State Route 12/State Route 113 Intersection Improvement Project

SOLANO COUNTY, CALIFORNIA
STATE ROUTE 12 – SOL PM 19.2/19.2
EA 4G560; Project ID 0412000504

Initial Study with Proposed Mitigated Negative Declaration

Prepared by the
California Department of Transportation

November 2016
General Information about This Document

What's in this document:

The California Department of Transportation (Caltrans) has prepared this Initial Study (IS) with Proposed Mitigated Negative Declaration, which examines the potential environmental impact of the proposed State Route (SR) 12/ SR 113 Intersection Improvement project in Solano County, California. Caltrans is the lead agency under the California Environmental Quality Act (CEQA). This document explains why the project is being proposed, how the existing environment could be affected by the project, the potential impacts of each proposed activity, and the proposed avoidance, minimization, and/or mitigation measures.

What you should do:

- Please read this document.

- Additional copies of this document and related technical studies are available for review at the following locations:
  a. Caltrans District 4 Office, 111 Grand Avenue, Oakland, CA 94612
  b. Rio Vista Library, 44 South 2nd Street, Rio Vista, CA 94571
  c. Rio Vista City Hall, 1 Main Street, Rio Vista, CA 94571
  d. Fairfield Civic Center Main Library, 1150 Kentucky Street, Fairfield, CA 94533
  e. Suisun City Library, 601 Pintail Drive, Suisun City, CA 94585

You can also download or view the report online at http://www.dot.ca.gov/dist4/envdocs.htm

- We’d like to hear what you think. If you have any comments about the proposed project, please send your written comments to Caltrans by the deadline, December 19th, 2016.

- Send your comments via post mail to:

  California Department of Transportation, District 4, Attn: Wahida Rashid, 111 Grand Avenue, MS 8-B, Oakland, CA 94612.

- Send comments via email to: Wahida.Rashid@dot.ca.gov

- A public open house/map display will be held on December 7, 2016 from 6:00 p.m. to 8:00 p.m. at Rio Vista City Hall, City Council Chambers, 1 Main Street, Rio Vista, CA 94571.

- Be sure to send comments by the deadline: December 19th, 2016.
What happens next:

After comments are received from the public and reviewing agencies, Caltrans may (1) give environmental approval to the proposed project and selected the preferred alternative, (2) do additional environmental studies, or (3) abandon the project. Caltrans may design and construct all or part of the project if the project is given environmental approval and funding is obtained.
### INITIAL STUDY WITH PROPOSED MITIGATED NEGATIVE DECLARATION

**Project Title:**
State Route 12/ State Route 113 Intersection Improvement Project

**Lead agency name and address:**
California Department of Transportation
111 Grand Ave., Oakland, CA 94612

**Contact person and phone number:**
Wahida Rashid, Senior Environmental Planner
(510) 286-5935

**Project Location:**
Solano County, California

**General plan description:**
Transportation

**Zoning:**
Transportation

**Surrounding land uses and setting; briefly describe the project’s surroundings:**
Agricultural

**Other public agencies whose approval is required (e.g., environmental permits); CEQA Responsible Agencies are denoted with a *:**
- Biological Opinion from the U.S. Fish and Wildlife Service
- Incidental Take Permit from the California Department of Fish and Wildlife*
- California Transportation Commission*

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**Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?**

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process (See Public Resources Code section 21083.3.2.). Information may also be available from the California Native American Heritage Commission’s Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

**Additional copies of this document, as well as the technical studies this document relies on, are available for review at the District office, 111 Grand Ave., Oakland, CA 94612 and at [http://www.dot.ca.gov/dist4/envdocs.htm](http://www.dot.ca.gov/dist4/envdocs.htm)**

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**Stefan Galvez-Abadia**
Chief, Office of Environmental Analysis
California Department of Transportation, District 4, Oakland

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**For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to California Department of Transportation, Attn: Karen Jang, Environmental Planning, 111 Grand Avenue, MS 8-B, Oakland, CA 94612, or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.**
Project Information

Location
The California Department of Transportation (Caltrans) proposes to improve safety at the intersection of State Route (SR) 12/SR 113, located at post mile (PM) 19.2 on SR 12 in unincorporated Solano County, approximately six miles west of the City of Rio Vista. Two Build Alternatives are being considered for this proposed project; Build Alternative 1, a single lane roundabout, and Build Alternative 2, a signalized intersection. This is a safety project and aims to reduce the number of collisions at the SR 12 and SR 113 intersection. The new roundabout structure and signalized intersection would be constructed at the same location as the existing un-signalized Four-Way Intersection.

Existing Facility
The intersection of SR 12 and SR 113 is a 4-legged intersection with a two-way stop sign to control traffic turning onto SR 12 from SR 113 and Birds Landing Road, a local road. A signal mast arm with flashing beacon lights is located in the southwest corner of the intersection. SR 12 is intersected by Birds Landing Road from the south and SR 113 from the north. The offset between Birds Landing Road and SR 113 is 50 feet. See photos 1-3 on pages 2 and 3 to view the existing intersection.

There are multiple drainage features in the vicinity of the intersection. Two culverts, an 18 inch plastic pipe and a 24 inch reinforced concrete pipe, enable water flowing under the roadway to drain. They run south to north and are located on the west and east sides of the intersection.

Additionally there are two drainage inlets and one culvert along the south side of SR 12 in the southwest quadrant of the intersection. Drainage inlets are designed to collect excess rain and storm water runoff and direct the flow to underground drainage systems.

There is one concrete channel leading to a drainage inlet in the northeast quadrant of the intersection.

An over-side drain, which is a gap in the dike, is located in the northwest quadrant of the intersection and allows water to drain into a ditch that leads to Round Hill Creek.

There is one bioswale, a gently sloped landscape element designed to remove pollution from surface runoff water, in the northeast quadrant and another in the southeast quadrant of the intersection.

Round Hill Creek is located west of the SR 12/SR 113 intersection. The creek runs under a bridge on SR 12 about 530 feet west of the intersection, and under a bridge on SR 113 about 430 feet north of the intersection. All storm water collected from the drainage system is designed to drain to the creek north of the intersection, near the SR 113 bridge.

There are existing overhead poles for telephone lines and electrical lines within the project footprint. The utility line runs parallel to SR 12 south of the intersection. At the western edge of the intersection, the lines cross to the north of SR 12, and zig-zag across SR 113 moving north. There is an underground
natural gas line that runs in a north-south direction crossing SR 12 immediately west of the SR 12/SR 113 intersection, approximately 6.5 feet below the existing ground.

**Photo 1.** View of SR 113 looking south towards Birds Landing Road

**Photo 2.** View of Birds Landing Road looking north towards SR 113
Purpose and Need

The proposed safety project aims to reduce the number and severity of collisions at the SR 12 and SR 113 intersection in Solano County, thereby improving safety at this location.

SR 12 carries the through traffic, while drivers coming from SR 113 and Birds Landing Road must bring their vehicle to a complete stop at the stop sign and select a safe gap before entering the east-west traffic stream. This condition constantly presents a challenge to the driver’s ability to judge gaps, especially when speeds on SR 12 are higher than expected by the drivers turning left onto SR 12 from SR 113 and Birds Landing Road. Gaps that appear sufficient may, in fact, be too small, leading to the higher accident rate. A 10 year Traffic Accident Surveillance and Analysis System (from 04/01/2003 to 03/31/2012) was analyzed by Caltrans.

Project Funding and Programming

The project is funded from the 2014 State Highway Operation and Protection Program (SHOPP), under the Safety Improvements Program, Program Code 201.010. The approximate cost of the project is $6,542,000.
INTERSECTION IMPROVEMENT PROJECT
Route 12 & Route 113 (Near Rio Vista)

Project Vicinity and Location Map
**Project Description**

This project as proposed is considering three alternatives; 1.) a Roundabout, 2.) a Signalized intersection and, 3.) No Build Alternative.

**Build Alternatives**

**Build Alternative 1: Single Lane Roundabout**

A single lane roundabout would be constructed at the intersection of SR 12, SR 113, and Birds Landing Road to address the safety issues for vehicles turning left onto SR 12 at this location.

Numerous studies have shown significant safety improvements at intersections converted from conventional forms to roundabouts. Roundabouts can have traffic calming effects on streets by using curved approach legs to reduce vehicle speeds. Based on the National Cooperative Highway Research Program (NCHRP) Report 572, there are large safety benefits of converting signalized and two-way-stop-control intersections to roundabouts, particularly significant reductions in fatal and injury crashes. The Highway Safety Manual (HSM) indicates that by converting from a two-way stop control intersection to a roundabout, a location can experience an 82 percent reduction in fatal (or injury) crashes and a 44 percent reduction in overall crashes.

In addition to safety, roundabouts also provide other benefits. According to the Federal Highway Administration (FHWA) website;

Roundabouts often provide environmental benefits by reducing vehicle delay and the number and duration of stops compared with signalized or all-way-stop-controlled alternatives. Even when there are heavy volumes, vehicles continue to advance slowly in moving queues rather than coming to a complete stop. This can reduce noise and air quality impacts and fuel consumption significantly by reducing the number of acceleration/deceleration cycles and the time spent idling. (safety.fhwa.dot.gov)

The proposed project would include curved approach legs, the central island, circulatory roadway, splitter islands, and the traversable apron. See Table 1 on page 6 which describes the various components included in the proposed roundabout.
### Table 1. Roundabout Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach Legs</td>
<td>Roadways approaching the proposed roundabout. For this proposal, the approach legs consist of approximately 500 feet leading up to the center of the intersection.</td>
</tr>
<tr>
<td>Splitter Islands</td>
<td>Traffic calming structures built above street level between the travel lanes of the approach legs. These create curves in the road and force traffic to slow down when approaching the intersection. The maximum entry speed on these curves would be 25 miles per hour. SR 12 would be widened in specific locations in order to construct the splitter islands. The proposed project may include a 4-6 foot gap at street level within each splitter island to allow for pedestrians to cross. Caltrans is currently working to determine if this feature would be included. This project does not propose to provide crosswalks because there is no recorded foot traffic at this location.</td>
</tr>
<tr>
<td>Central Island and Truck Apron</td>
<td>The central island is comprised of two components; 1) a mounded island in the middle of the roundabout which traffic is directed around, and 2) a truck apron circling the perimeter of the fixed structure. The total diameter of the central island (raised structure in the middle of the roundabout plus the truck apron) would be 115 feet. The raised structure in the middle of the roundabout serves to alert vehicles of the shape of the roundabout as they approach the intersection, as well as provide a visual screen to the glare of headlights from oncoming vehicles. The truck apron is a paved area, adjacent to the circulatory roadway, designated for large vehicles that drift out of the lane.</td>
</tr>
<tr>
<td>Circulatory Roadway</td>
<td>A 17.5 foot wide travel lane inside the roundabout</td>
</tr>
</tbody>
</table>

See Figure 1 on page 8 which illustrates the various components of the roundabout.
**Drainage Configuration**

The existing bioswales and drainage ditches on the southeast and northeast side of the intersection would be temporarily impacted due to construction, but would be rebuilt after construction is complete. There would be no other modifications to the drainage system.

**Electrical Components**

Some underground electrical wiring would be rerouted to provide power to new street light poles around the intersection. The existing street light pole located in the southwest corner of the intersection would be relocated a further distance away, and the existing advance flashing beacon located in the southwest corner of the intersection would be removed. In its place, three advance flashing beacons would be installed in the northbound and southbound directions of SR 12 and on SR 113 in the southbound direction. Depending on further study, the two existing advance flashing beacons located on SR 12 approximately 700 feet from the intersection may need to be relocated.

