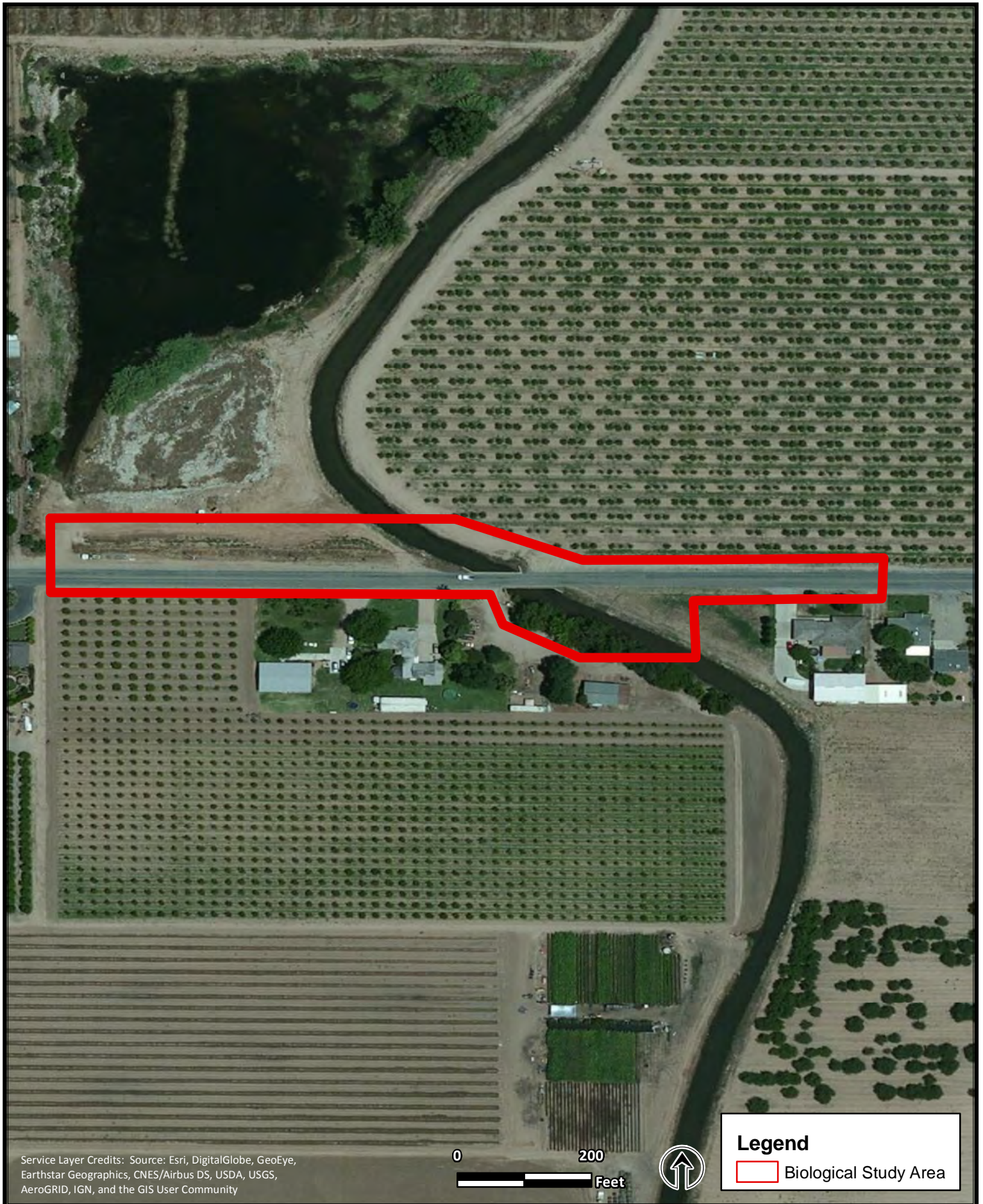
According to US Climate Data, the average annual low temperature is approximately 51.8 degrees Fahrenheit (F) in December, and the average annual high temperature is approximately 94 degrees F in July (US Climate Data, 2017). The average annual precipitation is approximately 10.94 inches. The highest rainfall is typically between November and March, with the highest levels falling in February.

Soils

According to the USDA Soils Report conducted for the project, soils in the BSA consist of Delhi loamy sand, zero to two percent slopes. The soil is somewhat excessively drained and the depth to water table is more than 80 inches.

Hydrology

According to the California Department of Conservation, the BSA is within the Tulare Lake Hydrologic Region/Basin (California Department of Conservation, 2016). Major rivers flowing into the Tulare Lake Hydrological Region are the Kings River, Kaweah River, Tule River, and Kern River. A majority of the water in this region are diverted for agricultural use.



**FIGURE 3. BIOLOGICAL STUDY AREA
 Avenue 424 over Traver Canal Bridge**

The BSA is within the South Valley Floor Watershed; this watershed comprises the entire portion of the Tulare Lake Basin on the valley floor (Central Valley Regional Water Quality Control Board, 2008).

Traver Creek begins to the north of the project area at the Alta east Branch Canal, where water is released into the creek through two weirs. Upstream tributaries to the Alta East Banch Canal include the Kings River and Whatoke Lake/Creek. Traver Creek, an un-lined waterway, flows south along a meandering path to the BSA. It appears that Traver Creek becomes Traver Canal in the vicinity of the BSA. Within the BSA, the Traver Canal channel is unlined; however, the slopes are partially stabilized with rocks. South of the BSA at Avenue 416, Traver Canal flows in an engineered channel to Riverside Ditch, adjacent to the Kings River. Riverside Ditch branches in numerous directions; therefore, it is difficult to follow the hydrology beyond this point. However, it is likely that water flow downstream of the BSA is hydrologically connected to natural waterways.

While there is natural water flow through Traver Creek, flows are controlled, and additional water flow is released in summer months to allow irrigation; therefore, water flows are expected to be highest during the summer months. During the biological survey conducted on July 26, 2016, the canal's water level was maximally elevated. Traver Canal is typically dry between late October and early May.

3.1.3 Biological Conditions

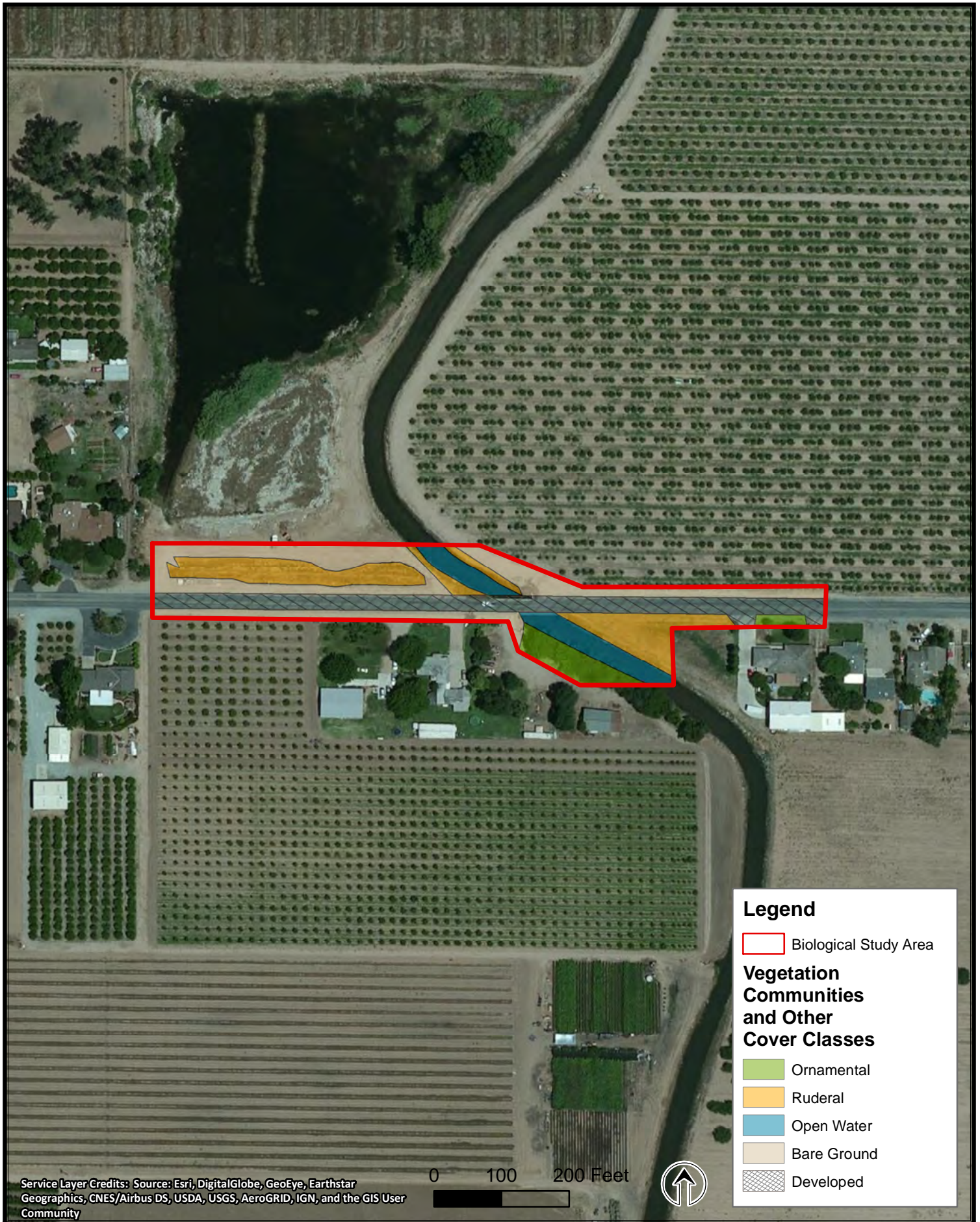
Vegetation

The BSA is within an agricultural region, and is surrounded by agricultural and residential properties. There are orchards (oranges) to the northeast and southwest of the BSA, and residential properties to the northwest, southeast, and south. The section of Traver Canal within the BSA is mostly unvegetated, with the exception of the south side of the canal, downstream of the bridge, which is planted with ornamental species, including Chinese elm (*Ulmus parvifolia*), coral tree (*Erythrina crista-galli*), and ornamental pear (*Pyrus calleryana*) (see **Figure 4**). There is also a minimal amount of ruderal species along both banks of the creek and roadway, including horseweed (*Erigeron canadensis*), annual fireweed (*Epilobium brachycarpum*), jimson weed (*Datura stramonium*), and common mallow (*Malva neglecta*). There is also ruderal vegetation on a debris pile northwest of the bridge. The remaining areas are bare ground. There are several invasive species in the BSA, including prickly Russian thistle (*Salsola tragus*), Chinese tallow tree (*Triadica sebifera*), black locust (*Robinia pseudoacacia*), and tree of heaven (*Ailanthus altissima*).

Wildlife

Habitat in the area is fairly disturbed; however, there are mature trees along the southwest side of the canal, and landscaped trees adjacent to the residences. Animal species observed included those commonly found in developed areas, including mourning dove (*Zenaidura macroura*), American crow (*Corvus brachyrhynchos*), western scrub jay (*Aphelocoma californica*), mosquito fish (*Gambusia affinis*), American bullfrog (*Lithobates catesbeianus*), and dragonfly (*Enallagma* sp.).

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**FIGURE 4. BIOLOGICAL RESOURCES
Avenue 424 over Traver Canal Bridge**

In addition, there were a number of active swallow nests on the bridge, and cliff swallows (*Petrochelidon pyrrhonota*) were observed foraging in the area and returning to the nests.

3.1.4 Habitat Connectivity

A migration or wildlife corridor is an area of habitat that connects two or more patches of habitat that would otherwise be isolated from each other. Wildlife corridors are typically adjacent to urban areas. A functional wildlife corridor allows for ease of movement between habitat patches and is important in preventing habitat fragmentation. Habitat fragmentation is typically caused by human development and can lead to a decrease in biodiversity and ecosystem functionality. The land surrounding the BSA is used for agricultural practices and there are no areas designated as open space near the BSA. According to the CDFW, Biogeographic Information and Observation System (BIOS), there are no essential wildlife connectivity areas or natural landscape blocks in the BSA. The BSA is not likely to be used as a migration or travel corridor, but may be used for local wildlife movement and foraging in the area.

3.1.5 Regional Species and Habitats and Natural Communities of Concern

The following discussion describes the special-status plant and wildlife species with potential to be within the BSA based on their geographical range. Also discussed are habitats that are of relatively limited distribution or of particular value to wildlife. Determinations on whether special-status and other sensitive resources could be in the BSA are based on: 1) a record reported in the CNDDDB and USFWS species lists and/or 2) the presence of suitable habitat.

Special-Status Plant Species

According to the CNDDDB and USFWS searches, 16 special-status plant species have the potential to be in the BSA based on recorded geographical distribution (see **Appendix A**). A full species list with a discussion on the potential for each species to be in the BSA is in **Appendix D**. Based on the results of research and field surveys, no special-status plants are expected to be in the BSA.

Special-Status Wildlife Species

According to the CNDDDB and USFWS searches, 30 special-status wildlife species have the potential to be in the BSA based on recorded geographical distribution (see **Appendix A**). A full species list with a discussion on the potential for these species to be in the BSA is in **Appendix D**. Based on the results of research and field surveys, eight special-status wildlife species have potential to be in the BSA, including the Morrison's bumble bee (*Bombus morrisoni*), great egret (*Ardea alba*), great blue heron (*Ardea Herodias*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), loggerhead shrike (*Lanius ludovicianus*), pallid bat (*Antrozous pallidus*), and hoary bat (*Lasiurus cinereus*).

Special-Status Natural Communities

According to the CNDDDB, four natural communities have the potential to be in the BSA based on recorded geographical distribution, including Great Valley Mixed Riparian

Forest, Northern Claypan Vernal Pool, Northern Hardpan Vernal Pool, and Valley Sacaton Grassland. The BSA is comprised of ruderal and ornamental vegetation, and none of these special-status natural communities were observed during the field survey; therefore, no special-status natural communities are expected to be within the BSA; however, there are jurisdictional features that would be regulated by the USACE, RWQCB, and CDFW.

4.0 RESULTS: BIOLOGICAL RESOURCES, DISCUSSION OF IMPACTS, AND MITIGATION

4.1 HABITATS AND NATURAL COMMUNITIES OF SPECIAL CONCERN

4.1.1 Survey Results

No special-status natural communities are expected to be in the BSA; however, there are jurisdictional features that would be regulated by the USACE, RWQCB, and CDFW. Traver Canal is a natural, although altered and controlled, waterway that likely flows at some point downstream to navigable waters; therefore, it is considered jurisdictional waters of the U.S. and waters of the state. The top of bank was identified as the OHWM; therefore, the area between top of bank and top of bank is considered waters of the U.S. The area between the top of bank and top of bank is also considered waters of the state; there is no associated riparian corridor. Traver Canal is currently unlined, with the exception of some rocks along the slopes. The active channel is mostly unvegetated and the slopes of the canal are sparsely vegetated with ruderal vegetation; there are no wetlands within the BSA.

4.1.2 Project Impacts

The project would include removing the existing bridge and constructing a new, wider bridge across the canal. The new bridge footings and piles would result in fill along the canal slopes (approximately 0.02 acre waters of the U.S. and state), although the overall net increase would be balanced by the removal of the existing abutments. The RSP would also result in new fill within the canal (approximately 0.055 acre waters of the U.S. and state). The wider bridge deck would not result in fill, but would increase the shaded area under the bridge (approximately 0.019 acre waters of the U.S. and state), which could affect plant and wildlife.

Demolition of the existing bridge, installation of the new bridge, and installation of RSP around the bridge abutments would result in result in temporary impacts on waters of the U.S. and state (up to approximately 0.47 acres). The project would be constructed during the driest season, when there is little to no water in the canal; therefore, impacts on water quality would be substantially minimized. A graded work pad would be provided in the canal on top of corrugated metal pipes to convey occasional storm flow. There is some potential for construction debris and materials to fall into the canal. However, with implementation of avoidance and minimization measures discussed below, adverse impacts on jurisdictional features, including water quality, are not anticipated.

4.1.3 Avoidance and Minimization Efforts

To avoid and/or minimize potential impacts on USACE jurisdictional waters of the U.S., the following measures would be implemented:

- Work areas would be reduced to the maximum extent feasible, and staging areas would be located away from the canal.

4.0 RESULTS: BIOLOGICAL RESOURCES, DISCUSSION OF IMPACTS, AND MITIGATION

- Best management practices (BMP), such as silt fencing, fiber rolls, straw bales, or other measures would be implemented during construction to minimize dust, dirt, and construction debris from entering the canal and/or leaving the construction area.
- Appropriate hazardous material BMPs would be implemented to reduce the potential for chemical spills or contaminant releases into the canal, including any non-stormwater discharge.
- All equipment refueling and maintenance would be conducted in the staging area away from the canal and other sensitive areas. In addition, vehicles and equipment would be checked daily for fluid and fuel leaks, and drip pans would be placed under all equipment that is parked and not in operation.
- Temporarily disturbed areas would be re-contoured and re-vegetated using native species. Any re-vegetation or erosion control implemented would be completed using non-invasive species.

4.2 SPECIAL STATUS PLANT SPECIES

Based on the results of research and project-level surveys, no special-status plant species are anticipated to be in the BSA; therefore, the project would have no effect on these species (see **Appendix D**).

4.3 SPECIAL STATUS ANIMAL SPECIES

According to the CNDDDB and USFWS, a variety of special status wildlife species have the potential to be within the BSA based on recorded geographical distribution, including Morrison bumble bee, burrowing owl, great egret, great blue heron, Swainson's hawk, loggerhead shrike, pallid bat, and hoary bat.

4.3.1 Morrison Bumble Bee

Survey Results

The Morrison bumble bee is generally found from the Sierra-Cascades ranges eastward across the intermountain west. This species inhabits open dry scrub where it nests underground, in structures, and in grass hummocks (Hatfield et al, 2014). In general bumble bee nests are often located underground in abandoned rodent nests, or above ground in tufts of grass, old bird nests, rock piles, or cavities in dead trees. Food plant genera for this species include *Cirsium*, *Cleome*, *Helianthus*, *Lupinus*, *Chrysothamnus*, and *Melilotus*. No specific threats have been identified as impacting this species; however, bumble bees, in general, are threatened by a number of factors including habitat loss, pesticide use, pathogens from managed pollinators, competition with non-native bees, and climate change.

The Morrison bumble bee was not observed during the project survey; however, one of this species' food plant genera (*Helianthus*) was observed within the BSA, and there is suitable habitat for bumble bee nests, including in the ground, nests on the bridge and in trees, and possibly cavities in adjacent trees. In addition, this species has been recorded

approximately one mile from the BSA. Therefore, there is potential for this species to be in the BSA during construction.

Project Impacts

Construction would include removing vegetation and excavation within the BSA, which could result in direct impacts on ground nesting bees. In addition, the existing bridge structure would be removed, which could directly impact bees nesting on the bridge structure. Tree removal is not anticipated; therefore, direct impacts on tree-nesting bees would not be expected. Indirect impacts could result from dust and/or pesticide use, and from habitat loss. However, with the implementation of avoidance and minimization measures discussed below, adverse impacts on the Morrison bumble bee are not anticipated.

Avoidance and Minimization Efforts

To avoid and/or minimize impacts on the Morrison bumble bee, the following measures would be implemented:

- Vegetation removal and excavation would be reduced to the extent feasible.
- Within 48 hours of construction, a qualified biologist would survey all areas where vegetation removal and excavation would be conducted to confirm the presence/absence of Morrison bumble bee nests.
- If a nest is identified within the BSA, all efforts would be taken to avoid the nest, and an appropriate buffer would be installed as determined by a qualified biologist. If avoidance cannot be accomplished, the nest would be safely relocated by a qualified biologist.
- Pesticide/insecticide would not be used as part of the project.
- Areas temporarily impacted during construction would be restored using native species, including one or more of the food plant genera for the Morrison bumble bee (*Cirsium*, *Cleome*, *Helianthus*, *Lupinus*, *Chrysothamnus*, and *Melilotus*), if appropriate for the region.

Compensatory Mitigation

With the implementation of avoidance and minimization measures, adverse impacts are not anticipated; therefore, no mitigation is required.

4.3.2 Great Egret

Survey Results

The great egret is found in brackish marsh, estuary, freshwater marsh, riparian forests, and wetlands. This species nests colonially in large trees. The rookery sites are located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes. The great egret feeds mainly on small fish, but will also eat amphibians, reptiles, small mammals, and invertebrates. There is no suitable nesting habitat in the BSA; however, there is

suitable foraging habitat. Therefore, this species has potential to forage in the BSA, but is not expected to nest in the BSA.

Project Impacts

Because the great egret is not expected to nest in the BSA, the project would not have any direct impacts on this species. Construction activities such as vegetation removal, bridge and roadway demolition, excavation, and pile driving could result in an increase in noise and vibration levels, which could result in indirect impacts on this species, including foraging disruption; however, once construction is initiated, any egrets foraging in the vicinity would be expected to move away from the area, and there are other portions of the canal in which they could forage. Therefore, these impacts would be minimal, and with the implementation of avoidance and minimization measures listed below, adverse impacts on the great egret are not anticipated.

Avoidance and Minimization Efforts

The following avoidance and minimization measures would be implemented to avoid and/or minimize impacts on the great egret:

- In the event that a great egret is observed foraging within the construction site, it shall be allowed to move away from the site prior to initiating any construction activities that could result in direct injury or disturbance of the individual.

Compensatory Mitigation

With the implementation of avoidance and minimization measures, adverse impacts on the great egret are not anticipated; therefore, no mitigation is required.

4.3.3 Great Blue Heron

The great blue heron nests colonially in tall trees, cliff sides, and sequestered spots on marshes. This species forages in marshes, lake margins, tide flats, rivers, streams, and wet meadows. The rookery sites are in close proximity to foraging areas. There is no suitable nesting habitat in the BSA; however, there is suitable foraging habitat. Therefore, this species has potential to forage in the BSA, but is not expected to nest in the BSA.

Project Impacts

Because the great blue heron is not expected to nest in the BSA, the project would not have any direct impacts on this species. Construction activities such as vegetation removal, bridge and roadway demolition, excavation, and pile driving could result in an increase in noise and vibration levels, which could result in indirect impacts on this species, including foraging disruption; however, once construction is initiated, any herons foraging in the vicinity would be expected to move away, and there are other portions of the canal in which they could forage. Therefore, these impacts would be minimal, and with the implementation of avoidance and minimization measures listed below, adverse impacts on the great blue heron are not anticipated.

Avoidance and Minimization Efforts

The avoidance and minimization measures discussed above for the great egret would be implemented to avoid and/or minimize impacts on the great blue heron.

Compensatory Mitigation

With the implementation of avoidance and minimization measures, adverse impacts on the great blue heron are not anticipated; therefore, no mitigation is required.

4.3.4 Burrowing Owl

Survey Results

The burrowing owl is found in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. This species is a subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel. Common in disturbed areas, including roadsides, and may develop burrows in debris piles. No burrowing owls or burrows were observed at the time of the survey; however, burrowing owls are often found in disturbed areas, including roadsides and debris piles, and this species has been recorded approximately 1.5 miles south of the BSA. Therefore, there is potential that this species could be in the BSA during construction.

Project Impacts

Project construction would include vegetation removal and excavation in the BSA, which could directly impact the burrowing owls and their burrows. Construction activities such as vegetation removal, bridge and roadway demolition, excavation, and pile driving could result in an increase in noise and vibration levels, which could result in indirect impacts on this species, including foraging disruption and/or nest abandonment. However, with the implementation of avoidance and minimization measures listed below, adverse impacts on the burrowing owl are not anticipated.

Avoidance and Minimization Efforts

To avoid and minimize impacts on the burrowing owl, the following measures would be implemented:

- If construction activities are conducted during the breeding season for burrowing owls (typically February 1 through August 31), a qualified biologist would perform a focused survey for burrows and burrowing owls within the BSA no more than 30 days and no fewer than 14 days prior to the start of construction activities. Surveys would be conducted in accordance with the California Burrowing Owl Consortium's April 1993 *Burrowing Owl Survey Protocol and Mitigation Guidelines*.
- If occupied burrows or burrowing habitat (including debris piles) are observed within 500 feet of the construction area, a 165-foot buffer would be installed and maintained during the non-breeding season (typically September 1 through January 31), or a 655-foot buffer during the breeding season (typically February 1 through August 31). The buffer size may be modified, under direction of a qualified biologist, and CDFW if appropriate, if it's determined that construction activities would not likely have an

adverse effect on the owls. Work within the buffer area would only be resumed once a qualified biologist confirms that the burrow is no longer occupied.

- If occupied burrows cannot be avoided, passive on-site relocation techniques to encourage owls to move to alternative burrows outside the project area would be implemented during the non-breeding season, as directed by a qualified biologist and under consultation with the CDFW. No occupied burrows would be disturbed during the nesting period, unless a qualified biologist, in coordination with the CDFW, determines that juveniles are capable of foraging and surviving independently.

Compensatory Mitigation

With the implementation of avoidance and minimization measures, adverse impacts are not anticipated; therefore, no mitigation is required.

4.3.5 Swainson's Hawk

Survey Results

The Swainson's hawk forages in prairies, grasslands, and agricultural fields that support rodent populations. This species nests in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. The Swainson's hawk was not observed during the project survey, which was conducted within the raptor nesting season, and no potential nests were observed. However, there are agricultural areas surrounding the BSA that could provide foraging habitat, and large trees nearby that could provide nesting habitat for this species. Therefore, there is potential for this species to forage and/or nest within the BSA during construction.

Project Impacts

Project construction would not require any tree removal, and would not be expected to result in direct impacts on the Swainson's hawk. Construction activities such as vegetation removal, bridge and roadway demolition, excavation, and pile driving could result in indirect impacts on this species, including foraging disruption and/or nest abandonment. However, with the implementation of avoidance and minimization measures listed below, adverse impacts on the Swainson's hawk are not anticipated.

Avoidance and Minimization Efforts

To avoid and/or minimize impacts on nesting Swainson's hawk, the following measures would be implemented:

- Focused surveys for Swainson's hawk would be conducted according to the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* for two survey periods prior to project initiation. Three surveys would be conducted during each survey period to determine if Swainson's hawks are nesting within 600-feet of the BSA.
- If construction is scheduled to begin during Swainson's hawk nesting season (typically March through August), pre-construction surveys would be completed by a qualified

biologist no more than 48 hours prior to construction to determine if Swainson's hawks are nesting within 600 feet of the BSA. Surveys would be repeated if construction activities are suspended for five days or more.

- If any nesting Swainson's hawks are found in the BSA, appropriate buffers (typically 600 feet) would be installed and maintained, under direction of a qualified biologist, until the nest(s) are no longer active.

Compensatory Mitigation

With the implementation of avoidance and minimization measures, adverse impacts are not anticipated; therefore, no mitigation is required.

4.3.6 Loggerhead Shrike

Survey Results

The loggerhead shrike is found in semi-open country with scattered shrubs, trees, posts, fences, utility lines, or other perches. This species builds nests in dense and often thorny trees or shrubs usually five to 30 feet above the ground. In the absence of trees or shrubs, they sometimes nest in brush piles or tumbleweeds. The loggerhead shrike eats insects and other arthropods, amphibians, reptiles, small mammals, and birds. This species was not observed during the project survey; however, the surrounding agricultural fields and orchards within and surrounding the BSA provide suitable nesting and foraging habitat for this species. Therefore, there is potential for this species to be in the BSA during construction.

Project Impacts

Project construction would include vegetation removal and excavation in the BSA, which could directly impact the loggerhead shrike and/or nests. Construction activities such as vegetation removal, bridge and roadway demolition, excavation, and pile driving could result in an increase in noise and vibration levels, which could result in indirect impacts on this species, including foraging disruption and/or nest abandonment. However, with the implementation of avoidance and minimization measures listed below, adverse impacts on the loggerhead shrike are not anticipated.

Avoidance and Minimization Efforts

If construction is scheduled to be conducted during bird nesting season (typically February 1 to September 15), the following avoidance and minimization measures would be implemented to avoid and/or minimize impacts on the loggerhead shrike and other birds and raptors:

- Construction in areas that include trees, vegetation, or buildings that may provide nesting habitats for bird and raptors would be reduced to the maximum extent feasible.
- Trimming and removal of vegetation and trees would be minimized and performed outside of the nesting season (typically February 1 to September 15) to the extent feasible.

4.0 RESULTS: BIOLOGICAL RESOURCES, DISCUSSION OF IMPACTS, AND MITIGATION

- In the event that trimming or removal of vegetation and trees must be conducted during the nesting season, nesting bird surveys would be completed by a qualified biologist no more than 48 hours prior to trimming or clearing activities to determine if nesting birds are within the affected vegetation. Nesting bird surveys would be repeated if trimming or removal activities are suspended for five days or more.
- In the event construction is scheduled during bird nesting season, nesting bird surveys would be completed no more than 48 hours prior to construction to determine if nesting birds, raptors, or active nests are in or within 500 feet of the construction area. Surveys would be repeated if construction activities are suspended for five days or more.
- In the event nesting birds or raptors are found within 500 feet of the construction area, appropriate buffers (typically 150 feet for songbirds and 500 feet for raptors) would be implemented, in coordination with the CDFW, to ensure that nesting birds and active nests are not harmed. Buffers would include fencing or other barriers around the nests to prevent any access to these areas and would remain in place until birds have fledged and/or the nest is no longer active, as determined by a qualified biologist.

Compensatory Mitigation

With the implementation of avoidance and minimization measures, adverse impacts on the loggerhead shrike are not anticipated; therefore, no mitigation is required.

4.3.7 Pallid Bat and Hoary Bat

Survey Results

No bats were observed roosting in the bridge, and no guano or other signs of bats were observed during the biological survey. Because water levels within the canal are very high during the summer months, the likelihood for bats to roost in the bridge structure during the summer season is low. However, existing trees and swallow nests on the bridge could provide moderate habitat for pallid and hoary bats to roost within the BSA, and there is potential for bats to roost under the structure during times of lower flow.

Project Impacts

Construction activities such as vegetation removal, bridge and roadway demolition, excavation, and pile driving could directly impact bats, or could result in an increase in noise and vibration levels, which could result in indirect impacts on these species, including foraging disruption and/or roost abandonment. The new bridge would be a cast-in-place reinforced concrete flat slab structure and would not provide roosting habitat for bats; however, because the existing bridge provides only marginal habitat for bats, this would be a minor impact. With the implementation of avoidance and minimization measures listed below, adverse impacts on pallid and hoary bats are not anticipated.

Avoidance and Minimization Efforts

To avoid and minimize potential impacts on the pallid bat, hoary bat, and other bats, the following avoidance and minimization measures would be implemented:

4.0 RESULTS: BIOLOGICAL RESOURCES, DISCUSSION OF IMPACTS, AND MITIGATION

- At least 30 days prior to construction, surveys would be conducted by a qualified biologist on the bridge structure, including inactive swallow nests, and all trees within 100 feet of the construction area, to identify the presence of bats and any active or potential bat-roosting cavities. During the non-breeding and active season (typically late fall), bats would be safely evicted from these areas, if feasible, under the direction of a qualified biologist.
- Once it has been determined that all roosting bats have been safely excluded from roosting cavities, exclusionary devices approved by the CDFW would be installed and maintained to prevent bats from roosting in these cavities prior to and during construction.
- Pre-construction bat surveys would be conducted by a qualified bat specialist no more than seven days prior to the removal of the bridge and any trees within the BSA to confirm that exclusionary measures have been successful and there are no bats within the construction area. If no roosting bats are detected, no further surveys are required provided the tree removal is completed and bridge removal is initiated within seven days. If removal is delayed more than seven days from the survey date, additional surveys would be conducted no more than seven days prior to tree and bridge removal to ensure that no bats have moved into the area.
- Surveys and exclusion measures are expected to prevent maternal colonies from becoming established in the BSA. In the event that a maternal colony of bats is found, the CDFW would be consulted, and no work would be conducted within 100 feet of the maternal roosting site until the maternal season is over or the bats have left the site, or as otherwise directed by the CDFW. The site would be designated as a sensitive area and protected as such until the bats have left the site. No clearing and grubbing would be authorized adjacent to the roosting site. Combustion equipment, such as generators, pumps, and vehicles, would not to be parked nor operated under or adjacent to the roosting site. Construction personnel would not be authorized to enter areas beneath the colony, especially during the evening exodus.

Compensatory Mitigation

With the implementation of avoidance and minimization measures, adverse impacts are not anticipated; therefore, no mitigation is required.

4.4 CUMULATIVE IMPACTS

For the purposes of this analysis, the cumulative setting for jurisdictional features is considered waters of the U.S. and state within the Traver Canal watershed, because impacts would likely not extend beyond this watershed. The cumulative setting for the Morrison Bumble bee is considered its entire range. The cumulative setting for avian species is considered nesting and foraging habitat within the Central Valley, since this is the range of many of the affected species. The cumulative setting for bats is considered roosting habitat within California because some of the bat species with potential to be in the project area are migratory and could be found in various counties throughout the state.

4.0 RESULTS: BIOLOGICAL RESOURCES, DISCUSSION OF IMPACTS, AND MITIGATION

Existing and continuing development contributes to cumulative impacts on jurisdictional features. In addition, habitat removal from current and future development in the area is the biggest threat to plant and wildlife species, along with pesticide use for some species. The project would include replacing an existing bridge, and would not contribute to development in the area. In addition, the project is expected to have no impact on special-status plants. The project could result in temporary impacts on jurisdictional features, aquatic habitat, avian species, and bats; however, the project would include avoidance, minimization, and mitigation measures to prevent adverse impacts. In addition, any additional measures required by regulatory permits would be implemented during construction. Other planned projects in the cumulative setting would be expected to include similar measures. Therefore, the project would not be expected to result in cumulatively considerable impacts on jurisdictional features, aquatic habitat, avian species, or bats.

5.0 CONCLUSIONS AND REGULATORY DETERMINATION

5.1 FEDERAL ENDANGERED SPECIES ACT CONSULTATION SUMMARY

The BSA is not within a marine area and the canal is not immediately connected to any marine resources; therefore, there is no potential for any species under jurisdiction of National Oceanic and Atmospheric Administration (NOAA) Fisheries to be within the BSA. A USFWS species list was obtained on May 16, 2017 to identify federally-listed species with the potential to be in the BSA (see **Appendix A**). Multiple species listed as threatened or endangered under the FESA have the potential to be in the BSA based on recorded geographical distribution. However, based on the results of research and field surveys, no federally-listed species are expected to be in the BSA, and the project would be expected to have no effect on federally listed threatened and endangered species; therefore, consultation with the USFWS is not anticipated.

5.2 ESSENTIAL FISH HABITAT CONSULTATION SUMMARY

The project area does not contain any essential fish habitats according to the conditions set by NOAA Fisheries. Because Traver Canal's water flow is controlled, and does not flow during certain months of the year, there is limited opportunity for fish to enter or move through the canal.

5.3 WETLANDS AND OTHER WATERS COORDINATION

The project would require work within Traver Canal; therefore, a Clean Water Act Section 404 Pre-construction Authorization from the USACE, a CWA Section 401 Water Quality Certification from the RWQCB, and a 1602 Streambed Alteration Agreement (SAA) from CDFW would be required.