**Utility Relocations**

All existing electrical poles may remain in place since they are currently located far enough away from the roadway. The call box in the southwest corner of the intersection may be relocated outside of the new widened roadway to accommodate the approach leg. All utility relocations would remain within Caltrans Right of Way (ROW).
Figure 1. Build Alternative 1: Proposed Project Footprint with Roundabout Features
Figure 2. Build Alternative 1: Layout Sheet
Figure 3. Build Alternative 1: Cross Section

ATTACHMENT G
TYPICAL CROSS SECTION
OF MONROECOUNTY

ATTACHMENT B: LAYOUT & TYPICAL CROSS SECTION
(PROJECT REPORT)
04-Sol-12/113-PM 19.2
0708-0412000504 (04G5600)
SHEET 1 OF 2
Construction

The staging area for construction materials is within Caltrans ROW and would not be paved. Prior to using any staging areas not within the areas shown on the plans, the contractor must obtain clearance from the appropriate permitting agencies and comply with all applicable laws, statutes, ordinances, and regulations. See Photo 4 below which shows the proposed staging area.

Caltrans estimates that construction would occur during the dry season between April 15th and October 15th. This is a period of six months, which translates to approximately 120 working days. Most of the construction would be completed at night to avoid the high traffic volumes during the day.

In general, construction work would occur in the following order:
1. Install Environmentally Sensitive Area (ESA) fencing;
2. Clear and grub;
3. Roadway widening where necessary;
4. Electrical trenching;
5. Set up temporary lane closures;
6. Close the median for construction of central island and splitter islands;
7. Overlay the existing pavement section.

Detour

Due to high traffic volumes, access on SR 12 and SR 113 would be maintained throughout the project and would not be detoured. Temporary traffic delays are expected to occur, but will not cause a significant impact. Birds Landing Road would be closed with a possible detour to a local road. Caltrans is currently working to determine further details on lane closures and delay times.

Right of Way Requirements

All proposed activities are to remain within Caltrans ROW. There is no additional ROW acquisition anticipated. The project would not result in the displacement of residents or businesses.

Build Alternative 2: Signalized Intersection

This alternative would have a total of 6 to 8 new electrical signal poles installed at the four corners of the intersection, and 3 flashing warning beacons on the approach legs of SR12 and SR113. Birds Landing Road and SR 113 intersect SR 12 at an almost 90 degree angle, but their center lines are offset by about 40 ft. This alignment prevents making simultaneous left turns from SR 113 and Birds Landing Road. Signalization may require minor pavement delineation work. All work for this proposed alternative would remain within Caltrans ROW, and would not require new pavement. See Figure 4 on page 13 which illustrates the proposed project footprint and the locations of the signal poles.
A signalized intersection would not have the environmental benefits of the roundabout alternative, such as reductions in noise and air quality impacts, as well as reduced fuel consumption.

**Electrical and Drainage Components**

Build Alternative 2 would require some electrical work such as trenching, and possible drainage restoration after construction is complete. All work would remain within Caltrans ROW. Further details would be determined during the Plans, Specifications, and Estimates phase of the project.

Further environmental studies may be required if this alternative is selected after receiving public comments.

**Proposed Project Footprint/Environmental Study Area**

The environmental study area for the proposed project extends approximately 500 feet from the center of the existing intersection along all four roadways. The northeast corner of the existing intersection would be widened to accommodate the roundabout, traversable apron, and roadways. Build Alternative 2, the signalized intersection, has the same project footprint as Build Alternative 1. All work would remain completely within Caltrans ROW for both Build Alternatives. See Figures 2-3 on pages 9 and 10 to view a layout sheet and cross section of the proposed roundabout, and Figure 4 on page 13 for Build Alternative 2.
Figure 4. Build Alternative 2: Proposed Project Footprint and Signalization Features
No-Build Alternative

Under the No-Build Alternative, no major reconstruction would occur at the intersection of SR 12, SR 113 and Birds Landing Road. The safety concerns at this location would remain unresolved.

Alternatives Considered but Eliminated From Further Discussion

Rejected Alternative 1: Two Lane Roundabout

The scope of work for this rejected alternative would be greater than that of the Build Alternative, which is a one lane roundabout.

This alternative was rejected as it would involve the acquisition of additional ROW, require additional paved sections, and cause greater environmental impact. Further environmental studies would have also been required and since the proposed project is classified as a safety project, the consideration of an accelerated project schedule was principal.
A. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED
The environmental factors checked below would be potentially affected by this project. Please see the checklist beginning on page 15 for additional information.

| ☒ Aesthetics | ☐ Agriculture and Forestry | ☒ Air Quality |
| ☒ Biological Resources | ☒ Cultural Resources | ☐ Geology/Soils |
| ☒ Greenhouse Gas Emissions | ☒ Hazards and Hazardous Materials | ☐ Hydrology/Water Quality |
| ☐ Land Use/Planning | ☐ Mineral Resources | ☒ Noise |
| ☐ Population/Housing | ☐ Public Services | ☐ Recreation |
| ☒ Transportation/Traffic | ☒ Tribal Cultural Resources | ☒ Utilities/Service Systems |
| ☒ Mandatory Findings of Significance |

B. DETERMINATION
On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature:  
Date:  
Printed Name:  For:
Proposed Mitigated Negative Declaration
Pursuant to: Division 13, Public Resources Code

Project Description
The California Department of Transportation (Caltrans) proposes a safety project at the intersection of SR 12/SR 113 at Post Mile 19.2 in unincorporated Solano County approximately six miles west of the City of Rio Vista. Two Build Alternatives are being considered for this proposed project; Build Alternative 1, a single lane roundabout, and Build Alternative 2, a signalized intersection. For the roundabout alternative, the existing intersection would be demolished and a new roundabout with four approach legs would be constructed at the same location as the existing intersection. The signalized intersection would also be constructed at the same location as the existing intersection, and would not require new pavement. Construction activities for both Build Alternatives would remain within Caltrans Right of Way (ROW).

Determination
This Initial Study (IS) with proposed Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public that it is Caltrans’ intent to adopt an MND for this project. This does not mean that Caltrans’ decision regarding the project is final. This MND is subject to change based on comments received by interested agencies and the public.

The Department has prepared an IS for this project and pending public review, has determined from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed project would have no significant impact on Agriculture/Forestry, Cultural Resources, Geology/Soils, Land Use/Planning, Mineral Resources, Population/Housing, Public Services, and Recreation.

In addition, the proposed project would have less than significant impacts to Aesthetics, Air Quality, Biological Resources, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology/Water Quality, Noise, Transportation/Traffic, Tribal Cultural Resources, and Utilities/Service Systems.

With the following mitigation measures incorporated in this document, the proposed project would have less than significant effects to biological resources.

- Compensatory mitigation for California Tiger Salamander.

Melanie Brent
Deputy District Director, Environmental Planning and Engineering
District 4
California Department of Transportation

Date
CEQA Environmental Checklist

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words “significant” and “significance” used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance. Please note that content-based changes to the text from the draft environmental document to this final environmental document will be noted with a line in the right hand margin.

<table>
<thead>
<tr>
<th></th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
</table>

I. AESTHETICS: Would the project:

a) Have a substantial adverse effect on a scenic vista
   - [ ] Potentially Significant Impact
   - [ ] Less Than Significant with Mitigation
   - [ ] Less Than Significant Impact
   - [ ] No Impact

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway
   - [ ] Potentially Significant Impact
   - [ ] Less Than Significant with Mitigation
   - [ ] Less Than Significant Impact
   - [ ] No Impact

c) Substantially degrade the existing visual character or quality of the site and its surroundings?
   - [ ] Potentially Significant Impact
   - [ ] Less Than Significant with Mitigation
   - [ ] Less Than Significant Impact
   - [ ] No Impact

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?
   - [ ] Potentially Significant Impact
   - [ ] Less Than Significant with Mitigation
   - [ ] Less Than Significant Impact
   - [ ] No Impact

Build Alternative 1

Visual Resources and Resource Change

Visual resources of the project setting are defined and identified by assessing visual character and visual quality in the project corridor. Resource change is assessed by evaluating the visual character and the visual quality of the visual resources that comprise the project corridor before and after the construction of the proposed project.

By examining the vividness, intactness, and unity of the landscape, as these characteristics relate to the highway corridor and the specific project site, the visual quality of the landscape and the impact the project would have can be better understood.

Overall, the landscape that motorists experience while driving toward the project site is memorable due mostly to the nearby wind farm. The area otherwise lacks variety but is a distinctly rural/agricultural landscape that is not especially vivid. The landscape exhibits a moderate to high
level of intactness and unity due to the predominant agricultural character and its similarity of features and conditions.

The degree of resource change resulting from implementation of Build Alternative 1, resource change meaning changes to visual resources exhibited by changes in visual character and visual quality, would be low. The project would modify the existing intersection of two highways, merely a fraction of the larger landscape that is in view. No trees would be removed. For the proposed Build Alternative 1, slightly widened roadways at the intersection, a new traffic circle, lighting, and approach warning beacons would be new features. The proposed project features would not disrupt or interfere with views from the highway or any other locations. The proposed project would not alter the character of the area and would not reduce the current levels of vividness, intactness, and unity. Instead, the roundabout feature may increase the level of vividness since it would be a unique feature of the highway system in this area, particularly if the roundabout were designed to have aesthetic appearance and be visually appealing to motorists. The visual quality of the corridor would not be degraded, but could potentially be improved by the roundabout. See Figure 5 below that illustrates the factors Caltrans considers when determining visual impact.

**Figure 5. VIA Concept Diagram**

Viewers and Viewer Response

*Neighbors* (people with views to the road) and *highway users* (people with views from the road) would not be affected by the proposed project.

The duration of highway user exposure to the proposed project would be very short. In total, the project site is a maximum of 1,000 feet long, which includes the road modifications. Motorists and cyclists would briefly see project features as they approach and pass through the intersection.

Viewers of the project would include persons traveling on SR 12, SR 113, and Birds Landing Road. Sensitivity to landscape change would be low since travelers would pass through the intersection in a short time and the degree of change as a result of the project would be minor. There are no
private residences with direct views of the project site. The average response of all viewer groups would be low.

**Visual Impacts**

Visual Impacts are determined by assessing changes to visual resources and predicting viewer response to those changes. Most visual impacts would only last as long as construction of the project was ongoing. There would be little or no lasting effects related to the visual presence.

Temporary impacts during construction would be related to the presence of construction workers, materials, and equipment.

The level of visual impact attributable to the project would be low to none. The project would ultimately cause a very low degree of resource change. Viewer response to change within the project area would be low. The visual character of the proposed project would match the existing character of the corridor. Visual quality would not be diminished but could potentially be improved by the proposed project.

**Build Alternative 2**

In the case of Build Alternative 2, the new traffic signals and warning beacons would be apparent features of the project. These are components that are familiar to motorists as they travel through the surrounding areas.

**Avoidance and Minimization Measures for Build Alternatives 1 and 2**

Avoidance or minimization measures have been identified and can lessen visual impacts caused by the project. Also, the inclusion of aesthetic features in the previously discussed project design can help generate public acceptance of the proposed project. This section describes additional avoidance and/or minimization measures to address specific visual impacts. These will be designed and implemented with concurrence of the District Landscape Architect. The measures include:

- Seed all disturbed areas with appropriate vegetation.
- If Build Alternative 2 is selected, include aesthetic elements or treatments inside the roundabout circle that ensure it would be visually appealing. These should be designed in consultation with the Office of Landscape Architecture and approved by the District Landscape Architect.