5.4 INVASIVE SPECIES

There are several invasive plant species growing in the BSA, including prickly Russian thistle, Chinese tallow tree, black locust, and tree of heaven. Soil disturbance, improper disposal of graded and excavated soils, or landscaping with invasive species could result in the spread of invasive species. However, the following standard measures would be implemented to prevent the spread of invasive species:

- Vegetation removed from the BSA would be treated and disposed of in a manner that would prevent the spread of invasive species onsite or offsite.
- New landscaping materials, including erosion control seed mixes and other plantings, would be composed of non-invasive species and would be clear of weeds, and all erosion control and landscape planting would be conducted in a manner that would not result in the spread of invasive species.
- Plants listed in the Pest Ratings of Noxious Weed Species and Noxious Weed Seed (California Department of Food and Agriculture, 2003) would not be used as part of the project.

With implementation of these measures, the project would be in compliance with the Executive Order 13112.

5.5 MIGRATORY BIRDS

During the biological survey performed on July 26, 2016, no special status bird species were observed within the BSA. However, many bird species were observed foraging in or flying over the BSA, including mourning dove, American crow, western scrub jay, cliff swallow, oriole (*Icterus* sp.), mockingbird, black phoebe (*sayornis nigricans*), and western kingbird (*tyrannus verticalis*).

Nesting birds could be directly impacted by construction activities if they were to be nesting in structures or vegetation within the construction area. In addition, these species could be indirectly impacted by loss of habitat resulting from vegetation or structure removal. However, with implementation of measures included in Section 4.0, the project would be in compliance with the MBTA and California Fish and Game Code.

REFERENCES

- Central Valley Regional Water Quality Control Board. 2008. Irrigated Lands Regulatory Program Existing Conditions Report/Executive Summary.
- Cowardin, Lewis M. et al. 1979. Classification of Wetlands and Deepwater Habitats of the United States.
- Darrell Ubick and Marjorie J. Moody. 1995 On Males of Californian *Talanites* (Araneae, Gnaphosidae). *The Journal of Arachnology*. 23:209-211.
- Hatfield, R., Jepsen, S., Thorp, R., Richardson, L. & Colla, S. 2014. *Bombus morrisoni*. The IUCN Red List of Threatened Species 2014: e.T44937666A69004519. Accessed on May 17, 2014 from <http://dx.doi.org/10.2305/IUCN.UK.2014-3.RLTS.T44937666A69004519.en>.
- Natural Resource Conservation Service, 2016. Custom Soil Resource Report for Tulare County, Western Part, California.
- Pacific Energy Center. 2006. The Pacific Energy Center's Guide to California Climate Zones and Bioclimatic Design.
- Ornduff, Robert. 1974. Introduction to California Plant Life. University of California Press.
- UCDAVIS Center for Watershed Sciences: PISCES California Fish Data and Management Software. <https://pisc.es.ucdavis.edu/>. Assessed March 7, 2017. Reviewed historic range for Delta smelt (*Hypomesus pacificus*)

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Appendix A
Special-Status Species Lists

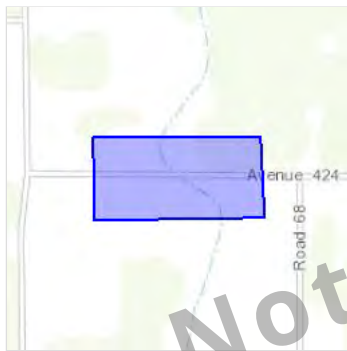
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Tulare County, California



Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📅 (916) 414-6713

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.

5. Click REQUEST SPECIES LIST.

Listed species¹ are managed by the [Endangered Species Program](#) of the U.S. Fish and Wildlife Service.

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.

The following species are potentially affected by activities in this location:

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Flowering Plants

NAME	STATUS
San Joaquin Adobe Sunburst <i>Pseudobahia peirsonii</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2931	Threatened
San Joaquin Orcutt Grass <i>Orcuttia inaequalis</i> There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/5506	Threatened

Mammals

NAME	STATUS
Fresno Kangaroo Rat <i>Dipodomys nitratoides exilis</i> There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/5150	Endangered
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered

Reptiles

NAME	STATUS
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Blunt-nosed Leopard Lizard <i>Gambelia silus</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/625	Endangered
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service³. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Conservation measures for birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Year-round bird occurrence data <http://www.birdscanada.org/birdmon/default/datasummaries.jsp>

The migratory birds species listed below are species of particular conservation concern (e.g. [Birds of Conservation Concern](#)) that may be potentially affected by activities in this location. It is not a list of every bird species you may find in this location, nor a guarantee that all of the bird species on this list will be found on or near this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the [AKN Histogram Tools](#) and [Other Bird Data Resources](#). To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

NAME	SEASON(S)
Allen's Hummingbird <i>Selasphorus sasin</i> https://ecos.fws.gov/ecp/species/9637	Migrating
Bald Eagle <i>Haliaeetus leucocephalus</i> https://ecos.fws.gov/ecp/species/1626	Wintering
Burrowing Owl <i>Athene cucularia</i> https://ecos.fws.gov/ecp/species/9737	Year-round
Calliope Hummingbird <i>Stellula calliope</i> https://ecos.fws.gov/ecp/species/9526	Migrating
Costa's Hummingbird <i>Calypte costae</i> https://ecos.fws.gov/ecp/species/9470	Year-round
Fox Sparrow <i>Passerella iliaca</i>	Wintering

Lewis's Woodpecker <i>Melanerpes lewis</i> https://ecos.fws.gov/ecp/species/9408	Wintering
Loggerhead Shrike <i>Lanius ludovicianus</i> https://ecos.fws.gov/ecp/species/8833	Year-round
Long-billed Curlew <i>Numenius americanus</i> https://ecos.fws.gov/ecp/species/5511	Wintering
Marbled Godwit <i>Limosa fedoa</i> https://ecos.fws.gov/ecp/species/9481	Wintering
Nuttall's Woodpecker <i>Picoides nuttallii</i> https://ecos.fws.gov/ecp/species/9410	Year-round
Oak Titmouse <i>Baeolophus inornatus</i> https://ecos.fws.gov/ecp/species/9656	Year-round
Peregrine Falcon <i>Falco peregrinus</i> https://ecos.fws.gov/ecp/species/8831	Wintering
Rufous Hummingbird <i>selasphorus rufus</i> https://ecos.fws.gov/ecp/species/8002	Migrating
Short-eared Owl <i>Asio flammeus</i> https://ecos.fws.gov/ecp/species/9295	Wintering
Swainson's Hawk <i>Buteo swainsoni</i> https://ecos.fws.gov/ecp/species/1098	Breeding
Western Grebe <i>aechmophorus occidentalis</i> https://ecos.fws.gov/ecp/species/6743	Wintering

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAA/NCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAA/NCCOS models: the models were developed as part of the NOAA/NCCOS project: [Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#). The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the [Northeast Ocean Data Portal](#), which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

The [Avian Knowledge Network \(AKN\)](#) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest, survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the [Migratory Bird Programs AKN Histogram Tools](#) webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA/NOAA/NOAA [Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project](#) webpage.

Facilities

Wildlife refuges

Any activity proposed on [National Wildlife Refuge](#) lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGES AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad (Reedley) OR Selma (3611955) OR Sanger (3611965) OR Wahtoke (3611964) OR Orange Cove North (3611963) OR Orange Cove South (3611953) OR Monson (3611943) OR Traver (3611944) OR Burris Park (3611945)

Table with 7 columns: Species, Element Code, Federal Status, State Status, Global Rank, State Rank, Rare Plant Rank/CDFW SSC or FP. Rows include species like Ambystoma californiense, Antrozous pallidus, Athene cunicularia, 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
<i>Helianthus winteri</i> Winter's sunflower	PDAST4N260	None	None	G1G2	S1S2	1B.2
<i>Imperata brevifolia</i> California satintail	PMPOA3D020	None	None	G4	S3	2B.1
<i>Lanius ludovicianus</i> loggerhead shrike	ABPBR01030	None	None	G4	S4	SSC
<i>Lasiurus cinereus</i> hoary bat	AMACC05030	None	None	G5	S4	
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
<i>Lithobates pipiens</i> northern leopard frog	AAABH01170	None	None	G5	S2	SSC
<i>Lytta molesta</i> molestan blister beetle	IICOL4C030	None	None	G2	S2	
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
<i>Orcuttia inaequalis</i> San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
<i>Pseudobahia peirsonii</i> San Joaquin adobe sunburst	PDAST7P030	Threatened	Endangered	G1	S1	1B.1
<i>Puccinellia simplex</i> California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
<i>Spea hammondi</i> western spadefoot	AAABF02020	None	None	G3	S3	SSC
<i>Talanites moodyae</i> Moody's gnaphosid spider	ILARA98020	None	None	G1G2	S1S2	
<i>Tuctoria greenei</i> Greene's tuctoria	PMPOA6N010	Endangered	Rare	G1	S1	1B.1
Valley Sacaton Grassland Valley Sacaton Grassland	CTT42120CA	None	None	G1	S1.1	
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2	S2	

Record Count: 35

Unprocessed CNDDDB Data - May 16, 217

Scientific_Name	Common_Name	Federal_Status	State_Status
Ambystoma californiense	California tiger salamander	Threatened	Threatened
Ambystoma californiense	California tiger salamander	Threatened	Threatened
Ambystoma californiense	California tiger salamander	Threatened	Threatened
Ambystoma californiense	California tiger salamander	Threatened	Threatened
Ambystoma californiense	California tiger salamander	Threatened	Threatened
Lithobates pipiens	northern leopard frog	None	None
Rana boylei	foothill yellow-legged frog	None	None
Rana draytonii	California red-legged frog	Threatened	None
Spea hammondi	western spadefoot	None	None
Spea hammondi	western spadefoot	None	None
Spea hammondi	western spadefoot	None	None
Spea hammondi	western spadefoot	None	None
Spea hammondi	western spadefoot	None	None
Talanites moodyae	Moody's gnaphosid spider	None	None
Talanites moodyae	Moody's gnaphosid spider	None	None
Buteo regalis	ferruginous hawk	None	None
Buteo swainsoni	Swainson's hawk	None	Threatened
Buteo swainsoni	Swainson's hawk	None	Threatened
Ardea alba	great egret	None	None
Ardea herodias	great blue heron	None	None
Ardea herodias	great blue heron	None	None
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threatened	Endangered
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threatened	Endangered
Agelaius tricolor	tricolored blackbird	None	Candidate Endangered
Agelaius tricolor	tricolored blackbird	None	Candidate Endangered
Agelaius tricolor	tricolored blackbird	None	Candidate Endangered
Lanius ludovicianus	loggerhead shrike	None	None
Athene cucularia	burrowing owl	None	None
Athene cucularia	burrowing owl	None	None
Athene cucularia	burrowing owl	None	None
Athene cucularia	burrowing owl	None	None
Athene cucularia	burrowing owl	None	None
Athene cucularia	burrowing owl	None	None
Branchinecta lynchi	vernal pool fairy shrimp	Threatened	None
Branchinecta lynchi	vernal pool fairy shrimp	Threatened	None
Branchinecta lynchi	vernal pool fairy shrimp	Threatened	None
Branchinecta lynchi	vernal pool fairy shrimp	Threatened	None
Branchinecta lynchi	vernal pool fairy shrimp	Threatened	None
Branchinecta lynchi	vernal pool fairy shrimp	Threatened	None
Branchinecta mesovallensis	midvalley fairy shrimp	None	None
Linderiella occidentalis	California linderiella	None	None
Linderiella occidentalis	California linderiella	None	None
Lepidurus packardii	vernal pool tadpole shrimp	Endangered	None
Lepidurus packardii	vernal pool tadpole shrimp	Endangered	None
Lepidurus packardii	vernal pool tadpole shrimp	Endangered	None
Lepidurus packardii	vernal pool tadpole shrimp	Endangered	None
Lepidurus packardii	vernal pool tadpole shrimp	Endangered	None
Bombus morrisoni	Morrison bumble bee	None	None
Bombus morrisoni	Morrison bumble bee	None	None
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Threatened	None
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Threatened	None

<i>Desmocercus californicus dimorphus</i>	valley elderberry longhorn beetle	Threatened	None
<i>Lytta molesta</i>	molestan blister beetle	None	None
<i>Lytta molesta</i>	molestan blister beetle	None	None
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	Endangered	Threatened
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	Endangered	Threatened
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	Endangered	Threatened
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	Endangered	Threatened
<i>Eumops perotis californicus</i>	western mastiff bat	None	None
<i>Eumops perotis californicus</i>	western mastiff bat	None	None
<i>Antrozous pallidus</i>	pallid bat	None	None
<i>Lasiurus cinereus</i>	hoary bat	None	None
<i>Lasiurus cinereus</i>	hoary bat	None	None
<i>Emys marmorata</i>	western pond turtle	None	None
<i>Emys marmorata</i>	western pond turtle	None	None
<i>Emys marmorata</i>	western pond turtle	None	None
Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	None	None
Northern Claypan Vernal Pool	Northern Claypan Vernal Pool	None	None
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	None	None
Valley Sacaton Grassland	Valley Sacaton Grassland	None	None
Valley Sacaton Grassland	Valley Sacaton Grassland	None	None
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	None	None
<i>Eryngium spinosepalum</i>	spiny-sepaled button-celery	None	None
<i>Eryngium spinosepalum</i>	spiny-sepaled button-celery	None	None
<i>Eryngium spinosepalum</i>	spiny-sepaled button-celery	None	None
<i>Eryngium spinosepalum</i>	spiny-sepaled button-celery	None	None
<i>Helianthus winteri</i>	Winter's sunflower	None	None
<i>Helianthus winteri</i>	Winter's sunflower	None	None
<i>Helianthus winteri</i>	Winter's sunflower	None	None
<i>Pseudobahia peirsonii</i>	San Joaquin adobe sunburst	Threatened	Endangered
<i>Pseudobahia peirsonii</i>	San Joaquin adobe sunburst	Threatened	Endangered
<i>Pseudobahia peirsonii</i>	San Joaquin adobe sunburst	Threatened	Endangered
<i>Atriplex cordulata</i> var. <i>erecticaulis</i>	Earlimart orache	None	None
<i>Atriplex depressa</i>	brittlescale	None	None
<i>Atriplex depressa</i>	brittlescale	None	None
<i>Atriplex minuscula</i>	lesser saltscale	None	None
<i>Convolvulus simulans</i>	small-flowered morning-glory	None	None
<i>Euphorbia hooveri</i>	Hoover's spurge	Threatened	None
<i>Hordeum intercedens</i>	vernal barley	None	None
<i>Imperata brevifolia</i>	California satintail	None	None
<i>Imperata brevifolia</i>	California satintail	None	None
<i>Orcuttia inaequalis</i>	San Joaquin Valley Orcutt grass	Threatened	Endangered
<i>Orcuttia inaequalis</i>	San Joaquin Valley Orcutt grass	Threatened	Endangered
<i>Orcuttia inaequalis</i>	San Joaquin Valley Orcutt grass	Threatened	Endangered
<i>Puccinellia simplex</i>	California alkali grass	None	None
<i>Tuctoria greenei</i>	Greene's tuctoria	Endangered	Rare
<i>Delphinium hansenii</i> ssp. <i>ewanianum</i>	Ewan's larkspur	None	None
<i>Delphinium recurvatum</i>	recurved larkspur	None	None

Appendix B

List of Species Observed During Field Surveys

Avenue 424 over Traver Canal - Species Observed July 26, 2016

Plants

Family	Scientific Name	Common Name	Native/Non-native/Invasive
Amaranthaceae	<i>Amaranthus palmeri</i>	Palmer's amaranth	native
Apocynaceae	<i>Nerium oleander</i>	oleander	non-native
Arecaceae	<i>Washingtonia</i> sp.	fan palm	unknown
Asteraceae	<i>Ambrosia acanthacarpa</i>	annual burrweed	native
Asteraceae	<i>Erigeron</i> sp.	horseweed	unknown
Asteraceae	<i>Erigeron canadensis</i>	Canada horseweed	native
Asteraceae	<i>Helianthus annuus</i>	common sunflower	native
Asteraceae	<i>Lactuca serriola</i>	prickly lettuce	non-native
Asteraceae	<i>Sonchus asper</i>	prickly sow thistle	non-native
Asteraceae	<i>Xanthium strumarium</i>	rough cocklebur	native
Chenopodiaceae	<i>Chenopodium murale</i>	nettle leaf goosefoot	non-native
Chenopodiaceae	<i>Salsola tragus</i>	prickly Russian thistle	non-native/invasive
Cyperaceae	<i>Cyperus eragrostis</i>	tall cyperus	native
Euphorbiaceae	<i>Euphorbia</i> sp.	sandmat	unknown
Euphorbiaceae	<i>Triadica sebifera</i>	Chinese tallowtree	non-native/invasive
Fabaceae	<i>Acmispon</i> sp.	lotus	unknown
Fabaceae	<i>Erythrina crista-galli</i>	coral tree	non-native
Fabaceae	<i>Robinia pseudoacacia</i>	black locust	non-native/invasive
Lythraceae	<i>Lagerstroemia indica</i>	Crapemyrtle	non-native
Malvaceae	<i>Malva neglecta</i>	common mallow	non-native
Meliaceae	<i>Melia azedarach</i>	chinaberry	non-native
Oleaceae	<i>Ligustrum</i> sp.	privet	non-native
Onagraceae	<i>Epilobium brachycarpum</i>	annual fireweed	native
Onagraceae	<i>Oenothera laciniata</i>	cutleaf evening primrose	non-native
Poaceae	<i>Echinochloa colona</i>	jungle rice	non-native
Poaceae	<i>Leptochloa fusca</i>	sprangletop	native
Poaceae	<i>Polypogon monspeliensis</i>	rabbitsfoot grass	non-native/invasive
Poaceae	<i>Sorghum</i> sp.	sorghum	non-native
Polygonaceae	<i>Persicaria lapathifolia</i>	common knotweed	native
Rosaceae	<i>Pyrus calleryana</i>	ornamental pear	non-native
Simaroubaceae	<i>Ailanthus altissima</i>	tree of heaven	non-native/invasive
Solanaceae	<i>Datura stramonium</i>	jimson weed	non-native
Ulmaceae	<i>Ulmus parvifolia</i>	Chinese elm	non-native
Verbenaceae	<i>Lantana</i> sp.	lantana	non-native
Zygophyllaceae	<i>Tribulus terrestris</i>	puncture vine	non-native

Wildlife

Family	Scientific Name	Common Name
Columbidae	<i>Zenaida macroura</i>	mourning dove
Coenagrionidae	<i>Enallagma</i> sp.	bluet (dragonfly)
Corvidae	<i>Aphelocoma californica</i>	western scrub jay
Corvidae	<i>Corvus brachyrhynchos</i>	American crow
Hirundinidae	<i>Petrochelidon pyrrhonota</i>	cliff swallow
Icteridae	<i>Icterus</i> sp.	oriole
Mimidae	<i>Mimus polyglottos</i>	mockingbird
Poeciliidae	<i>Gambusia affinis</i>	western mosquito fish
Ranidae	<i>Lithobates catesbeianus</i>	American bullfrog
Tyrannidae	<i>Sayornis nigricans</i>	black phoebe
Tyrannidae	<i>Tyrannus verticalis</i>	western kingbird

Appendix C

Photos of the BSA



Figure 1. Bridge and Canal, from west bank of canal, facing west



Figure 2. Avenue 424, west of bridge, facing west



Figure 3. Avenue 424, from east of bridge, facing west



Figure 4. Bridge and canal, upstream of the bridge, facing south



Figure 5. Canal, downstream of the bridge, facing south



Figure 6. Bridge, downstream, facing west



Figure 7. Bridge, downstream, facing east



Figure 8. Canal, upstream of bridge, facing northwest



Figure 9. Canal, upstream of bridge, facing east



Figure 10. Avenue 424, east of bridge, facing east



Figure 11. Access road, upstream of bridge on west bank of canal, facing southeast



Figure 12. Ornamental vegetation at residential property on west side of canal, facing southwest



Figure 13. Swallow nests under bridge, upstream side of bridge



Figure 14. Bluet (dragonfly) in canal, upstream of bridge

Appendix D

Special-Status Species and Communities with Potential to be in the Project Area

Special-Status Species and Natural Communities with Potential to be in the BSA

Common and Scientific Names	Status			General Habitat Description*	Habitat Present/ Absent	Rationale for Species Presence/Absence
	Federal USFWS	State CDFW	CNPS			
Plants						
<i>Atriplex cordulata</i> var. <i>ereticaulis</i> Earlimart orache	--	--	1B.2	The earlimart orache is an annual herb found in valley and foothill grassland. Typical blooming period: August to November Typical elevation: 131 to 328 feet	A	There is no suitable habitat in the BSA for this species. Therefore, this species is not expected to be within the BSA.
<i>Atriplex depressa</i> Brittlescale	--	--	1B.2	The brittlescale is an annual herb found in shadescale and chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools, alkali sink, and wetland-riparian habitats. This species grows in saline and alkali soils. Typical blooming period: April to October Typical elevation: Three to 1,050 feet	A	There is no suitable habitat in the BSA, and this species was not observed during the biological survey, which was conducted during the typical blooming period for this species. Therefore, this species is not expected to be within the BSA.
<i>Atriplex minuscula</i> Lesser saltscale	--	--	1B.1	The lesser saltscale is an annual herb found in chenopod scrub, playas, valley and foothill grassland, and alkali sink; occasionally found in wetlands and prefers sandy, alkaline soils. This species is only found in microhabitats that are not inundated year-round. This species grows with other halophytes, including brittlescale, heartscale, and	A	There is no suitable habitat in the BSA, and this species was not observed during the biological survey, which was conducted during the typical blooming period for this species. Therefore, this species is not expected to be within the BSA.

				seepweed (U.S. Fish and Wildlife Service, 1998). Typical blooming period: May to October Typical elevation: 49 to 656 feet		
<i>Convolvulus simulans</i> Small-flowered morning-glory	--	--	4.2	The small-flowered morning-glory is an annual herb found in chaparral openings, coastal scrub, and valley and foothill grassland. This species occurs on clay substrate or in serpentinite seeps. Typical blooming period: March to July Typical elevation: 98 to 2,427 feet	A	There is no suitable habitat in the BSA, and this species was not observed during the biological survey, which was conducted during the typical blooming period for this species. Therefore, this species is not expected to be in the BSA.
<i>Delphinium hansenii</i> <i>ssp. Ewanianum</i> Ewan's larkspur	--	--	4.2	The Ewan's larkspur is a perennial herb found in cismontane woodland and valley and foothill grassland. This species often occurs on rocky soils. Typical blooming period: March to May Typical elevation: 197 to 1,969 feet	A	There is no suitable habitat in the BSA. Therefore, this species is not expected to be in the BSA.
<i>Delphinium recurvatum</i> Recurved larkspur	--	--	1B.2	The recurved larkspur is a perennial herb found in shadescale and chenopod scrub, valley and foothill grassland, and cismontane and foothill woodland; occasionally found in wetlands. This species occurs on poorly drained alkaline soils. Typical blooming period: March to June	A	There is no suitable habitat in the BSA. Therefore, this species is not expected to be within the BSA.

				Typical elevation: 10 to 2,592 feet		
<i>Eryngium spinosepalum</i> Spiny-sepaled button-celery	--	--	1B.2	The spiny-sepaled button-celery is an annual/perennial herb found in vernal pools and valley and foothill grassland. This species may occur in some sites on clay soil of granitic origin. Typical blooming period: April to June Typical elevation: 262 to 837 feet	A	There is no suitable habitat in the BSA. Therefore, this species is not expected to be within the BSA.
<i>Euphorbia hooveri</i> Hoover's spurge	--	--	1B.2	The Hoover's spurge is an annual herb found in vernal pools on volcanic mudflow or clay substrate. Typical blooming period: July to October Typical elevation: 82 to 820 feet	A	There is no suitable habitat in the BSA, and this species was not observed during the biological survey, which was conducted during the typical blooming period for this species. Therefore, this species is not expected to be within the BSA.
<i>Helianthus winteri</i> Winter's sunflower	--	--	1B.2	The winter's sunflower is a perennial shrub that is found in cismontane woodland, and valley and foothill grassland on open, steep south-facing slopes, and on roadsides. Typical blooming period: January to December Typical elevation: 410 to 1,509 feet	A	There is no suitable habitat in the BSA, and this species was not observed during the biological survey, which was conducted during the typical blooming period for this species. Therefore, this species is not expected to be within the BSA.
<i>Hordeum intercedens</i> Vernal barley	--	--	3.2	The vernal barley is an annual grass that is found in coastal dune, coastal scrub, valley grassland, freshwater wetland, and wetland-riparian communities, and vernal pool habitats.	HP	There is suitable habitat in the BSA in the canal; however, no <i>Hordeum</i> species were observed in the BSA during project surveys. Although the bloom period for this species typically ends in June, it is likely that the seed of the plant would have still been present in July, and identifiable

				Typical blooming period: March to June Typical elevation: 16 to 3,281 feet		as <i>Hordeum</i> ; therefore, this species is not expected to be in the BSA.
<i>Imperata brevifolia</i> California satintail	--	--	2B.1	The California satintail is a perennial rhizomatous herb that is found in mesic habitats such as chaparral, coastal sage scrub, creosote bush scrub, Mojavean desert scrub, wetland-riparian, riparian scrub, and meadows (mostly alkali). Typical blooming period: September to May Typical elevation: Zero to 3,986 feet	A	There is no suitable habitat in the BSA. Therefore, this species is not expected to be within the BSA.
<i>Orcuttia inaequalis</i> San Joaquin Orcutt grass	FT	SE	1B.1	The San Joaquin Valley orcutt grass is an annual herb found in valley grassland, freshwater wetlands, wetland-riparian, and vernal pools. Typical blooming period: April to September Typical elevation: 33 to 2,477 feet	A	There is no suitable habitat in the BSA, and this species was not observed during the biological survey, which was conducted during the typical blooming period for this species. Therefore, this species is not expected to be within the BSA.
<i>Pseudobahia peirsonii</i> San Joaquin adobe sunburst	FT	SE	1B.1	The San Joaquin adobe sunburst is an annual herb found in adobe clay habitat such as cismontane woodland and valley and foothill grassland. Typical blooming period: February to April Typical elevation: 295 to 2,952 feet	A	There is no suitable habitat in the BSA. Therefore, this species is not expected to be within the BSA.
<i>Puccinellia simplex</i> California alkali grass	--	--	1B.2	The California alkali grass is an annual herb found in alkaline and vernal mesic habitats, such as chenopod scrub, meadows and	A	There is no suitable habitat in the BSA. Therefore, this species is not expected to be within the BSA.

				seeps, valley and foothill grassland, wetland-riparian, and vernal pools. This species is often found in lake margins and flats. Typical blooming period: March to May Typical elevation: Seven to 3,051 feet		
<i>Sagittaria sanfordii</i> Sanford's arrowhead	--	--	1B.2	The Sanford's arrowhead is a perennial herb that occurs in freshwater marshes, swamps, and wetlands. Typical blooming period: May to October Typical elevation: Zero to 2132 feet	A	There is no suitable habitat in the BSA, and this species was not observed during the biological survey, which was conducted during the typical blooming period for this species. Therefore, this species is not expected to be within the BSA.
<i>Tuctoria greenei</i> Greene's tuctoria	FE	--	1B.1	The Greene's tuctoria is an annual herb occurring in vernal pools, valley grassland, freshwater wetlands, and wetland riparian habitats. Typical blooming period: May to September Typical elevation: 98 to 3,510 feet	A	There is no suitable habitat in the BSA, and this species was not observed during the biological survey, which was conducted during the typical blooming period for this species. Therefore, this species is not expected to be within the BSA.
Invertebrates						
<i>Bombus morrisoni</i> Morrison bumble bee	--		S1S2	The Morrison bumble bee is found from the Sierra-Cascades ranges eastward across the intermountain west. Food plant genera for this species include <i>Cirsium</i> , <i>Cleome</i> , <i>Helianthus</i> , <i>Lupinus</i> , <i>Chrysothamnus</i> , and <i>Melilotus</i> .	HP	This species' food plant genera were observed within the BSA (<i>Helianthus</i>). In addition, there is a recorded CNDDDB occurrence of this species approximately one mile from the BSA. Therefore, this species has potential to be within the BSA.
<i>Desmocerus californicus dimorphus</i>	FT		S2	The valley elderberry longhorn beetle (VELB) is found only in the Central	A	There are no elderberry shrubs in the BSA. Therefore, this species is

Valley elderberry longhorn beetle			Valley of California, in association with blue elderberry (<i>Sambucus mexicana</i>). This species prefers to lay eggs in elderberries two to eight inches in diameter; some preference is shown for "stressed" elderberries. As of September 17, 2014, Tulare County is no longer considered by the USFWS to be within the range of the VELB.		not expected to be in the BSA.
<i>Lytta molesta</i> Molestan blister beetle	--	S2	The molestan blister beetle inhabits the Central Valley of California, from Contra Costa to Kern and Tulare counties. This species is usually associated with vernal pools. They have been observed feeding on the flowers and seed pods of the genera <i>Lupinus</i> , <i>Trifolium wormskioldii</i> , and <i>Erodium</i> .	A	There are no vernal pools or grasslands in the BSA, and none of the known food plant genera were observed within the BSA. Therefore, this species is not expected to be within the BSA.
<i>Talanites moodyae</i> Moody's gnaphosid spider	--	S1S2	The Moody's gnaphosid spider is located in Fresno and Tulare counties. It occurs in grassland, under granite and serpentine, and in hills.	A	There is no suitable habitat in the BSA. Therefore, this species is not expected to be within in the BSA.
Crustaceans					
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT	S3	The vernal pool fairy shrimp is endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, and is found in astatic rain-filled pools. This species is found in small, clear-water sandstone-depression pools and grassy swales, earth slumps, or basalt-flow depression pools.	A	There is no suitable habitat in the BSA. This species requires vernal pools, depression pools, or earth slumps, which are not present within the BSA. Therefore, this species is not expected to be within the BSA.

<i>Branchinecta mesovallensis</i> Midvalley fairy shrimp	--	S2S3	The midvalley fairy shrimp is found in vernal pools in the Central Valley.	A	There is no suitable habitat in the BSA. This species requires vernal pools, which are not present within the BSA. Therefore, this species is not expected to be within the BSA.
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE	S3S4	The vernal pool tadpole shrimp inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. This species occurs in pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	A	There is no suitable habitat in the BSA. This species requires vernal pools or swales, which are not present within the BSA. Therefore, this species is not expected to be within the BSA.
<i>Linderiella occidentalis</i> California linderiella	--	S2S3	The California linderiella is found in seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. This species is found in pools with water of very low alkalinity, conductivity, and total dissolved solids.	A	There is no suitable habitat in the BSA. This species requires seasonal (vernal) pools, which are not present in the BSA. Therefore, this species is not expected to be in the BSA.
Fish					
<i>Hypomesus transpacificus</i> Delta smelt	FT	SE	The Delta smelt is found in the Sacramento-San Joaquin Delta. This species occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. The Delta smelt is most often found at salinities of less than two parts per thousand (ppt) and seldom at salinities greater than 10 ppt.	A	There is no suitable habitat in the BSA. Traver Canal is a heavily hydrologically managed irrigation canal with periodic intermittent flows. The water is likely too warm during the summer months and degraded from surrounding urban and agricultural runoff. There are also upstream and downstream fish passage barriers, and the BSA is not in the known extant range for this species (University of California at Davis Center for Watershed Diversity, 2013). Therefore, this species is not expected to be in the

					BSA.
Amphibians					
<i>Ambystoma californiense</i> California tiger salamander	FT	S2S3	The California tiger salamander Central Valley Distinct population segment (DPS) is federally listed as threatened. California tiger salamanders require underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	A	There is no suitable habitat in the BSA. Traver Canal flows are irregular, with higher flows in the summer and lower flows in the winter. The canal is also dry at certain times of the year, and has limited vegetation for refuge. In addition, there are limited burrows (no mammal burrows) were observed during surveys. Furthermore, the BSA is heavily maintained agricultural and urban area. Therefore, this species is not expected to be within the BSA.
<i>Lithobates pipiens</i> Northern leopard frog	--	SSC	The native range of the northern leopard frog is east of the Sierra Nevada-Cascade Crest. This species occurs near permanent or semi-permanent water in a variety of habitats. The northern leopard frog is a highly aquatic species. Shoreline cover, submerged and emergent aquatic vegetation are important habitat characteristics.	A	There is no suitable habitat in the BSA. Traver Canal does have near permanent water, but there is little vegetation along or in the canal. Therefore, this species is not expected to be within the BSA.
<i>Rana boylei</i> Foothill yellow-legged frog	--	SSC	The foothill yellow-legged frog is found in the coastal range and flanking the western side of the Sierra Nevada range in or near rocky streams in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow	A	There is no suitable habitat in the BSA. This species is not often found on the valley floor, and the BSA does not contain any of the communities typically associated with this species. In addition, the canal is not rocky. Therefore, this species is not expected to be within the BSA.

			types.		
<i>Rana draytonii</i> California red-legged frog	FT	SSC	The California red-legged frog occurs from sea level to elevations of about 5,200 feet. It has been extirpated from 70 percent of its former range and now is found primarily in coastal drainages of central California, from Marin County, California, south to northern Baja California, Mexico. Potential threats to the species include elimination or degradation of habitat from land development and land use activities and habitat invasion by non-native aquatic species.	A	There is no suitable habitat in the BSA. Traver Canal flows are irregular, with higher flows in the summer and lower flows in the winter. There is limited vegetation for foraging and refugia. In addition, the project area is outside of the known extant range of this species. Therefore, this species is not expected to be within the BSA.
<i>Spea hammondi</i> Western spadefoot toad	--	SSC	The western spadefoot is found in open areas with sandy or gravelly soils in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, foothills, and mountains. This species breeds and lays eggs almost exclusively in shallow, temporary pools, formed by heavy winter rains. The pool must not contain bullfrogs, fish, or crayfish. Egg masses are attached to plant material or the upper surfaces of submerged rocks. Adults remain in underground burrows during most of the year, but will travel up to several meters on rainy nights.	A	There is no suitable habitat in the BSA. Mammal burrows are necessary for refuge, and were not observed in the BSA during surveys. In addition, shallow pools are needed for breeding which were not observed during surveys. Therefore, this species is not expected to be within the BSA.
Reptiles					
<i>Emys marmorata</i> Western pond turtle	--	SSC	The western pond turtle is found in slow moving rivers, streams, lakes, ponds, wetlands, reservoirs, and	A	There is no suitable habitat in the BSA. The BSA has been modified by years of agricultural and water

			brackish estuarine waters. This species prefers areas that provide logs, algae, or vegetation for cover, and boulders for basking, and is found below 6,000 feet elevation. The western pond turtle requires well vegetated upland refuge sites to escape predators or high water levels. Nesting habitat for this species is generally along south-facing slopes in five to 100 meters of water.		conveyance practices. Traver Canal flows are irregular. Inundation is high in the summer and low in the winter. In addition, there is very little vegetation that would provide cover and no edges along the drainage for basking. Therefore, this species is not expected to be within the BSA.
<i>Gambelia silus</i> Blunt-nosed leopard lizard	FE	SE/FP	The blunt-nosed leopard lizard frequents grasslands, alkali meadows, and chenopod scrub, in areas of low topographic relief. This species seeks cover in mammal burrows, under shrubs or structures such as fence posts; they do not excavate their own burrows.	A	There is no suitable habitat BSA. The canal banks are compacted and limited mammal burrows were observed during surveys. Therefore, this species is not expected to be within the BSA.
<i>Thamnophis gigas</i> Giant garter snake	FT	ST	The giant garter snake requires summer aquatic habitat for foraging, bankside basking areas with nearby emergent vegetation for cover and thermal regulation, and places upland where it can hide for extended periods of inactivity. They prefer perennial wetlands, but can be in freshwater marsh, low gradient streams, and has adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	A	There is no suitable habitat in the BSA for this species. In addition, the Traver Canal is hydrologically controlled upstream and downstream of the BSA, and the BSA is outside of the known extant range of this species. Therefore, this species is not expected to be within the BSA.
Birds					
<i>Agelaius tricolor</i> Tricolored blackbird	--	Candidate Threatened SSC	The tricolored blackbird is a highly colonial species that is found in freshwater marshes dominated by cattails and bulrushes. This species	A	There is no suitable habitat in the BSA. There is only minimal vegetation within the Traver Canal. Therefore, this species is not

			is most numerous in the Central Valley and vicinity where it forages in fields and farms. The tricolored blackbird requires open water, protected nesting substrate, and foraging areas with insect prey in one mile of the colony.		expected to be in the BSA.
<i>Ardea alba</i> Great Egret	--	S4	The great egret is found in brackish marsh, estuary, freshwater marsh, riparian forests, and wetlands. This species nests colonially in large trees. The rookery sites are located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes. The great egret feeds mainly on small fish, but will also eat amphibians, reptiles, small mammals, and invertebrates.	HP (Foraging)	There is no suitable nesting habitat in the BSA; however, there is suitable foraging habitat. Therefore, this species has potential to forage in the BSA, but is not expected to nest in the BSA.
<i>Ardea Herodias</i> Great blue heron	--	S4	The great blue heron nests colonially in tall trees, cliff sides, and sequestered spots on marshes. This species forages in marshes, lake margins, tide flats, rivers, streams, and wet meadows. The rookery sites are in close proximity to foraging areas.	HP (Foraging)	There is no suitable nesting habitat in the BSA; however, there is suitable foraging habitat. Therefore, this species has potential to forage in the BSA, but is not expected to nest in the BSA.
<i>Athene cunicularia</i> Burrowing owl	--	SSC	The burrowing owl is found in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. This species is a subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel. Common in disturbed areas, including roadsides, and may develop burrows in debris piles.	HP	There is suitable habitat in the BSA. However, no burrows or burrowing owls were observed during the biological survey. The nearest CNDDDB occurrence of this species is approximately 1.5 miles south of the BSA. Therefore, this species has potential to be within the BSA.