**Conclusion**

Based on the studies conducted, both of the proposed Build Alternatives would not substantially affect views or vistas. The proposed Build Alternatives would be consistent with the visual quality and character of the existing highway corridor. No scenic resources as defined by Caltrans or CEQA would be adversely affected. With the application of the avoidance and minimization measures outlined above, the project would have no negative visual impacts. On the contrary, proposed Build Alternative 1 may potentially benefit visual quality at the project site.
II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project, and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

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

The project would not convert farmland to non-agricultural use. The land surrounding the project area is zoned exclusively for agricultural. However, the proposed project would stay entirely within Caltrans ROW and would not impact current agricultural uses. There is no land under the Williamson Act in the project area. The project area is not zoned as forest land or timber land, nor is it zoned for timberland production.
III. AIR QUALITY:  Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

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<tr>
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<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Conflict with or obstruct implementation of the applicable air quality plan?</td>
<td>□</td>
<td>□</td>
<td>☒</td>
<td>□</td>
</tr>
<tr>
<td>b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?</td>
<td>□</td>
<td>□</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?</td>
<td>□</td>
<td>□</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>d) Expose sensitive receptors to substantial pollutant concentrations?</td>
<td>□</td>
<td>□</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>e) Create objectionable odors affecting a substantial number of people?</td>
<td>□</td>
<td>□</td>
<td>☒</td>
<td>☒</td>
</tr>
</tbody>
</table>

The project would have no conflict with the implementation of an applicable air quality plan and would not create objectionable odors. This project would not cause a violation of federal or state air quality standards, would not have a cumulatively considerable net increase in any criteria pollutant, or expose sensitive receptors to substantial pollutant concentrations.

The project falls within the Sacramento Valley air basin, a nonattainment area for federal ozone and PM$_{2.5}$ air quality standard. However, this project is exempt from regional conformity requirements pursuant to 40 CFR 93.127. This project is listed in the currently conforming RTP (Regional Transportation Plan - Plan Bay Area), and 2015 Transportation Improvement Program (TIP) in grouped listing in the SHOOPP-Collision Reduction category (TIP ID VAR110004) (RTP ID 240745).

**Short Term Effects**

Short term air quality effects include the release of airborne dust caused by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment powered by gasoline and diesel engines are also anticipated and would include carbon monoxide (CO), nitrogen oxide (NO$_x$), volatile organic compounds (VOCs), directly emitted PM$_{10}$ (particulate matter less than 10 microns in diameter) and PM$_{2.5}$ (particulate matter less than 2.5 microns in diameter), and toxic air contaminants (TACs). Construction activities are expected to increase traffic congestion in the area, resulting in increases in emissions from traffic during the delays. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Dust from soil would be generated by this project during grinding, paving, excavation, debris transport, and vehicle and equipment traffic. Material or waste stockpiles, such as excavated soil, may also be sources of dust. Caltrans Standard Specifications for dust control and job site management would minimize or eliminate discharge into the air.
These procedures ensure that there would be no significant impact.

**Long Term Effects**

The proposed project site is in attainment for CO in both National and California Ambient Air Quality Standards, meaning that the air quality in the area is as good as or better than air quality standards. Therefore, a CO hot-spot analysis is not required for this project.

With respect to PM$_{2.5}$, analysis of the five criteria for the Project of Air Quality Concern (POAQC), basis per 40 CFR 93.123(b)(1), concludes that the project is not a POAQC.

The proposed project, TIP ID SOL110061, was presented to an interagency consultation meeting on May 26, 2016 at the Metropolitan Transportation Commission’s (MTC) Bay Area Metro Center in San Francisco. The Bay Area Air Quality Conformity Task Force concurred that the project is not a POAQC and no detailed PM$_{2.5}$ hot-spot analysis is required. See Appendix E to view the memo from MTC.

**Avoidance and Minimization Measures**

The following measures would reduce air quality impacts resulting from construction activities:

- The construction contractor must comply with the Caltrans’ Standard Specifications in Section 14-9 (2015).
  - Section 14-9-02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
  - Section 10-5 is directed at controlling dust. If dust calming materials other than water are to be used, material specifications are described in Section 18.

- Water or a dust palliative will be applied to the site and equipment as often as necessary to control airborne dust emissions.

- Where dust is a problem during dry weather or mud tracking is a problem during wet weather, a stabilized access road will be designed to support the heaviest vehicles and equipment that will be used.

- Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by CA Code of Regulations Title 17, Section 93114.

- Entrances and exits to and from unpaved staging areas will be stabilized and properly maintained.

- Stockpiles will be covered and utilize berms to prevent discharge of dust.

- All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust during transportation.
• Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to reduce PM emissions. Sweepers will be available onsite for housekeeping, as needed.

• To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.

• In an anticipated storm event, disturbed areas which require temporary protection will be applied with hydraulic mulch until permanent vegetation is established. As temporarily protected areas will be re-disturbed for further construction, this process is repeated prior to every storm event.

• Vegetation will be planted as soon as practical after grading to reduce windblown PM in the area.

**Climate Change**

Climate change is analyzed in the Greenhouse Gases Section of this document. Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. As stated on FHWA’s climate change website (http://www.fhwa.dot.gov/hep/climate/index.htm), climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will aid decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because there have been more requirements set forth in California legislation and executive orders on climate change, the issue is addressed in the California Environmental Quality Act (CEQA) chapter of this environmental document and may be used to inform the National Environmental Policy Act (NEPA) decision. The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the State has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours travelled.

See Section VII of this document for further information on climate change and greenhouse gas emissions.
IV. BIOLOGICAL RESOURCES: Would the project:

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

The biological study area (BSA) for the project includes the area within the project footprint plus a surrounding buffer zone, and includes all temporary and permanent impacts. The BSA consists of approximately 28 acres. See Figure 6 on page 25 which outlines the BSA.

The proposed project would have permanent effects on approximately 0.05 acre of California Tiger Salamander (CTS) upland dispersal habitat and temporary effects on 2.66 acres of CTS upland dispersal habitat. See Figure 7 on page 29 which illustrates permanent and temporary impact areas, and Figure 8 on page 30 which illustrates the occurrences of CTS within a five mile radius of the proposed project.
To reduce potential impacts to sensitive biological resources, Caltrans proposes to incorporate Caltrans standard construction Best Management Practices (BMPs) and avoidance and minimization measures into the proposed project as shown in Appendix C.

In addition to BMPs and avoidance and minimization measures, compensatory mitigation or mitigation credits are required for the proposed project. The proposed project is within the boundaries of a previous project, the Solano Highway 12 Roadway Rehabilitation and Safety Improvements Project (EA 2A620), completed in 2011, which fully mitigated for biological impacts by purchasing credits from Wildlands, Inc. These credits were for impacts to upland CTS dispersal habitat within the project area. A small area, approximately 0.38 acre of upland CTS habitat not mitigated for by the previous Solano Highway 12 Roadway Rehabilitation and Safety Improvements Project, would be impacted by this proposed project and mitigation would be purchased through an approved mitigation bank. An Incidental Take Permit (ITP) from the California Department of Fish and Wildlife (CDFW) may require the project to be fully mitigated, which would require mitigation credits be purchased for the approximately 2.71 acres of permanent and temporary upland habitat loss for CTS.

See Figure 9 on page 33 which shows the occurrences of special-status species and federally listed animals, and Table 2 beginning on page 40 which lists all special-status species and critical habitat with the potential to occur in the BSA.

Wildlife Varieties

Wildlife associated with the grassland habitat in the BSA includes invertebrates, fish, amphibians, reptiles, birds, and mammals. Myriad species of invertebrates contribute to the diversity and complexity of the vernal pools and playa lake systems found within the region. These invertebrates have developed mechanisms to survive the yearly cycle of flooding and drought. Vernal pool tadpole shrimp are good examples of invertebrates that have adapted to limiting physical and biological conditions.

Amphibians known to occur in the area include western toad (Bufo boreas), Pacific chorus frog (Pseudacris regilla), and bull frog (Rana catesbeiana). The California red-legged frog (federal threatened, California species of concern) (Rana draytonii) is considered absent from the area and is not expected to occur in the project area. CTS are known to occur approximately 10 miles north of the project site in the Jepson Prairie area and in the wind farm area approximately 5 miles southwest of the project. Reptile species known to occur in the grasslands of southern Solano County include the western racer (Coluber constrictor mormon), western skink (Eumeces gilberti), California kingsnake (Lampropeltis getulus californiae), Pacific gopher snake (Pituophis melanoleucus catenifer), common garter snake (Thamnophis sirtalis), and sharp-tailed snake (Contia tenuis). The western fence lizard (Sceloporus occidentalis) is also common in the area.

Generally in the grasslands of the Solano Plain, avian nesting and perching sites are largely associated with marshes, grassland, and isolated small groves of trees. Several sensitive bird species, particularly raptors, are known to inhabit areas to the north along SR 113 near Jepson Prairie and south of SR 12 in the central part of the Montezuma Hills. Trees or groves suitable for bird nesting or perching within Caltrans ROW have not been observed during field surveys of the BSA.
Birds observed within the BSA include red-winged blackbird (*Agelaius phoenicius*), mourning dove (*Zenaisa macroura*), Western meadowlark (*Sturnella neglecta*), horned lark (*Eremophila alpestris*), savanna sparrow (*Passerculus sandwichensis*), turkey vulture (*Cathartes aura*), and red-tailed hawk (*Buteo jamaicensis*).

Mammals potentially occurring within or near the BSA are predominantly nocturnal. No formal mammal surveys have been conducted. Signs of pocket gophers (*Thomomys bottae*) and ground squirrels (*Spermophilus beecheyi*) are sparsely distributed within the BSA. Tracks and signs of raccoon (*Procyon lotor*), fox (*Vulpes sp.*), and striped skunk (*Mephistis mephistis*) have been observed in dry mud near ephemeral culvert openings. Other common mammals of this area include opossum (*Didelphis virginiana*), cottontail rabbit (*Sylvilagus auduboni*), California vole (*Microtus californicus*), muskrat (*Ondatra zibethica*), and coyote (*Canis latrans*) (Solano County Farmlands and Open Space Foundation 1998).

**Migration and Travel Corridors**

At the SR 12/SR 113 intersection, two culverts cross SR 12 west and east of the intersection. Small wildlife species are likely to use these culverts to safely reach habitats bisected by the roadway.

**Special-status Wildlife Species - California Tiger Salamander (Ambystoma californiense)**

A search of the California Natural Diversity Database (CNDDB) indicated three California Tiger Salamander (CTS) occurrences within a 5-mile radius of the BSA. These three occurrences are shown in Figure 7 on page 32. CTS are known to occur in the seasonal pools of the Jepson Prairie and other areas that provide adequate breeding habitat. These areas are approximately 10 miles north of the BSA.

**Critical Habitat**

A CTS habitat assessment was conducted on November 2, 2015. Based on the conducted site visit, potentially moderate quality aquatic breeding habitat for CTS was observed within Round Hill Creek. However, based on the dry creek field conditions during the site visit, the creek cannot provide suitable breeding habitat during a drought year. Suitable upland dispersal habitat for CTS was also observed in the northwestern and southwestern quadrants of the BSA, where Round Hill Creek is located. Due to the lack of recent occurrences near the BSA, CTS has a low potential to occur on the project site. Upland dispersal habitat refers to the grassland that adult and juvenile CTS disperse to, where they live in underground rodent burrows.