<i>Buteo regalis</i> Ferruginus hawk		WL	The ferruginous hawk is found in open country and breeds in grasslands, sagebrush country, saltbrush-greasewood shrublands, and edges of pinyon-juniper forests at low to moderate elevations. This species avoids areas of intensive agriculture, urban, and suburban development and nests on cliffs, outcrops, and in tree groves. The ferruginous hawk eats mostly lagomorphs, ground squirrels, and mice.	A	There is no suitable habitat in the BSA. This species avoids areas of heavy agricultural use and development and no nesting habitat is present in the BSA for this species. Therefore, this species is not expected to be in the BSA.
<i>Buteo swainsoni</i> Swainson's hawk	--	S3	The Swainson's hawk forages in prairies, grasslands, and agricultural fields that support rodent populations. This species nests in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees.	HP (Nesting and Foraging)	There is suitable habitat in the BSA. Therefore, there is potential for this species to be within the BSA.
<i>Coccyzus americanus occidentalis</i> Western yellow-billed cuckoo	FT	S1	The Western yellow-billed cuckoo breeds in large blocks, or contiguous areas of riparian habitat, primarily cottonwood-willow riparian woodlands. Optimum patches are greater than 200 acres in size and wider than 1,950 feet. Sites smaller than 50 to 100 acres in size and 325 to 65 feet wide are not suitable. This species forages on caterpillars and large insects, and occasionally on small lizards, frogs, eggs, and young birds.	A	There is no suitable habitat in the BSA. Therefore, this species is not expected to within the BSA.
<i>Lanius ludovicianus</i> Loggerhead shrike	--	SSC	The loggerhead shrike is found in semi-open country with scattered shrubs, trees, posts, fences, utility lines, or other perches. This species	HP (Nesting and Foraging)	There is suitable habitat in the BSA. Therefore, there is potential for this species to be within the BSA.

			builds nests in dense and often thorny trees or shrubs usually five to 30 feet above the ground. In the absence of trees or shrubs, they sometimes nest in brush piles or tumbleweeds. The loggerhead shrike eats insects and other arthropods, amphibians, reptiles, small mammals, and birds.		
Mammals					
<i>Antrozous pallidus</i> Pallid bat	--	SSC	The pallid bat is found in arid locations in rocky, mountainous areas near water or open, sparsely vegetated grasslands. Day roosts are in caves, crevices, mines, and occasionally in hollow trees, buildings, and bridges. Roost must protect bats from high temperatures. Bats move deeper into cover if temperatures rise. Night roosts may be in more open sites, such as porches and open buildings. The pallid bat is highly sensitive to disturbance.	HP	There is suitable habitat in the BSA. Existing trees in the BSA could provide suitable roosting habitat. The bridge clearance is likely too low for bats to roost on this structure, unless there are periods when water is absent. However, there are a number of swallow nests on the bridge that could be used for roosting. No bats or their sign were observed in the BSA during biological surveys; however, this species has potential to be in the BSA.
<i>Dipodomys nitratoides exilis</i> Fresno kangaroo rat	FE	SE	The Fresno kangaroo rat is found in alkali sink-open grassland, chenopod scrub, and alkali sink habitats in western Fresno County. This species prefers areas of bare alkaline clay-based soils subject to seasonal inundation, with more friable soil mounds around shrubs and grasses.	A	There is no suitable habitat in the BSA. There were no mammal burrows observed during surveys. Therefore, this species is not expected to be within the BSA.
<i>Eumops perotis californicus</i> Western mastiff bat	--	SSC	The western mastiff bat is a cliff dwelling species that generally roosts under rock slabs or crevices in large boulders or buildings. This species is not known to roost in bridges, although some potential exists. This species forages in dry desert	A	There is no suitable habitat in the BSA. This species is typically not found in bridges or trees, and the bridge would provide limited habitat. No bats or their sign were observed in the BSA during biological surveys; therefore, this species is not

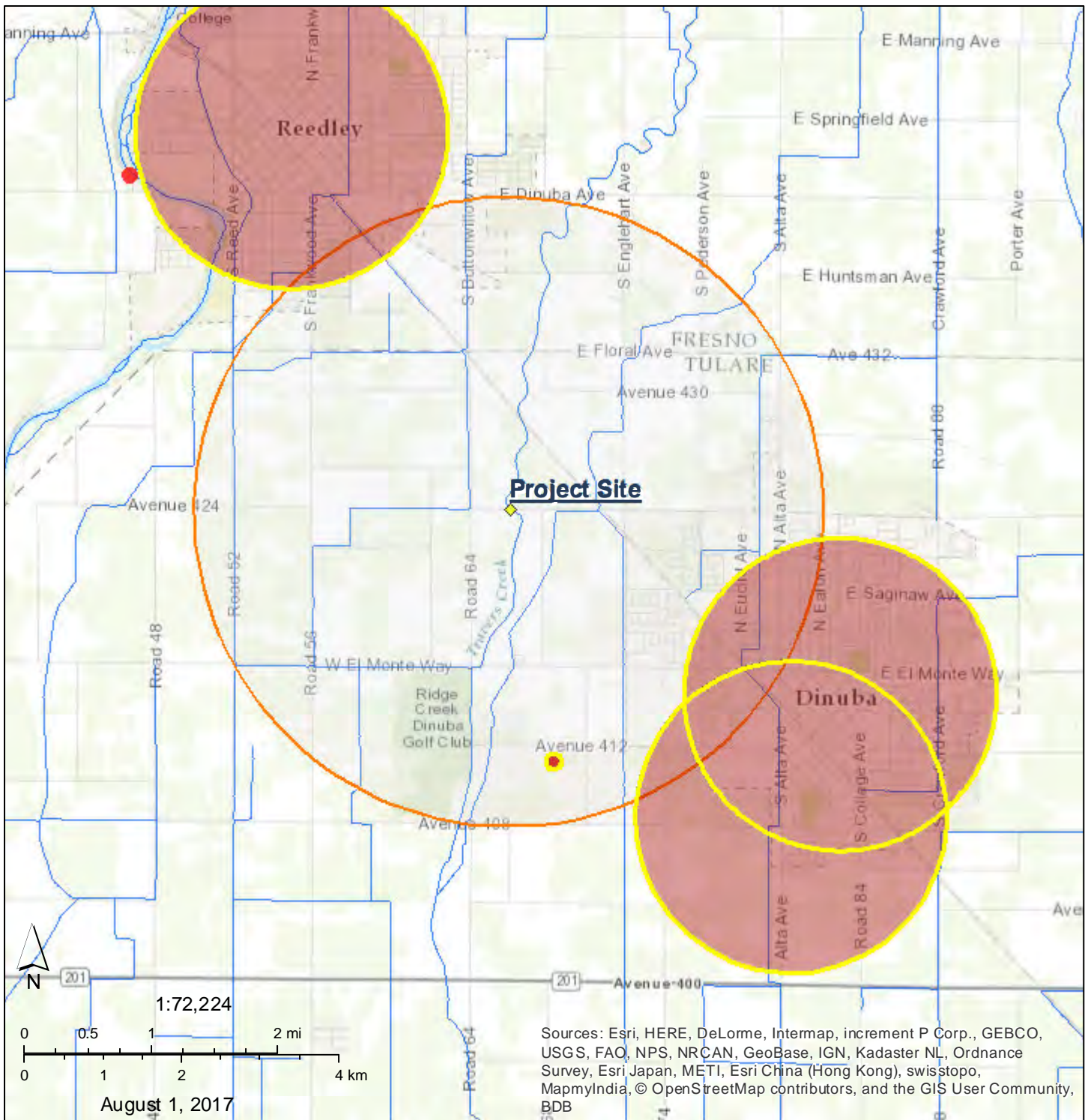
			washes, flood plains, chaparral, oak woodland, grassland, agricultural, and urban areas. Roosts typically provide a vertical drop to allow individuals to drop into flight.		expected to be in the BSA.
<i>Lasiurus cinereus</i> Hoary bat	--	S4	The hoary bat prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosting in dense foliage of medium to large trees, this species feeds primarily on moths and requires water.	HP	There is suitable habitat in the BSA. Trees could provide suitable roosting habitat. No bats or their sign were observed in the BSA during biological surveys; however, this species has potential to be in the BSA.
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE	S2	The San Joaquin kit fox is found in annual grasslands or grassy open stages with scattered shrubby vegetation. This species requires loose-textured sandy soils for burrowing, and suitable prey base.	A	There is no suitable habitat in the BSA. There is no grassland in the BSA, and areas within the BSA are routinely disturbed by agricultural and farming practices. In addition, no mammal burrows were observed during surveys. Therefore, this species is not expected to be within the BSA.
Natural Communities					
Great Valley Mixed Riparian Forest	S2.2 = threatened (2,000 to 10,000 acres)		Great Valley Mixed Riparian Forest consists of winter-deciduous riparian forest. The forest is tall, thick, and species-dense. It often contains lianas. These forests are commonly found in locations containing alluvium and flooding, and at elevations lower than 500 feet.	A	There is no riparian forest within the BSA. Therefore, this natural community is absent from the BSA.
Northern Claypan Vernal Pool	S1.1 = very threatened (less than 2,000 acres)		Northern Claypan Vernal Pools are shallow, temporary bodies of water. They normally dry up in the summer. They are found in grasslands and open woodlands across California's northern Central Valley region. These vernal pools typically have	A	There are no vernal pools present in the BSA. Therefore, this natural community is absent from the BSA.

		soils that are alkaline or saline wetlands.		
Northern Hardpan Vernal Pool	S3.1 = very threatened (10,000 to 50,000 acres)	Northern Hardpan Vernal Pool is found in California's Central Valley, among acidic soils and soils containing iron and silica. These vernal pools are located in alluvial areas. Plants found in this community are wetland plants that have short inundation seasons.	A	There are no vernal pools present in the BSA. Therefore, this natural community is absent from the BSA.
Valley Sacaton Grassland	S1.1 = very threatened (less than 2,000 acres)	Valley Sacaton Grassland is grassland that forms tussocks of midheight. Soils are alkaline and poorly drained. This community is flooded in the winter.	A	There are no grasslands present in the BSA. Therefore, this natural community is absent from the BSA.

Table Key: Absent [A] – The plant species/vegetation community or habitat requirements were not observed in the BSA during the biological survey. Habitat Present [HP] – There is habitat present within the BSA. Status: Federal Endangered (FE); Federal Threatened (FT); State Endangered (SE); State Threatened (ST); Fully Protected (FP); Federally Delisted (FD); Watch List (WL); State Species of Special Concern (SSC); California Native Plant Society (CNPS), etc. 1A = Plants presumed extirpated in California and either rare, or extinct elsewhere; 1B= Plant species that are rare, threatened, or endangered in California and elsewhere; 2B= Plant species that are rare, threatened, or endangered in California, but are more common elsewhere; 3= Plants about which we need more information; 4 = Plants of limited distribution; 0.1=seriously threatened in California; 0.2 = moderately threatened in California; 0.3 = Not very threatened in California; S1 = critically imperiled, less than 1,000 individuals; S2 = imperiled, 1,000 to 3,000 individuals; S3 = vulnerable, 3,000 to 10,000 individuals; S4 = apparently secure within California, there is narrow habitat.

**Information for the habitat requirements was obtained from CNPS Rare and Endangered Plant Inventory, developed and maintained by the CNPS Rare Plant Program; the California Natural Diversity Database species habitat descriptions, updated and maintained by the CDFW. California Herps online database; California Department of Fish and Wildlife Species Accounts; The IUCN Red List of Threatened Species; Cornell Lab of Ornithology All About Birds; Audubon Guide to North American Birds; and Preliminary Descriptions of the Terrestrial Natural Communities of California by Robert F. Holland (1986) were consulted during preparation of the species table and are listed in the references.*

Ave 424 over Traver Canal



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community, BDB

California Natural Diversity Database (CNDDDB) Government [ds45]

- | | | | | | |
|--|-----------------------|--|----------------------------------|--|------------------------------|
| | Plant (80m) | | Animal (circular) | | Aquatic Comm. (non-specific) |
| | Plant (specific) | | Terrestrial Comm. (80m) | | Aquatic Comm. (circular) |
| | Plant (non-specific) | | Terrestrial Comm. (specific) | | Multiple (80m) |
| | Plant (circular) | | Terrestrial Comm. (non-specific) | | Multiple (specific) |
| | Animal (80m) | | Terrestrial Comm. (circular) | | Multiple (non-specific) |
| | Animal (specific) | | Aquatic Comm. (80m) | | Multiple (circular) |
| | Animal (non-specific) | | Aquatic Comm. (specific) | | |

**ATTACHMENT “E”
CULTURAL AND HISTORICAL RESOURCES**

Archaeological Survey Report

ARCHAEOLOGICAL SURVEY REPORT

Replacement of Bridge 46C0219 over Traver Canal on Avenue 424, Tulare, California

BRLO-5946(112)

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May 2017

SUMMARY OF FINDINGS

The County of Tulare (County) Resource Management Agency, under the Federal State Transportation Improvement Program as administered through the California Department of Transportation (Caltrans), plans to replace the existing Avenue 424 Traver Canal Bridge (Bridge 46C0219), approximately 0.25 mile east of Road 64 on Avenue 424 in eastern Tulare County. Caltrans is the lead agency responsible for compliance with the National Environmental Policy Act of 1969 and Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and associated implementing regulations at Title 36, Code of Federal Regulations, Part 800. The County retained Applied EarthWorks, Inc. (Æ) to perform the cultural resource identification tasks necessary for compliance with Section 106 of the NHPA.

The current investigation included: (1) a records search at the Southern San Joaquin Valley Information Center of the California Historical Resources Information System; (2) Native American consultation; (3) historical background research of the project area; and (4) pedestrian survey of a 1.23-acre Area of Potential Effects (APE) surrounding the existing bridge to identify archaeological resources.

The records search revealed that there has been one previous cultural resource study within a 0.5-mile radius of the APE. There have been no previous studies within the APE, and no cultural resources have been documented within the APE or within the 0.5-mile records search radius. Æ's pedestrian survey on March 27, 2017, did not identify any prehistoric or historic-era archaeological sites within the APE. Bridge 46C0219, constructed in 1925, is listed in the Caltrans Historic Bridge Inventory as Category 5 and has been determined not eligible for listing in the National Register of Historic Places.

It is Caltrans' policy to avoid cultural resources whenever possible. If buried cultural materials are encountered during construction, it is Caltrans' policy that work stop in that area until a qualified archaeologist can evaluate the nature and significance of the find. Additional survey will be required if the APE changes to include areas not previously surveyed.

ARCHAEOLOGICAL SURVEY REPORT

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ARCHAEOLOGICAL SURVEY REPORT

1 INTRODUCTION

The County of Tulare (County) Resource Management Agency, under the Federal State Transportation Improvement Program (FSTIP) as administered through the California Department of Transportation (Caltrans), plans to replace the existing Avenue 424 Traver Canal Bridge (Bridge 46C0219) approximately 0.25 mile east of Road 64 on Avenue 424 in eastern Tulare County, California (see Maps 1 and 2 in Appendix A). In a recent Bridge Inspection Report, Caltrans determined that the bridge is structurally deficient and functionally obsolete due to the narrow bridge deck and nonconforming bridge guardrails, and needs to be replaced with a wider bridge that meets current standards.

FSTIP funds for the project will be administered through Caltrans District 6 (BRLO-5946[112]). Because the Project involves federal funding, it is subject to the cultural resources provisions of the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA), as implemented through the January 1, 2014, *First Amended Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance With Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (FHWA Section 106 PA). This statute mandates that government agencies consider the effects of their actions on historic properties (i.e., archaeological or built-environment resources that are eligible for inclusion in the National Register of Historic Places [National Register] per 36 CFR 800.16[1]). Caltrans is the lead agency responsible for compliance with the NEPA and Section 106 of the NHPA.

On behalf of the County, Applied EarthWorks, Inc. (Æ) requested a records search from the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System and reviewed the results; (2) initiated Native American consultation; (3) conducted historical background research on the project vicinity; and (4) performed an archaeological survey of the Project Area of Potential Effects (APE). These investigations were conducted in accordance with the guidelines for identification of cultural resources provided in *Caltrans Standard Environmental Reference, Vol. 2: Cultural*, available online at <http://www.dot.ca.gov/ser/vol2/vol2.htm>.

Æ Staff Archaeologist Ernest Wingate conducted the survey on March 27, 2017. He has a bachelor's degree in anthropology (2003) and 8 years experience in California archaeology. Æ Principal Archaeologist Mary Clark Baloian served as project manager and provided technical oversight for the project. She holds a doctoral degree in anthropology (2003) and is a Registered Professional Archaeologist with more than 25 years of experience in California archaeology.

2 PROJECT DESCRIPTION AND LOCATION

Bridge 46C0219 is in Caltrans District 6 within Tulare County (Map 1). The Project is in Township 16 South, Range 23 East, Section 1 and 12 as depicted on the U.S. Geological Survey (USGS) 1966 Reedley 7.5-minute quadrangle (Map 2). Bridge 46C0219 carries Avenue 424 over

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the Traver Canal (Map 3). Avenue 424 is a two-lane paved road approximately 0.25 mile east of Road 64 in rural Tulare County (Figure 1), approximately 2 miles northeast of Dinuba.



Figure 1 Project area, facing east from the western edge of the APE, showing Avenue 424 (paved).

The existing bridge structure is a reinforced concrete slab on reinforced concrete abutments/piers, with two 29-foot spans. The existing bridge is approximately 60 feet long by 23 feet wide and includes two 10-foot-wide traffic lanes (one in each direction) over the Traver Canal. The County proposes to provide a wider and longer two-lane structure with guardrails. The proposed bridge structure is a cast-in-place reinforced concrete flat slab bridge with two 35-foot spans. It would be approximately 70 feet long by 35.5 feet wide (32 feet curb to curb). The bridge would retain two traffic lanes (one in each direction); however, the lane widths would be increased to 12 feet and would include 4-foot-wide shoulders on both sides. The bridge would taper from 32 feet at the bridge to match the existing 19-foot approach roadways. The project also includes improvements to existing driveway alignments on parcels adjacent to the project area, including parcels at the northeast, northwest, and southwest quadrants of the bridge. The project may include improvements to the approach roadways approximately 400 feet east and 400 feet west of the existing bridge.

Ground disturbance will include road cut and fill and excavation to a maximum depth of 10 feet. The existing bridge would be removed from within the channel, and new bridge foundations/abutments would be constructed within the channel and existing approaches. Additional disturbances are anticipated in association with equipment staging areas and disposal/borrow sites. During initiation of construction, a temporary access road would be graded

on the north and south sides of the existing bridge to create access for construction equipment to enter the channel. The project may require pile driving depending on project design.

The APE has been determined by reviewing the direct impacts of construction work, including demolishing the existing bridge and establishing staging areas and temporary access roads, as a 1.23-acre area that includes the current bridge and areas directly adjacent to the road and stream channel surrounding the bridge (Map 3). There is also the potential to affect resources below the surface through excavation and pile driving during construction of the new bridge. The depth of disturbance, which has been determined to be a maximum of 10 feet for demolition, roadwork, and bridge construction, may extend up to 80 feet for pile driving; these subsurface areas are included in the APE.

3 SOURCES CONSULTED

3.1 RECORDS SEARCH

On August 24, 2016, the staff of the SSJVIC at California State University, Bakersfield performed a search of the California Historical Resources Information System (CHRIS), which encompassed the Project APE and a 0.5-mile radius surrounding the APE (RS# 16-328; Appendix B). SSJVIC staff also examined the California Office of Historic Preservation's Historic Properties Directory, Archaeological Determinations of Eligibility, and the California Inventory of Historic Resources (1976).

The records search indicated that no resources have been recorded within the APE or within 0.5 mile of the APE. There has been one previous cultural resource study within 0.5 mile of the APE. This study examined Avenue 424 from Road 64 to Road 88; no cultural resources were identified (Cantwell 1978). No prior cultural resource studies have occurred within the APE.

Æ consulted the Caltrans Historic Bridge Inventory for information regarding Bridge 46C0219 over Traver Canal. The bridge was constructed in 1925; it has been evaluated as Category 5, not eligible for the National Register (Appendix B).

3.2 ARCHIVAL RESEARCH

The purpose of archival research for archaeological studies is to provide information regarding the potential for historical deposits to exist within the APE. This investigation compiled information from several sources, including:

- Map Aerial Locator Tool (MALT) of the Henry Madden Library at California State University, Fresno (<http://malt.lib.csufresno.edu/MALT/>);
- Various online resources for historical maps and documents; and
- Æ's in-house library, which includes local histories.

Æ consulted several historical topographic maps and aerial photographs. The USGS 1966 Reedley 15-minute quadrangle depicts existing Bridge 46C0219 and Avenue 424 in their current

ARCHAEOLOGICAL SURVEY REPORT

locations; no buildings or other structures appear within the APE (U.S. Geological Survey [USGS] 1966); however, several farmhouses are depicted nearby.

Aerial photographs from 1937, 1946, 1950, and 1957 show the existing Bridge 46C0219 and Avenue 424 in their current locations; there is no evidence of structures or development within the APE.

3.3 NATIVE AMERICAN CONSULTATION

Æ sent an e-mail to the Native American Heritage Commission (NAHC) requesting a search of their Sacred Lands File and the contact information for local Native American representatives who may have information about the area or an interest in the project. The NAHC responded on August 12, 2016, stating that it did not identify any sacred sites within or adjacent to the APE (Appendix C). The commission cautioned that its Sacred Lands Inventory is not exhaustive and the absence of recorded sites does not preclude the discovery of cultural resources during project activities. The NAHC provided the names and contact information for six Native American tribal representatives or individuals who may have an interest in the Project. On September 2, 2016, Æ sent a letter to each contact describing the Project, including a map of its location, and requesting information about the study area. On October 11, 2016, approximately 5 weeks after the initial correspondence, Æ attempted follow-up contact with the representatives by telephone, e-mail, or both.

Æ received two responses to its request for information. Table Mountain Rancheria Cultural Resources Director Robert Pennell responded by mail on September 12, 2016, noting that the project is beyond their area of interest. Kerri Vera of the Tule River Tribal Council responded via e-mail on October 11, 2016 that they did not have any information to add; however, they are interested in receiving the results of the pedestrian survey. Æ will forward any further communication with Native American representatives to the County of Tulare.

As lead agency under CEQA, the County extended an invitation to consult to five Native American representatives from six different tribal entities identified on the NAHC consultation list of tribes with traditional lands or cultural places within the boundaries of the Tulare County. Letters were sent March 17, 2017 via U.S. certified mail (Appendix C). The County's AB 52 consultation is in progress and has not been concluded to date.

4 BACKGROUND

4.1 ENVIRONMENT

The Project area lies on the eastern periphery of the San Joaquin Valley near the base of the Sierra Nevada foothills, east of the King's River. The San Joaquin Valley is the southern half of an elongated trough called the Great Valley, a 50-mile-wide lowland that extends approximately 500 miles south from the Cascade Range to the Tehachapi Mountains (Norris and Webb 1990:412). The San Joaquin Valley parallels the 400-mile stretch of the Sierra Nevada geomorphic province, which encompasses a 40- to 100-mile-wide area ranging in elevation from 400 feet above mean sea level (amsl) along the western boundary to more than 14,000 feet amsl in the east (Norris and Webb 1990:63).

Between the Mesozoic and Cenozoic eras, the Great Valley served as a shallow marine embayment containing numerous lakes, primarily within the San Joaquin Valley (Norris and Webb 1990:412). As a result, the upper levels of the Great Valley floor are composed of alluvium and flood materials. Below these strata are layers of marine and nonmarine rocks, including claystone, sandstone, shale, basalt, andesite, and serpentine. Waters began to diminish about 10 million years ago, eventually dwindling to the drainages, tributaries, and small lakes that exist today (Hill 1984:28). Playas, remnants of the extinct lakes, are currently used for agricultural activities in the valley (Norris and Webb 1990:431).

The San Joaquin River is the prominent hydrologic feature that drains the southern half of the Great Valley into San Francisco Bay. The tall, steep peaks of the Sierra Nevada effectively block moisture moving eastward from the coast, resulting in a higher level of precipitation on the western slopes. Smaller east-west-trending rivers, like the Kings River near the Project area, drain the Sierra Nevada range before converging on the San Joaquin River. The Kings River and its smaller tributaries would have provided habitat for an abundance of food resources such as aquatic plants, fish, beaver, and other animals hunted prehistorically and historically. The annual rainfall for this area averages about 6–14 inches. Winters are cool and wet with average low temperatures between 40° and 50°F; snow is uncommon (Hill 1984:29). Summers are generally hot and dry, with temperatures often exceeding 100°F.

4.2 ETHNOGRAPHY

The study area was occupied by the Wet-chi-kit Yokuts, one of the many autonomous tribes that made up the Northern Valley Yokuts. The Northern Valley Yokuts inhabited the marshy regions of the upper half of the San Joaquin Valley (Wallace 1978b). The Yokuts language belongs to the broader Penutian family, which includes a relatively diverse group of languages including Miwok, Costanoan, Maiduan, and Wintuan (Silverstein 1978). The linguistically related Southern Valley Yokuts lived to the south, and the Miwok occupied areas to the north and east.

The San Joaquin and Kings River and their tributaries provided food (fish and waterfowl), riparian plants for building and basket making, and avenues of travel for small watercraft. Not surprisingly, Yokuts villages were situated near major waterways and built on low mounds to prevent spring flooding. Ethnographic evidence indicates that these villages were occupied for the majority of the year and abandoned for short periods as the residents left to engage in seasonal resource gathering (McCarthy 1995). The Northern Valley Yokuts were defined by individual autonomous villages (Latta 1949:3) composed of single-family structures (Moratto 1988:174; Wallace 1978b:451). The structures were small and usually built from woven tule mats. Other structures included sweathouses and ceremonial chambers. Most stone artifacts were fashioned from cherts, although obsidian was imported from other locations (Wallace 1978a:465). Mortars and pestles were the dominant ground stone tools; bone was used to manufacture awls for making coiled baskets. Apparently the Northern Valley Yokuts did not manufacture ceramic items, although given the presence of ceramics in the nearby hills and reportedly at some San Joaquin Valley sites, it is likely that ceramics were brought to the region via trade.

The material culture of the Wet-chi-kit was largely consistent with that of the Yokuts in general, although McCarthy (1995) has pointed out that the tendency to treat all Northern Valley Yokuts

people as a whole in the ethnographic literature may mask regional variations. For this reason, the notes of Oscar Noren are of great value in describing the local archaeological and ethnographic record.

Noren (1988) found a variety of artifacts at several sites along the Kings River, including stone gaming balls, beads, and pendants along with such functional items as net weights, arrow shaft straighteners, milling stones, handstones, mortars, and pestles. The presence of *Olivella*, clam, and abalone shell from the coast as well as obsidian and steatite from the Sierra Nevada indicate that the Wet-chi-kit were part of the regional trade network. Among the 20 habitation sites that Noren identified were *Wewayo*, 5 miles northeast of Reedley, *Mosahau*, which translates to “sweathouse place,” and a site named “Noren-76” northwest of the Project area (Noren 1988).

As with other Indian groups in California, the lifeway of the Northern Valley Yokuts was dramatically altered as a result of contact with Spanish explorers and missionaries, miners, ranchers, and other European immigrants who entered the San Joaquin Valley after 1700. The introduction of European culture and new diseases proved devastating to the native population. Traditional lifestyles were diminished and large numbers of native people died from introduced diseases (Moratto 1988:174).

4.3 PREHISTORY

Archaeological studies in the San Joaquin Valley began in the early 1900s with a series of investigations primarily in the Stockton and Kern County areas (Gifford and Schenck 1926; Schenck and Dawson 1929). By the late 1930s, efforts were made to link the more well-known southern and northern valley areas through an exploration of the central San Joaquin Valley. University of California Berkeley’s Gordon Hewes surveyed the central valley region and discovered 107 sites, most near streams and marshes on the east side of the valley (Moratto 1984:186).

Archaeological investigations in the San Joaquin Valley intensified during the 1960s with the advent of cultural resources management work (Olsen and Payen 1968, 1969; Riddell and Olsen 1969; Treganza 1960). Based on these and other archaeological investigations conducted throughout the valley (Latta 1977; McCarthy 1995; McGuire 1995; Moratto 1988; Price 1992; Roper 2005), it is apparent that the Yokuts occupied most of the San Joaquin Valley over a period extending as long as 2,000 years (Spier 1978; Wallace 1978a, 1978b).

Prehistoric sequences developed from these excavations provide a fairly clear understanding of culture change during the last 2,000–3,000 years; however, archaeological investigations in the Tulare Lake and Buena Vista Lake localities south of the Project vicinity suggest that people occupied the San Joaquin Valley as early as 11,000–12,000 years ago (Fredrickson and Grossman 1977; Riddell and Olson 1969).

Archaeological evidence suggests that the valley’s initial occupants settled in lakeshore and streamside environments, utilizing the foothills periodically for seasonally available resources. These early Paleoindian sites are typified by fluted points, stemmed dart points, scrapers, and crescents. As compared with their predecessors, the Archaic groups in the middle and late Holocene utilized a broader resource base, supplementing their subsistence with small game and hard seeds. Handstones, milling slabs, mortars, and pestles are common in Archaic assemblages,

as are atlatl dart points. Favorable climatic conditions between 3,000 and 3,500 years ago instigated widespread settlement along the western Sierran slopes. The late Holocene witnessed various technological and social changes, including the adoption of the bow and arrow, expansion of trade, increasing use of acorns, and improved food storage techniques. As populations grew, social relations became more complex. Violence among many Sierran and foothill groups was common as economic stress and social instability became more pronounced during a period of xeric climates between circa A.D. 450 and 1250. Thereafter, new levels of population growth were achieved, resulting in part from movement of new Sierran groups. By circa A.D. 1600–1700, most groups claimed the territories that would identify them ethnographically.

4.4 HISTORY

The first Europeans known to have entered the San Joaquin Valley were Spanish soldiers led by Pedro Fages, who came to the valley through Tejon Pass in 1772 (Wallace 1978a:459). Other Europeans followed in 1806 when Lieutenant Gabriel Moraga led a group of Spanish explorers into the San Joaquin Valley to locate new lands for missions (Clough and Secrest 1984:25–27). The expansion of missions in California had ceased by the early 1820s as a result of Mexico's independence from Spain (Clough and Secrest 1984:26). Fur trappers discovered the California interior soon after and began their forays into the San Joaquin Valley. Jedediah S. Smith may have been the first to enter the area during a fur trapping expedition in 1827. Smith's adventures included friendly encounters with the Yokuts while trapping and camping along the San Joaquin River (Clough and Secrest 1984:27). After Smith's visit, other trappers followed until about 1837 when fur-bearing animals were nearly gone from the valley. These trappers included Kit Carson, Peter Skene Ogden of the Hudson's Bay Company, and Joseph Reddeford Walker.

Compared to the California coastal regions, Euro-Americans settled in the Central Valley relatively late. The Mexican government issued land grants in the Fresno County area on three occasions in the 1840s (Clough and Secrest 1984:32–36). In order to satisfy the conditions of the contract and receive full ownership of the property, the grantee had to fulfill certain residency and improvement requirements; however, this was easier said than done. Early Euro-American efforts to settle the Central Valley often met with resistance from the indigenous tribes, who were probably aware of the harsh treatment given to their coastal brethren by Spanish missionaries. In addition, most regions of the valley were not well suited either for agriculture or cattle ranching and required a certain level of development (e.g., transportation routes, irrigation) before their potential could be realized. As part of the terms of the Treaty of Guadalupe Hidalgo, which formally concluded the Mexican-American War and ceded California to the United States, the claims on grants would be respected by the federal government provided that they complied with Mexican colonization laws. After the war, a series of legal disputes ensued that extended into the 1860s. Testimonies from these cases demonstrated that in only very few instances did the grantee actually reside on the land long enough to satisfy his contractual obligations (Clough and Secrest 1984:32–39). Aside from a small Hispanic presence located primarily in the western part of the Fresno County area (Clough and Secrest 1984:39–43), it was not until after 1849 and the early stages of the gold rush that Euro-Americans seriously considered establishing permanent residency in the valley.

ARCHAEOLOGICAL SURVEY REPORT

The Central Valley has long been synonymous with agriculture, but the early settlers in the 1850s could not have imagined the extent and diversity of crops presently covering the valley floor. With the gold rush in decline, most miners descended from the foothills to pursue other professions. The town of Centerville—located along the Kings River in a relatively lush portion of the valley—became an early agricultural and cattle center in the 1850s and 1860s. During this time, farms were generally located near a perennial water source. This constraint on early agriculture kept the valley's two major industries—farming and ranching—in balance. Competition for real estate was minimized since agricultural interests had little reason to expand into pasturelands that were unsuitable for farming. The successful development of irrigation systems led to the agricultural boom as more tracts of land became suitable for crops. The increase in agricultural products also spurred the development of related industries, including nurseries and farm implement manufacturing. The immigration of a large number of farmers also promoted expansion of commercial ventures that offered food, clothing, and other staples.