However, while no recent CTS observations have been made within the 1.3 mile range of the CTS, their potential presence on the site cannot be ruled out given that suitable habitat has been observed onsite for this species. Due to the reasons above, CTS presence in the project area is inferred, and the annual grassland of the BSA is considered CTS upland dispersal habitat.
Impacts to the California Tiger Salamander

Cumulative impacts on CTS result from past, current, and reasonably foreseeable future projects in the region, including periodic maintenance and replacement of roads and highways throughout Solano County. These projects would undergo (or have undergone) separate environmental review and would require separate environmental permitting from regulatory agencies. Although these and similar projects could result in impacts on CTS, it is expected that most current and future projects that affect this species and its habitats would be required to mitigate these impacts through the CEQA, Section 1600, or Section 404/401 permitting process, and the FESA Section 7 consultation process. As a result, most projects in the region would mitigate their impacts on CTS, minimizing cumulative impacts on the species. With implementation of avoidance and minimization measures, this project would not make a contribution to cumulative impacts on the CTS or its habitat.

Avoidance and Minimization Measures for the California Tiger Salamander

Caltrans will implement both the general avoidance and minimization measures listed in Appendix C.

Compensatory Mitigation for the California Tiger Salamander

A small area, approximately 0.38 acre of upland CTS habitat not mitigated for by the previous Solano Highway 12 Roadway Rehabilitation and Safety Improvements Project, would be impacted by this proposed project and mitigation would be purchased through an approved mitigation bank. An ITP from CDFW may require the project be fully mitigated, which would require mitigation credits be purchased for the approximately 2.71 acres of permanent and temporary upland habitat loss for CTS.
Figure 7. Permanent and Temporary Impact Areas
Figure 8. Occurrences of CTS and Giant Garter Snake
**Migratory Birds**

Surveys for breeding birds were not conducted for this project. Biologists documented several species of birds in the BSA during other surveys in the area. The habitat in the BSA is potential breeding habitat for bird species, and numerous bird species may breed within and adjacent to the BSA. The Migratory Bird Treaty Act (MBTA) protects nesting or breeding migratory and native birds. The MBTA is discussed in more detail further on in the Biological Resources section.

Birds observed within the BSA include red-winged blackbird (*Agelaius phoenicius*), mourning dove (*Zenaida macroura*), Western meadowlark (*Sturnella neglecta*), horned lark (*Eremophila alpestris*), savanna sparrow (*Passerculus sandwichensis*), turkey vulture (*Cathartes aura*), and red-tailed hawk (*Buteo jamaicensis*).

**Impacts to Migratory Birds**

The temporary impacts on the natural landscape in the BSA would be small. Project construction and an increase in people and construction equipment (with associated noise) has the potential to affect nesting birds.

This project has the potential to affect nesting birds during construction if occupied nests are disturbed or removed during the breeding season; however, successful implementation of avoidance and minimization measures would avoid the loss of migratory bird nests, eggs, or young.

Indirect impacts of this project include the temporary increase in people, construction activity, and noise, which may deter some birds from foraging, roosting, or nesting in the BSA during project construction. This would result in an effective temporary reduction in suitable habitat for these individuals.

This project may affect breeding birds. However, with the avoidance and minimization measures mentioned below, there would be no impacts to nesting or migratory birds.

**Avoidance and Minimization for Migratory Birds**

The project would implement measures to avoid and minimize the potential for nest or egg destruction or abandonment of an active nest, and to generally minimize impacts on birds, nests, and nesting habitat protected by the MBTA. General avoidance and minimization efforts would be followed to reduce project impacts on potential bird habitat.

The following measures would be implemented to avoid or minimize impacts to nesting birds:

- Preconstruction nest surveys will be conducted within the BSA for all bird species (if construction occurs during the bird breeding season from February 1 through August 31) no more than 72 hours prior to construction activities. If rare, threatened, or endangered species are detected, Caltrans will consult with the California Department of Fish and Wildlife (CDFW) or the U.S. Fish and Wildlife Service (USFWS) as appropriate.
• With the exception of nests of listed bird species, unoccupied nests (nests without birds or eggs) will be removed to deter birds from re-establishing nests within the project area. If an active bird nest is found, it will be avoided/buffered to the extent determined by a qualified biologist to avoid take or abandonment of an active bird nest.

• Qualified biologists will monitor for signs of bird stress and expand buffer areas as needed until the young have fledged. If establishment of the buffer is not feasible, CDFW and USFWS will be contacted for further avoidance and minimization guidelines.

• If occupied nests—nests with birds or eggs—are present within the project area, work within 300 feet of raptor species or 50 feet of all other species will be avoided.
Figure 9. Occurrences of Special-Status State and Federally Listed Animals
**Vegetation Varieties**

Vegetation communities in the BSA consist of annual grassland and agricultural vegetation. Lands northwest and southwest of the intersection consist of annual grassland used as rangeland, and lands to the northeast and southeast are used for crop cultivation and are heavily disked. Vegetation throughout this area is heavily grazed. Common species include medusa-head (*Elymus caput-medusae*) and soft chess (*Bromus Hordeaceus*), with scattered yellow star-thistle (*Centaurea solstitialis*) and hayfield tarweed (*Hemizonia congesta*). Ruderal vegetation, or vegetation that colonizes disturbed areas, is present northeast and southeast of the intersection. Common species include rip-gut brome (*Bromus diandrus*), wild oat (*Avena sp.*), fennel (*Foeniculum vulgare*), Italian thistle (*Carduus pycnocephalus*), annual yellow sweetclover (*Melilotus indicus*), and black mustard (*Brassica nigra*). Vegetation associated within Caltrans ROW includes weedy annual grasses and forbs that are mowed as part of annual roadway maintenance. See Figure 11 on page 36 that shows the vegetation types and their boundaries.

**Compensatory Mitigation for Vegetation Communities**

The project area had previously been subject to a habitat evaluation for Contra Costa goldfields (*Lasthenia conjugens*) for a previous project, the Solano Highway 12 Project. The seasonal wetland located approximately 100 feet outside of the project footprint, but within the BSA, could be potential habitat for Contra Costa goldfields. For the previous project in this area, mitigation for the potential habitat was provided to account for the permanent loss of habitat within Caltrans ROW.

**Special Status Plant Species**

No rare, federally threatened, or federally endangered plants were observed during biological surveys within the survey area.

Protocol rare plant surveys were conducted for the current project footprint for special-status plant species, including Contra Costa goldfields, and none were found.

See Figure 10 on page 35 which shows the special status plant species that have occurred within a five mile radius of the BSA.
Figure 10. Occurrences of Special-Status State and Federally Listed Plants
Figure 11. General Vegetation Types
Federal Endangered Species Act Consultation Summary

Caltrans initiates consultation with USFWS or National Marine Fisheries Service (for marine and anadromous species) when a project has the potential to affect a federally listed species and/or adversely modify designated critical habitat. Formal Section 7 consultation with USFWS under the Federal Endangered Species Act was initiated with the submission of a Biological Assessment (BA) prepared for the project on July 18, 2016.

For the proposed project, Caltrans submitted a Biological Assessment (BA) to the USFWS for the federally listed CTS and sought concurrence that the project may affect and is likely to adversely affect CTS. Caltrans has made a no effects determination on all other federally listed species that may occur within the BSA.

California Endangered Species Act Consultation Summary

The California Endangered Species Act (CESA) generally parallels the main provisions of the federal ESA (FESA), but extends the take prohibitions to species proposed for listing. Section 2080 & 2081 of California Fish & Game Code prohibits the take (defined as hunting, pursuing, catching, capturing, or killing) of endangered, threatened, or candidate species unless otherwise authorized by permit.

The CESA allows for take incidental to otherwise lawful projects except for those species listed as fully protected. State lead agencies are required to consult with CDFW to ensure that any action they undertake is not likely to jeopardize the continued existence of any listed or candidate species, or result in destruction or adverse modification of essential habitat.

Wetlands and Other Waters of the United States

A 0.11-acre seasonal wetland area is identified within the BSA on the southwestern side of the intersection, as well as Round Hill Creek, a non-wetland waters of the U.S. See Figure 12 on page 38 that shows the location of the seasonal wetland area and Round Hill Creek in relation to the proposed project limits.

Impacts to Wetlands and Other Waters of the United States

The proposed project has been designed to prevent wetlands or Waters of the United States from being affected. All proposed activities would occur within Caltrans ROW and would not impact the seasonal wetland area or Round Hill Creek. Both aquatic resources are outside the boundary of the project limits, and no temporary or permanent disturbances would occur.

Avoidance and Minimization for Wetlands and Other Waters of the United States

Since the proposed project would not be affecting wetlands or other waters of the U.S., no avoidance or minimization measures are necessary.
Figure 12. Wetlands and Waters

Legend
- Biological Study Area
- Project Limits
- Seasonal Wetland (0.11 acre)
- Round Hill Creek (0.62 acre)

Wetlands and Waters
State Route 12/113 Intersection Improvement Project
SOL-12-PM 19.2
EA 04-4G660
Solano County, California
Other Regulatory Requirements

Migratory Bird Treaty Act and Other Bird Protections

MBTA implements international treaties between the United States and other nations devised to protect migratory birds and any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. USFWS administers the MBTA. All native species of birds are protected during active nesting. The protection extends to the adults birds and nest contents, including eggs and nestlings. Nonnative bird species, including European starling (Sturnus vulgaris), rock pigeon (Columba livia) and house sparrow (Passer domesticus) are not provided protection by the MBTA. The regulations governing migratory bird permits are in 50 CFR 13, General Permit Procedures, and 50 CFR 21, Migratory Bird Permits. While no permits are issued for species protected under codes, coordination with CDFW and USFWS is required.

Invasive Species (Executive Order 13112)

The intent of Executive Order 13112, Invasive species, is “to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.” General avoidance and minimization measures will control invasive species introduction.