Although a variety of crops were grown on the small farms, the majority of the valley was covered in wheat fields in the 1870s. However, when several small grape growers began turning huge profits on raisin production in the 1880s, wheat fields were quickly abandoned in favor of vineyards. This trend gained steam when a nationwide glut in the grain market and attendant drop in the price of wheat caused valley farmers to shift their attention to these newer crops. Although many fields were covered with vineyards, citrus, apricot, peach, and fig orchards became more common.

The Reclamation Act of 1902 facilitated the further proliferation of smaller farms. This law granted subsidized irrigation water to farmers, provided that the agricultural lands did not exceed 160 acres and that the recipient of the water resided on the property. The bill was intended to assist small farmers while at the same time establish a legal structure to restrain the accumulation of agricultural lands by wealthy property owners. However, difficulties in enforcing the act, loopholes inherent within the statute, and changes to the law over the years have allowed individual farmers to receive cheap irrigation water well beyond the 160-acre limitation. Much of the San Joaquin Valley has been converted into arable land under the 1902 Reclamation Act.

The ever-increasing expanses of agricultural fields required vast quantities of water for irrigation. By 1920, the rate of water being pumped from the aquifer was greater than the recharge rate. During the 1920s, a state water plan that called for the construction of dams, canals, and other water facilities was drafted. Because of this plan, the San Joaquin Valley received assistance through the Central Valley Project (CVP) Act of 1933. The CVP was a massive water conveyance system constructed to alleviate local shortages and balance water supply throughout much of the state (JRP Historical Consulting Services and California Department of Transportation 2000). Construction of the CVP was delayed by World War II, but by the early 1950s the project, which includes the Delta-Mendota Canal, the Madera Canal, the Friant-Kern Canal, and Friant Dam, was functioning as an integrated system.

The communities of the Central Valley, like many communities across California, developed economically and agriculturally with the arrival of the railroad. The 76 Land and Water Company, founded in Visalia in 1882, was organized by several businessmen and entrepreneurs in the area (Nickel 1961:61–71), and by 1884 they owned the land where the city of Reedley is now located. In the same year, the company leased the property to Thomas Law Reed to begin

farming more than 2,000 acres (McCubbin 1988:111–112; Nickel 1961:69). This land, some of which was eventually purchased by Reed, includes what would eventually become the entire 360-acre townsite of Reedley. Concurrently, the Southern Pacific Railroad was establishing a line in the area, and Reed agreed to a land exchange to establish a depot. The Southern Pacific opened the Reedley depot in 1888 (McCubbin 1988:111–112; Zech 1994:3). The town would continue to grow, fostered by grain processing facilities in the last part of the nineteenth century followed by vineyards and orchards planted in the first half of the twentieth century (Baker and Shoup 2006). Around 1945, Reedley began to call itself “The World’s Fruit Basket,” referring to the numerous varieties of soft fruit and grapes produced in the area. The term was copyrighted by the Reedley Chamber of Commerce and reflects the city’s agricultural heritage (Baker and Shoup 2006).

The City of Dinuba has a similar history, as the Southern Pacific Railroad also established a depot in Dinuba in 1888. Soon after, and on the heels of the formation of the Alta Irrigation District (AID), which was headquartered in Dinuba, the economy began to boom with the success of wheat crops made possible by AID’s extensive ditch and canal system (Dial 2016). By the mid-1890s, dried fruit became a highly desirable market item because it could be shipped eastward without spoilage. The city of Dinuba was incorporated in 1906. The community and the surrounding area thrived with fruit packing houses throughout the twentieth century, and Dinuba continues to be a hub of agricultural business today (Brewer 2004).

5 FIELD METHODS

On March 27, 2017, Æ Staff Archaeologist Ernest Wingate performed an intensive pedestrian survey of the entire 1.23-acre APE (Map 3) surrounding Bridge 46C0219 using parallel and meandering transects spaced no more than 15–20 meters apart. Wingate photographed the survey area using a Fuji digital camera and documented field conditions on a Survey Field Record. All field notes and photographs are on file at Æ’s Fresno office.

Ground visibility varied greatly in the APE, ranging from obscured (20 percent visibility) to 100 percent open coverage. Specifically, visibility in the southeastern quadrant of the APE (south of Avenue 424 and east of the bridge) was patchy (20–40 percent visibility) with areas of bare ground obscured by grass (Figure 2). In the northeastern quadrant, ground visibility was excellent with 100 percent surface visibility in the dirt farm roads and orchard (Figure 3). In the northwestern quadrant (north of Avenue 424 and west of the bridge), ground visibility was good (80 percent visible) along the shoulder of Avenue 424 (Figure 4) and slightly reduced within the permanent easement due to brush and grasses obscuring the bank of Traver Canal (Figure 5). In the southwestern quadrant, there was 100 percent visibility along the road shoulder (Figure 6), which was slightly reduced within the temporary construction easement (80 percent) that was obscured by manicured lawn and grasses (Figure 7).

ARCHAEOLOGICAL SURVEY REPORT



Figure 2 Survey conditions in the southeastern quadrant of the APE along Avenue 424 right-of-way and the temporary construction easement behind the gate; view looking east.



Figure 3 Survey conditions along the northeast quadrant of the APE; view of the permanent easement facing northwest.



Figure 4 Survey conditions along the northwestern quadrant of the APE along the Avenue 424 right-of-way; view facing west.



Figure 5 Survey conditions along the northwestern quadrant of the APE; view of the permanent easement facing west.

ARCHAEOLOGICAL SURVEY REPORT



Figure 6 Survey conditions along the southwestern quadrant of the APE along the Avenue 424 right-of-way; view facing west.



Figure 7 Survey conditions along the southwestern quadrant of the APE; view of the temporary construction easement facing southwest.

6 STUDY FINDINGS AND CONCLUSIONS

Æ’s pedestrian archaeological survey of the APE surrounding Bridge 46C0219 on Avenue 424 did not identify any prehistoric or historical archaeological resources in the APE. Additionally, no previously recorded cultural resources or sacred areas were identified in the APE as a result of the NAHC Sacred Lands File search, Native American outreach, or the records search at the SSJVIC. Finally, Æ’s examination of historical USGS topographic maps and aerial photographs demonstrated that there has been little change in the APE over the last 100 years. The area has remained rural farmland and, aside for a farmhouse or building constructed immediately east or west of Bridge 46C0219 outside the current APE, there has been little change in the mid-to-late twentieth century. Æ observed modern refuse (glass and plastic bottle fragments and aluminum cans) along both shoulders of Avenue 424.

Bridge 46C0219 (Figure 8), constructed in 1925, is listed in the Caltrans Historic Bridge Inventory as Category 5 and has been determined not eligible for the National Register. Because the bridge is not eligible for the National Register, it does not require management consideration under Section 106 of the NHPA.



Figure 8 Overview of Bridge 46C0219 from the north, facing south-southeast.

If previously unidentified cultural materials are unearthed during construction, it is Caltrans’ policy that work be halted in that area until a qualified archaeologist can assess the significance of the find. Additional archaeological survey will be needed if project limits are extended beyond the present survey limits.

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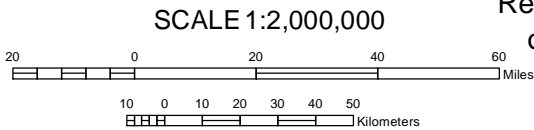
Zech, Kenneth (editor)

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APPENDIX A

Maps

ARCHAEOLOGICAL SURVEY REPORT



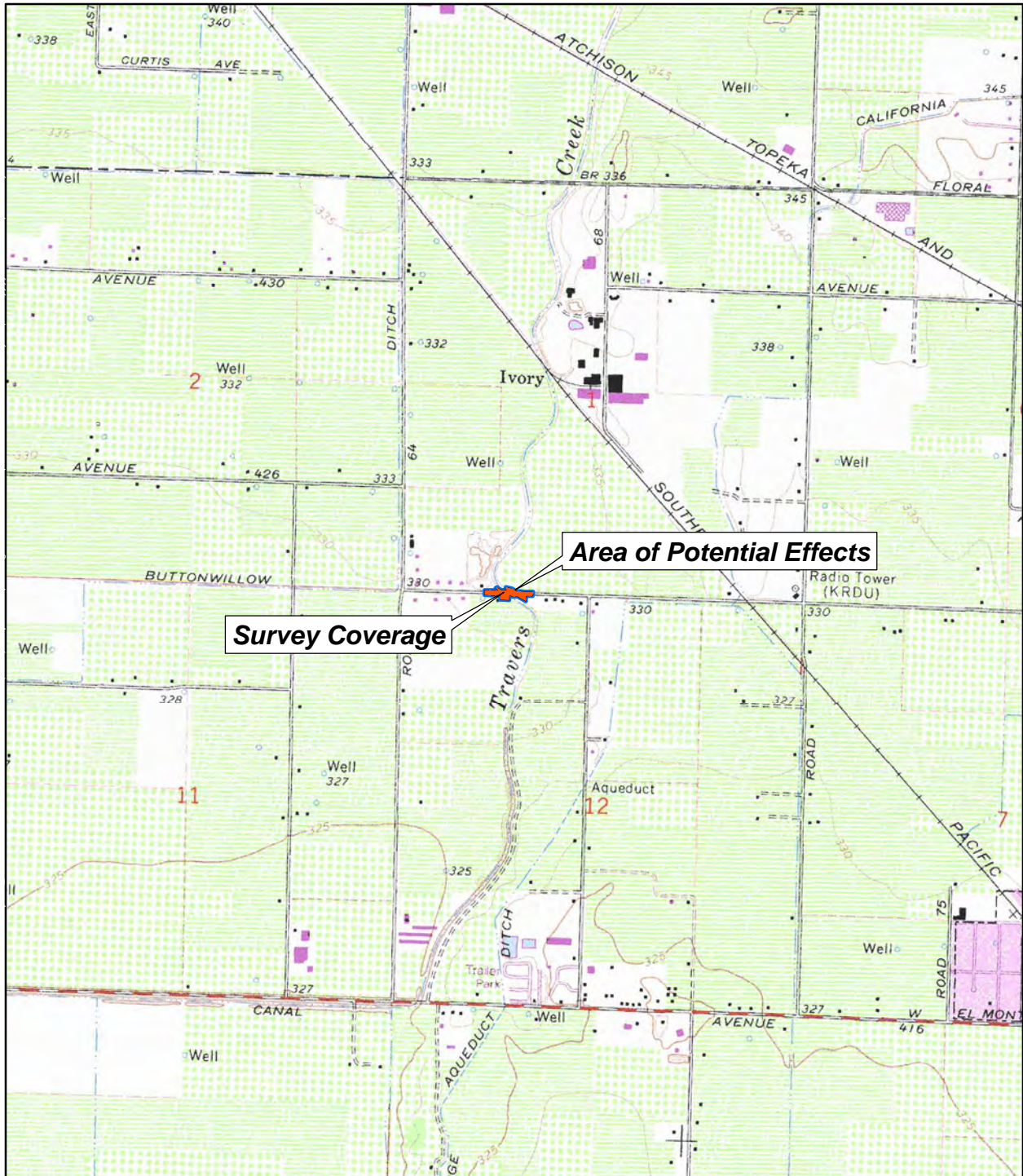
STUDY VICINITY

Replacement of Bridge 46C0219
over Traver Canal on Ave. 424

Caltrans District 6
Tulare County
BRLO-5946(112)

Map 1

ARCHAEOLOGICAL SURVEY REPORT



Survey Coverage

Area of Potential Effects

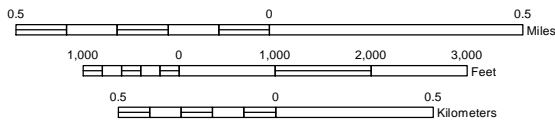
STUDY LOCATION

Replacement of Bridge 46C0219
over Traver Canal on Ave. 424

Caltrans District 6
Tulare County
BRLO-5946(112)



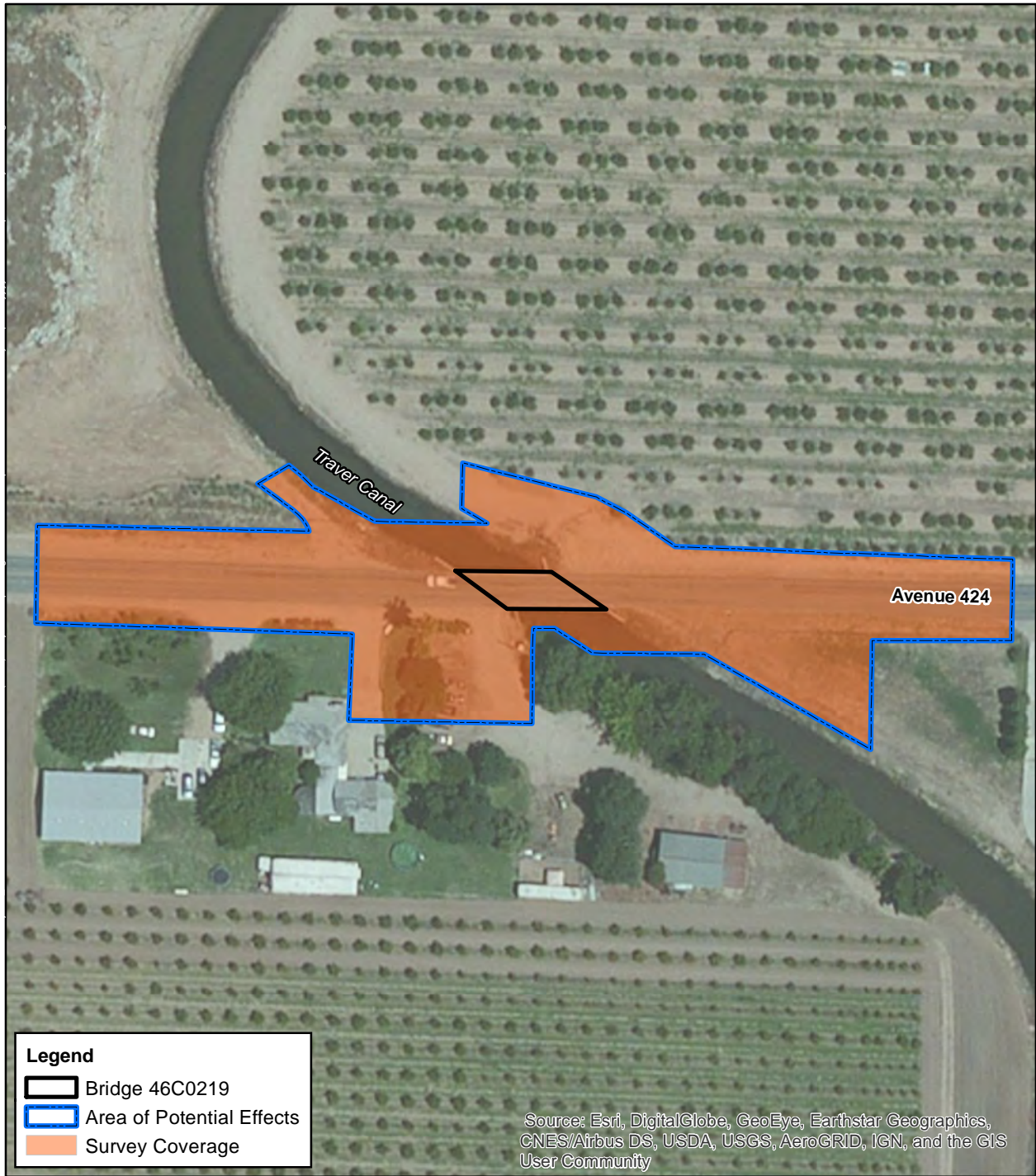
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Township 16S/Range 23E, Section(s) 1, 12
Reedley (1966-PR1981), CA 7.5' USGS Quadrangle

Map 2

ARCHAEOLOGICAL SURVEY REPORT



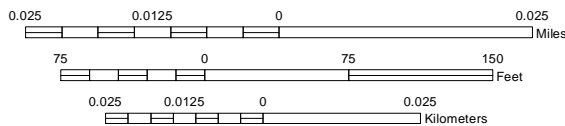
SURVEY COVERAGE

Replacement of Bridge 46C0219
over Traver Canal on Ave. 424

Caltrans District 6
Tulare County
BRLO-5946(112)



SCALE 1:1,200



Map 3

APPENDIX B

Records Search Results



8/24/2016

Katie Asselin
 Applied EarthWorks, Inc.
 1391 W. Shaw Ave., Suite C
 Fresno, CA 93711

Re: Reedley (1966-PR1981), CA
 Records Search File No.: 16-328

The Southern San Joaquin Valley Information Center received your record search request for the project area referenced above, located on the Reedley USGS 7.5' quad. The following reflects the results of the records search for the project area and the 0.5 mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: custom GIS maps shapefiles hand-drawn maps

Resources within project area:	None
Resources within 0.5 mile radius:	None
Reports within project area:	TU-00210
Reports within 0.5 mile radius:	None

Resource Database Printout (list): enclosed not requested nothing listed

Resource Database Printout (details): enclosed not requested nothing listed

Resource Digital Database Records: enclosed not requested nothing listed

Report Database Printout (list): enclosed not requested nothing listed

Report Database Printout (details): enclosed not requested nothing listed

Report Digital Database Records: enclosed not requested nothing listed

Resource Record Copies: enclosed not requested nothing listed

Report Copies: enclosed not requested nothing listed

OHP Historic Properties Directory: enclosed not requested nothing listed

Archaeological Determinations of Eligibility: enclosed not requested nothing listed

CA Inventory of Historic Resources (1976): enclosed not requested nothing listed

Caltrans Bridge Survey: Not available at SSJVIC; please see
<http://www.dot.ca.gov/hq/structur/strmaint/historic.htm>

Ethnographic Information: Not available at SSJVIC

Historical Literature: Not available at SSJVIC

Historical Maps: Not available at SSJVIC; please see
<http://historicalmaps.arcgis.com/usgs/>

Local Inventories: Not available at SSJVIC

GLO and/or Rancho Plat Maps: Not available at SSJVIC

Shipwreck Inventory: Not available at SSJVIC; please see
http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks_Database.asp

Soil Survey Maps: Not available at SSJVIC; please see
<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.


The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

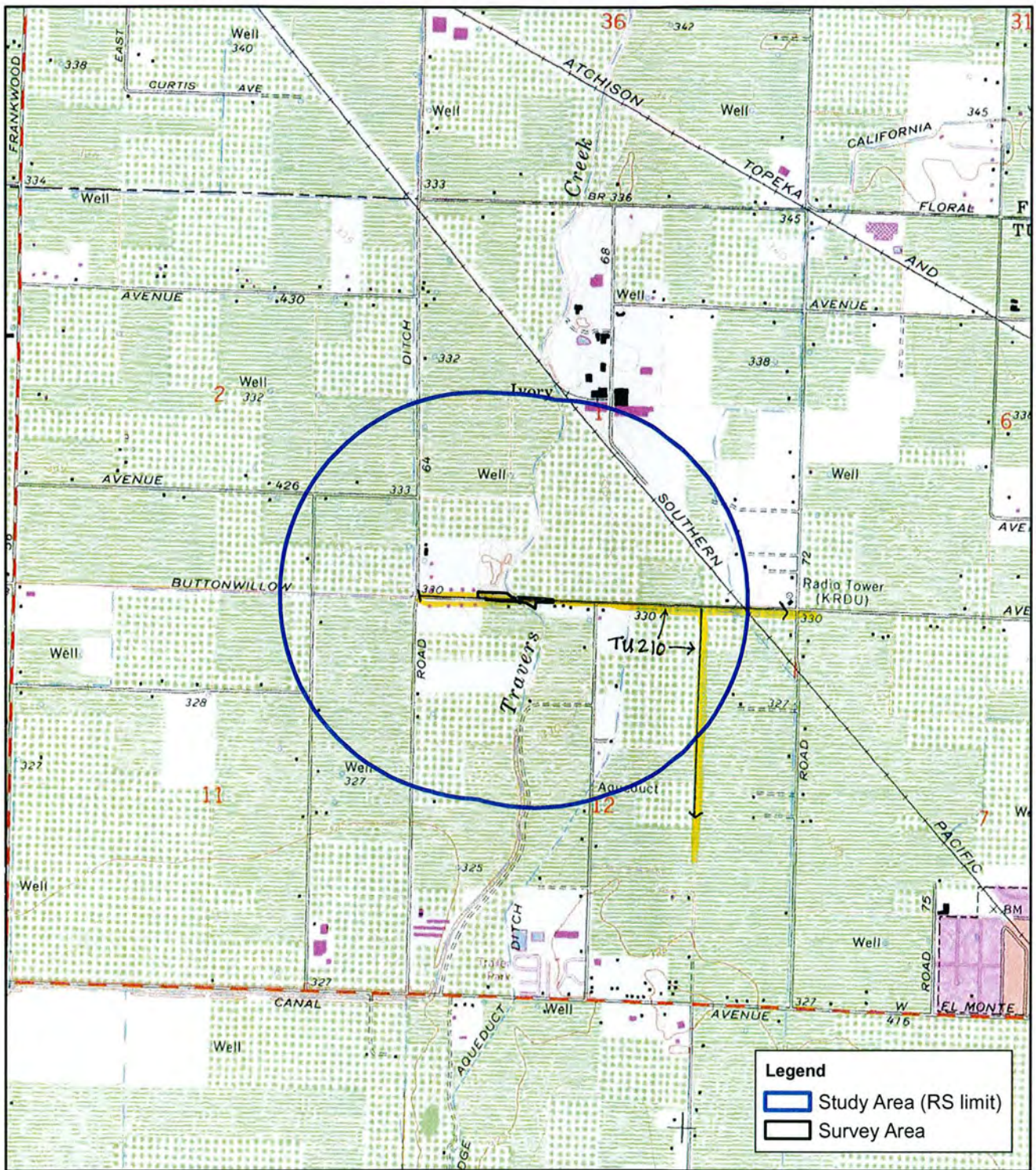
Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

Thank you for using the California Historical Resources Information System (CHRIS).

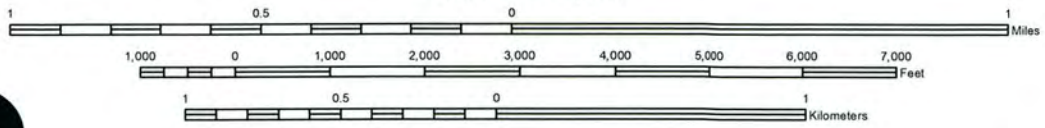
Sincerely,



Celeste M. Thomson
Coordinator



SCALE 1:24,000



Township 16S/Range 23E, Section 1, 2, 11, 12
 Reedley (1966-PR1981), CA 7.5' USGS Quadrangle

Records Search location map for the *Traver Canal Project - A3505*.

Report List

SSJVIC Record Search 16-328

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
TU-00210		1978	Cantwell, R.J.	Archaeological and Historical Survey Report Avenue 424 from Road 64 to Road 88	Individual Consultant	

APPENDIX C

Native American Consultation



Native American Outreach Log Traver Canal Bridge Replacement Project

Organization	Name	Position	Letter	E-mail	Phone	Summary of Contact
Native American Heritage Commission	Gayle Totton	Associate Governmental Program Analyst		8/10/16		In response to AE's request for a Sacred Lands File search on 8/10/16, on 8/12/16 the NAHC stated that no sacred lands were identified within the APE and advised contact with tribal officials in the area. Six contacts were provided
Kitanemuk & Yowlumne Tejon Indians	Delia Dominguez	Chairperson	9/2/16		10/11/16	Outreach letter sent 9/2/16; follow-up call 10/11/16. No response to date.
Santa Rosa Rancheria Tachi Yokut Tribe	Rueben Barrios	Chairperson	9/2/16		10/11/16	Outreach letter sent 9/2/16; follow-up call 10/11/16. No response to date.
Table Mountain Rancheria	Leanne Walker-Grant	Chairperson	9/2/16			Outreach letter sent 9/2/16. Response from Pennell received via mail 9/12/16 stating that the Project site is beyond their area of interest.
Tule River Indian Tribe	Kerri Vera	Environmental Department	9/2/16	10/11/16		Outreach letter sent 9/2/16. Follow-up e-mail sent 10/11/16. Reponse received via e-mail from Ms. Kerri Vera on 10/11/16 states that the Tule River Tribe does not have any information to add regarding culturally important items or places within the proposed Project area. However, they are interested in receiving the results of the pedestrian survey upon completion.
Tule River Indian Tribe	Neil Peyron	Chairperson	9/2/16			Outreach letter sent 9/2/16; see Vera response above.
Tule River Indian Tribe	Joey Garfield	Tribal Archaeologist	9/2/16			Outreach letter sent 9/2/16; see Vera response above.

NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
Fax (916) 373-5471



August 12, 2016

Katie Asselin
Applied EarthWorks, Inc.

Sent by Email: kasselin@appliedearthworks.com

RE: Proposed Traver Canal Bridge Project, near the Community of Dinuba; Reedley USGS Quadrangle, Tulare County, California

Dear Ms. Asselin:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.

I suggest you contact all of the listed Tribes. If they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: gayle.totton@nahc.ca.gov.

Sincerely,

A handwritten signature in blue ink that reads "Gayle Totton".

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

Native American Heritage Commission
Native American Contact List
Tulare County
8/12/2016

***Kitanemuk & Yowlumne Tejon
Indians***

Delia Dominguez, Chairperson
115 Radio Street
Bakersfield, CA, 93305
Phone: (626)339-6785
deedominguez@juno.com

Kitanemuk
Southern Valley
Yokut

***Santa Rosa Rancheria Tachi
Yokut Tribe***

Rueben Barrios, Chairperson
P.O. Box 8
Lemoore, CA, 93245
Phone: (559)924-1278
Fax: (559)924-3583

Southern Valley
Yokut

Table Mountain Rancheria

Leanne Walker-Grant,
Chairperson
P.O. Box 410
Friant, CA, 93626
Phone: (559)822-2587
Fax: (559)822-2693

Yokut

Tule River Indian Tribe

Kerri Vera,
P. O. Box 589
Porterville, CA, 93258
Phone: (559) 783 - 8892
Fax: (559) 783-8932

Yokut

Tule River Indian Tribe

Neil Peyron, Chairperson
P.O. Box 589
Porterville, CA, 93258
Phone: (559)781-4271
Fax: (559)781-4610
chairman@tulerivertribe-nsn.gov

Yokut

Tule River Indian Tribe

Joey Garfield, Tribal Archaeologist
P. O. Box 589
Porterville, CA, 93258
Phone: (559) 783 - 8892
Fax: (559) 783-8932

Yokut

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Traver Canal Bridge, Tulare County.



September 2, 2016

Rueben Barrios, Sr., Chairperson
Santa Rosa Rancheria Tachi Yokut Tribe
P.O. Box 8
Lemoore, CA 93245

RE: Traver Canal Bridge Replacement (No. 46C-0219) Project on Avenue 424, Tulare, County.

Mr. Rueben Barrios, Sr.,

Applied EarthWorks, Inc. (Æ), under contract to GPA Consulting, is providing cultural resources services in support of the Traver Canal Bridge (No. 42C0317) Replacement Project (Project). The Project is located on Avenue 424, and goes over the Traver Canal, approximately 0.25 miles east of Road 64, near Orosi in Tulare County, California. Tulare County intends to replace the existing bridge and use adjacent areas for staging. Because the project will receive federal support, it is considered a federal undertaking (per 36 CFR 800.16[y]) subject to the national Historic Preservation Act of 1966, as amended (NHPA). The project is also subject to the California Environmental Quality Act (CEQA).

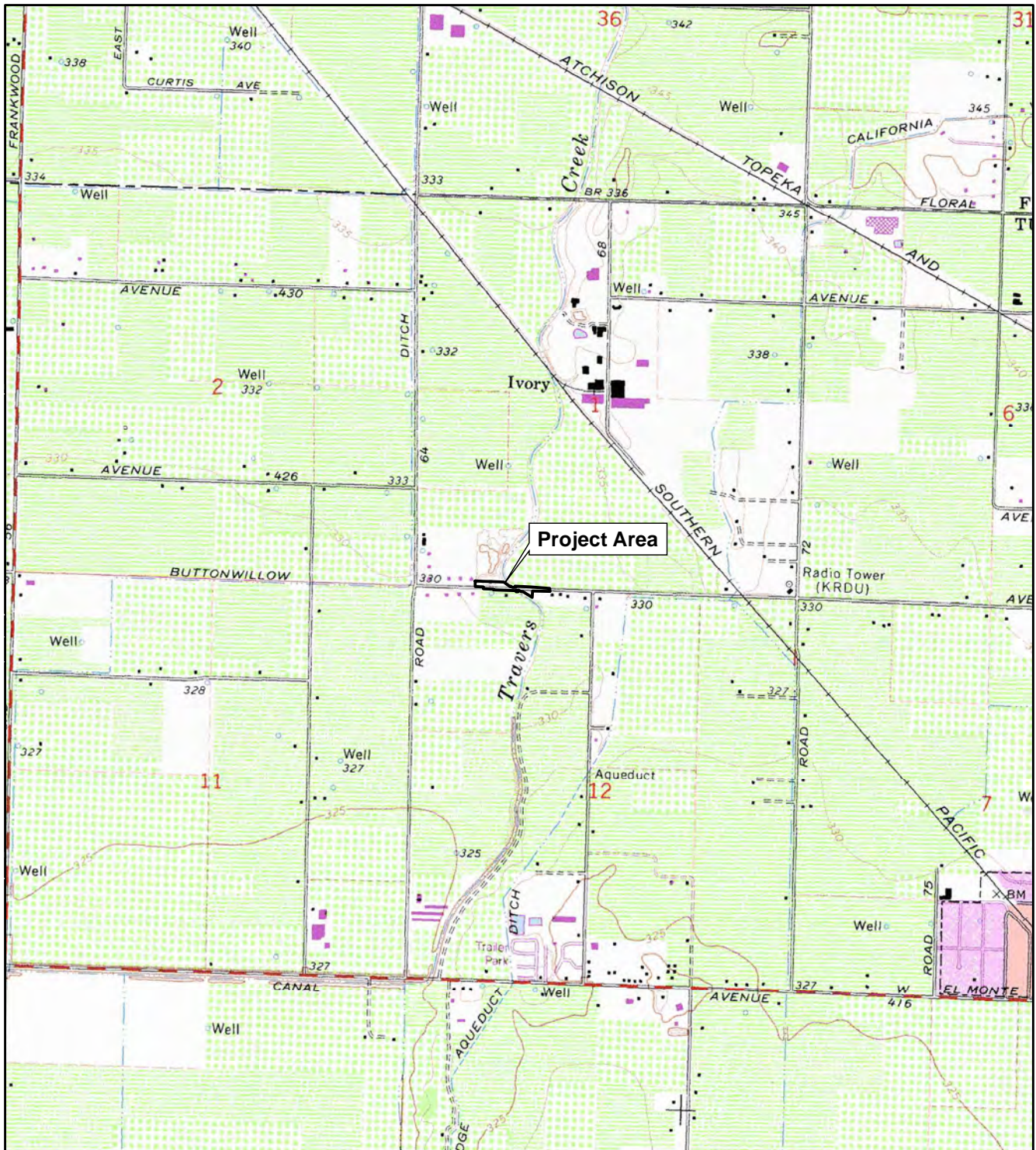
The project Area of Potential Effects (APE) lies within Township 16 South, Range 23 East, Sections 1 and 12 of the Reedley, CA 7.5-minute USGS quadrangle (see attached map). A search of the Native American Heritage Commission (NAHC) Sacred Lands File failed to indicate the presence of Native American cultural resources in the immediate project area. Applied EarthWorks, Inc. also requested a records search of the California Historic Resources Information System, Southern San Joaquin Valley Information Center. The records search did not identify any cultural resources within the APE or 0.5 mile vicinity of the APE. There has been only one previous cultural resources investigation, conducted within 0.5 mile vicinity of the APE.

Applied EarthWorks, Inc. will conduct a pedestrian survey of the project area to identify and record cultural resources within the APE. The NAHC provided your name and address as someone who might have information on sacred sites, tribal cultural resources, or other important sites in the project area. If you have any information that you wish to share, have questions, or would like more information about the project, please do not hesitate to contact me by phone (559) 229-1856, email (kasselin@appliedearthworks.com), or send a letter to my attention. I would appreciate any information you might provide to assist us with our inventory efforts. Be assured that any locations of archaeological sites, cemeteries, or sacred places will be treated confidentially, as required by law, and not disclosed in any document available to the general public.

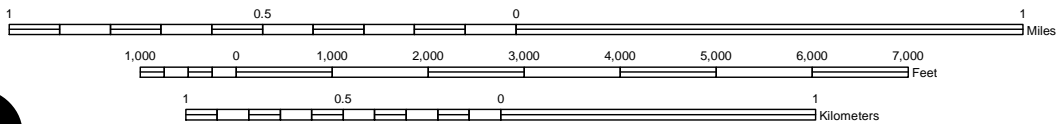
Sincerely,

Katie Asselin, M.A., RPA
Associate Archaeologist

encl.: Project Location Map



SCALE 1:24,000



Township 16S/Range 23E, Section 1, 12
 Reedley (1966-PR1981), CA 7.5' USGS Quadrangle

NAHC location map for the Traver Canal Project - A3505.

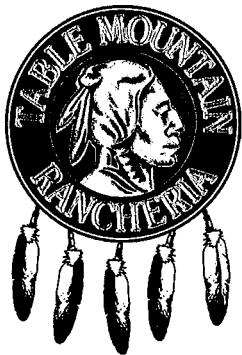


TABLE MOUNTAIN RANCHERIA

TRIBAL GOVERNMENT OFFICE

September 12, 2016

Katie Asselin, M.A., RPA
Applied Earth Works Inc.
1391 W. Shaw Ave., Suite C
Fresno, Ca. 93711

RE: Traver Canal Bridge Replacement Project on Avenue 424, Tulare, County.

To: Katie Asselin

This is in response to your letter dated September 2, 2016, regarding, Traver Canal Bridge Replacement Project on Avenue 424, Tulare, County.

We appreciate receiving notice; however, this project site is beyond our area of interest.

Sincerely,

Bob Pennell
Cultural Resources Director

Leanne Walker-Grant
Tribal Chairperson

Beverly J. Hunter
Tribal Vice-Chairperson

Craig Martinez
Tribal Secretary/Treasurer

Matthew W. Jones
Tribal Council Member

Richard L. Jones
Tribal Council Member

23736
Sky Harbour Road
Post Office
Box 410
Friant
California
93626
(559) 822-2587
Fax
(559) 822-2693

Katie Asselin

From: Kerri Vera <tuleriverenv@yahoo.com>
Sent: Tuesday, October 11, 2016 11:21 AM
To: kasselin@appliedearthworks.com
Subject: Traver Canal Bridge

Good morning Ms. Asselin,
Thank you for your to the Tule River Tribe, dated Sept. 2, regarding the planned Traver Canal Bridge Replacement Project. At this time, we do not have any information to add regarding culturally important items or places within the proposed project area. We are, however, interested in receiving the results of the pedestrian survey conducted by Applied Earth Works.
Furthermore, if items are inadvertently discovered during project commencement, please don't hesitate to contact me.
I look forward to hearing from you regarding the pedestrian survey.
Respectfully,

KERRI VERA
DIRECTOR

DEPARTMENT OF ENVIRONMENTAL PROTECTION
TULE RIVER TRIBAL COUNCIL
PO BOX 589
PORTERVILLE CA 93258
PH: 559.783.9984
FX: 559.783.8932

NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 FAX



March 14, 2017

Tim Bailey
Tulare County Resource Agency

Sent by Email: tbailey@co.tulare.ca.us
Number of Pages: 3

RE: Avenue 424 Traver Canal Bridge, Reedly, Tulare County

Dear Mr. Bailey:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties. Please note that the intent above reference codes is to avoid and or mitigate impacts to tribal cultural resources, as defined, for California Environmental Quality Act (CEQA) projects.