California Native Plant Protection Act

The California Native Plant Protection Act requires state agencies to conserve endangered and rare native plants. Provisions of the act prohibit the taking of listed plants from the wild and require notification to CDFW at least 10 days before any change of land use. As required, Caltrans has conducted a botanical survey of the BSA and would continue to consult with CDFW during project planning to comply with the provisions of this act; however, no effects on endangered or rare native plants are expected.
<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status*</th>
<th>General Habitat Preferences</th>
<th>Suitable Habitat Present/Absent in Biological Study Area</th>
<th>Potential to Occur in Biological Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferris’ milk-vetch</td>
<td><em>Astragalus tener</em> var. <em>ferrisiae</em></td>
<td>1B:1</td>
<td>Meadows and seeps, valley and foothill grassland. Subalkaline flats on overflow land in the Central Valley; usually seen in dry, adobe soil.</td>
<td>Present</td>
<td>Not expected. Marginally suitable grassland habitat within BSA. No CNDDB records within 5 miles. Not found during protocol rare plant surveys.</td>
</tr>
<tr>
<td>Pappose tarplant</td>
<td><em>Centromadia parryi</em> ssp. <em>parryi</em></td>
<td>1B:2</td>
<td>Valley and foothill grassland.</td>
<td>Present</td>
<td>Not expected. Marginally suitable grassland habitat within BSA. No CNDDB records within 5 miles. Not found during protocol rare plant surveys.</td>
</tr>
<tr>
<td>Pary’s rough tarplant</td>
<td><em>Centromadia parryi</em> ssp. <em>rudis</em></td>
<td>1B:2</td>
<td>Chaparral, coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland.</td>
<td>Present</td>
<td>Not expected. Marginally suitable grassland habitat within BSA. No CNDDB records within 5 miles. Not found during protocol rare plant surveys.</td>
</tr>
<tr>
<td>Diamond-petaled California poppy</td>
<td><em>Eschscholzia rhombeipetala</em></td>
<td>1B:1</td>
<td>Valley and foothill grassland, alkaline, clay slopes and flats.</td>
<td>Present</td>
<td>Not expected. Marginally suitable grassland habitat within BSA. No CNDDB records within 5 miles. Not found during protocol rare plant surveys.</td>
</tr>
<tr>
<td>Fragrant fritillary</td>
<td><em>Fritillaria liliacea</em></td>
<td>1B:2</td>
<td>Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland, often on serpentine.</td>
<td>Present</td>
<td>Not expected. Marginally suitable grassland habitat within BSA. No CNDDB records within 5 miles. Not found during protocol rare plant surveys.</td>
</tr>
<tr>
<td>Contra Costa goldfields</td>
<td><em>Lathaea conjuncta</em></td>
<td>FE, 1B:1</td>
<td>Valley and foothill grassland, vernal pools, and cismontane woodland; extripated from most of its range.</td>
<td>Present</td>
<td>Low. Suitable potential habitat within seasonal wetland within southwestern quadrant of BSA, outside of project footprint.</td>
</tr>
<tr>
<td>Heckard’s peppergrass</td>
<td><em>Lepidium latipes</em> var. <em>beckardii</em></td>
<td>1B:2</td>
<td>Valley and foothill grassland, sometimes vernal pool edges.</td>
<td>Present</td>
<td>Not expected. Marginally suitable grassland habitat within BSA. No CNDDB records within 5 miles. Not found during protocol rare plant surveys.</td>
</tr>
<tr>
<td>Showy golden madi</td>
<td><em>Madi radiata</em></td>
<td>1B:2</td>
<td>Valley and foothill grassland, cismontane woodland, mostly on adobe clay in grassland or among shrubs.</td>
<td>Present</td>
<td>Not expected. Marginally suitable grassland habitat within BSA. No CNDDB records within 5 miles. Not found during protocol rare plant surveys.</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td>Status*</td>
<td>General Habitat Preferences</td>
<td>Suitable Habitat Present/Absent in Biological Study Area</td>
<td>Potential to Occur in Biological Study Area</td>
</tr>
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<td>----------------------</td>
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<td>----------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Bearded popcornflower</td>
<td>Plagiobothrys hystrix</td>
<td>1B.1</td>
<td>Vernal pools, valley and foothill grassland.</td>
<td>Present</td>
<td>Not expected. Marginally suitable grassland habitat within BSA. No CNDDB records within 5 miles. Not found during protocol rare plant surveys.</td>
</tr>
<tr>
<td>Showy rancheria clover</td>
<td>Trifolium amoenum</td>
<td>FE, 1B.1</td>
<td>Valley and foothill grassland, coastal bluff scrub. Sometimes on serpentine soil, open sunny sites, swales. Usually occurs in wetlands, but occasionally found in non-wetlands. Most recently sighted on roadside and eroding cliff face.</td>
<td>Present</td>
<td>Not expected. Marginally suitable grassland habitat within BSA. No CNDDB records within 5 miles. Not found during protocol rare plant surveys. No effect on this species is anticipated.</td>
</tr>
</tbody>
</table>

**Amphibians**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status*</th>
<th>General Habitat Preferences</th>
<th>Suitable Habitat Present/Absent in Biological Study Area</th>
<th>Potential to Occur in Biological Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>California tiger salamander</td>
<td>Ambystoma californiense</td>
<td>FT, ST, SSC</td>
<td>Quiet water of ponds, reservoirs, lakes, vernal pools, streams, and stock ponds within annual grasslands: oak savannah, oak woodland, and open chaparral.</td>
<td>Present</td>
<td>Moderate. Suitable upland dispersal habitat is present within BSA. Three CNDDB occurrence records are located within 5 miles. No protocol surveys conducted; potential presence is inferred. The project is likely to adversely affect, but not threaten the continued existence of, the California tiger salamander.</td>
</tr>
<tr>
<td>California red-legged frog</td>
<td>Rana draytoni</td>
<td>FT, SSC</td>
<td>Lowlands and foothills in or near permanent sources of water with dense, shrubby, or emergent riparian vegetation.</td>
<td>Present</td>
<td>Not expected. No historic occurrences recorded in the Delta area east of the Coastal Ranges. Critical habitat not present within BSA. No effect on this species is anticipated.</td>
</tr>
</tbody>
</table>

**Reptiles**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status*</th>
<th>General Habitat Preferences</th>
<th>Suitable Habitat Present/Absent in Biological Study Area</th>
<th>Potential to Occur in Biological Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giant garter snake</td>
<td>Thamnophis gigas</td>
<td>FE, SE</td>
<td>Vicinity of freshwater marshes, ponds, and slow-moving streams in San Mateo County and extreme northern Santa Cruz County. Prefers dense cover and water depths of at least 1 foot. Upland areas near water are also important.</td>
<td>Present</td>
<td>Not expected. Based on survey observations, only giant garter snake refuge habitat in the form of ground squirrel burrows and riprap occur onsite. Because of the lack of recent occurrences for giant garter snake near BSA and lack of suitable habitat for this species, the giant garter snake is not likely to occur within BSA. No effect on this species is anticipated</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td>Status¹</td>
<td>General Habitat Preferences</td>
<td>Suitable Habitat Present/Absent in Biological Study Area</td>
<td>Potential to Occur in Biological Study Area</td>
</tr>
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<td>-----------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Birds</td>
<td></td>
<td></td>
<td></td>
<td>Present</td>
<td>Low. Suitable foraging habitat within BSA; no suitable nesting habitat. CNDDB record (2007) is approximately 1 mile east from the project along SR 12.</td>
</tr>
<tr>
<td>Swainson's hawk</td>
<td>Buteo swainsoni</td>
<td>ST</td>
<td>Open agricultural fields, grasslands, and low hills, with sparse trees. Nesting often associated with riparian areas.</td>
<td>Present</td>
<td></td>
</tr>
<tr>
<td>Invertebrates</td>
<td></td>
<td></td>
<td></td>
<td>Absent</td>
<td>Low. Suitable potential habitat within seasonal wetland within southwestern quadrant of BSA, outside of project footprint. No CNDDB records within 5 miles. The project is not likely to adversely affect conservancy fairy shrimp.</td>
</tr>
<tr>
<td>Conservancy fairy shrimp</td>
<td>Branchinecta conservatio</td>
<td>FE</td>
<td>Large, cool-water vernal pools with moderately turbid water; the pools generally last until June.</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Vernal pool fairy shrimp</td>
<td>Branchinecta lynchii</td>
<td>FT</td>
<td>Inhabits vernal pools containing clear to highly turbid water, ranging from 50 square feet in the former Mather Air Force Base area of Sacramento County, to the 89-acre Olcott Lake at Jepson Prairie.</td>
<td>Absent</td>
<td>Low. BSA contains one seasonal wetland in the southwest region that is suitable potential habitat. CNDDB record (1993) is 2.8 miles northwest. The project is not likely to adversely affect vernal pool fairy shrimp.</td>
</tr>
<tr>
<td>Valley elderberry longhorn beetle</td>
<td>Desmocerus californicus dimorphus</td>
<td>FT</td>
<td>Nearly always found on or close to its host plant, elderberry (Sambucus sp.). Inhabited shrubs typically have stems that are 1.0 inch or greater in diameter at ground level. Distribution is patchy throughout the remaining riparian forests of the Central Valley from Redding to Bakersfield.</td>
<td>Absent</td>
<td>Not expected. No elderberry (Sambucus sp.) species present within BSA. No effect on this species is anticipated.</td>
</tr>
<tr>
<td>Delta green ground beetle</td>
<td>Eiaphis viridis</td>
<td>FT</td>
<td>Occurs at the margins of vernal pools in grassland areas, and prefers substrates of sandy-mud, with gentle slopes and low-growing vegetation. This species is currently restricted to the grassland areas between Jepson Prairie and Travis Air Force Base in Solano County.</td>
<td>Absent</td>
<td>Not expected. No vernal pools in BSA, and BSA is outside species' range. Nearest CNDDB record (2002) is 7.5 miles east. No effect on this species is anticipated.</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td>Status⁵</td>
<td>General Habitat Preferences</td>
<td>Suitable Habitat Present/Absent in Biological Study Area</td>
<td>Potential to Occur in Biological Study Area</td>
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<td>---------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Vernal pool tadpole shrimp</td>
<td>Lepidurus packardi</td>
<td>FE</td>
<td>Inhabits vernal pools containing clear to highly turbid water, ranging from 50 square feet in the former Mather Air Force Base area of Sacramento County, to the 89-acre Olcott Lake at Jepson Prairie.</td>
<td>Absent</td>
<td>Low. BSA contains one seasonal wetland in the southwest region that is suitable potential habitat. CNDDB record (2002) is 2.8 miles east. The project is not likely to adversely affect vernal pool tadpole shrimp.</td>
</tr>
<tr>
<td>California freshwater shrimp</td>
<td>Syncaris pacifica</td>
<td>FE, SE</td>
<td>Occurs in shallow riparian pools out of main stream flow areas, with a preference for streams at low elevations and with low gradients. Microhabitat use varies depending on season; will use leafy branches in contact with water in the summer and exposed roots of undercut banks in the winter. This species is endemic to Marin, Napa, and Sonoma counties.</td>
<td>Present</td>
<td>Not expected, Outside of species’ range (endemic to Marin, Napa, and Sonoma counties), CNDDB record (1990) is 10.7 miles northwest in Napa County. No effect on this species is anticipated.</td>
</tr>
</tbody>
</table>

Sources: CDFW 2016a, 2016b; CNPS 2016; USFWS 2016.

⁵ Status definitions:
USFWS and CDFW
FE = Federal Endangered
FT = Federal Threatened
SE = State Endangered
SSC = State Species of Special Concern
ST = State Threatened

CNPS Rankings
1B.1 = Plants rare, threatened, or endangered in California and elsewhere; ranked as seriously threatened in California
1B.2 = Plants rare, threatened, or endangered in California and elsewhere; ranked as moderately threatened in California
V. CULTURAL RESOURCES: Would the project:

- a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?
- b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?
- c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?
- d) Disturb any human remains, including those interred outside of dedicated cemeteries?

A Historic Property Survey Report (HPSR), finalized on April 26, 2016, presents the results of archaeological and architectural identification efforts for the proposed project. The HPSR determined that, pursuant to Section 106 PA Stipulation VIII.B, there are no cultural resources present in the APE. As such, Caltrans, pursuant to Section 106 PA Stipulation IX.A, has determined that a Finding of No Historic Properties Affected is appropriate for the proposed project because there are no historic properties within the Area of Potential Effects (APE).

The APE represents the maximum extent of potential ground disturbance for the proposed project. The proposed project would not extend outside the State ROW and temporary construction easements would not be required. The APE extends along SR 12 for 700 feet from the intersection both east and west, and extends 400 feet north from the intersection along SR 113 up to the bridge. Along Birds Landing Road, the APE is about 200 feet south from the intersection.

A review was completed on October 11, 2015 by the Caltrans Office of Cultural Resource Studies (OCRS), and it concluded that there are no historic properties within or adjacent to the APE. Two bridges within the project area were identified on the Caltrans historic bridge inventory. Both bridges were built in 2003 and are not eligible for the National Register of Historic Places.

The archaeological research conducted for the proposed project as part of Caltrans’ regulatory responsibilities under the PA did not result in the identification of any previously recorded or unrecorded cultural resources. The overall historic and prehistoric archaeological sensitivity within the APE is low and this determination is consistent with the results of the previous archaeological studies. No prehistoric surface indications have been documented by prior field surveys in the APE and analysis of the OCRS Geographic Information System (GIS) sensitivity model has shown little potential for buried cultural resources within the APE. Sufficient information has been obtained from the analysis of historical maps and the archaeological record to form an adequate assessment of the historic-period archaeological sensitivity for the APE. The presence of historic-period archaeological sites has been established across much of the
surrounding area through extensive corridor wide cultural studies and none were identified in the current APE.