As of July 1, 2015, Public Resources Code Sections 21080.3.1 and 21080.3.2 require public agencies to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose mitigating impacts to tribal cultural resources:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section. (Public Resources Code Section 21080.3.1(d))

The law does not preclude agencies from initiating consultation with the tribes that are culturally and traditionally affiliated with their jurisdictions. The NAHC believes that in fact that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

In accordance with Public Resources Code Section 21080.3.1(d), formal notification must include a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. The NAHC believes that agencies should also include with their notification letters information regarding any cultural resources assessment that has been completed on the APE, such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:
 - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
 - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
 - If the probability is low, moderate, or high that cultural resources are located in the APE.
 - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and
 - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:
 - Any report that may contain site forms, site significance, and suggested mitigation measurers.

All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code Section 6254.10.

3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. A search of the SFL was completed for the USGS quadrangle information provided with negative results.
4. Any ethnographic studies conducted for any area including all or part of the potential APE; and
5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. **A tribe may be the only source of information regarding the existence of a tribal cultural resource.**

This information will aid tribes in determining whether to request formal consultation. In the case that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance we are able to assure that our consultation list contains current information.

If you have any questions, please contact me at my email address: Sharaya.souza@nahc.ca.gov

Sincerely,



Sharaya Souza
Staff Services Analyst

**Native American Heritage Commission
Tribal Consultation List
Tulare County
3/14/2017**

Kern Valley Indian Council
Julie Turner, Secretary
P.O. Box 1010
Lake Isabella , CA 93240

Tsungwe
Tubatulabal
Koso

Wuksache Indian Tribe/Eshom Valley Band
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas , CA 93906
kwood8934@aol.com
(831) 443-9702

Foothill Yokuts
Mono
Wuksache

(661) 340-0032 Cell

Kern Valley Indian Council
Robert Robinson, Chairperson
P.O. Box 401
Weldon , CA 93283
brobinson@iwvisp.com

Tubatulabal
Kawaiisu
Koso

(760) 378-2915 Home
(760) 378-2915 Cell

Santa Rosa Indian Community of the Santa Rosa Rancheria
Rueben Barrios Sr., Chairperson

P.O. Box 8
Lemoore , CA 93245

Tache
Tachi
Yokut

(559) 924-1278

Tubatulabals of Kern Valley
Robert L. Gomez, Jr., Tribal Chairperson

P.O. Box 226
Lake Isabella , CA 93240

Tubatulabal

(760) 379-4590

Tule River Indian Tribe
Neil Peyron, Chairperson

P.O. Box 589
Porterville , CA 93258
chairman@tulerivertribe-nsn.gov

Yokuts

(559) 781-4271

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable only for consultation with Native American tribes under Public Resources Code Sections 21080.1, 21080.3.1, and 21080.3.2 for the proposed Avenue 424 Traver Canal Bridge, Reedly, Tulare County.²⁰²

**AVENUE 424 TRAVER CANAL BRIDGE
TRIBAL CONSULTATION REQUESTS AND NOTIFICATIONS**

	Section 106 Official Notice		AB 52 Official Notice		Correspondence & Meetings	MND Official Notice	
	Mail Date	Receipt Date	Mail Date	Receipt Date	Date / Type	Mail Date	Receipt Date
Native American Tribe							
Kern Valley Indian Council Robert Robinson, Co- Chairperson PO Box 401 Weldon, CA 93283			3/17/17				
Kern Valley Indian Council Julie Turner, Secretary P. Box 1010 Lake Isabella, CA 93240			3/17/17				
Santa Rosa Rancheria Tachi Yokut Tribe Rueben Barrios Sr., Chairperson P. O. Box 8 Lemoore, CA 93245			3/17/17				
Santa Rosa Rancheria Tachi Yokut Tribe Hector Franco, Cultural Director P. O. Box 8 Lemoore, CA 93245			3/17/17				
Santa Rosa Rancheria Tachi Yokut Tribe Shana Powers, Cultural Specialist P. O. Box 8 Lemoore, CA 93245			3/17/17				
Tubatulabals of Kern Valley Robert L. Gomez, Jr., Chairperson P. O. Box 226 Lake Isabella, CA 93240			3/17/17				
Tule River Indian Tribe Neil Peyron, Chairperson P. O. Box 589 Porterville, CA 93258			3/17/17				
Tule River Indian Tribe Joseph Garfield, Council Member P. O. Box 589 Porterville, CA 93258			3/17/17				

**AVENUE 424 TRAVER CANAL BRIDGE
TRIBAL CONSULTATION REQUESTS AND NOTIFICATIONS**

	Section 106 Official Notice		AB 52 Official Notice		Correspondence & Meetings	MND Official Notice	
	Mail Date	Receipt Date	Mail Date	Receipt Date	Date / Type	Mail Date	Receipt Date
Native American Tribe							
Tule River Indian Tribe Environmental Department Kerri Vera, Director P. O. Box 589 Porterville, CA 93258			3/17/17				
Tule River Indian Tribe Tribal Archaeological Department Felix Chrisman, Tribal Archaeologist P. O. Box 589 Porterville, CA 93258			3/17/17				
Wuksache Indian Tribe/ Eshom Valley Band Kenneth Woodrow, Chairperson 1179 Rock Haven Ct. Salinas, CA 93906			3/17/17				

California
Historical
Resources
Information
System



MAR 20 2017

Fresno
Kern
Kings
Madera
Tulare

Southern San Joaquin Valley Information Center
California State University, Bakersfield
Mail Stop: 72 DOB
9001 Stockdale Highway
Bakersfield, California 93311-1022
(661) 654-2289
E-mail: ssjvic@csub.edu
Website: www.csub.edu/ssjvic

To: Hector Guerra
Tulare County Resource Management Agency
S961 South Mooney Blvd.
Visalia, CA 93277

Record Search 17-101

Date: March 14, 2017

Re: Avenue 424 Traver Canal Bridge

County: Tulare

Map(s): Reedley 7.5'

CULTURAL RESOURCES RECORDS SEARCH

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System's (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP's regulatory authority under federal and state law.

The following are the results of a search of the cultural resource files at the Southern San Joaquin Valley Information Center. These files include known and recorded cultural resources sites, inventory and excavation reports filed with this office, and resources listed on the National Register of Historic Places, Historic Property Directory (3/18/13), California State Historical Landmarks, California Register of Historical Resources, California Inventory of Historic Resources, and California Points of Historical Interest. Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area.

PRIOR CULTURAL RESOURCE STUDIES CONDUCTED WITHIN THE PROJECT AREA AND THE ONE-HALF MILE RADIUS

According to the information in our files, there has been one previous cultural resource study conducted within the project area, TU-00210. There has been one additional study conducted within the one-half mile radius, TU-00165.

KNOWN/RECORDED CULTURAL RESOURCES WITHIN THE PROJECT AREA AND THE ONE-HALF MILE RADIUS

There are no recorded cultural resources within the project area and it is not known if any exist there. There is one recorded resource within the one-half mile radius, P-54-004626, the Southern Pacific Railroad.

There are no recorded cultural resources within the project area or radius that are listed in the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest, California Inventory of Historic Resources, or the California State Historic Landmarks.

COMMENTS AND RECOMMENDATIONS

We understand this project is associated with the Traver Canal Bridge at Avenue 424. No information was given as to the nature of the project. Avenue 424 was previously surveyed in 1978 as part of study TU-00210. However, the bridge was not recorded or evaluated in this study. According to our records, this bridge has never been recorded or evaluated for historical significance. Therefore, if this bridge is more than 45 years old, prior to demolition or alteration, we recommend it first be recorded and evaluated by a qualified, professional consultant. Further, we recommend the area of potential impact surrounding the bridge be surveyed for cultural resources prior to any ground disturbance activities. A list of professionals is available at www.chrisinfo.org.

We also recommend that you contact the Native American Heritage Commission in Sacramento. They will provide you with a current list of Native American individuals/organizations that can assist you with information regarding cultural resources that may not be included in the CHRIS Inventory and that may be of concern to the Native groups in the area. The Commission can consult their "Sacred Lands Inventory" file in order to determine what sacred resources, if any, exist within this project area and the way in which these resources might be managed. Finally, please consult with the lead agency on this project to determine if any other cultural resource investigation is required. If you need any additional information or have any questions or concerns, please contact our office at (661) 654-2289.

By:



Celeste M. Thomson, Coordinator

Date: March 14, 2017

Please note that invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

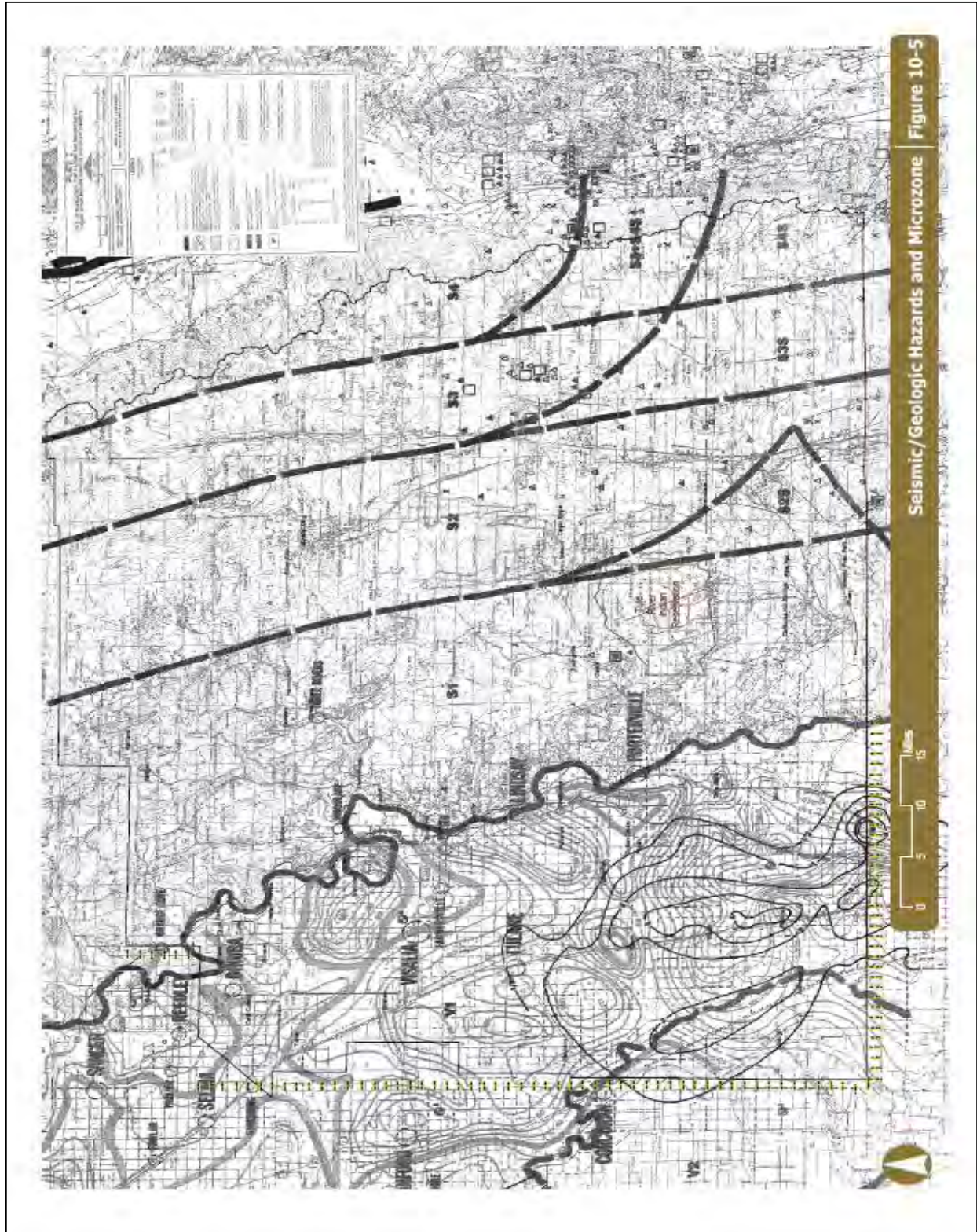
**ATTACHMENT “F”
GEOLOGICAL and SOIL RESOURCES**

Seismic/Geologic Hazards and Microzone Map

Department of Conservation Regulatory Maps

Tulare County Flood Hazards and Faults Map

Seismic/Geologic Hazards and Microzone Map



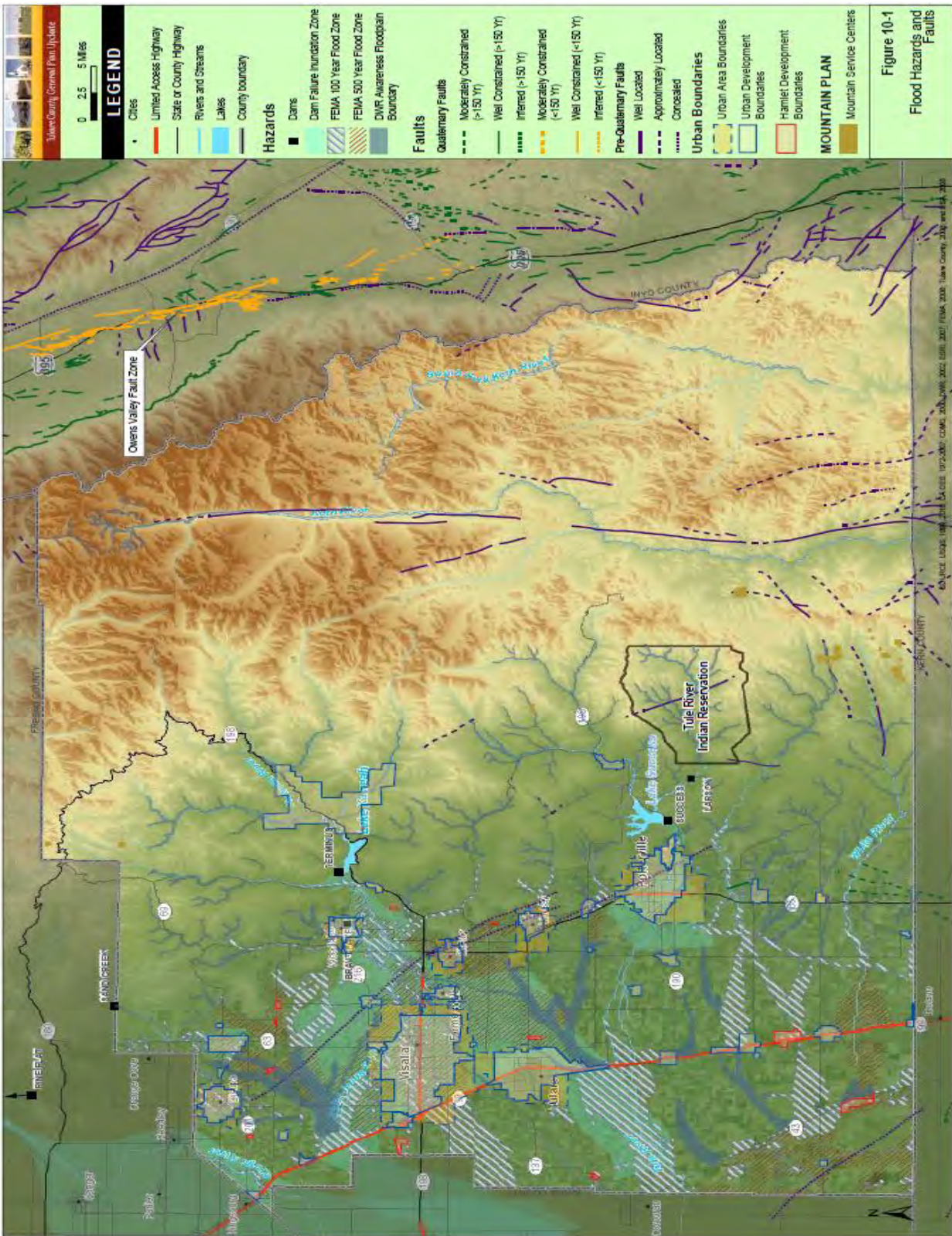
Source: Tulare County General Plan

Department of Conservation Regulatory Maps (Hazard Zones)

The screenshot displays the Department of Conservation's Regulatory Maps website. The browser address bar shows the URL: maps.conservation.ca.gov/cgs/informationwarehouse/. The website features a navigation menu with categories: Earthquakes, Geologic Hazards, Mineral Resources, Education, Library, Publications, and Maps. A search bar is located at the top right. The main content area is titled "CGS Information Warehouse: Regulatory Maps" and includes a search bar, a map of the San Joaquin Valley, and a legend. The map shows various hazard zones, including Fault Zones, Landslide and Liquefaction Zones, Earthquake Fault Zones, and Landslide and Liquefaction Zones. The legend is located on the right side of the map. The map includes a scale bar (0 to 30 miles) and a coordinate display (36° 05' 30" N, 118° 01' 45" W). The website footer contains links for "Back to Top", "Conditions of Use", "Privacy Policy", "Accessibility", and "Contact Us", along with the copyright notice "Copyright © 2015 State of California".

Source: <http://maps.conservation.ca.gov/cgs/informationwarehouse/>

Tulare County Flood Hazards and Faults Map



Source: Tulare County General Plan

**ATTACHMENT “G”
HAZARDOUS WASTE**

EnvironStor Map

GeoTracker Map

Hazardous Waste Initial Site Assessment

Hazardous Waste E-mail

EnviroStor Map

The screenshot displays the EnviroStor web application interface. At the top, there is a navigation bar with links for Home, Mura CMS, ServiceNow, Proofpoint Protector, and PureMessage. The main area shows a Google Maps view of Dinuba, CA, with a red circular search radius centered on a location. A legend in the bottom-left corner defines site categories: CLEANUP SITES (Federal Superfund, State Response, Voluntary Cleanup, School Cleanup, Evaluation, School Investigation, Military Evaluation, Tiered Permit, Corrective Action), PERMITTED SITES (Operating, Post-Closure, Non-Operating), and OTHER SITES (GeoTracker LUFT, GeoTracker SLUC). On the right side, there are search filters for 'SHOW SITES WITHIN' (5280 feet) and 'FEET OF THE FOLLOWING ADDRESS' (ave 424 and rd 64, dinuba, ca). Below the map, a table lists search results.

SITES FOUND IN SEARCH RADIUS	STATUS	PROJECT TYPE	ADDRESS	CITY
1 SITES LISTED	NO FURTHER ACTION	SCHOOL INVESTIGATION	42120 ROAD 88	DINUBA

Source: www.envirostor.dtsc.ca.gov

GeoTracker Map (8/1/17)

The screenshot displays the GeoTracker web application interface. At the top, there is a search bar with the text "ave 424 and rd 64". Below the search bar is a navigation menu with options like "Home", "Tulare C", "More CMS - Tulare", "ServiceNow - Tulare", "Official Assessor's M", "Planning - RMA", "Environmental Plan", "Tulare County Code", "Tulare County Gen", "ASAP CEQA Portal", "San Joaquin Valley A", "Emission Factor", and "Export This Report".

The main map area shows a satellite view of a rural landscape with a red circle highlighting a specific site. The site is located near a road and a river. The map includes a "Map" button and a "Satellite" button.

At the bottom of the map, there is a legend titled "SITES AND FACILITIES" with various categories and symbols:

- Cleanup Sites**
 - UST Cleanup Sites
 - Cleanup Program Sites
 - Military Cleanup Sites
 - DTSC Cleanup Sites
- Permitted Facilities**
 - Waste Discharge Requirements (WDR) Sites
 - Permitted USIS - INED
 - DTSC Hazardous Waste Sites
 - Land Disposal Sites
 - Tripled Lands Regulatory Program Sites
- Oil / Gas Sites**
 - Other Oil and Gas Projects
 - Produced Water Ponds
 - Underground Injection Control (UIC)
 - Well Stimulation Project - Exclusion
 - Well Stimulation Project - Groundwater Monitoring Plan
 - Well Stimulation Projects - Property Owner Sampling
- Other Sites**
 - Project Sites
 - Non-Cases Information Sites
 - Sampling Points - Public
 - Field Points

At the bottom right, there is a table titled "SITES FOUND IN SEARCH RESULTS" with the following columns: SITE NAME, GLOBE ID, FAC ID, STATUS, ADDRESS, and CITY. The table contains 4 rows of data:

SITE NAME	GLOBE ID	FAC ID	STATUS	ADDRESS	CITY
PORT OF LOVRY	T1000008910		COMPLETED - CASE CLOSED	6801 AVENUE 430	REEDLEY
R.V. THIBER	T1000000726		COMPLETED - CASE CLOSED	6801 AVENUE 430	REEDLEY
RICHLAND SALES	T0810700120		COMPLETED - CASE CLOSED	41846 RD 62	REEDLEY
SEQUOIA FOREST INDUSTRIES, DNUBA	SL19FT624537		COMPLETED - CASE CLOSED	6801 AVE 430	DNUBA

Source: <https://geotracker.waterboards.ca.gov>

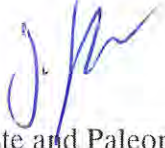
Memorandum

*Serious drought!
Help save water!*

To: RANDALL BONDS
Associate Environmental Planner
San Joaquin Valley Management Branch

Date: August 6, 2014

File: BRLO 5946 (109)
County of Tulare
Bridge Replacement

From: JUERGEN VESPERMANN 
Senior Environmental Planner
Central Region Hazardous Waste and Paleontology Branch

Subject: Request for Hazardous Waste - ISA

The County of Tulare proposes to replace the existing two-lane bridge on Avenue 392 near Dinuba. Sand Creek Bridge (#46 C0345) was constructed in 1939 and is 77 feet long by 22 feet wide. The existing board-formed concrete bridge will be replaced with a 100-ft long by 36-ft wide reinforced flat slab concrete bridge. The project also includes raising the bridge profile, 400 feet of new roadway approaches on both sides of the bridge, rock slope protection, staging areas, and construction easements.

A hazardous waste evaluation was conducted. Aerial mapping, which showed that the project is in a rural area, and the following five Cal/EPA Data Resources (the 'Cortese List'), were reviewed:

- EnviroStor database, List of Hazardous Waste and Substances sites, Department of Toxic Substances Control (DTSC)
- Geotracker database, List of Leaking Underground Storage Tank sites, State Water Resources Control Board
- Sites Identified With Waste Constituents Above Hazardous Waste Levels Outside The Waste Management Unit, State Water Resources Control Board
- CDO/CAO List, List of active Cease and Desist Orders and Cleanup and Abatement Orders, State Water Resources Control Board
- List of hazardous waste facilities subject to corrective action, DTSC

In addition:

SWIS database, Solid Waste Information System, Department of Resources Recycling and Recovery (CalRecycle) was reviewed.

No facilities were listed within project boundaries.

Avenue 392 is not a highly travelled road nor does the bridge appear to be painted (an orange colored lichen is growing on the concrete). It is unlikely that lead would be an issue in the unpaved shoulders adjacent to Avenue 392 (as a result of prior leaded gas emissions settling on the ground) or in soil adjacent to Sand Creek Bridge (from sandblasting residue settling on the ground). However, the project description indicates that materials removed from the embankments require off-site disposal. The landfill operator or the construction contractor may require proper hazardous waste characterization prior to accepting/disposing of the soil. Any necessary soil testing would be done by the generator/responsible party (County of Tulare). The attached special provision is guidance in addressing earth material containing lead and should be included in the construction package.

The bridge doesn't appear to contain lead-based paint or have asbestos-containing materials such that special handling or disposal would be required. However, written notification must be made ten (10) working days prior to commencement of any modification or demolition activity to the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) whether asbestos is present or not. Due to demolition activity, SJVUAPCD may require an asbestos report.

High levels of lead have been found in yellow pavement striping/paint/ markings. The attached special provision is for guidance for the removal of yellow striping/paint/markings with asphalt grindings and should be included in the construction package for proper handling of pavement striping/paint/markings.

There are no other hazardous waste concerns. If additional information is needed or should the project scope change, please contact Lea Spann at 445-6404.

Attachments:

1. Residue Containing Lead from Paint and Thermoplastic (older yellow with grindings)
2. Earth Material Containing Lead

Residue Containing Lead from Paint and Thermoplastic

Residue from grinding or cold planing contains lead from paint and thermoplastic. The average lead concentrations are less than 1,000 mg/kg total lead and 5 mg/L soluble lead. This residue:

1. Is a nonhazardous waste
2. Does not contain heavy metals in concentrations that exceed thresholds established by the Health and Safety Code and 22 CA Code of Regs
3. Is not regulated under the Federal Resource Conservation and Recovery Act (RCRA), 42 USC § 6901 et seq.
4. Is generated by grinding at:
 - 4.1. _____
 - 4.2. _____
5. Is generated by cold planing at:
 - 5.1. _____
 - 5.2. _____

Submit a lead compliance plan under section ().

Payment for a lead compliance plan is not included in the payment for existing facilities work.

Payment for handling, removal, and disposal of grinding or cold planing residue that is a nonhazardous waste is included in the payment for the type of removal work involved.

Earth Material Containing Lead

This Section includes specifications for handling, removing, and disposing of earth material containing lead.

Submit a lead compliance plan.

Lead is present in earth material on the job site. The average lead concentrations are below 1,000 mg/kg total lead and below 5 mg/L soluble lead. Earth material on the job site:

1. Is not a hazardous waste
2. Does not require disposal at a permitted landfill or solid waste disposal facility

~~Lead is typically found within the top 2 feet of material in unpaved areas of the highway. Reuse all excavated earth material on the right-of-way. Haul and place surplus excavated material on the right-of-way at _____.~~

Lead has been detected in earth material to a depth of ____ in unpaved areas of the highway. Levels of lead found on the job site range from _____ to ____ mg/kg total lead with an average concentration of ____ mg/kg total lead as analyzed by EPA test method 6010 or EPA test method 7000 series and based upon a 95 percent upper confidence limit. Levels of lead found within the project limits have a predicted average soluble concentration of ____ mg/L as analyzed by the California Waste Extraction Test and based upon a 95 percent upper confidence limit.

Handle earth material containing lead under all applicable laws, rules, and regulations, including those of the following agencies:

1. Cal/OSHA
2. CA RWQCB, Region 5F — Central Valley Region
3. CA Department of Toxic Substances Control
4. _____

Manage earth material as shown in the following table.

Earth Material Management		
Location	Depth	Management requirements

If earth material is disposed of:

1. Disclose the lead concentration of the earth material to the receiving property owner when obtaining authorization for disposal on the property
2. Obtain the receiving property owner's acknowledgment of lead concentration disclosure in the written authorization for disposal
3. You are responsible for any additional sampling and analysis required by the receiving property owner

If you choose to dispose of earth material at a commercial landfill:

1. Transport it to a Class III or Class II landfill appropriately permitted to receive the material
2. You are responsible for identifying the appropriately permitted landfill to receive the earth material and for all associated trucking and disposal costs, including any additional sampling and analysis required by the receiving landfill

From: Juan Sanchez-Zamora
To: Jessica Willis; Timothy Bailey
Date: 11/8/2017 8:51 AM
Subject: Fwd: RE: FW: BRLO-5946(112); Haz Waste

FYI

>>> "Padilla, Rachel@DOT" <Rachel.Padilla@dot.ca.gov> 9/7/2017 10:00 AM >>>
That is correct. Pedram's emails are the Memo or email memo to file.

Rachel Padilla
559-445-6313

-----Original Message-----

From: Yinleng Vang [mailto:YVang1@co.tulare.ca.us]
Sent: Thursday, September 07, 2017 9:59 AM
To: Padilla, Rachel@DOT <Rachel.Padilla@dot.ca.gov>
Cc: Juan Sanchez-Zamora <JSanchez2@co.tulare.ca.us>; Jason Vivian <JVivian@co.tulare.ca.us>
Subject: Re: FW: BRLO-5946(112); Haz Waste

Rachel,

I don't see any attachments, but it looks like the email below is essentially the Hazwaste Memo.

Yin Vang
Engineer I
Tulare County
RMA Public Works - Design
5961 S. Mooney Blvd.
Visalia, CA 93277-9394
Office: (559) 624-7158
Fax: (559) 740-4448

>>> "Padilla, Rachel@DOT" <Rachel.Padilla@dot.ca.gov> 9/7/2017 9:52 AM
>>>
Here's your copy.

Rachel Padilla
559-445-6313

From: Mafi, Pedram@DOT
Sent: Tuesday, April 11, 2017 2:00 PM
To: Padilla, Rachel@DOT <Rachel.Padilla@dot.ca.gov>
Cc: Mafi, Pedram@DOT <pedram.mafi@dot.ca.gov>; Perrault, James R@DOT <james.perrault@dot.ca.gov>
Subject: BRLO-5946(112); Haz Waste

Rachel,

Division of Local assistance is responding to a request to provide Caltrans hazardous waste environmental analysis for the subject project above. The following Cal/EPA Data Resources were searched for this review:

- * EnviroStor database, List of Hazardous Waste and Substances sites, Department of Toxic Substances Control (DTSC)
- * Geotracker database, List of Leaking Underground Storage Tank sites, State Water Resources Control Board
- * Sites Identified With Waste Constituents Above Hazardous Waste Levels Outside The Waste Management Unit, State Water Resources Control Board
- * CDO/CAO List, List of active Cease and Desist Orders and Cleanup and Abatement Orders, State Water Resources Control Board
- * List of hazardous waste facilities subject to corrective action, DTSC
- * SWIS database, Solid Waste Information System, Department of Resources Recycling and Recovery (CalRecycle) was reviewed.

The database search did not identify any open regulatory agency cases in the Envirostor or Geotracker database that will affect this project.

A standard lead compliance plan should be included as a special provision, SSP 7-1.02K(6)(j)(iii). SSP 14-9.02 Use for the demolition or rehabilitation of a bridge or building requiring notification to the US EPA, California Air Resources Board, APCD, or AQMD to comply with air quality regulations. NSSP 14-9.05 Air Quality control district requirements-Dust Control Plan-Use when a stand-alone dust control plan is required to work in the San Joaquin Valley Unified Air Pollution Control District.

14-11.16<https://urldefense.proofpoint.com/v2/url?u=http-3A__www.dot.ca.gov_hq_esc_oe_construction-5Fcontract-5Fstandards_SSPs_2015-2DSSPs_division-5F2_14-2D11.16-5FA01-2D20-2D17-5F-5F2015.docx&d=CwIFAg&c=LIH32oy6OBtmot7tcUOx1EUIJYTUxwihlBYC0z2BYZI&r=xCO-hl66lOSs2QJkAjs5MOJ8unuWGXmxdIBWhQKi2ic&m=Mq6h2Lvrsisp04rib26znATgTH5la-PwtlNPGelvc_4&s=c43f0B_DqUI7WnDuE3kj8EjBvzykzaMeKDLKO6rLOzY&e=

> - Asbestos-Containing Construction Materials in Bridges - Use for projects that include the disturbance of asbestos-containing construction materials during bridge renovation work or removal. Also, SSP 14-11.12, 36-4, and 84-9.03C may also be required in regards to removal of yellow traffic stripe and pavement marking with hazardous waste material, when high lead concentration paints are on the surface to be ground or cold planed but residue will be non-hazardous, and removal when residue is definitely non-hazardous. Used for new yellow paints and all other colors of paint.

ADL exceeding the Department of Toxic Substances Control (DTSC) screening level for unrestricted land use (currently 80 mg/kg total lead) has the potential to be present in the soil of this project. If excavation and/or stockpiling of soil is part of the project description, Caltrans advises the local agency to contact the DTSC's ADL Project Manager at ADL@dtsc.ca.gov<<mailto:ADL@dtsc.ca.gov>>, to determine the soil handling procedures for this project.

Please feel free to contact me if you may have any further questions.

Thank you,
Pedram Mafi

**ATTACHMENT “H”
HYDROLOGY / WATER QUALITY**

Water Quality Technical Memo (August 2017)

Avenue 424 Over Travel Canal Bridge Project

Water Quality Technical Memorandum

Bridge No. 46C-0219
Tulare County, California
District 6-TUL-Ave 424
BRL0-5946(112)

August 22, 2017

STATE OF CALIFORNIA
Department of Transportation
County of Tulare

Prepared by: _____



Aaron R. Bock, MCRP, JD, LEED AP
Chief Planner, Project Processing Division
(559) 624-7050
Tulare County Resource Management Agency

Date: _____

8-27-17

Recommended

For Approved by: _____

Pedram Mafi, Transportation
Engineer/Environmental Planner (559) 445-6470
Caltrans, District 6

Date: _____

Approved by: _____

Shane Gunn, Environmental Branch Chief
(559) 445-6310
Caltrans, District 6

Date: _____



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1.1 INTRODUCTION

Tulare County, in cooperation with California Department of Transportation (Caltrans), proposes to replace and widen the existing 23-ft wide narrow 2-lane bridge with 10-foot travel lanes, and no shoulder, on Avenue 424 over Travel Canal with 35.5-ft wide 2-lane bridge with 12-foot- travel lanes and 4-ft shoulders, to provide improved safety and operations on the facility.

Caltrans is acting as the National Environmental Policy Act (NEPA) lead agency under the provisions of the Final 23 USC 327 NEPA Assignment Memorandum of Understanding 2016 (MOU), between the Federal Highway Administration (FHWA) and the California Department of Transportation concerning the State of California's Participation in the Surface Transportation Project Delivery Pilot Program. The County is the lead agency under the California Environmental Quality Act (CEQA).

This Water Quality Study discusses the potential short-term and long-term water quality impacts and proposed avoidance, minimization, and mitigation measures associated with construction and implementation of the Avenue 424 over Travel Canal Bridge (Project).

The project would replace the existing Avenue 424 over Travel Canal Bridge with a wider bridge. Travel Canal is not a 303(d)-listed waterway and does not have any defined water quality objectives.

The project is anticipated to include permanent treatment control Best Management Practices (BMPs). The project storm water drainage would be designed consistent with County requirements and the Caltrans Project Planning and Design Guide and Storm Water Management Plan. Temporary BMPs, including practices for erosion control, would be implemented during construction.

Bridge No. 46C-0219 carries Avenue 424 over Traver Canal. Avenue 424 is a two-lane paved road, approximately 0.25 miles east of Road 64 in rural Tulare County, approximately 2 miles northwest of the City of Dinuba. The Project is in Township 16 South, Range 23 East, Section 1 and 12 as depicted on the U.S. Geological Survey (USGS) 1966 Reedley 7.5-minute quadrangle (see **Figures 1 and 2**).

Regulatory permits under the Clean Water Act would be obtained and any further avoidance or minimization measures would be coordinated with the issuing agencies. The proposed project would have permanent and temporary impacts on Waters of the U.S. Thus, a Water Quality Certification (Section 401) is anticipated prior to construction. Impacts are anticipated to be less than 0.1 acres and a Section 404 Nationwide Permit for the discharge of dredged or fill material into Waters of the U.S. is anticipated prior to construction in compliance with the Clean Water Act. Adherence to the requirements set forth in these permits would also minimize impacts to water quality and aquatic resources.