Avoidance and Minimization Measures

- If cultural materials are discovered during construction, all work must stop within a 60 foot radius of the discovery area until a qualified archaeologist can assess the nature and significance of the find. Immediately protect the discovery area and notify the engineer and Department archaeologist.

- If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC, which will the notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact Brett Rushing, District Office Chief, Caltrans District 4 Office of Cultural Resource Studies, at the same time as the coroner so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

No Impacts to sensitive paleontological resources is anticipated. The project site is within previously disturbed soil due to agricultural activities, and overlies land known to contain paleontologically sensitive material. Proposed excavations are shallow, less than five feet deep, and do not meet the criteria for monitoring. No further paleontological work is necessary.

VI. GEOLOGY AND SOILS: Would the project:

<table>
<thead>
<tr>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
</table>

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?

ii) Strong seismic ground shaking?

iii) Seismic-related ground failure, including liquefaction?

iv) Landslides?
b) Result in substantial soil erosion or the loss of topsoil? 

- [ ]
- [x]
- [ ]
- [ ]

b) Result in substantial soil erosion or the loss of topsoil?

- [x]
- [ ]
- [ ]
- [ ]

- [ ]
- [ ]
- [ ]
- [ ]

- [x]
- [ ]
- [ ]
- [ ]

- [ ]
- [ ]
- [ ]
- [ ]

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

- [ ]
- [ ]
- [ ]
- [x]

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

- [x]
- [ ]
- [ ]
- [ ]

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

- [x]
- [ ]
- [ ]
- [ ]
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

- [ ]
- [ ]
- [ ]
- [ ]
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

- [x]
- [ ]
- [ ]
- [ ]
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

- [ ]
- [ ]
- [ ]
- [ ]

The project as proposed would not expose the public to surface fault rupture caused by shallow earthquakes, or hazards caused by strong ground shaking such as liquefaction or settlement. The proposed project would not expose the public to landslides, or erodible or unstable soils. Strong seismic ground shaking may exist, however, this is an existing hazard at the site and the project would not further expose the public to such hazards. No unique geologic features would be impacted by the proposed project.

VII. GREENHOUSE GAS EMISSIONS: Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

- [ ]
- [ ]
- [ ]
- [ ]

While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans’ determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project’s direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. See http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

- [ ]
- [ ]
- [ ]
- [ ]

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).
In the U.S., the main source of GHG emissions is electricity generation, followed by transportation\(^1\). In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles make up the largest source of GHG-emitting sources\(^2\). The dominant GHG emitted is CO\(_2\), mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: “Greenhouse Gas Mitigation” and “Adaptation.” “Greenhouse Gas Mitigation” is a term for reducing GHG emissions to reduce or "mitigate" the impacts of climate change. “Adaptation” refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)\(^3\).

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing travel activity), 3) transitioning to lower GHG-emitting fuels, and 4) improving vehicle technologies/efficiency. To be most effective all four strategies should be pursued cooperatively. \(^4\)

**Regulatory Setting**
This section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

**State**
With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California has been innovative and pro-active in addressing GHG emissions and climate change.

Assembly Bill 1493 (AB 1493), Pavley, Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order S-3-05 (EO) (June 1, 2005): The goal of this EO is to reduce California’s GHG emissions to: 1) year 2000 levels by 2010, 2) year 1990 levels by the 2020, and 3) 80 percent below the year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill 32 in 2006 and SB32 in 2016.

Assembly Bill 32 (AB 32), Chapter 488, 2006 Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.” The Legislature also intended that that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020 (Health and Safety Code

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\(^2\) [https://www.arb.ca.gov/cc/inventory/data/data.htm](https://www.arb.ca.gov/cc/inventory/data/data.htm)

\(^3\) [http://climatechange.transportation.org/ghg_mitigation/](http://climatechange.transportation.org/ghg_mitigation/)

\(^4\) [http://www.fhwa.dot.gov/environment/climate_change/mitigation/](http://www.fhwa.dot.gov/environment/climate_change/mitigation/)
Section 38551(b)). The law requires ARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California’s transportation fuels is to be reduced by at least ten percent by the year 2020. ARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 greenhouse gas reduction goals.


Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board (CARB) to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for their region.

Senate Bill 391 (SB 391) Chapter 585, 2009 California Transportation Plan: This bill requires the State’s long-range transportation plan to meet California’s climate change goals under AB 32.

Executive Order B-16-12 (March 2012) orders State entities under the direction of the Governor including ARB, the Energy Commission, and Public Utilities Commission to support the rapid commercialization of zero emission vehicles. It directs these entities to achieve various benchmarks related to zero emission vehicles.

Executive Order B-30-15 (April 2015), establishes an interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. It further orders that all state agencies with jurisdiction over sources of greenhouse gas emissions to implement measures, pursuant to statutory authority, to achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO2e). Finally, it requires the Natural Resources Agency to update the state’s climate adaptation strategy, Safeguarding California, every three years, and to ensure that its provisions are fully implemented.

Senate Bill 32 (SB32) Chapter 249, 2016, this legislation codifies the greenhouse gas reduction targets to achieve a mid-range goal of 40 percent below 1990 levels by 2030 established in EO B-30-15.
Federal

Although climate change and GHG reduction are a concern at the federal level; to date no national standards have been established for nationwide mobile source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

The National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The Council on Environmental Quality (CEQ) released final guidance (Aug1, 2016) for Federal agencies on how to consider the impacts of their actions on global climate change in their National Environmental Policy Act (NEPA) reviews. This final guidance provides a framework for agencies to consider both the effects of a proposed action on climate change, as indicated by its estimated greenhouse gas emissions, and the effects of climate change on a proposed action. The final guidance applies to all types of proposed Federal agency actions that are subject to NEPA analysis and guides agencies on how to address the greenhouse gas emissions from Federal actions and the effects of climate change on their proposed actions within the existing NEPA regulatory framework.

FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process, from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life. The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

Climate change and its associated effects are being addressed through various efforts at the federal level to improve fuel economy and energy efficiency.

The Energy Policy Act of 1992 (102nd Congress H.R.776.ENR, abbreviated as EPACT92) was passed by Congress and set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. The Act consists of twenty-seven titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of the Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005(109th Congress H.R.6 (2005-2006) Sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including
ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

Energy Policy and Conservation Action of 1975 and Corporate Average Fuel Standards


Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy (CAFE) program on the basis of each manufacturer’s average fuel economy for the portion of its vehicles produced for sale in the United States.

Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance 74 Federal Register 52117 (October 8, 2009). The Executive Order set sustainability goals for federal agencies and focuses on making improvements in their environmental, energy, and economic performance. Instituted policy of the United States that Federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities.

Executive Order 13653 Preparing the United States for the Impacts of Climate Change (78 Federal Register 66817, November 6, 2013) Builds on a previously released (and since revoked) EO I3514 Federal Leadership in Environmental Energy, and Economics Performance to establish direction for federal agencies on how to improve on climate preparedness and resilience strategies.

President Obama’s Climate Action Plan June 2013, President Obama announced a comprehensive plan for action to cut carbon pollution, prepare the Nation for the impacts of climate change, and lead international efforts to address climate change as a global challenge. The Plan builds on the work of the 13 USGCRP member agencies, the USGCRP National Climate Assessment program, and the Interagency Climate Change Adaptation Task Force.

Executive Order 13693 Planning for Federal Sustainability (80 Federal Register 15869, March 2015). Reaffirms the policy of the United States that Federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities. Sets sustainability goals for all agencies to promote energy conservation, efficiency, and management while by reducing energy consumption and GHG emissions. Builds on the adaptation and resiliency goals in EO 13693 to ensure agency operations and facilities prepare for impacts of climate change. Revokes EO 13514.

U.S. EPA’s authority to regulate GHG emissions stems from the U.S. Supreme Court decision in Massachusetts v. EPA (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court’s ruling, U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six greenhouse gases constitute a threat to public health and welfare. Thus, it is the Supreme Court’s interpretation of the existing Act and EPA’s assessment of the scientific evidence that form the basis for EPA’s regulatory actions.

U.S. EPA in conjunction with NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010[1] and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards set a requirement to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars,

light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules’ long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and the California Air Resources Board (CARB) will decide on CAFE and GHG emissions standard stringency for model years 2022-2025. Standards for model years 2022 through 2025 have not been formally adopted by NHTSA. NHTSA and EPA issued a Final Rule for “Phase 2” for medium and heavy duty vehicles to improve fuel efficiency and cut carbon pollution. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO2 emissions by up to 1.1 billion metric tons over the lifetimes of model years 2018-2029 vehicles.

Environmental Setting

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 [Assembly Bill 32 (AB 32)], which created a comprehensive, multi-year program to reduce greenhouse gas (GHG) emissions in California. AB 32 required the California Air Resources Board (ARB or Board) to develop a Scoping Plan that describes the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 1990 levels by 2020. The Scoping Plan was first approved by the Board in 2008 and must be updated every five years. The First Update to the Climate Change Scoping Plan was approved by the Board on May 22, 2014. ARB is moving forward with a second update to the Scoping Plan to reflect the 2030 target established in Executive Order B-30-15 and Senate Bill 32 (SB32).

The AB 32 Scoping Plan and the subsequent update contains the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, CARB released the GHG inventory for California (Forecast last updated: March 24, 2014). The forecast is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. An emission projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided below represents a Business-as-Usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists the Air Resources Board (ARB) in demonstrating progress toward meeting the 2020 goal of 431 MMTCO2e\(^5\).

The 2020 BAU emissions projection was revisited in support of the First Update to the Scoping Plan (2014). This projection accounts for updates to the economic forecasts of fuel and energy demand as well as other factors. It also accounts for the effects of the recent economic recession and the projected recovery. The total emissions expected in the 2020 BAU scenario includes reductions anticipated from Pavley I and the Renewable Electricity Standard (30 MMTCO2e total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 MMTCO2e. 2020 Business as Usual (BAU) Emissions Projection 2014 Edition

\(^5\) the revised target using Global Warming Potentials (GWP) from the IPCC Forth Assessment Report (AR4)
Project Analysis

The purpose of this project is to reduce the number and severity of collisions at the SR 12 and SR 113 intersection in Solano County, thereby improving safety at this location.

Construction Emissions

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

Greenhouse Gas Reduction Strategies

Caltrans continues to be involved on the Governor’s Climate Action Team as the ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32.

Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. Caltrans works closely with local jurisdictions on
planning activities, but does not have local land use planning authority. Caltrans assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the U.S. EPA and ARB.

Caltrans is also working towards enhancing the State’s transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375, SB 391 require the State’s long-range transportation plan to meet California’s climate change goals under AB 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California’s future, statewide, integrated, multimodal transportation system.

The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State’s transportation needs.

Caltrans Director’s Policy 30 (DP-30) Climate Change (June 22, 2012): is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

The following measures will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

1. Caltrans Standard Specification 14-9.01, Standard Specification 10, and Standard Specification 18, which address the requirements of the local air pollution control district. In addition, the YSAQMD CEQA Guidelines provides the following feasible control measures for construction emissions (see Section III, Air Quality):

2. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

3. Implementation of idling restrictions during construction will reduce temporary greenhouse gas emissions from this project.

4. All new lighting structures will utilize light-emitting diode (LED) light bulbs
Adaptation Strategies

“Adaptation strategies” refer to how Caltrans and others can plan for the effects of climate change on the state’s transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011, outlining the federal government’s progress in expanding and strengthening the Nation’s capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California’s vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

Although the proposed project is outside the coastal zone, the Cal Adapt website was reviewed for potential impacts to the surrounding Delta area for potential inundation potentially exacerbated by projected future sea level rise. Direct impacts to transportation facilities due to projected sea level rise are not expected.

http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation
Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, Caltrans has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, Caltrans will be able review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

### VIII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The project is within an area where soil likely contains detected levels of surface-deposited contaminants, such as aerially deposited lead (ADL) and petroleum hydrocarbons. Since this project involves roadway widening and therefore soil excavation activities, a soil investigation is necessary during the design phase of the project in order to define the concentrations of these contaminants in the soil and to evaluate feasible methods for soil handling and management.