1.2 EXISTING CONDITIONS

Travel Canal is an earthen-bottomed irrigation canal with intermittent rip rap and non-native vegetation along the banks. Traver Canal is operated by Alta Irrigation District (AID) and according to AID, the canal typically runs irrigation flows between the months of April and August, otherwise it serves to carry seasonal storm event flows during the winter (non-irrigation season) months. The surrounding area consists primarily of orange tree orchards and unpaved access roadways for private residences. The creek bed is periodically maintained with the use of heavy machinery by AID.

1.3 PROPOSED PROJECT

1.3.1 Project Description

Tulare County, in cooperation with Caltrans, proposes to replace the existing narrow two-lane bridge crossing on Avenue 424 over Travel Canal (Bridge No. 46C-0219) with a widened two-lane bridge structure to provide improved safety and operations on the facility.

The project area is located in a rural area of Tulare County (see **Figure 1**) in the vicinity of the City of Dinuba. The Project is in Township 16 South, Range 23 East, Section 1 and 12 as depicted on the U.S. Geological Survey (USGS) 1966 Reedley 7.5-minute quadrangle (see **Figures 1 and 2**).

The existing bridge structure is a reinforced concrete slab on reinforced concrete abutments/piers, with two 27-foot spans. It is approximately 58 feet long by 23 feet wide (20 feet wide curb to curb). The bridge has two 10-foot traffic lanes (one in each direction) over Traver Canal with approach roadway widths of 19 feet on each end of the bridge. In the most recent Bridge Inspection Report, Caltrans gave the bridge a Sufficiency Rating of 56.5, and it was flagged as “Functionally Obsolete” because of the narrow bridge deck and non-conforming bridge guardrails.

The proposed bridge structure will consist of a cast-in-place reinforced concrete flat slab bridge with two 35-foot long spans and will be approximately 70 feet long by 35.5 feet. The proposed bridge will have two 12-foot traffic lanes and two 4-foot shoulders (one in each direction). The bridge would taper from 32 feet at the bridge to match the existing 19-foot approach roadways. The project may include improvements to the approach roadways, between approximately 400 feet east of the bridge to 400 feet west of the existing bridge.

The project area is limited to the existing County right of way (ROW) which is ± 20 from the centerline of Avenue 424. Therefore, no permanent ROW would be required for the project. Temporary construction easements and staging locations would be necessary to complete the project.

The total estimated cost to implement the Build Alternative is approximately \$1.64 million including \$454,000 for the preliminary engineering design phase and \$20,000 for the Right-of-Way phase. This project is included in the Federal Transportation Improvement Program (FTIP) and is funded through the Federal Highway Bridge Program (HBP).

1.3.2 Build Alternative

This project would replace the existing, functionally obsolete, 2-lane bridge on Avenue 424 over Traver Canal with a new wider, longer 2-lane structure. The project would be designed in compliance with current roadway, drainage, and bridge standards and would accommodate the 100-year storm event. Roadway improvements would conform to the County’s General Plan and Public Road

Standards for the appropriate road classification including design speed, maximum grade, and minimum centerline curve radius. The project would not increase traffic capacity (see **Figure 3**).

The proposed bridge structure is a cast-in-place reinforced concrete flat slab bridge with two spans 35 feet long. The proposed bridge would be approximately 70 feet long by 35.5 feet wide (32 feet curb to curb). The bridge would maintain two traffic lanes (one in each direction); however, the lane widths would be increased to 12 feet and would include 4-foot shoulders on both sides. The bridge would taper from 32 feet at the bridge to match the existing 19-foot approach roadways. The project may include improvements to the approach roadways, between approximately 400 feet east of the bridge to 400 feet west of the existing bridge.

Construction is anticipated to begin in the fall or early winter of 2018 (depending on right-of-way negotiations for TCE's and impacts to property owner driveway access) and last approximately six months. Construction is expected to be complete within the dry season for the Traver Canal, which is approximately late October to early May. Access to the canal bottom to assist with bridge demolition and new construction would be required. If needed, a graded work pad would be provided in the canal on top of corrugated metal pipes to convey occasional storm flows.

The first stage of project construction would include the road closure, providing detour and road closure signage. The bridge would be closed for the duration of construction, and a detour route approximately two miles long would be provided to allow for continuous access in the area.

The existing bridge and canal would then be prepared for demolition. For demolition, a back hoe or loader and an excavator mounted with a hydraulic impact breaker would be staged for the work. The excavator mounted hydraulic impact breaker would be used to break apart the existing concrete superstructure, letting the debris fall into the prepared area of the canal. With the superstructure demolished, loaders would be used to haul the debris away to the staging area, where it would be hauled away with trucks and properly disposed. This activity is expected to last approximately one week.

An excavator would then be staged within the channel to excavate the proposed bridge foundations. The foundations would be excavated to below the existing canal invert. When excavation is complete the excavator would be removed from the channel and replaced with a small crane and pile driving rig. The crane would be used to pick and place steel or concrete piles for driving. Pile driving would be necessary at each abutment, and continuous pile driving is expected for a duration of four days (two days per abutment). If overhead lines interfere with pile driving equipment, they would need to be relocated before this stage.

With the piles installed, formwork for the footings would be built by hand and erected with the assistance of the crane. Footing reinforcement may be installed by hand or with the help of the crane if a prefabricated rebar cage is used. When the foundations are formed, a concrete pump would be staged at the adjacent approach. The concrete pump would be staged on the west approach to install the west footing and on the east approach to install the east footing.

To construct the abutments and pier, plywood abutment forms would be built and a backhoe would be used to set them in place. Once the abutment forms are in place, reinforcement would be placed. Concrete would then be poured at the abutments and pier to complete construction.

Once the substructure has been completed, formwork for the deck slab can be prepared for installing rebar and pouring concrete at one side of the bridge first. When the deck concrete cures, workers will remove the plywood, and assemble the formwork for the concrete curbs and barriers. Rebar will

be hand placed within the forms and concrete can be poured from a truck staged on the bridge deck. Within a few days, the forms can be removed.

Approach work would then begin and the new structure would be used as access for crews and vehicles from one side of the project site to the other. If needed, additional structure backfill would be hauled in and grading would be completed behind the abutment backwalls and wingwalls. Self-propelled rollers and hand-guided compactors would be used to achieve backfill compaction requirements. The base material for approach slabs would then be laid down and compacted in a similar fashion. The reinforced concrete approach slabs would be formed, rebar placed and then cast against the side forms. The guard rails would be installed. A dump truck would deliver rock slope protection and it would be placed around the abutments using a backhoe.

Materials and equipment would then be removed from the new bridge and approaches. The existing asphalt at the east and west tie in points would first be removed, then new roadway base material and asphalt would be placed to construct the new roadbed. Final signage and striping would then be added and the bridge would be opened to traffic.

The Project is subject to both California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) regulations. The County is the lead agency under CEQA and Caltrans is the lead agency under NEPA.

Figure 1 – Vicinity Map

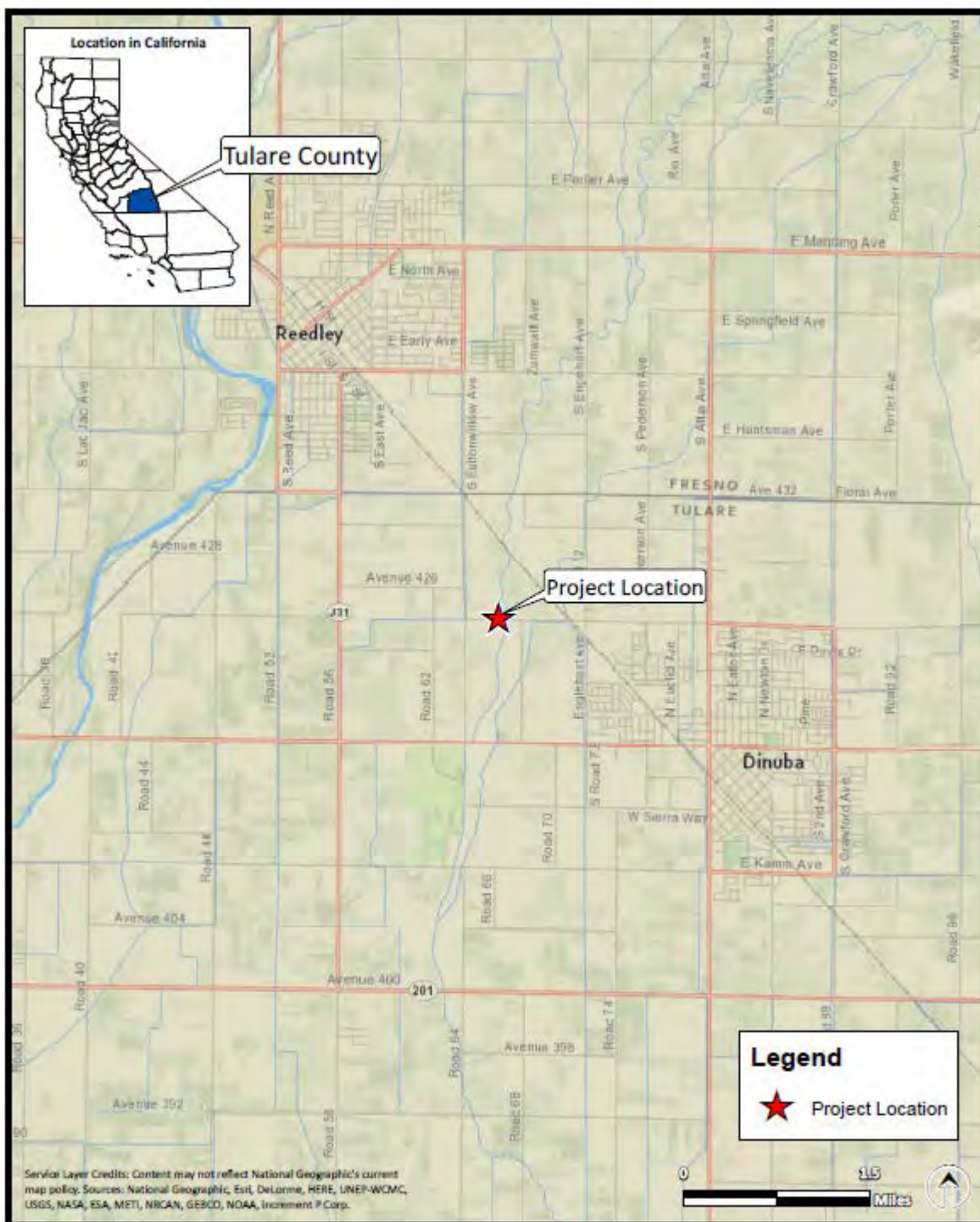


FIGURE 1. REGIONAL LOCATION
Avenue 424 over Traver Canal Bridge

Figure 2 – Location Map

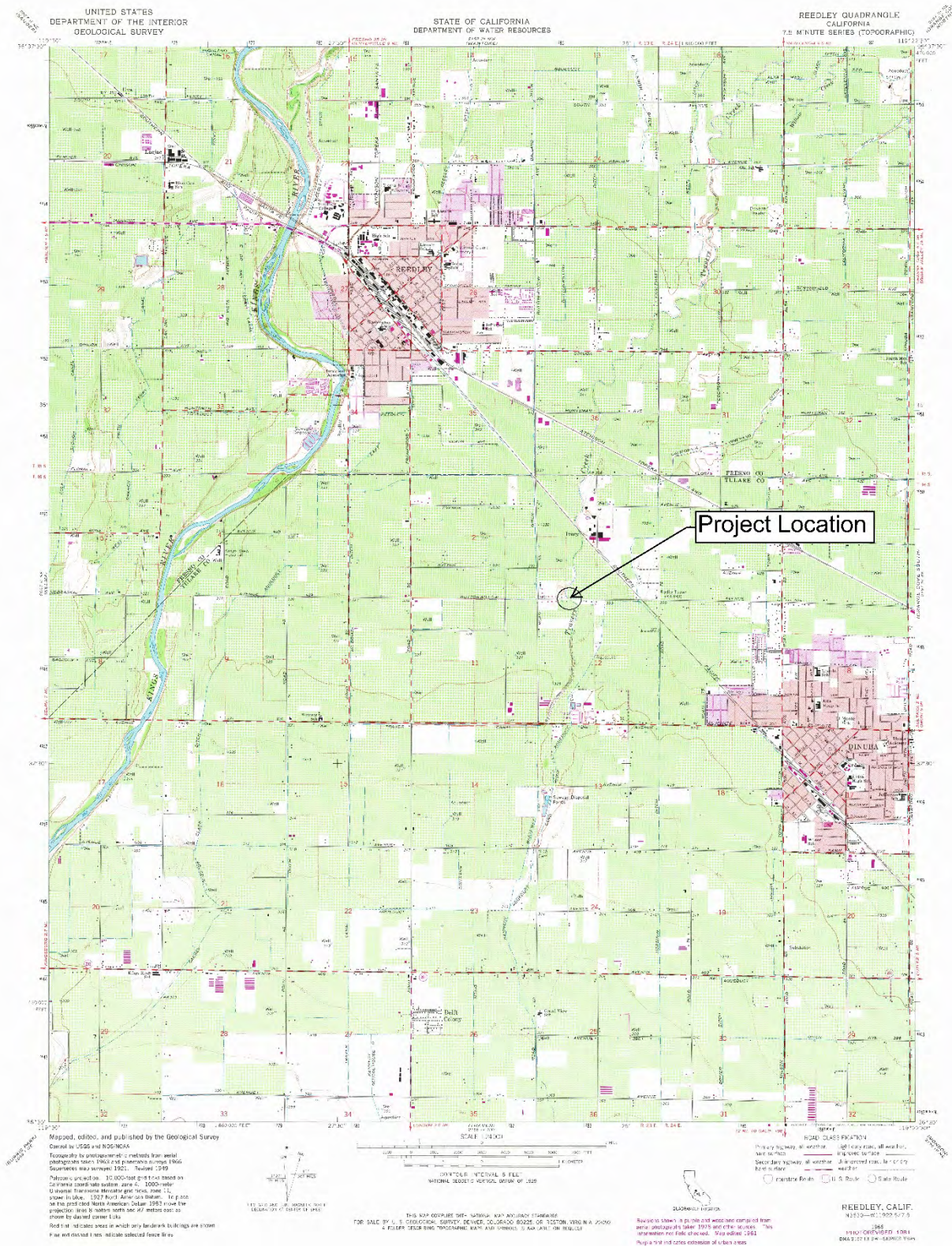


Figure 3 – Area of Potential Effects

ARCHAEOLOGICAL SURVEY REPORT



Figure 4 – Biological Study Area



FIGURE 3. BIOLOGICAL STUDY AREA
Avenue 424 over Traver Canal Bridge

1.3.3 No Build Alternative

The No-Build Alternative would result in no modifications to the Avenue 424 over Travel Canal Bridge. The existing bridge on Avenue 424 over Travel Canal would remain functionally obsolete.

2.1 REGULATORY SETTING

According to the California Department of Conservation, the BSA is within the Tulare Lake Hydrologic Region/Basin (California Department of Conservation, 2016). Major rivers flowing into the Tulare Lake Hydrological Region are the Kings River, Kaweah River, Tule River, and Kern River. A majority of the water in this region are diverted for agricultural use.

The BSA (see **Figure 4**) is within the South Valley Floor Watershed; this watershed comprises the entire portion of the Tulare Lake Basin on the valley floor (Central Valley Regional Water Quality Control Board, 2008). Traver Creek begins to the north of the project area at the Alta East Branch Canal and is part of the Upper Kaweah Watershed (see **Figure 5**), where water is released into the creek through two weirs. Upstream tributaries to the Alta East Branch Canal include the Kings River and Whatoke Lake/Creek. Traver Creek, an un-lined waterway, flows south along a meandering path to the BSA. It appears that Traver Creek becomes Traver Canal in the vicinity of the BSA. Within the BSA, the Traver Canal channel is unlined; however, the slopes are partially stabilized with rocks. South of the BSA at Avenue 416, Traver Canal flows in an engineered channel to Riverside Ditch, adjacent to the Kings River. Riverside Ditch branches in numerous directions; therefore, it is difficult to follow the hydrology beyond this point. However, it is likely that water flow downstream of the BSA is hydrologically connected to natural waterways.

While there is natural water flow through Traver Creek, flows are controlled, and additional water flow is released in summer months to allow irrigation; therefore, water flows are expected to be highest during the summer months. During the biological survey conducted on July 26, 2016, the canal's water level was maximally elevated. Traver Canal is typically dry between late October and early May.

Figure 5 – Upper Kaweah Watershed



Source: DWR (2017) <https://gis.water.ca.gov/app/boundaries/>

2.2 FEDERAL REQUIREMENTS

2.1.1 Clean Water Act (CWA)

Under the CWA, a number of federal, state, and local agencies have jurisdiction over specific activities that could affect stream channels, wetlands, and other water bodies.

Section 404

The US Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) regulate the placement of dredged and fill material into waters of the U.S., including

wetlands, under CWA Section 404. No discharge of dredged or fill material into jurisdictional features is permitted unless authorized under an USACE Nationwide Permit or Individual Permit. The proposed project would impact a small area of waters of the U.S.; therefore, a Section 404 Nationwide Permit would be required.

Section 401

For all work subject to an USACE Section 404 permit, project proponents must obtain a Water Quality Certification from the applicable RWQCB under CWA Section 401 stating that the project would comply with applicable water quality regulations. The proposed project would require that a 401 Water Quality Certification be obtained from the Central Valley RWQCB.

Section 402

The National Pollutant Discharge Elimination System (NPDES) storm water permitting program, under Section 402(p) of the CWA, is administered by the RWQCB on behalf of the EPA.

NPDES Program

The State Water Resources Control Board (SWRCB) adopted Caltrans Statewide NPDES Permit (Order No. 99-06-DWQ) on July 15, 1999. This permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. In compliance with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California.

The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of Best Management Practices (BMPs). The proposed project would be subject to the guidelines and procedures outlined in the SWMP to address storm water runoff.

Municipal Separate Storm Sewer System Program

The U.S. EPA defines a Municipal Separate Storm Sewer System (MS4) as any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water.

As part of the NPDES program, U.S. EPA initiated a program requiring that entities having MS4s apply to their local RWQCBs for storm water discharge permits. Tulare County is permitted as an MS4 under the California General permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (Order No. 2013-0001-DWQ), adopted by the SWRCB in February 5, 2013, therefore, the project would be subject to the requirements of this permit.

Construction Activity Permitting

Caltrans' Construction General Permit (Order No. 2009-009-DWQ as amended by Order 2010-0014-DWQ and Order 2012-0006-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites that result in a disturbed soil area (DSA) of 1.0 acre or greater, and/or are part of a common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least 1.0 acre must comply with the provisions of the General Construction Permit. In accordance with Caltrans' Standard Specifications, a Water Pollution Control Plan (WPCP) is prepared for projects with a DSA of

less than 1.0 acre.

Section 303(d)

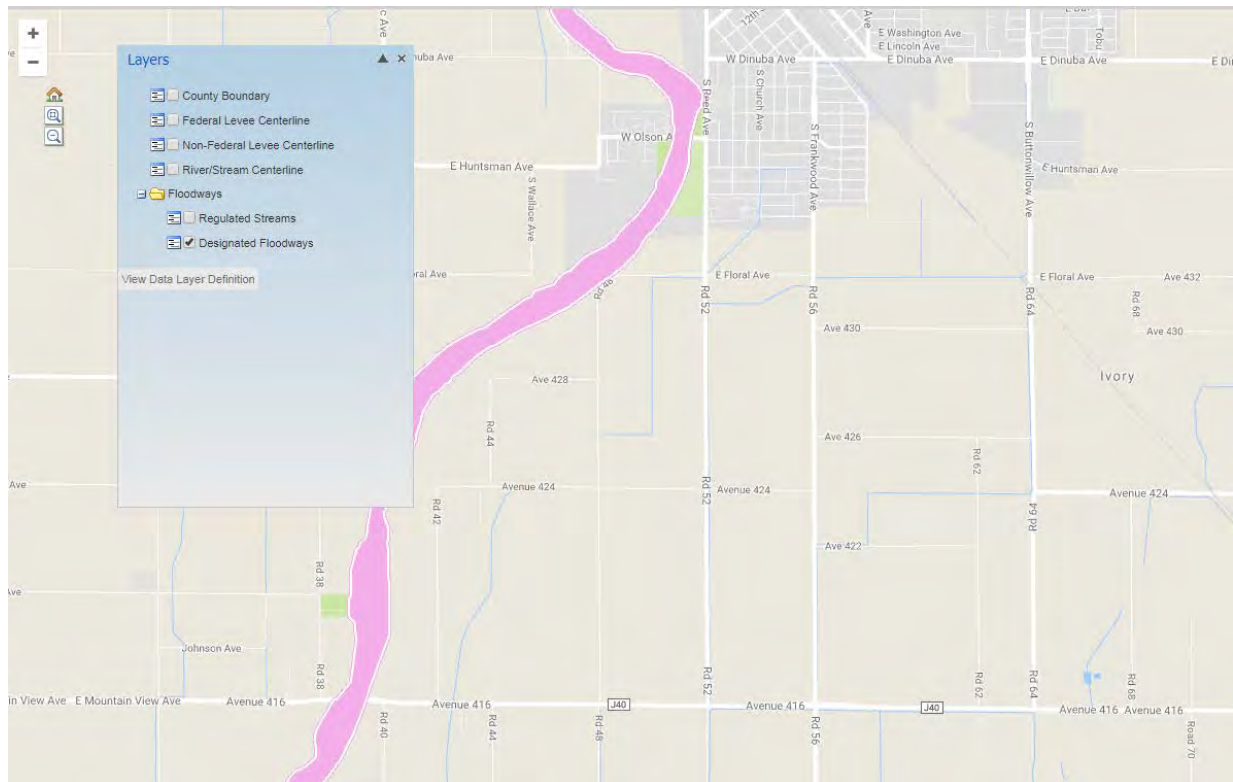
Under the mandate of Section 303(d) of the CWA, the RWQCB is required to formulate a list of surface water bodies that exceed applicable water quality standards. Subsequently, the RWQCB is required to describe the impairment sources and prioritize these water bodies to develop Total Maximum Daily Loads (TMDLs). The current list was updated in 2012 and approved by the U.S. EPA in 2013.

2.3 STATE REQUIREMENTS

2.3.2 Central Valley Flood Protection Board Standards

Streams regulated by the Central Valley Flood Protection Board (CVFPB) must adhere to the design criteria listed in the *California Code of Regulations, Title 23 Waters, Division 1, Central Valley Flood Protection Board*. The CVFPB's list of regulated streams do not include Travel Canal. Travel Canal at the Project location is not within the CVFPB's jurisdiction.

Figure 6 – DWR CVFPB Regulated Waterways



2.3.3 Porter Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (1969) requires that each RWQCB formulate or adopt water quality control plans for all areas in the region. The fourth edition of the Water Quality Control Plan (Basin Plan) for the Tulare Lake Basin was adopted by the RWQCB in 1998 and revised in January 2015. The Basin Plan, which includes the project area, contains standards and recommended control measures for use by other local, state, or federal agencies to avoid degrading water quality.

2.3.4 California Fish and Game Code Section 1602

Public agencies such as the County are subject to Section 1602 of the California Fish and Game Code which governs construction activities that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by California Department of Fish and Wildlife (CDFW). Under Section 1602, a

discretionary Streambed Alteration Agreement from CDFW must be issued by the CDFW prior to the initiation of construction activities within lands under jurisdiction. Generally, this requirement applies to any work undertaken within the 100-year floodplain of a stream or river containing fish or wildlife resources. The proposed project anticipates impacts to an area that is under jurisdiction of the CDFW; therefore, a 1602 Permit would be required.

3.1 ENVIRONMENTAL SETTING

3.2 PHYSICAL-GEOGRAPHICAL SETTING

The project area is located within the southern San Joaquin Central Valley with elevation ranges fluctuating from near sea level to the peaks of nearby foothills at approximately 4,000 feet above mean sea level. The project site is located in the Tulare County, Western Part (CA654) according to the Natural Resource Conservation Service's Soil Survey. The area is characterized by a Mediterranean-type climate with wet, moderate winters, and hot, dry summers. Annual precipitation in the Central Valley ranges from 10 to 14 inches and mainly occurs between October and April. The elevation of the project area is 332 feet above mean sea level, and the surrounding area is relatively flat.

3.3 LAND USE

The area along the corridor of Travel Canal consists of, vineyards, orchards, a Rail freight forwarding terminal to the North, and undeveloped agricultural land / detention basin. According to the Tulare County Zoning Map, the land use zones assigned within the Travel Canal watershed at the Project location is AE-20 (Exclusive Agriculture - 20 Acre Minimum Zone)."

3.4 SOILS

Soils within the project area are mapped as Delhi loamy sand, 0 to 2 percent slopes and Exeter loam, 0 to 2 percent slopes. The soil is somewhat excessively drained and the depth to water table is more than 80 inches. However, the soils of the site have been highly manipulated by human activities. (USDA NRCS, 2017).

Figure 8 – Soil Survey NRCS



Source: USDA, NRCS, <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

Table 1 Tulare County, Western Part, California Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2ss9g	Delhi loamy sand, 0 to 2 percent slopes, MLRA 17	47.1	93.7%
hp4j	Exeter loam, 0 to 2 percent slopes	3.2	6.3%
Totals for Area of Interest		50.3	100.0%

Source: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

3.5 SURFACE WATER

Traver Creek begins to the north of the project area at the Alta east Branch Canal, where water is released into the creek through two weirs. Upstream tributaries to the Alta East Branch Canal include the Kings River and Whatoke Lake/Creek. Traver Creek, an un-lined waterway, flows south along a meandering path to the BSA. It appears that Traver Creek becomes Traver Canal in the vicinity of the BSA. Within the BSA, the Traver Canal channel is unlined; however, the slopes are partially stabilized with rocks. South of the BSA at Avenue 416, Traver Canal flows in an engineered channel to Riverside Ditch, adjacent to the Kings River. Riverside Ditch branches in numerous directions; therefore, it is difficult to follow the hydrology beyond this point. However, it is likely that water flow downstream of the BSA is hydrologically connected to natural waterways.

While there is natural water flow through Traver Creek, flows are controlled, and additional water flow is released in summer months to allow irrigation; therefore, water flows are expected to be highest during the summer months. During the biological survey conducted on July 26, 2016, the canal's water level was maximally elevated. Traver Canal is typically dry between late October and early May.

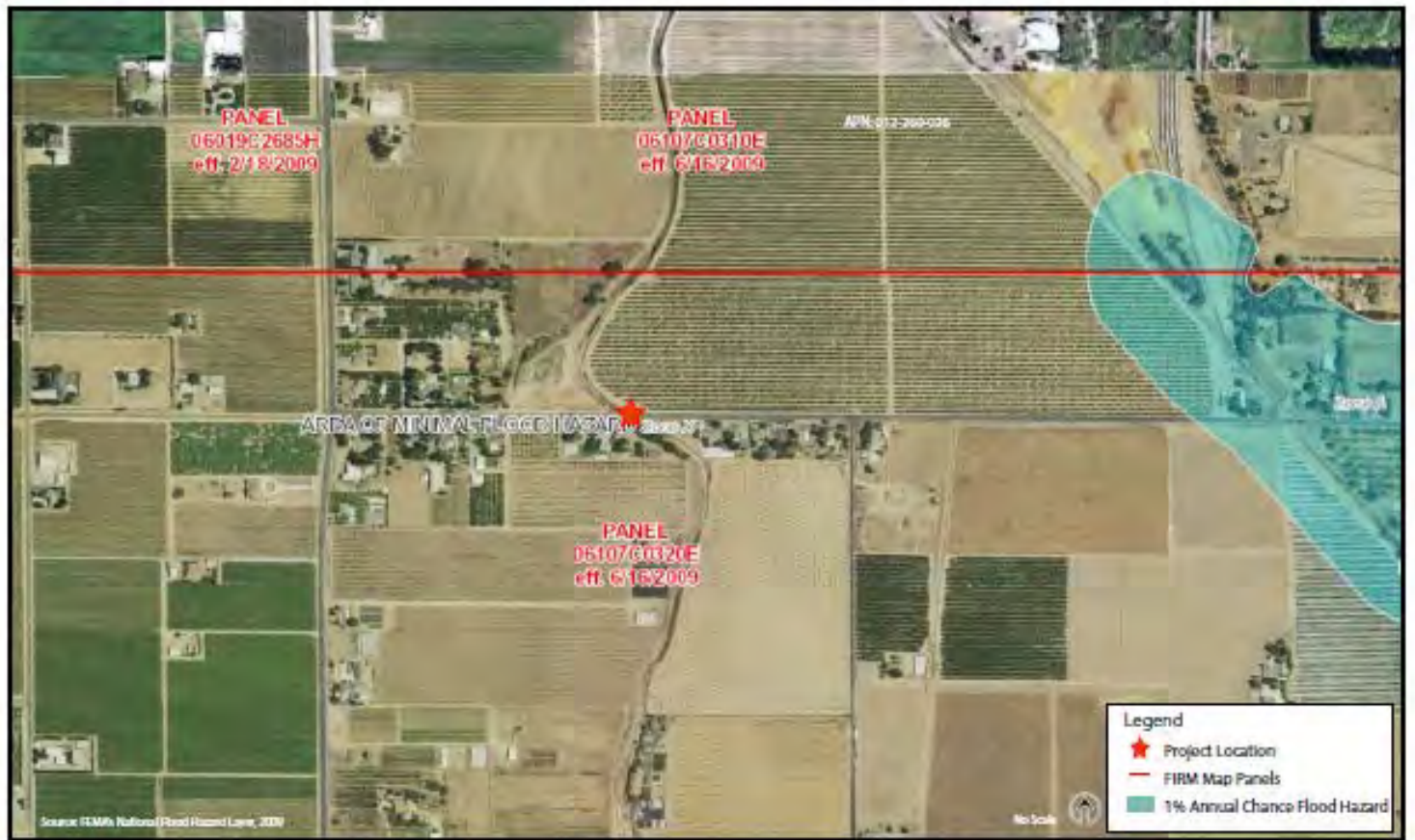
3.6 GROUNDWATER

The project is located within the Upper Kaweah Sub Basin. Within the San Joaquin Valley Groundwater Basin area, both groundwater and surface water are important water sources for both urban and agricultural users. Impacts to water quality result from a variety of factors including runoff during wet weather events, direct discharges associated with industrial and commercial activities, leaking sewer infrastructure, and illegal dumping.

3.7 FLOOD ZONES

The Project location is within the FEMA FIRM panel number 06107C0320E, last revised on June 16, 2009 (see **Figure 6**). The Avenue 424 crossing over Travel Canal in Zone X. Zone which is an area of minimal flood hazard that is outside the 100-year floodplain (FEMA, 2009)

Figure 9 FEMA FIRM Flood Map - 06107C0320E



FEMA FIRM
Avenue 424 Traver Canal Bridge Project

3.8 IMPAIRED WATERS

Travel Canal is not 303(d) listed. According to the 2012 list there are no 303(d) listed water bodies. The nearest listed water is the Kings River, approximately 3 miles west of the project with some direct connectivity (see **Figure 10**).

3.9 BENEFICIAL WATERS

The Tulare Lake Basin Plan also identifies beneficial uses and water quality objectives to protect water resources and water quality. Beneficial uses associated with the Other East Side Streams watershed are identified in Table 4 below and include agriculture supply, cold freshwater habitat, freshwater replenishment, groundwater recharge, municipal and domestic supply, hydropower generation, recreation, warm water fish spawning, and wildlife habitat. (Caltrans 2015)

Figure 10 Impaired Water Ways

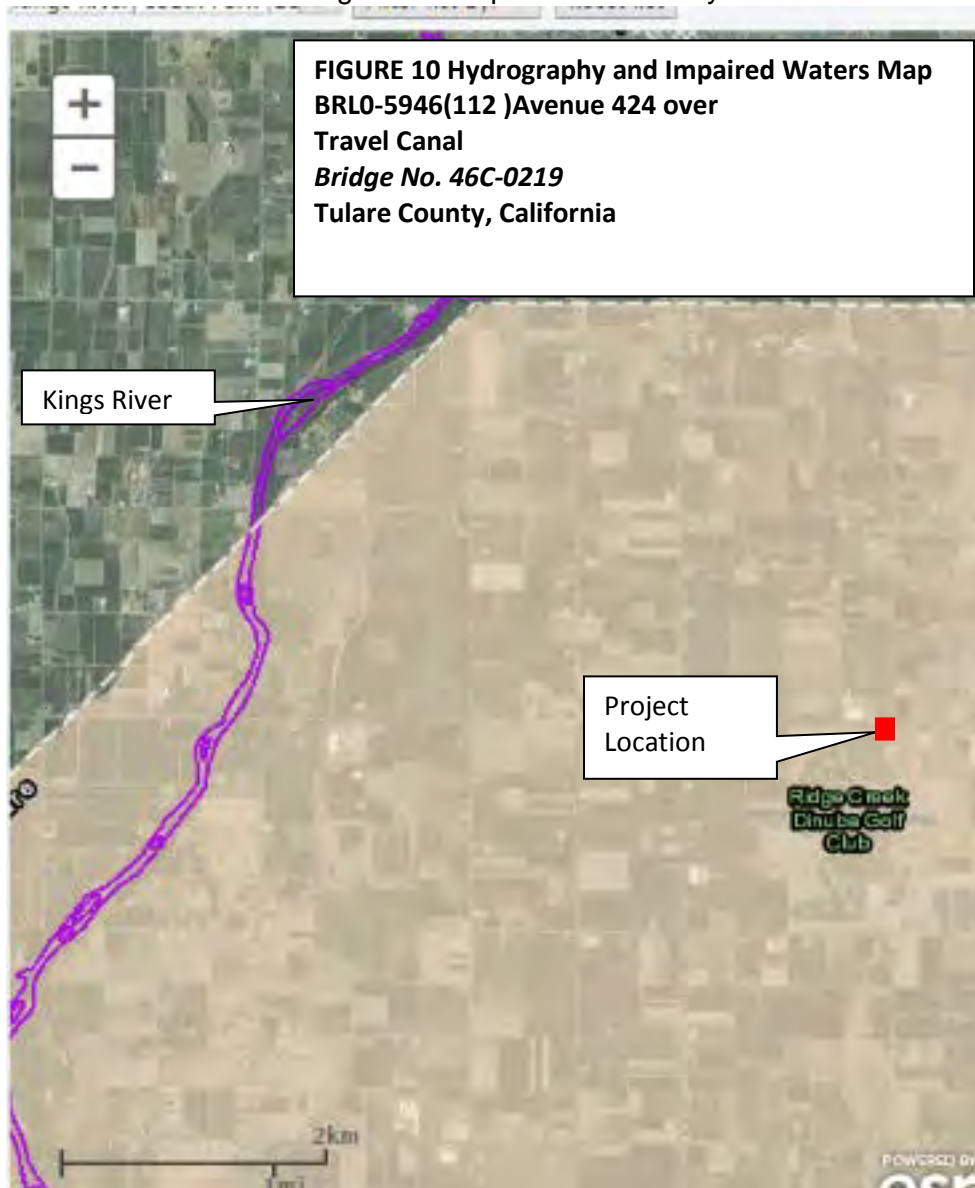


TABLE 2
BENEFICIAL USES OF THE OTHER EAST SIDE STREAMS

AGR (agricultural) = Uses of water for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.
COLD (cold freshwater habitat) = Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
FRSH (freshwater replenishment) = Uses of water for natural or artificial maintenance of surface water quantity or quality.
GWR (groundwater recharge) = Uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.
MUN (municipal and domestic supply) = Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
POW (hydropower generation) = Uses of water for hydropower generation.
REC-1 (water contact recreation) = Uses of water for recreational activities involving body contact with water, where ingestion is reasonably possible. These uses include, but are not limited to, swimming, wading, water skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.
REC-2 (non-contact water recreation) = Uses of water for recreational activities involving proximity to water but where there is generally no body contact with water, nor any likelihood of ingestion of water. These uses include, but are not limited to, picnicking, sunbathing, hiking, beach combing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
WARM (warm freshwater habitat) = Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
WILD (wildlife habitat) = Uses of water that support terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife, or wildlife water and food sources.

4.1 WATER QUALITY FINDINGS

4.2 WATER QUALITY IMPACTS

4.2.1 Short Term Impacts

Construction activities associated with the project would include disturbances to the ground surface from earthwork, and some vegetation removal would be required, which would increase the potential for slope erosion. These activities could potentially increase the amount of sediments entering Travel Canal. Runoff during the winter season is of greater concern due to the potential erosion of unprotected or graded surfaces during rain events. Sediments could potentially harm aquatic resources and water quality.

Materials used during construction of the project (e.g., concrete curing compounds) could have chemicals that are potentially harmful to aquatic resources and water quality.

Accidents or improper use of these materials could result in the release of contaminants into the environment, including the river itself. Additionally, oil and other petroleum products used to maintain and operate construction equipment could be accidentally released.

As discussed above, these construction-related compounds could be toxic to aquatic species; however, avoidance and minimization measures, including standard BMPs, would be included in the project to avoid or minimize the release of pollutants, including sediments and chemical toxins, into the environment during construction. The project would be constructed in accordance with applicable water quality regulations, and would not be expected to result in substantial water quality impacts during construction.

4.2.2 Long Term Water Quality Impacts

A nominal increase in impervious surface of approximately 500 square feet as the result of increasing the width of the bridge and minimal increase increased shoulder improvements the result of new roadway. Because this increase in impervious surface is minimal, the proposed project would not cause a substantial increase in volume and velocity of storm water flows entering Travel Canal, nor would the project increase the pollutant load into the river.

4.3 REQUIRED PERMITS

Construction of the concrete slab bridge with the associated rock slope protection will have permanent impacts to waters of the U.S. and waters of the State. The new bridge footings and piles would result in fill along the canal slopes (approximately 0.02 acre waters of the U.S. and state), although the overall net increase would be balanced by the removal of the existing abutments. The RSP would also result in new fill within the canal (approximately 0.055 acre waters of the U.S. and state). The wider bridge deck would not result in fill, but would increase the shaded area under the bridge (approximately 0.019 acre waters of the U.S. and state), which could affect plant and wildlife; therefore, the following permits would be required to comply with the CWA and California Fish and Game Code:

- Section 404 Nationwide Permit from the USACE (non-reporting);
- Section 401 Water Quality Certification from the RWQCB; and
- Section 1602 Streambed Alteration Agreement from the CDFW.

Construction of the proposed project is expected to disturb less than 1.0 acre of land around and under the Avenue 424 over Travel Canal. As a result, a general construction permits through the SWRCB, and the associated Storm Water Pollution Prevention Plan (SWPPP) would be required prior to start of construction.

5.1 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Short term impacts to surface water quality could occur during construction of the Avenue 424 over Travel Canal Bridge Project. Since construction will take place within the seasonal creek, it is important that the connectivity is protected from increases in the sediment load, turbidity, and total dissolved solids generated during construction. The following measures are recommended for inclusion on applicable plans prepared for the project. All BMP's and other measures should be prepared in consultation with the project engineer, Tulare County, the RWQCB, and other regulatory agencies.

- The construction contractor shall adhere to the SWRCB Order No. 2009-009-DWQ as amended by Order 2010-0014-DWQ and Order 2012-0006-DWQ NPDES Permit pursuant to

Section 402 of the CWA. This permit authorizes storm water and authorized non-storm water discharges from Caltrans construction properties, facilities and activities and would be required prior to construction of this project. As part of this Permit requirement, a SWPPP shall be prepared prior to construction consistent with the requirements of the RWQCB. This SWPPP will incorporate all applicable BMPs to ensure that adequate measures are taken during construction to minimize impacts to water quality.

5.2 BEST MANAGEMENT PRACTICES

Prior to the start of construction activities, the project limits in proximity to jurisdictional waters must be marked with high visibility Environmentally Sensitive Area (ESA) fencing or staking to ensure construction will not further encroach into jurisdictional waters.

Contract specifications will include the following best management practices (BMPs), where applicable, to reduce erosion during construction:

- Implementation of the project will require approval of a site-specific Storm Water Pollution Prevention Plan (SWPPP) that would implement effective measures to protect water quality, which may include a hazardous spill prevention plan and additional erosion prevention techniques;
- Existing vegetation will be protected in place where feasible to provide an effective form of erosion and sediment control;
- Roughening and terracing will be implemented to create unevenness on bare soil through the construction of furrows running across a slope, creation of stair steps, or by utilization of construction equipment to track the soil surface. Surface roughening or terracing reduces erosion potential by decreasing runoff velocities, trapping sediment, and increasing infiltration of water into the soil, and aiding in the establishment of vegetative cover from seed.
- Any concrete rubble, asphalt, or other debris from construction must be taken to an approved disposal site.

5.3 REQUIREMENTS FOR WATER POLLUTION CONTROL PLANS

To conform to water quality requirements, the SWPPP must include the following:

- Vehicle maintenance, staging and storing equipment, materials, fuels, lubricants, solvents, and other possible contaminants must be a minimum of 50 feet from surface waters. Any necessary equipment washing must occur where the water cannot flow into surface waters. The project specifications will require the contractor to operate under an approved spill prevention and clean-up plan;
- Construction equipment will not be operated in flowing water;
- Construction work must be conducted according to site-specific construction plans that minimize the potential for sediment input to surface waters;
- Raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life shall be prevented from contaminating the soil or entering surface waters;
- Equipment used in and around surface waters must be in good working order and free of dripping or leaking contaminants; and,

5.4 PERMITS

- Section 1602 Streambed Alteration Agreement through the CDFW to ensure protection from impacts to the streambed or associated riparian habitat.
- Certification for Water Quality (401) from the Central Valley RWQCB to ensure water quality regulations is complied.

-
- Nationwide Permit from USACE to regulate the placement of dredge and fill material into Waters of the U.S. (404).
 - General Construction Permit from the SWRCB for soil disturbance.

With the implementation of the above avoidance and minimization measures, no adverse impacts would be expected to result from the project, and no mitigation measures would be required.

6.0 REFERENCES

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- United States Department of Agriculture Natural Resources Conservation Service (NRCS). Soil Survey of Tulare County, California. Soil Data. December 27, 2015. <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Accessed August 1, 2017.

**ATTACHMENT “I”
MINERAL RESOURCES**

CGS Mineral Land Classification Map

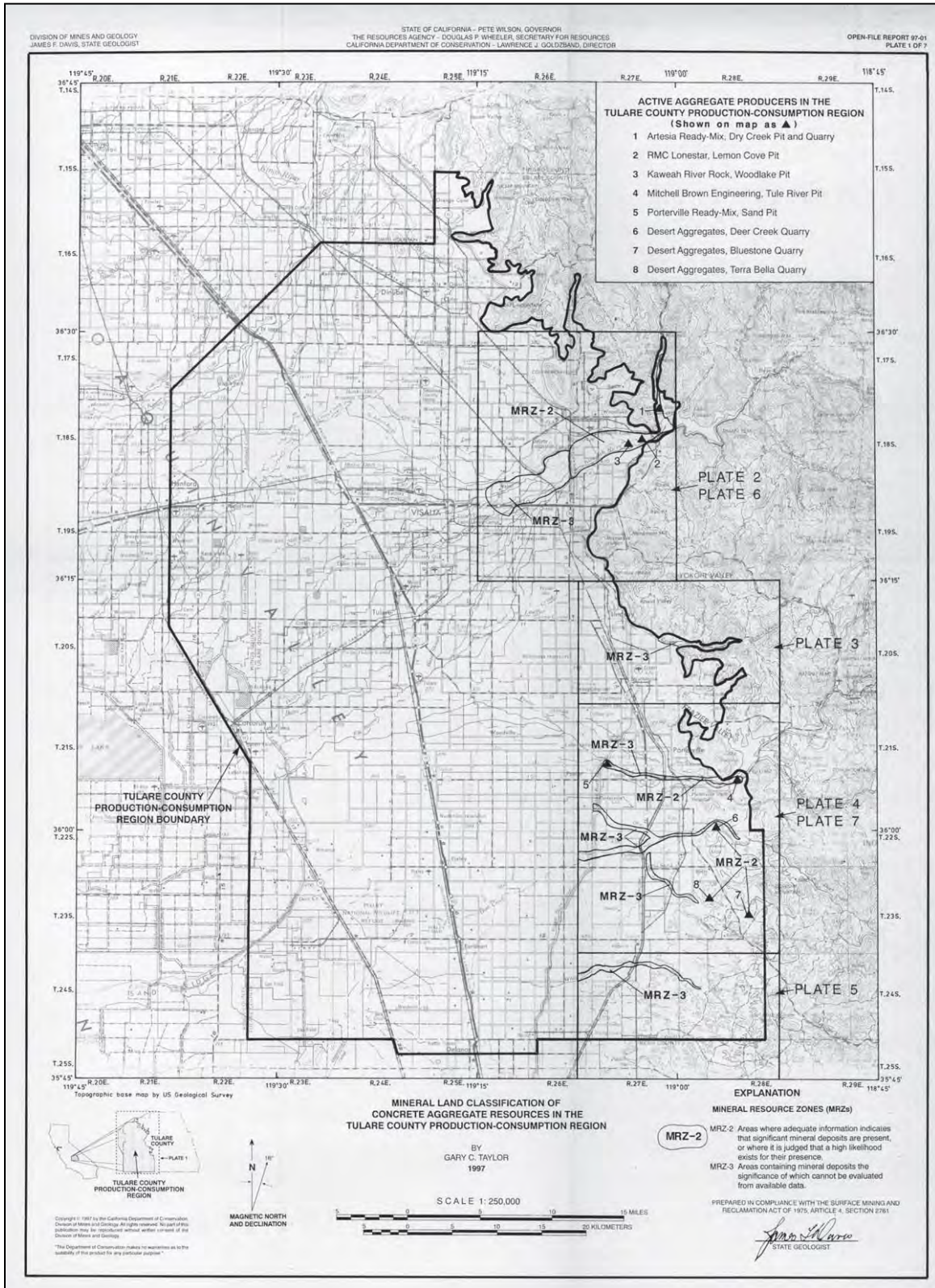
Tulare County Mineral Resource Zones Map

USGS Mineral Resources Map

Tulare County Oil and Gas Resources Map

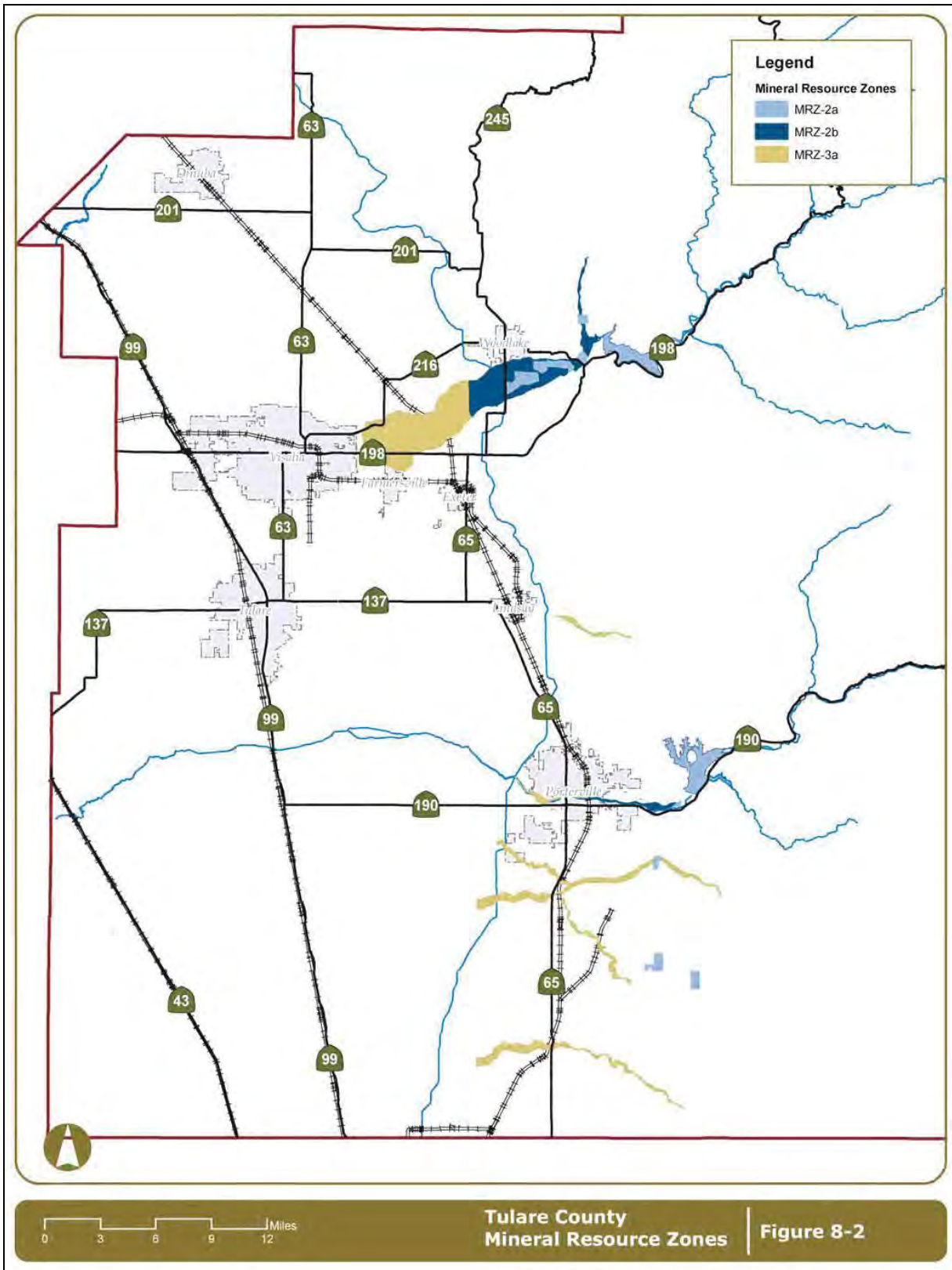
DOGGR Well Finder Map

CGS Mineral Land Classification Map



Source: California Geological Survey, ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/OFR_97-01/OFR_97-01_Plate1.pdf.

Tulare County Mineral Resource Zones Map



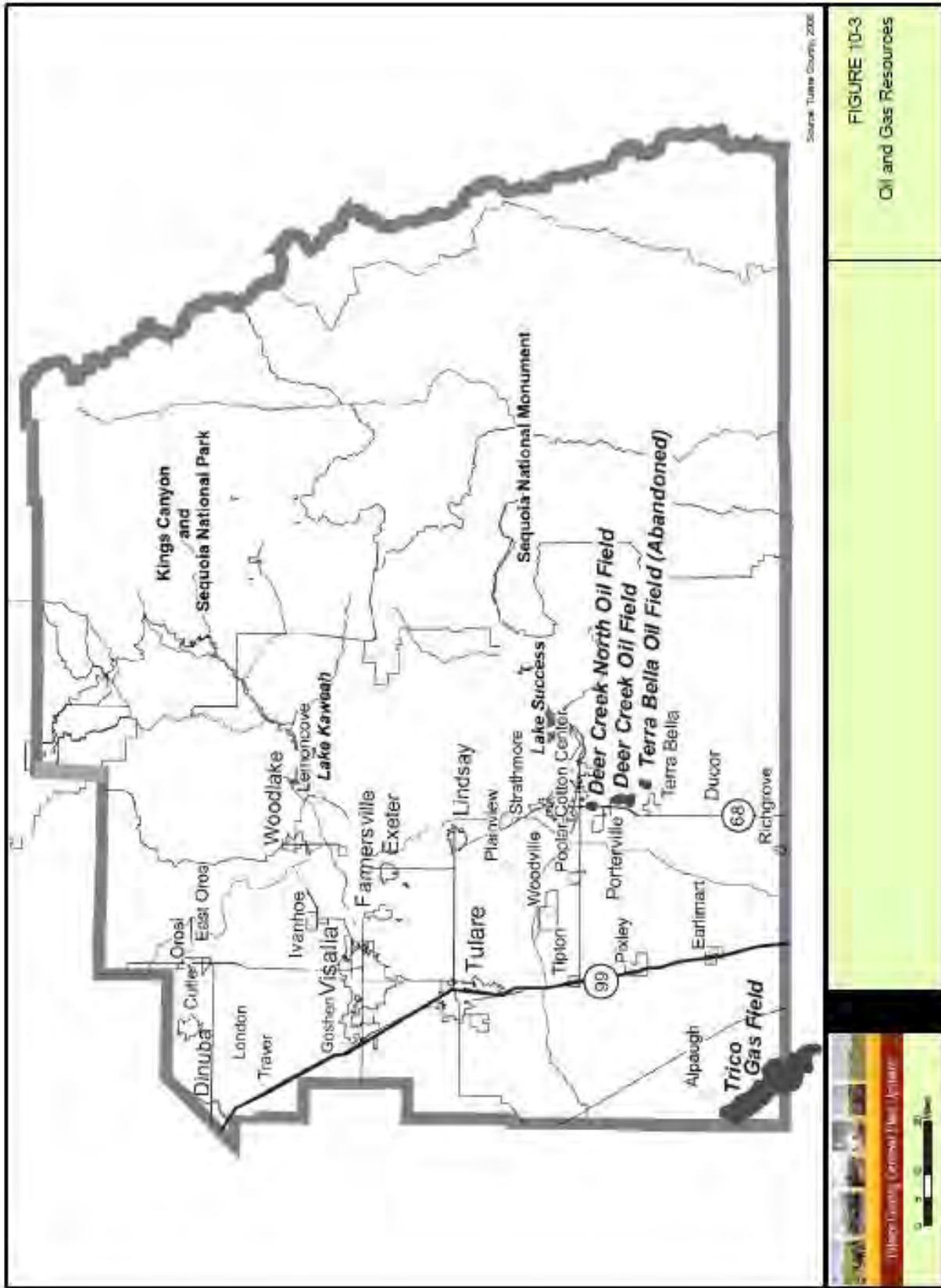
Source: Tulare County General Plan

USGS Mineral Resources Map

The screenshot displays the USGS Mineral Resources Map interface. The browser address bar shows the URL: <https://mrdata.usgs.gov/general/map.html>. The map shows a rural landscape with agricultural fields and some buildings. A red star icon marks a 'Project Site' in the lower-left quadrant. Other labeled features include 'Dimutha Magnesite Co.', 'Ledbetter Borrow Pit', 'Dickey', and 'Borrow Pit'. A blue arrow points to a 'North' label on the right side of the map. A legend on the right side of the map lists various mineral resource types, including Caliche Pit, Cinder Pit, Clay Pit, Coal Mine, Diggings, Stony Hole, Gravel Pit, Gravel/Borrow pit - Undifferentiated, Hydraulic Mine, Lignite Pit, Mill Site, Mine Dump, Mine Shaft, Open Pit Mine, Open Pit Mine or Quarry, the Stockpile/Storage, Placer Mine, Prospect Pit, Panice Mine, Panice Pit, Quarry, Quarry - Gypsum, Quarry - Limestone, Quarry - Panice, Quarry - Rock, Sand Pit, Sand and Gravel Pit, Scoria Pit, Scale Pit, Silica Mine, Slag Pile, Strip Mine, Tailings - Deodge, Tailings - Placer, Tailings - Thickener, Tailings - Undifferentiated, Trench, and Uranium Mine. Below the legend, there is a section for 'Mineral Resources (MRDS)' with symbols for Mine, past or present producer; Prospect or occurrence; Processing plant; and Unknown. The browser's address bar also shows 'Mineral Resources On-Line Spatial Data' and 'Interactive map'. The bottom of the browser window displays 'Accessibility', 'FOIA', 'Privacy', 'Policies and Notices', and 'U.S. Department of the Interior | U.S. Geological Survey'.

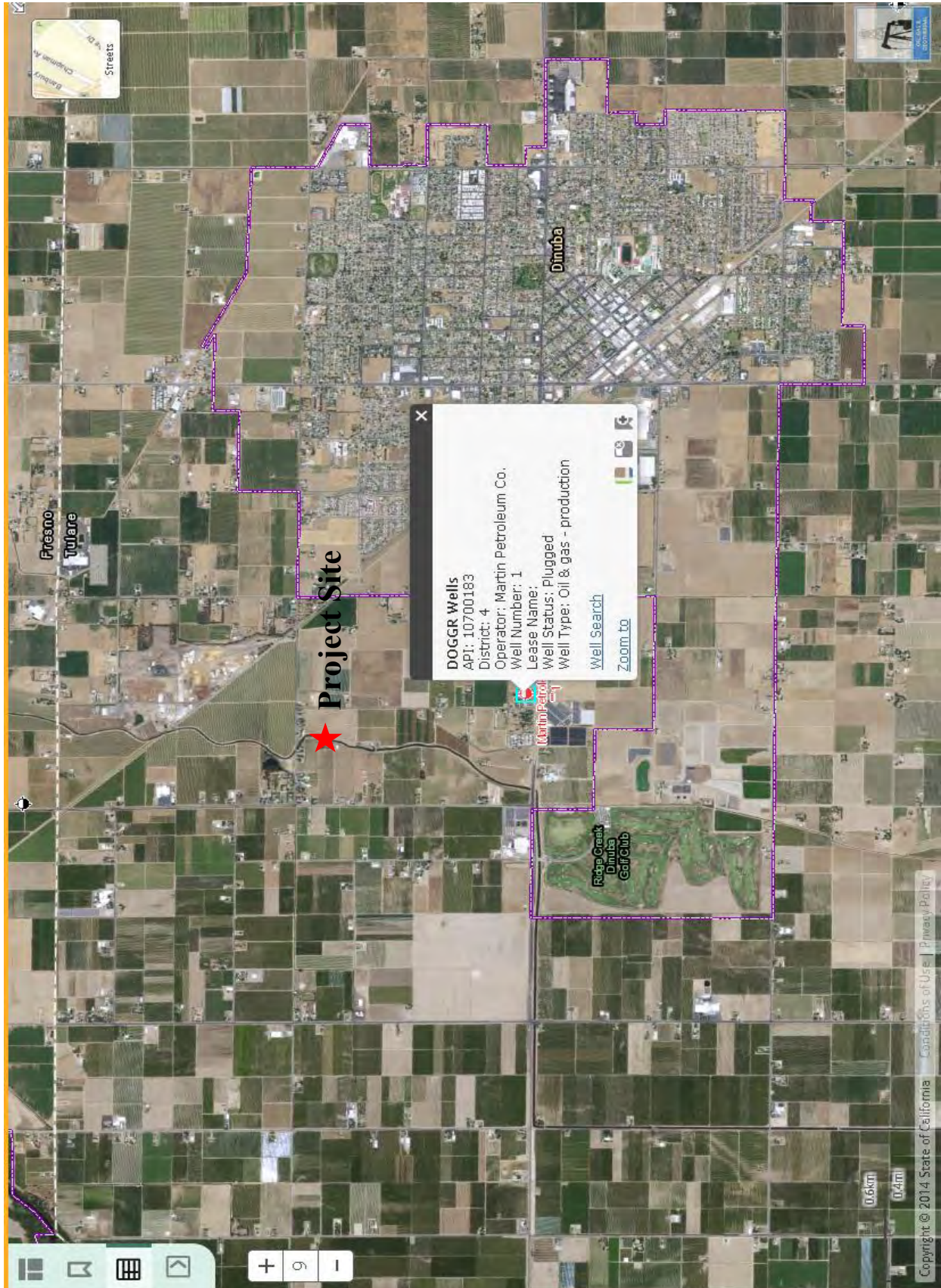
Source: <https://mrdata.usgs.gov/general/map.html>

Oil and Gas Resources Map



Source: Tulare County General Plan

DOGGR Well Finder Map



Source: Department of Conservation, <https://maps.conservation.ca.gov/doggr/wellfinder/#close>

**ATTACHMENT “J”
NOISE**

Noise Technical Memorandum



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TECHNICAL MEMORANDUM

Date: April 6, 2017

From: Kurt Legleiter, Principal

Subject: **Construction Noise & Groundborne Vibration Technical Memorandum –
Avenue 424 over Traver Canal Bridge Replacement Project**

INTRODUCTION

The County of Tulare (County) Resource Management Agency (RMA), in cooperation with the California Department of Transportation (Caltrans), proposes to replace the existing Traver Canal Bridge (#46C-0219). The proposed project location is depicted in Figure 1. Abatement measures have been identified, where necessary, to reduce potential construction noise impacts to nearby land uses.

PROPOSED PROJECT

The project includes replacement of the bridge in order to provide a wider and longer two-lane structure and guard rails in compliance with current AASHTO standards. The proposed bridge structure is a cast-in-place reinforced concrete flat slab bridge with two spans at 35-ft. in length. The proposed bridge would be approximately 70-ft. long by 35.5-ft. wide (32-ft. curb to curb). The bridge would retain two traffic lanes (one in each direction); however, the lane widths would be increased to 12-ft and would include 4-ft. shoulders on both sides. The bridge would taper from 32-ft. at the bridge to match the existing 19-ft. approach roadways. The project may include improvements to the approach roadways approximately 400-ft. east and 400-ft. west of the existing bridge. The project limits are depicted in Figure 2.

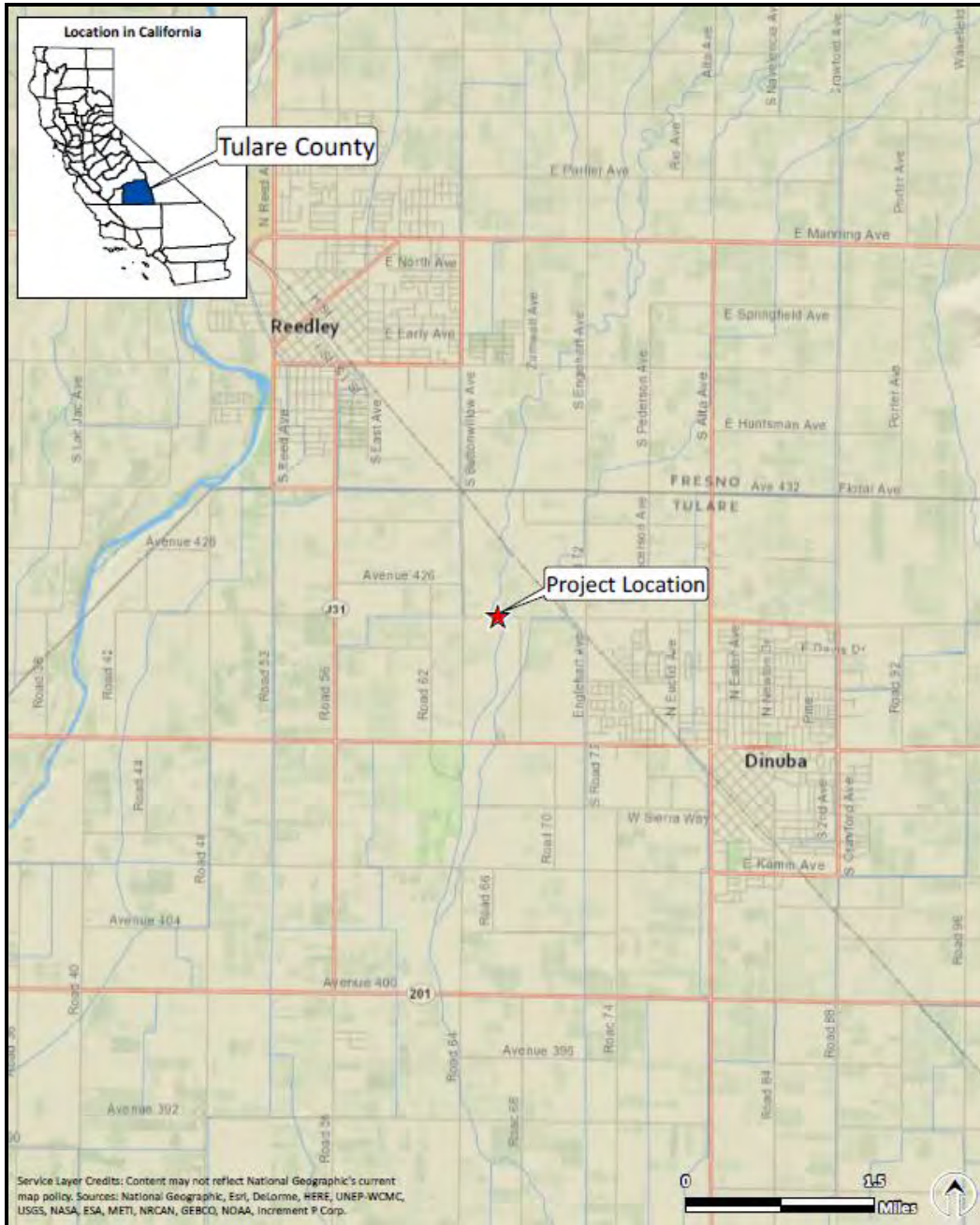
Project Construction

The contractor will move onto the site to begin the road closure, providing detour and closure signage, and will prepare the existing structure for demolition. The project's construction window will fall within the canal dry season from late October to early May. The contractor will require access to the canal bottom to assist with bridge demolition and new construction. A graded work pad can be provided in the canal on top of coregulated metal pipes to convey the occasional storm flow.



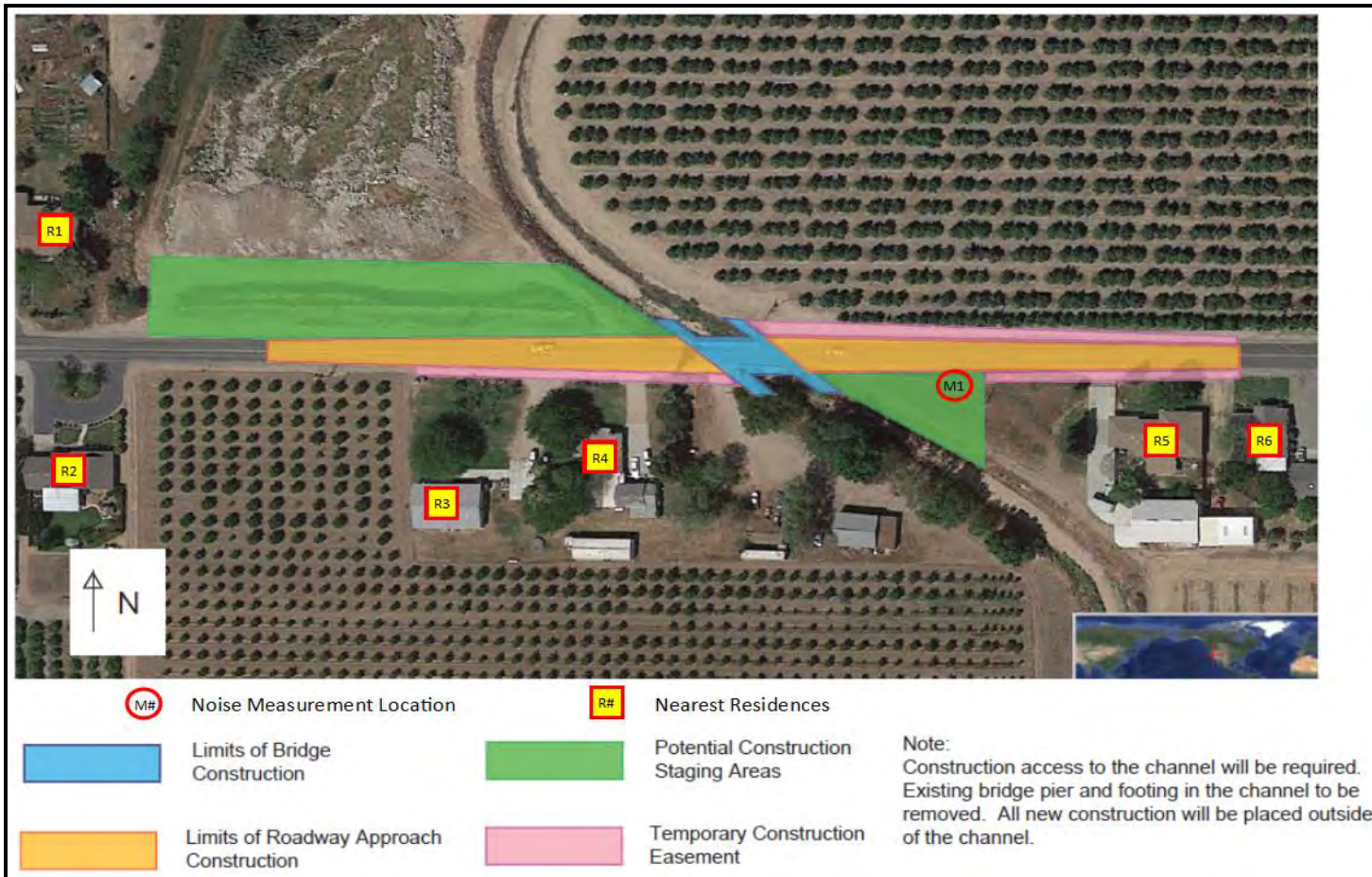
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Figure 1. Project Location



Source: Tulare County 2013

Figure 2. Project Limits, Noise Measurement Location & Nearest Residences



Locations are approximate. Not to Scale



As the contractor begins demolition of the existing bridge, a back hoe or loader and an excavator mounted with a hydraulic impact breaker will be staged for the work. The contractor will then use the excavator mounted hydraulic impact breaker to break apart the existing concrete superstructure, letting the debris fall into the prepared area of the canal. With the superstructure demolished, loaders will be used to haul the debris away to the staging area, where it will be hauled away with trucks and properly disposed. This activity can be expected to last approximately one week.

An excavator will then be staged within the channel to excavate the proposed bridge foundations. The foundations will be excavated to below the existing canal invert. When excavation is complete the excavator will be removed from the channel and replaced with a small crane and pile driving rig. The crane will pick and place steel or concrete piles for driving. Pile driving will be necessary at each abutment, and it is expected that continuous pile driving will be required for a duration of four days (two days per abutment). If overhead lines interfere with pile driving equipment, they will need to be relocated before this stage. With the piles installed, formwork for the footings will be built by hand and erected with the assistance of the crane. Footing reinforcement may be installed by hand or with the help of the crane if a prefabricated rebar cage is used. When the foundations are formed, a concrete pump will be staged at the adjacent approach. The concrete pump will be staged on the west approach to install the west footing and on the east approach to install the east footing.

To construct the abutments, the contractor will build plywood abutment forms and use a backhoe to set them in place. With the abutment forms in place, the contractor will then place reinforcement. Concrete will then be poured at one abutment, and then the other, which will complete abutment construction.