An excavation and transportation plan would be submitted by the contractor to manage the disturbance of soil affected by aerially deposited lead (ADL), and jobsite management would be in the contractor’s water pollution control program (WPCP) to describe management of the project site during construction activities, including but not limited to: temporary soil stabilization, temporary sediment control, tracking control, wind erosion control, material pollution prevention and control, waste management, and non-storm water management.

The proposed project is located in an area where naturally occurring asbestos is not an issue.

The proposed project is located far from any industrial lead source. However, lead-contaminated waste might be generated by this project during excavation of ADL-impacted soil. A site investigation of the SR 12/SR 113 intersection was performed by the IT Corporation in December 1998 to assess the presence of ADL-impacted soil; it concluded that ADL-impacted soil is present, but low lead concentrations allows for reuse within the project site. Since the project would disturb lead-contaminated soil, Caltrans’ project specifications would require a lead compliance plan (LCP) to minimize worker exposure. Jobsite management of hazardous waste would be detailed in the project’s WPCP to minimize or prevent discharge of dust to air, receiving waters, and drainage systems.
IX. HYDROLOGY AND WATER QUALITY: Would the project:

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There is a floodplain within the project area, but the proposed project would have no effect to the floodplain. See Figure 14 on page 61 to view the Flood Insurance Rate Map (FIRM) with the proposed project location.

Section 404 of the Clean Water Act (CWA) regulates discharges to Waters of the US and is administered nationwide by the US Army Corps of Engineers (USACE). CWA Section 401 requires that states certify 404 permits, and such 401 certification is provided in California by the State Water Resources Control Board (SWRCB) or Regional Water Quality Control Boards (RWQCBs). This project is under the jurisdiction of the Central Valley Regional Water Quality Control Board. The project does not require Section 401 certification or Section 404 permit.

Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES) permit system, which is a framework for regulating municipal and industrial storm water discharges. The current Caltrans statewide NPDES storm water permit (Order No. 2012-0011-DWQ, as amended 2014-0077-DWQ), applies to Caltrans projects which completed their Project Initiation Document (PID) design phase on July 1, 2013 or after. This project completed its PID phase before July 1, 2013 and is therefore subject to the previous Caltrans statewide NPDES storm water permit (Order No. 99-06-DWQ).

The Department’s (Caltrans’) MS4 Permit, Order No. 2012-0011-DWQ (adopted on September 19, 2012 and effective on July 1, 2013), as amended by Order No. 2014-0077-DWQ (effective July 1, 2014) and Order No. 2015-0036-EXEC (effective April 7, 2015) has three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);

2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and

3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department is developing a 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 assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department 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 BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.
Construction General Permit

Construction General Permit, Order No. 2009-0009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012). The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop Storm Water Pollution Prevention Plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with the Department’s SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with DSA less than one acre.

Impacts

Water Quality impacts that may result from this project would include increased sediment and pH impacts due to construction activities. An increase in impervious area may also increase sediment discharge to waters of the US.

Pollutants commonly found in runoff from Caltrans facilities include: Total Suspended Solids (TSS), nutrients, pesticides, metals (particulate and dissolved), pathogens, litter, Biochemical Oxygen Demand (BOD), Total Dissolved Solids (TDS), zinc (total or dissolved), phosphorous, copper (total or dissolved), sediments and general metals. These pollutants were identified by Caltrans studies throughout California.

Minimization and Restoration

- Treatment BMPs address post-construction water quality impacts and remove pollutants from storm water runoff before it is discharged to receiving waters.

- Construction site BMPs include sediment control, tracking control and concrete washouts. Perimeter control such as silt fencing or fiber rolls can prevent sediment from washing into waters of the US. Street sweeping or construction site entrances may prevent trucks from tracking sediment on the roads.
The project will replace all existing treatment destroyed by the proposed project in order to comply with the Statewide NPDES Permit. Caltrans is required to maintain all BMPs currently installed.
Figure 14. Project Area Floodplain Map
X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community? □ □ □ ☒

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? □ □ □ ☒

c) Conflict with any applicable habitat conservation plan or natural community conservation plan? □ □ □ ☒

This project is consistent with state, regional, and local plans and programs.

State Planning

The 2012 State Route 113 Transportation Concept Report proposes a conceptual project to install a traffic signal at the SR 12/SR 113 intersection, the same location as the proposed project, to maintain efficient movement, including truck turning movements. Conceptual projects are not yet included in a planning or programming document, but are recommended to maintain mobility and access along the segment.

Regional Planning

The long-range regional transportation plan (RTP), called Plan Bay Area, was adopted by the Metropolitan Transportation Commission (MTC) in July 2013. Plan Bay Area does not identify any roadway improvement projects for this section of roadway. However, it identifies performance targets that align with the proposed project:

- Reduce per capita CO₂ emissions from cars and light-duty trucks by 15 percent (Statutory requirement is for year 2035, per SB 375).
- Reduce by 50 percent the number of injuries and fatalities from all collisions (including bike and pedestrian).

Local Planning

The proposed project would not change any existing land uses. The project is consistent with the 2008 Solano County General Plan.

Several policies discuss the design of roadway features in areas of Solano County:

Policy TC.P-1: Maintain and improve current transportation systems to remedy safety and congestion issues, and establish specific actions to address these issues when they occur.
Policy TC.P-6: Participate in transportation programs that promote technical solutions resulting in more efficient use of energy, reduced greenhouse gas emissions and noise levels, and improved air quality.

Policy TC.P-11: Maintain and improve the current roadways and highway system to meet recommended design standards set forth by the County, including streets that also carry transit and nonmotorized traffic.

Policy LU.P-35: Promote land use and design standards that create cleaner air and water and safer streets.

**XI. MINERAL RESOURCES:** Would the project:

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<tr>
<td>a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?</td>
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<td>b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?</td>
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There are no documented mineral resources within the project area.

**XII. NOISE:** Would the project result in:

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<th>Would the project result in:</th>
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<tr>
<td>a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?</td>
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<td>b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?</td>
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<td>c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?</td>
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<td>d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?</td>
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<td>e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?</td>
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<td>f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?</td>
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The project would not introduce new noise impacts or increase ambient noise levels. Construction noise will be temporary and would be within acceptable levels for construction activity. There are no sensitive receptors near the project site. The intersection is approximately 1 mile from the nearest residence. Sensitive receptors are those such as hospitals, schools, churches, libraries, auditoriums, public meeting rooms, motels, hotels, residences, recreational facilities and lands on which serenity and quiet are of extraordinary importance and which serve an important public need.

XIII. POPULATION AND HOUSING: Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

The project would not displace any housing units or people. The project is not growth inducing.

XIV. PUBLIC SERVICES:

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

- Fire protection?
- Police protection?
- Schools?
- Parks?
- Other public facilities?
The proposed project would have no effect on the provision of, or the need for, public services. To maintain the flow of traffic during construction, Caltrans would prepare a Transportation Management Plan (TMP) that will ensure accessibility through the project area for vehicles associated with essential services.

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<th>XV. RECREATION:</th>
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<td>a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?</td>
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<td>b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?</td>
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The project does not include any recreational areas, nor would it limit access to recreational areas.

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<th>XVI. TRANSPORTATION/TRAFFIC: Would the project:</th>
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<td>a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?</td>
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<td>b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?</td>
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<td>c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?</td>
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<td>d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?</td>
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<td>e) Result in inadequate emergency access?</td>
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<td>f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?</td>
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There are no existing dedicated pedestrian or non-motorized facilities within the project corridor. A two-day highway operations traffic study performed in October 2014 concluded in zero counts for pedestrian and bicycle traffic.

There would be an approximate 15 minute traffic delay during construction. Caltrans would maintain one-lane access along SR 12 and SR 113 throughout the duration of the construction period. Birds Landing Road would be closed for a period during construction and would be detoured through a local road. Caltrans is currently determining the details for the closure of Birds Landing Road, possible road detours, and accurate traffic delay times.

In the year 2040, it is projected that the Level of Service (LOS) for the proposed project would be F and would result in significant traffic delays. This is not caused by the proposed project, but by an increase in traffic due to population growth. The proposed project is a safety project, not an operational improvements project, and the purpose is to improve safety rather than accommodate future growing traffic conditions. If the SR 12/SR 113 intersection is left in its current state with no modification, the LOS would still be F in the year 2040.

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**XVII. TRIBAL CULTURAL RESOURCES:** Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

The proposed project falls within the ancestral territory of the Yocha Dehe Wintun Nation. On February 26, 2016, the OCRS sent a letter describing the proposed project to the Tribal Historic Preservation Officer (THPO) for the Yocha Dehe Wintun Nation. The Yocha Dehe Wintun Nation Cultural Resources Department reviewed the project and on March 7, 2016, the THPO declined any further comment.

A letter was sent to Mr. James Kinter, Tribal Historic Preservation Office (THPO) on February 25, 2016 describing the project in detail and Caltrans efforts to identify cultural resources within the project area. Mr. James Kinter responded on March 7, 2106 declining comment on the project.

No additional consultation efforts were made.
The existing bioswales and drainage ditches on the southeast and northeast side of the intersection are expected to be reconstructed due to their deteriorated condition after construction. No other modifications to the drainage system are proposed.

Some of the existing electrical trenches would need to be rerouted to provide power to new light poles around the intersection. The trenching would have a maximum depth of approximately 48 inches and a maximum width of approximately 12 inches.

The existing street light pole located in the southwest quadrant of the intersection would be relocated to have enough distance from the edge of travel way. Replacing street lighting would require a 5-foot cast-in-drilled-hole (CIDH) foundation and trenching to the existing power source in the northwest quadrant.

An existing advance warning flashing beacon is located in the southwest quadrant of the intersection and would be removed. Three advance warning flashing beacons would be installed in both directions of SR 12 and SR 113 in the southbound direction. Two existing advance warning flashing beacons are located approximately 700 feet from the intersection along SR 12. Depending on further study, these flashing beacons may be relocated. Caltrans is working to determine whether this is necessary.
All existing electrical poles would remain unaffected. The call box in the southwest quadrant may need to be relocated outside of the new widened roadway due to the approach leg. Caltrans is working to determine whether this is necessary.

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<tr>
<th>XIX. MANDATORY FINDINGS OF SIGNIFICANCE</th>
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<td>a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?</td>
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<tr>
<td>b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?</td>
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<tr>
<td>c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?</td>
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</table>

If a project does not cause a direct or indirect impact on a resource, it would not contribute to a cumulative impact on that resource. A cumulative impact analysis focuses only on those resources that are significantly impacted by the project.

The only resources identified that the proposed project would have a significant effect on are biological resources, specifically California Tiger Salamander. With the mitigation measures outlined in the Biological Resources section in this Initial Study, the impacts to these resources would be reduced to a less than significant level.

A previous project within the biological resource study area, the Solano Highway 12 Roadway Rehabilitation and Safety Improvements Project (EA 2A620), was identified. This project underwent a separate environmental review to identify, account, and mitigate for potential significant impacts. All projects would incorporate avoidance, minimization and mitigation measures including standard Caltrans BMPs, which would protect surrounding habitat and water quality. Therefore, Caltrans does not anticipate any cumulative effects as a result of the proposed project.
Appendix A: References

Caltrans District 4 Office of Biological Studies and Permits. Natural Environment Study for the State Route 12/State Route 113 Intersection Improvement Project. Oakland, CA. May 2, 2016.