Assuming that a precast structure is proposed, a large crane will then be staged on one approach behind the new abutment. Precast elements will be delivered to the site on tractor trailers. The crane will be used to pick the precast elements from the truck trailer and place them onto the bridge abutment bearings. It is expected that this stage would last approximately one day.

Once the precast elements are in place, forms for the internal and end diaphragms can be constructed. Workers will place the forms and reinforcement by hand. Deck construction will involve erecting either plywood or stay-in-place metal formwork between the precast elements and hand placing deck reinforcement. When the deck is ready for the concrete pour, concrete pumps will be staged at one side of the bridge.

When the deck concrete cures, workers will remove the plywood forms and hang the required utilities under the bridge. Utility crews will install the utilities under the bridge as well as construct casings through the abutments and extending through the approach slab. While the deck forms are removed and the utilities are installed, formwork for the concrete curbs and barriers will be constructed. Rebar will be hand placed within the forms and concrete can be poured from a truck staged on the bridge deck. Within a few days, the forms can be removed.



Approach work would then begin and the new structure could be used as access for crews and vehicles from one side of the project site to the other. If needed, the contractor will haul in additional structure backfill and will complete grading behind the abutment backwalls and wingwalls. Ideally, the structure would be backfilled with material excavated on site from other construction activities. The contractor will use self-propelled rollers and hand-guided compactors to achieve backfill compaction requirements. The base material for approach slabs can then be laid down and compacted in a similar fashion. The reinforced concrete approach slabs will be formed, rebar placed and then cast against the side forms. The guard rails will be installed. A dump truck would deliver rock slope protection to the site and it would be placed around the abutments using a backhoe.

In preparation for traffic, materials and equipment will be removed from the new bridge and approaches. The existing asphalt at the north and south tie-in points will first be removed. Next, new roadway base material and asphalt will be placed to construct the new roadbed. Final signage and striping will then be added and the bridge will be opened to traffic.

ACOUSTIC FUNDAMENTALS

Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.0000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise



environments can range from less than 100 to 100,000,000 mPa. Because of this huge range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 mPa.

Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB, rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 decibels for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 decibels for each doubling of distance from a line source.

A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz, and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an “A-weighted” sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Typical A-weighted noise levels are depicted in Table 1.



Table 1. Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet fly-over at 1000 feet	— 110 —	Rock band
Gas lawn mower at 3 feet	— 100 —	
Diesel truck at 50 feet at 50 mph	— 90 —	Food blender at 3 feet
Noisy urban area, daytime	— 80 —	Garbage disposal at 3 feet
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
Quiet urban daytime	— 50 —	Large business office
		Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 1998.

Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3-dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels, when exposed to steady, single-frequency (“pure-tone”) signals in the midfrequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of



sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound, would generally be perceived as barely detectable.

Common Noise Descriptors

Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used for the analysis of construction-generated noise:

- *Equivalent Sound Level (L_{eq}):* L_{eq} represents an average of the sound energy occurring over a specified period. The 1-hour A-weighted equivalent sound level ($L_{eq}^{[h]}$) is the energy average of A-weighted sound levels occurring during a one-hour period.
- *Maximum Sound Level (L_{max}):* L_{max} is the highest instantaneous sound level measured.

REGULATORY FRAMEWORK

Noise

Federal Regulations

23 CFR 772 provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and federal-aid highway projects. 23 CFR 772 requires that construction noise impacts be identified, but does not specify specific methods or abatement criteria for evaluating construction noise.

State Regulations

The California Department of Transportation's *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects* (2011 Protocol) specifies the policies, procedures, and practices to be used by agencies that sponsor new construction or reconstruction of federal or federal-aid highway projects. The noise abatement criteria specified in the Protocol are the same as those specified in 23 CFR 772.

Tulare County

The Tulare County General Plan, Policy HS-8.18, Construction Noise, limits construction activities that occur near noise-sensitive receptors to between the hours of 7:00 am and 7:00 pm, Monday through Saturday. Construction activities are typically prohibited on Sundays or national holidays unless permitted by the County (Tulare County 2012).



EXISTING SETTING

Existing Noise-Sensitive Land Uses

Noise-sensitive receptors in the vicinity of the project site consist predominantly of rural residential dwellings. The nearest residential dwellings are located approximately 105 feet to the southwest and approximately 295 feet southeast of the bridge. Nearby residential land uses are depicted in Figure 2.

Existing Noise Environment

A site investigation conducted on March 21, 2017 for purposes of documenting ambient noise conditions and to verifying/document the location of nearby noise-sensitive land uses. Noise measurements were conducted using a Larson Davis Laboratories, Type I sound-level meter. Noise-measurement survey data is summarized in Table 2. Based on the measurements conducted, ambient noise levels in the project area are primarily influenced by vehicular traffic. Measured daytime noise levels ranged from approximately 66 to 69 dBA L_{eq} .

Table 2. Summary of Short-Term Measurements

Monitoring Location	Primary Noise Sources	Date	Measurement Period	Noise Level (dBA)	
				L_{eq}	L_{max}
Avenue 424, Approximately 23 feet south of the roadway centerline	Vehicular Traffic	09/29/2016	16:20-16:35	66.2	79.2
		03/21/2017	11:10-11:16	68.4	79.3
		03/21/2017	11:20-11:30	68.8	80.7

Noise measurement location is depicted in Figure 2.

CONSTRUCTION NOISE & GROUND BORNE VIBRATION IMPACT ANALYSIS

Construction Noise

No standardized criteria have been developed for assessing construction noise impacts. However, the Federal Transit Administration has developed guidelines for the general assessment of construction noise levels. Based on these criteria, impacts requiring abatement would generally occur if predicted hourly noise levels would exceed 90 dBA L_{eq} during the daytime hours or 80 dBA L_{eq} during the nighttime hours (FTA 2006).

Table 3 summarizes noise levels produced by construction equipment commonly used on roadway and bridge construction projects. Depending on the equipment used, individual construction equipment can generate intermittent noise levels ranging from approximately 77 to 101 dBA L_{max} at 50 feet. Average-hourly noise levels associated with individual construction equipment generally range from approximately 72 to 94 dBA L_{eq} at 50 feet.



Table 3. Construction Equipment Noise

Equipment	Noise Level (dBA at 50 feet)	
	L _{max}	L _{eq}
Backhoes	78	74
Bulldozers	82	78
Compressors	78	74
Cranes	81	73
Concrete Pump Truck	81	74
Drill Rigs	79	72
Dump Trucks	77	73
Hydraulic Break Rams	90	80
Front End Loaders	79	75
Impact Pile Drivers	101	94
Pneumatic Tools	85	82
Pumps	81	78
Rollers	80	73
Scrapers	84	80

Based on measured instantaneous noise levels (L_{max}), average equipment usage rates, and calculated average-hourly (L_{eq}) noise levels derived from the FHWA Road Construction Noise Model (FHWA 2006b)

Noise produced by construction equipment decreases at a rate of about 6 dB per doubling of distance from the source. Based on this attenuation rate, the equipment noise levels identified in Table 3, and assuming multiple pieces of equipment operating simultaneously, the highest predicted average-hourly noise levels at the nearest residential dwellings would range from approximately 57 to 91 dBA L_{eq} (refer to Table 4). Intermittent noise levels could reach levels of approximately 59 to 95 dBA L_{max} for brief periods of time.

As noted in Table 4, the highest predicted noise levels would occur at Receiver 4 associated with the use of impact pile drivers. Predicted average-hourly noise levels at this receiver would exceed the daytime and nighttime general assessment thresholds of 90 and 80 dBA L_{eq}, respectively. In the event that impact pile driving were to occur during the nighttime hours, predicted noise levels at Receivers 3, 4, and 5 would be projected to exceed the nighttime general assessment threshold of 80 dBA L_{eq}. Receiver locations are depicted in Figure 2.

In comparison to impact-driven piles, the use of alternative pile installation techniques would reduce pile installation noise levels. As noted in Table 4, the use of drilled piles would reduce pile installation noise levels at the nearest residential dwellings by approximately 17 dBA. Actual noise levels will vary depending on various factors, including the type and number of pieces of equipment used and duration of use. With regard to residential land uses, activities occurring during the more noise-sensitive nighttime hours would be of particular concern given the potential for increased levels of annoyance and sleep disruption to building occupants.



Table 4. Predicted Construction Noise Levels at Nearby Residential Land Uses

Construction Activity	Equipment	Receiver											
		R1		R2		R3		R4		R5		R6	
		L _{eq}	L _{max}	L _{eq}	L _{max}	L _{eq}	L _{max}	L _{eq}	L _{max}	L _{eq}	L _{max}	L _{eq}	L _{max}
Bridge Piles - Impact	Impact Pile Drivers (2)	76	80	77	81	84	88	91	95	82	86	79	83
Bridge Piles - Vibratory	Vibratory Pile Drivers (2)	75	79	76	80	83	87	90	94	81	85	78	82
Bridge Piles - Drilled	Augers (2)	59	63	60	64	67	71	74	78	65	69	62	66
Bridge Excavation	Excavator, Dump Truck	57	59	58	60	65	67	72	74	63	65	60	62
Bridge Demolition	Excavator, Hydraulic Breaker	61	69	62	70	69	77	76	84	67	75	64	72
Road Grading	Grader, Roller	71	74	73	76	75	78	82	85	84	87	84	87
Road Paving	Paver, Roller	66	69	68	71	70	73	77	80	79	82	79	82

Noise levels were calculated using the Federal Highway Administration. Roadway Construction Noise Model, Version 1.1 (December 08, 2008). Assumes two loudest pieces of equipment operating simultaneously and a noise attenuation rate of 6 dB/doubling of distance from the source. Based on distance to the nearest residential dwelling. Refer to Figure 2 for receiver locations.



Recommended Construction Noise Abatement Measures

Sound control shall conform to the provisions in Section 14-8.02, "Noise Control," of the Standard Specifications. Caltrans Standard Specifications Section 14-8.02 requires the following mandatory noise abatement measures:

- Per Section 14-8.02 Noise Control, do not exceed 86 dBA L_{max} at 50 feet from the job site activities from 9 p.m. to 6 a.m.

In addition to the abatement measures listed above, implementing the following recommended measure would help minimize temporary construction noise impacts:

- Internal combustion engines shall be equipped with a muffler of a type recommended by the manufacturer.
- Construction activities, excluding activities required to occur without interruption or activities that would pose a significant safety risk to workers or citizens, shall be limited to between the daytime hours of 7:00 a.m. and 7:00 p.m.
- Portable/stationary equipment (e.g., generators, compressors) shall be located at the furthest distance from the nearest residential dwelling.
- As directed by the County resident engineer, the contractor shall implement appropriate additional noise abatement measures including, but not limited to, siting the location of stationary construction equipment away from sensitive noise receptors to the greatest extent feasible, turning off idling equipment after no more than five minutes of inactivity, and rescheduling construction activity to avoid noise-sensitive days or times.
- Use alternative pile installation techniques (e.g., drilled piles) to the extent possible.

Compliance with Caltrans' Standard Specifications would limit construction noise levels to 86 dBA L_{max} at 50 feet during the nighttime hours of 9:00 p.m. to 6:00 a.m. For pile driving activities, this limitation would reduce construction noise levels at the nearest residence to approximately 73 dBA L_{eq} . The use of mufflers would further reduce equipment noise levels by as much as approximately 10 dBA. Other noise-reduction measures, such as idling limitations for construction equipment, can result in further reductions in overall construction noise levels. With implementation of the above construction noise abatement measures, as well as enforcement of the County of Tulare noise control requirements that generally limit construction activities to between the daytime hours of 7:00 a.m. and 7:00 p.m., noise impacts associated with short-term construction of the proposed project would not be anticipated to result in a significant impact to occupants of nearby residential dwellings.



Groundborne Vibration

Groundborne vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person’s perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating. Vibration can be measured in terms of acceleration, velocity, or displacement.

The effects of groundborne vibration levels, with regard to human annoyance and structural damage, is influenced by various factors, including ground type, distance between source and receptor, and duration. Overall effects are also influenced by the type of the vibration event, defined as either continuous or transient. Continuous vibration events would include most construction equipment, including pile drivers, and compactors; whereas, transient sources of vibration create single isolated vibration events, such as demolition ball drops and blasting. Construction activities associated with the proposed project would be categorized as continuous vibration events.

There are no federal, state, or local regulatory standards for groundborne vibration. However, Caltrans has developed vibration criteria based on potential structural damage risks and human annoyance (refer to Table 5 and Table 6, respectively). As indicated in Table 5, the threshold at which there is a risk to normal structures from continuous events is 0.3 inches per second, peak particle velocity (in/sec ppv) for older residential structures and 0.5 in/sec ppv for newer building construction. With regard to human perception (refer to Table 6), continuous vibration levels are considered annoying for people in buildings at levels of 0.2 in/sec ppv (Caltrans 2013).

Table 5. Vibration Criteria for Structural Damage

Structure and Condition	Vibration Level (in/sec ppv)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
Newer residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

*Notes: Transient sources create a single isolated vibration event, such as blasting or ball drops. Traffic, train, and most construction vibrations are considered continuous. All damage criteria for buildings are in terms of ground motion at the buildings foundations.
 in/sec ppv = inches per second peak particle velocity
 Caltrans 2013*



Table 6. Vibration Criteria for Human Annoyance

Human Response	Vibration Level (in/sec ppv)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.1
Annoying to people in buildings	--	0.2
Severe	2.0	0.4

*Notes: Transient sources create a single isolated vibration event, such as blasting or ball drops. Traffic, train, and most construction vibrations are considered continuous.
 in/sec ppv = inches per second peak particle velocity
 -- Not available.
 Caltrans 2013*

Groundborne vibration levels associated with individual pieces of off-road equipment are summarized in Table 5. As indicated, the highest predicted groundborne vibration levels would be associated with the use of impact pile drivers, which can range from a typical level of 0.644 in/sec ppv to an upper level of 1.518 in/sec ppv at 25 feet. Vibration levels for sonic pile drivers are substantially less, ranging from 0.17 to 0.734 in/sec ppv at 25 feet. Vibration levels associated with other construction equipment generally range from approximately 0.003 to 0.089 in/sec ppv at 25 feet.

Table 7. Summary of Construction Equipment Vibration Levels

Source	Vibration Levels at 25 Feet (in/sec ppv)
Impact Pile Driver (Typical-Upper Range)	0.644-1.518
Sonic Pile Driver (Typical-Upper Range)	0.170-0.734
Vibratory Roller	0.210
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Trucks	0.076
Jackhammer	0.035
Small Bulldozer	0.003

*Vibration levels for pile drivers can vary depending on equipment type/size and site conditions.
 Source: FTA 2006, Caltrans 2013*



Groundborne vibration levels at the nearest residences were calculated based on the reference vibration level identified in Table 7 and are summarized in Table 8. As depicted, the highest predicted vibration levels would occur at Receivers 3 and 4 associated with the use of impact pile drivers. Depending on site conditions and the type and size of the pile drivers used, predicted vibration levels at these residences could potentially exceed Caltrans' recommended significance threshold of 0.2 in/sec ppv for human annoyance. Predicted vibration levels at Receiver 4 could also potentially exceed Caltrans' recommended significance threshold of 0.3 in/sec ppv for structural damage. Groundborne vibration levels associated with other construction activities, including bridge demolition, excavation, road grading, and paving would not be projected to exceed the recommended criteria for structural damage or human annoyance (i.e., 0.3 and 0.2 in/sec ppv). In addition, it should be noted that predicted vibration levels at other nearby residential land uses (i.e., Receivers 1, 2, 3, and 6) would not exceed the recommended criteria for structural damage or human annoyance. Receiver locations are depicted in Figure 2.

Recommended Construction Vibration Abatement Measures

Because construction techniques and equipment have not been sufficiently defined, the specific abatement measures to minimize construction-generated vibration levels associated with pile driving cannot be identified at this time. For this reason, it is recommended that a Vibration Reduction and Minimization Plan (VRMP) be developed and implemented during the final design and construction phases of the project. The VRMP shall be developed taking into account site conditions, construction procedures, and the equipment to be used. The objective of the VRMP should be to avoid construction vibration damage using all reasonable and feasible means available. The VRMP shall, at a minimum, including the following:

1. Evaluation of Pile Alternatives: Alternatives to standard driven piles should be considered and evaluated in the VRMP, taking into account site-specific geotechnical data, to the extent available. Such alternatives may include, but are not limited to, the following (Caltrans 2013):
 - *Jetting*: Jetting is a pile driving aid in which a mixture of air and water is pumped through high-pressure nozzles to erode the soil adjacent to the pile to facilitate placement of the pile. Jetting can be used to bypass shallow, hard layers of soil that would generate high levels of vibration at or near the surface if an impact pile driver were used.
 - *Pre-drilling*: Pre-drilling a hole for a pile can be used to place the pile at or near its ultimate depth, thereby eliminating most or all impact driving.
 - *Cast-in-place or auger cast piles*: Using cast-in-place or auger cast piles eliminates impact driving and limits vibration generation to the small amount caused by drilling, which is negligible.
 - *Non-displacement piles*: Use of non-displacement piles such as H piles may reduce vibration from impact pile driving because this type of pile achieves its capacity from end bearing rather than from large friction transfer along the pile shaft.
 - *Pile cushioning*: With pile cushioning, a resilient material is placed between the driving hammer and the pile to increase the period of time over which the energy from the driver is imparted to the pile. Keeping fresh, resilient cushions in the system can reduce the vibration generated by as much as a factor of 2.



- *Scheduling*: Limiting construction activities to specific times can minimize disturbance at nearby vibration-sensitive sites: Adverse effects can be avoided if pile driving is not scheduled for times at which vibration could disturb equipment or people. For example, if pile driving near a residential area can be scheduled during business hours on weekdays, many people will be at work and will therefore not be affected.
 - *Using alternative non-impact drivers*: Several types of proprietary pile driving systems have been designed specifically to reduce impact-induced vibration by using torque and downpressure or hydraulic static loading (e.g., Fundex Tubex piling system, Still Worker static-load piling system, resonance-free vibratory pile driver). These methods would be expected to significantly reduce adverse vibration effects from pile placement. The applicability of these methods depends in part on the type of soil.
2. Public Notification/Compliant Resolution: Nearby residents and property owners located within 300 feet of pile driving activities shall be notified about the project and potential vibration-related consequences at least two weeks in advance of the proposed activity through the local news media or by mail. This notification shall include anticipated schedules for pile driving and telephone number(s) of individuals responsible for implementing and enforcing the VRMP. The VRMP shall include procedures for responding to and investigating complaints.
 3. Vibration Monitoring: Where vibration levels would be projected to approach 0.5 in/sec ppv at nearby residential structures, groundborne vibration levels at the nearest residential structure shall be monitored and recorded during the period of highest vibration producing activities.
 4. Schedule: To the extent possible, pile installation should be limited to the less-noise sensitive daytime hours. If pile installation is to be conducted during the nighttime hours, arrange motel rooms for occupants of buildings where projected vibration levels would approach 0.20 in/sec ppv.



Table 8. Predicted Construction Groundborne Vibration Levels at Nearby Residential Land Uses (in/sec ppv)

Receiver	Drilled Piles	Vibratory Piles		Impact Piles		Excavation	Demolition	Road Grading	Road Paving
		Typical	High	Typical	High				
R1	<0.01	0.01	0.02	0.03	0.07	<0.01	<0.01	0.03	0.03
R2	<0.01	0.01	0.03	0.03	0.08	<0.01	<0.01	0.03	0.03
R3	0.01	0.01	0.06	0.08	0.20	0.01	0.01	0.04	0.04
R4	0.02	0.04	0.15	0.20	0.48	0.02	0.02	0.10	0.10
R5	0.01	0.01	0.05	0.07	0.15	0.01	0.01	0.13	0.13
R6	<0.01	0.01	0.03	0.05	0.11	<0.01	<0.01	0.13	0.13

Geotechnical conditions are unknown. Vibration calculation is conservatively based on Class III soils (hard soils, dense compacted sand, dry consolidated clay, consolidated glacial till, some exposed rock). Impact and vibratory pile vibration levels based on typical and upper end reference vibration levels. Reference vibration levels derived from California Department of Transportation (Caltrans 2013). Impact pile driver energy rating of 84,000 ft-lbs.

Receptor locations that equal or exceed the minimum threshold for human annoyance (0.2 in/sec ppv) at receptor locations are depicted in bold font.

Refer to Figure 2 for receiver locations



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APPENDIX A
Construction Noise & Groundborne Vibration Modeling



Construction Noise Calculations
Input Data

Case Description: Avenue 424 over Traver Canal - Drilled Piles

Receptor

	Description	Land Use	Daytime Baseline (dBA)	Evening Baseline (dBA)	Nighttime Baseline (dBA)
1	R1	Residential	35.0	35.0	35.0
2					
3					
4					

Noise Metric: Leq
Noise Limit Criteria

Receptor #1
Noise Limits

Equipment Receptor #1: R1

	Active	Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)
1	<input checked="" type="checkbox"/>	Auger Drill Rig	<input type="checkbox"/>	20%	85.0	84.4	105.0	0.0
2	<input checked="" type="checkbox"/>	Auger Drill Rig	<input type="checkbox"/>	20%	85.0	84.4	105.0	0.0
3	<input type="checkbox"/>		<input type="checkbox"/>					
4	<input type="checkbox"/>		<input type="checkbox"/>					
5	<input type="checkbox"/>		<input type="checkbox"/>					
6	<input type="checkbox"/>		<input type="checkbox"/>					

Results

Receptor #1: R1

	Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
		Lmax*	Leq	Day		Evening		Night		Day		Evening		Night	
				Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
	Total	77.9	73.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Auger Drill Rig	77.9	70.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Auger Drill Rig	77.9	70.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3															
4															
5															

*Total Lmax is the value for the loudest piece of equipment.



Input Data

Case Description: Avenue 424 over Traver Canal - Vibratory Pile Drivers

Receptor

	Description	Land Use	Daytime Baseline (dBA)	Evening Baseline (dBA)	Nighttime Baseline (dBA)
1	R1	Residential	35.0	35.0	35.0
2					
3					
4					

Noise Metric: Leq

Noise Limit Criteria

Receptor #1

Noise Limits

Equipment

Receptor #1: R1

	Active	Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)
1	<input checked="" type="checkbox"/>	Vibratory Pile Driver	<input type="checkbox"/>	20%	95.0	<input checked="" type="checkbox"/>	100.8	105.0
2	<input checked="" type="checkbox"/>	Vibratory Pile Driver	<input type="checkbox"/>	20%	95.0	<input checked="" type="checkbox"/>	100.8	105.0
3	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>		
4	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>		
5	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>		
6	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>		

Results

Receptor #1: R1

	Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
		Lmax*	Leq	Day		Evening		Night		Day		Evening		Night	
				Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
	Total	94.4	90.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Vibratory Pile Driver	94.4	87.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Vibratory Pile Driver	94.4	87.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3															
4															
5															

*Total Lmax is the value for the loudest piece of equipment.



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Input Data

Case Description: Avenue 424 over Traver Canal - Impact Pile Drivers

Receptor

	Description	Land Use	Daytime Baseline (dBA)	Evening Baseline (dBA)	Nighttime Baseline (dBA)
1	R1	Residential	35.0	35.0	35.0
2					
3					
4					

Noise Metric: Leq

Noise Limit Criteria

Receptor #1

Noise Limits

Equipment

Receptor #1: R1

	Active	Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)
1	<input checked="" type="checkbox"/>	Impact Pile Driver	<input checked="" type="checkbox"/>	20%	95.0	95.0	101.3	105.0
2	<input checked="" type="checkbox"/>	Impact Pile Driver	<input checked="" type="checkbox"/>	20%	95.0	95.0	101.3	105.0
3	<input type="checkbox"/>		<input type="checkbox"/>					
4	<input type="checkbox"/>		<input type="checkbox"/>					
5	<input type="checkbox"/>		<input type="checkbox"/>					
6	<input type="checkbox"/>		<input type="checkbox"/>					

Results

Receptor #1: R1

	Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
		Lmax*	Leq	Day		Evening		Night		Day		Evening		Night	
				Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
	Total	94.8	90.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Impact Pile Driver	94.8	87.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Impact Pile Driver	94.8	87.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3															
4															
5															

*Total Lmax is the value for the loudest piece of equipment.



Input Data

Case Description: Avenue 424 over Traver Canal - Excavation

Receptor

	Description	Land Use	Daytime Baseline (dBA)	Evening Baseline (dBA)	Nighttime Baseline (dBA)
1	R1	Residential	35.0	35.0	35.0
2					
3					
4					

Noise Metric: Leq

Noise Limit Criteria

Receptor #1

Noise Limits

Equipment

Receptor #1: R1

	Active	Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)
1	<input checked="" type="checkbox"/>	Excavator	<input type="checkbox"/>	40%	85.0	80.7	105.0	0.0
2	<input checked="" type="checkbox"/>	Dump Truck	<input type="checkbox"/>	40%	84.0	76.5	105.0	0.0
3	<input type="checkbox"/>		<input type="checkbox"/>					
4	<input type="checkbox"/>		<input type="checkbox"/>					
5	<input type="checkbox"/>		<input type="checkbox"/>					
6	<input type="checkbox"/>		<input type="checkbox"/>					

Results

Receptor #1: R1

	Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
		Lmax*	Leq	Day		Evening		Night		Day		Evening		Night	
				Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
	Total	74.3	71.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Excavator	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Dump Truck	70.0	66.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3															
4															
5															

*Total Lmax is the value for the loudest piece of equipment.



Input Data

Case Description: Avenue 424 over Traver Canal - Demolition

Receptor

	Description	Land Use	Daytime Baseline (dBA)	Evening Baseline (dBA)	Nighttime Baseline (dBA)
1	R1	Residential	35.0	35.0	35.0
2					
3					
4					

Noise Metric: Leq

Noise Limit Criteria

Receptor #1

Noise Limits

Equipment

Receptor #1: R1

	Active	Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)
1	<input checked="" type="checkbox"/>	Excavator	<input type="checkbox"/>	40%	85.0	80.7	105.0	0.0
2	<input checked="" type="checkbox"/>	Dump Truck	<input type="checkbox"/>	40%	84.0	76.5	105.0	0.0
3	<input checked="" type="checkbox"/>	Hydra Break Ram	<input checked="" type="checkbox"/>	10%	90.0	N/A	105.0	0.0
4	<input type="checkbox"/>		<input type="checkbox"/>					
5	<input type="checkbox"/>		<input type="checkbox"/>					
6	<input type="checkbox"/>		<input type="checkbox"/>					

Results

Receptor #1: R1

	Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
		Lmax*	Leq	Day		Evening		Night		Day		Evening		Night	
				Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
	Total	83.6	75.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Excavator	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Dump Truck	70.0	66.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Hydra Break Ram	83.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4															
5															

*Total Lmax is the value for the loudest piece of equipment.



Input Data

Case Description: Avenue 424 over Traver Canal Bridge-Road Grading

Receptor

	Description	Land Use	Daytime Baseline (dBA)	Evening Baseline (dBA)	Nighttime Baseline (dBA)
1	R1	Residential	35.0	35.0	35.0
2					
3					
4					

Noise Metric: Leq

Noise Limit Criteria

Receptor #1

Noise Limits

Equipment Receptor #1: R1

	Active	Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)
1	<input checked="" type="checkbox"/>	Grader	<input type="checkbox"/>	40%	85.0	N/A	40.0	0.0
2	<input checked="" type="checkbox"/>	Roller	<input type="checkbox"/>	20%	85.0	80.0	40.0	0.0
3	<input type="checkbox"/>		<input type="checkbox"/>					
4	<input type="checkbox"/>		<input type="checkbox"/>					
5	<input type="checkbox"/>		<input type="checkbox"/>					
6	<input type="checkbox"/>		<input type="checkbox"/>					

Results

Receptor #1: R1

	Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
		Lmax*	Leq	Day		Evening		Night		Day		Evening		Night	
				Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
	Total	86.9	83.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Grader	86.9	83.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Roller	81.9	74.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3															
4															
5															

*Total Lmax is the value for the loudest piece of equipment.



Input Data

Case Description: Avenue 424 over Traver Canal Bridge-Road Paving

Receptor

	Description	Land Use	Daytime Baseline (dBA)	Evening Baseline (dBA)	Nighttime Baseline (dBA)
1	R1	Residential	35.0	35.0	35.0
2					
3					
4					

Noise Metric: Leq

Noise Limit Criteria

Receptor #1

Noise Limits

Equipment

Receptor #1: R1

	Active	Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)
1	<input checked="" type="checkbox"/>	Paver	<input type="checkbox"/>	50%		85.0	77.2	40.0
2	<input checked="" type="checkbox"/>	Roller	<input type="checkbox"/>	20%		85.0	80.0	40.0
3	<input type="checkbox"/>		<input type="checkbox"/>					
4	<input type="checkbox"/>		<input type="checkbox"/>					
5	<input type="checkbox"/>		<input type="checkbox"/>					
6	<input type="checkbox"/>		<input type="checkbox"/>					

Results

Receptor #1: R1

	Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
		Lmax*	Leq	Day		Evening		Night		Day		Evening		Night	
				Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
	Total	81.9	78.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Paver	79.2	76.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Roller	81.9	74.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3															
4															
5															

*Total Lmax is the value for the loudest piece of equipment.



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PREDICATED CONSTRUCTION NOISE LEVELS AT NEARBY RESIDENTIAL LAND USES (dBA)

Receiver	Drilled Piles		Vibratory Piles		Impact Piles		Excavation		Demolition		Road Grading		Road Paving	
	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
R1	59	63	75	79	76	80	57	59	61	69	71	74	66	69
R2	60	64	76	80	77	81	58	60	62	70	73	76	68	71
R3	67	71	83	87	84	88	65	67	69	77	75	78	70	73
R4	74	78	90	94	91	95	72	74	76	84	82	85	77	80
R5	65	69	81	85	82	86	63	65	67	75	84	87	79	82
R6	62	66	78	82	79	83	60	62	64	72	84	87	79	82

Based on noise attenuation rate of 6 dB/doubling of distance from the source. Assumes two loudest pieces of equipment operating simultaneously.

PREDICATED VIBRATION LEVELS AT NEARBY RESIDENTIAL LAND USES (in/sec ppv)

Receiver	Drilled Piles	Vibratory Piles		Impact Piles		Excavation	Demolition	Road Grading	Road Paving
		Typical	High	Typical	High				
R1	<0.01	0.01	0.02	0.03	0.07	<0.01	<0.01	0.03	0.03
R2	<0.01	0.01	0.03	0.03	0.08	<0.01	<0.01	0.03	0.03
R3	0.01	0.01	0.06	0.08	0.20	0.01	0.01	0.04	0.04
R4	0.02	0.04	0.15	0.20	0.48	0.02	0.02	0.10	0.10
R5	0.01	0.01	0.05	0.07	0.15	0.01	0.01	0.13	0.13
R6	<0.01	0.01	0.03	0.05	0.11	<0.01	<0.01	0.13	0.13

Geotechnical conditions are unknown. Vibration calculation is conservatively based on Class III soils (hard soils, dense compacted sand, dry consolidated clay, consolidated glacial till, some exposed rock). Impact and vibratory pile vibration levels based on typical and upper end reference vibration levels. Reference vibration levels derived from California Department of Transportation (Caltrans 2013). Impact pile driver energy rating of 84,000 ft-lbs.

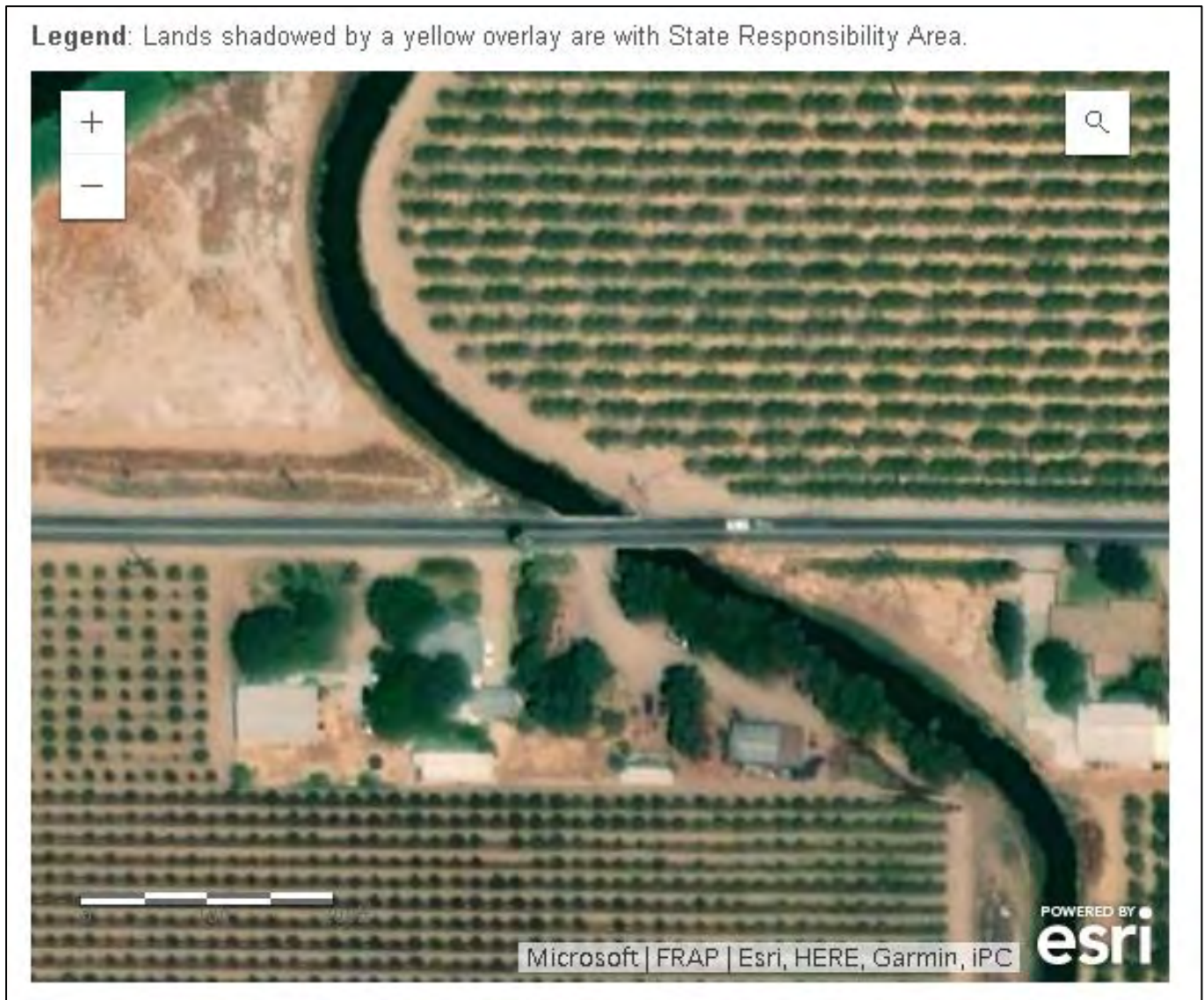
SUMMARY OF DISTANCES TO NEAREST RECEIVERS (FEET)

	BRIDGE WORK	ROAD WORK
R1	570	170
R2	540	150
R3	235	108
R4	105	50
R5	295	40
R6	405	40

**ATTACHMENT “K”
WILDFIRE**

CalFire State Responsibility Area Viewer Map

CalFire State Responsibility Area Viewer Map



Source: http://www.fire.ca.gov/firepreventionfee/srviewer_launch