Caltrans District 4 Office of Cultural Resources. Memorandum, Section 106 Compliance for the 04-SOL-12 Intersection Improvement Project in Solano County, CA. Oakland, CA. May 4, 2016.


### Appendix B: List of Preparers

<table>
<thead>
<tr>
<th>Name</th>
<th>Office</th>
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</thead>
<tbody>
<tr>
<td>Stefan Galvez-Abadia</td>
<td>Caltrans District 4 Office of Environmental Analysis</td>
</tr>
<tr>
<td>Wahida Rashid</td>
<td>Caltrans District 4 Office of Environmental Analysis</td>
</tr>
<tr>
<td>Karen Jang</td>
<td>Caltrans District 4 Office of Environmental Analysis</td>
</tr>
<tr>
<td>Noah Stewart</td>
<td>Caltrans District 4 Office of Cultural Resource Studies</td>
</tr>
<tr>
<td>Kathryn Rose</td>
<td>Caltrans District 4 Office of Cultural Resource Studies</td>
</tr>
<tr>
<td>Benjamin Harris</td>
<td>Caltrans District 4 Office of Cultural Resource Studies</td>
</tr>
<tr>
<td>Frances Schierenbeck</td>
<td>Caltrans District 4 Office of Cultural Resource Studies</td>
</tr>
<tr>
<td>Susan Lindsay</td>
<td>Caltrans District 4 Office of Landscape Architecture</td>
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<tr>
<td>Thomas Packard</td>
<td>Caltrans District 4 Office of Landscape Architecture</td>
</tr>
<tr>
<td>Holly Barbare</td>
<td>CH2M Hill, Inc., Caltrans District 4 Office of Biological Studies and Permits</td>
</tr>
<tr>
<td>Chris Pincetich</td>
<td>Caltrans District 4 Office of Biological Studies and Permits</td>
</tr>
<tr>
<td>Kathleen Reilly</td>
<td>Caltrans District 4 Office of Hydraulic Engineering</td>
</tr>
<tr>
<td>Ray Boyer</td>
<td>Caltrans District 4 Office of Environmental Engineering (Air/Noise)</td>
</tr>
<tr>
<td>Shiang Yang</td>
<td>Caltrans District 4 Office of Environmental Engineering (Air/Noise)</td>
</tr>
<tr>
<td>Daisy Laurino</td>
<td>Caltrans District 4 Office of Environmental Engineering (Air/Noise)</td>
</tr>
<tr>
<td>Jon Wellen</td>
<td>Caltrans District 4 Office of Environmental Engineering (Water Quality)</td>
</tr>
<tr>
<td>Norman Gonsalves</td>
<td>Caltrans District 4 Office of Environmental Engineering (Water Quality)</td>
</tr>
<tr>
<td>Chris Wilson</td>
<td>Caltrans District 4 Office of Environmental Engineering (Hazardous Waste)</td>
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<tr>
<td>Chris Risden</td>
<td>Caltrans District 4 Office of Geotechnical Design – West</td>
</tr>
<tr>
<td>Tomo Mori</td>
<td>Caltrans District 4 Office of Design – North Counties</td>
</tr>
<tr>
<td>Ghulam Popal</td>
<td>Caltrans District 4 Office of Design – North Counties</td>
</tr>
<tr>
<td>Osama Elhamshary</td>
<td>Caltrans District 4 Office of Project Management</td>
</tr>
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Appendix C: Avoidance, Minimization and Mitigation Measures

Caltrans has incorporated several avoidance, minimization and mitigation measures into the proposed project to avoid and minimize the impacts of this project on special-status species, migratory birds, and other resources that occur in the project area. Special-status species known to occur or with a potential to occur in the project area include the California Tiger Salamander (CTS). Measures taken to minimize the likelihood of take of a State and federally listed species (CTS) would be identified through consultation with the CDFW and USFWS pursuant to CESA and section 7 of the federal Endangered Species Act. The principal measures listed below are not all inclusive and not an iterative list. For example, the final biological opinion contains several, very specific measures that would ultimately be incorporated into the contractor’s bid package but are not listed here. The list below is a general overview of the most important and applicable measures. The proposed avoidance, minimization and mitigation measures are as follows:

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<tr>
<th>Protected or Regulated Resource</th>
<th>Proposed Avoidance, Minimization and Mitigation Measures</th>
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<tr>
<td>General Avoidance and Minimization Measures</td>
<td>1. <strong>Worker Environmental Awareness Training.</strong> Before the onset of construction activities, a qualified biologist will conduct and education program for construction personnel. The training will include a description of all listed species with the potential to occur in the BSA as well as migratory birds and their habitats; the occurrence of these species within the project area; an explanation of the status of these species and protection under FESA and CESA; the measures to be implemented to conserve listed species and their habitats as they relate to the work site; and boundaries within which construction may occur. A fact sheet conveying this information will be prepared and distributed to project personnel entering the project area. Upon completion of the training program, personnel will sign a form stating that they attended the program and understand the A&amp;M measures and implications of FESA and CESA.</td>
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<td>2. <strong>Environmentally Sensitive Area (ESA) Fencing.</strong> ESA fencing will be implemented by the contractor and inspected by a qualified biologist before construction and monitored regularly to ensure its integrity. The boundaries of the construction area will be fenced, and all construction activity will be confined within the area. ESA fencing will prevent the encroachment of construction equipment and personnel into adjacent habitat areas. The final project plans will depict all locations where ESA fencing will be installed and how it will be installed. The special provisions in the bid solicitation package will describe acceptable fencing material and prohibited construction activities, construction vehicle operation, project material and equipment storage, and other project surface-disturbing activities within the ESA fencing.</td>
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<td>3. <strong>Water Quality/Erosion Control Best Management Practices (BMPs).</strong> A Storm Water Pollution Prevention Plan and erosion control BMPs will be implemented to minimize wind- and water-related erosion. They will also comply with the requirements of the Regional Water Quality Control Board. Using Caltrans’ BMP Guidance Handbook, design staff will include measures in the construction contracts to protect sensitive areas and protect and minimize storm-water and non-storm-water discharges. Protective measures will include the following:</td>
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</table>
a. Prohibit discharging of pollutants from vehicle and equipment cleaning into storm drains or watercourses.
b. Keep vehicle and equipment fueling and maintenance operations at least 50 feet from the ordinary high water mark or the edge of sensitive habitat (e.g., wetlands), except at established commercial gas stations or established vehicle maintenance facilities.
c. Collect and dispose of concrete wastes in washouts and water from curing operations; neither will be allowed into watercourses. Sediment and debris removed from the roadway will be disposed of offsite at an approved location where the sediment and debris cannot enter surface waters.
d. Maintain spill containment kits onsite at all times during construction operations and staging or fueling of equipment.
e. Use water trucks and dust palliatives to control dust in excavation-and-fill areas, and cover temporary stockpiles when weather conditions require.
f. Install coir rolls or straw wattles along or at the base of slopes during construction to capture sediment.
g. Protect graded areas from erosion using a combination of silt fences, fiber rolls along toes of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas.
h. Establish permanent erosion control measures to receive storm-water discharges from the highway or other impervious surfaces.

4. **Construction Site Management Practices.** The following site restrictions will be implemented to avoid or minimize impacts on listed species and their habitats:

a. Enforce a speed limit of 20 mph within the project footprint in unpaved and paved areas to reduce dust and excessive soil disturbance.
b. Located construction access, staging, storage, and parking area outside of any designated ESA or outside of the right-of-way in areas environmentally cleared and permitted by Caltrans. The following areas will be limited to the minimum necessary to construct the proposed project: access routes, staging and storage areas, and contractor parking. Routes and boundaries of roadwork will be clearly marked before construction or grading begins.
c. Certify, to the maximum extent practicable, borrow material to be non-toxic and weed-free.
d. Enclose food and food-related trash items in sealed trash containers, and remove them from the site at the end of each day.
e. Prohibit pets within the project area during construction.
f. Prohibit firearms within the project site except for those carried by authorized security personnel or local, state, or federal law enforcement officials.
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<td>g. Maintain equipment to prevent the leakage of vehicle fluids such as gasoline, oils, or solvents, and develop a Spill Response Plan. Hazardous materials such as fuels, oils, or solvents will be stored in sealable containers in a designated location that is at least 50 feet from aquatic habitats.</td>
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<td>5. <strong>Avoidance of Entrapment.</strong> To prevent inadvertent entrapment of animals during construction, excavated, steep-walled holes or trenches more than one foot deep will be covered at the close of each working day by plywood or similar materials, or will be provided with one or more escape ramps constructed or earthfill or wooden planks. Before holes or trenches are filled, they must be inspected for trapped animals. Replacement pipes, culverts, or similar structures stored within the project area overnight will be inspected before they are moved, capped, or buried. Plastic monofilament netting (erosion control matting) or similar material will not be used at the project site because CTS may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.</td>
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<td>6. <strong>Handling of Listed Species.</strong> If at any time a listed species is discovered, the Resident Engineer and the USFWS-approved biologist will be immediately informed. The biologist will determine whether relocating the species is necessary and will work the corresponding agency (USFWS or CDFW) before handling or relocating unless otherwise authorized.</td>
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<td>7. <strong>Vegetation Removal.</strong> Vegetation within the project limits will be affected by construction activities, and clearing will be required. Vegetation will be cleared only where necessary and will be cut above soil level except in areas that will be excavated for roadway construction. This will allow plants that reproduce vegetatively to resprout after construction. A qualified biologist(s) will survey for nesting birds within the area(s) to be disturbed, including a perimeter buffer of 50 feet for passerines, before clearing activities begin during the nesting season (February 16 through August 31). Nest avoidance requirements of the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code will be observed. Cleared vegetation will be removed from the BSA to prevent attracting animals to the project site. The contractor will be responsible for obtaining permits, licenses, and environmental clearances for properly disposing of such materials.</td>
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<td>8. <strong>Site Cleanup and Restoration.</strong> Caltrans will restore temporarily disturbed areas to the preconstruction function and values to the maximum extent practicable. Construction materials, including ESA fencing, will be removed after construction activities are complete. The temporarily disturbed areas will be cleaned up, re-contoured to the original grade where feasible, and protected by implementation of erosion control measures.</td>
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|                                | 9. **Control of Invasive Species.** To reduce the spread of invasive nonnative plant species and minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will comply with Executive Order 13112. This order is intended to prevent the introduction of invasive species and provide for their control to minimize the economic, ecological, and human health impacts. If noxious weeds are disturbed or removed during construction activities, the contractor will be required to contain the plant material associated with these noxious
**Protected or Regulated Resource** | **Proposed Avoidance, Minimization and Mitigation Measures**
---|---
California Tiger Salamander (CTS) | weeds and dispose of it in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining permits, licenses, and environmental clearances for properly disposing of materials. Areas subject to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. If seeding is not possible, the areas within the project area should be covered to the extent practicable with heavy black plastic solarization material until the project is complete.

| 1. **USFWS-Approved Biologist(s).** A USFWS-approved biologist(s) will be designated for the activities that will affect CTS upland dispersal habitat, which has been defined as the annual grassland within the northwest and southwest quadrants of the intersection within the project area. The USFWS-approved biologist(s) will be onsite during construction activities that may reasonably result in the take of CTS.
| a. The names and qualifications of the biologist(s) will be submitted to USFWS for review and written approval at least 30 calendar days before groundbreaking at the project site. Prior to approval, the biologist(s) will submit a letter to USFWS verifying that he or she possesses a copy of the BO and understands its Terms and Conditions.
| b. The biologist(s) will keep a copy of the BO in his or her possession when onsite.
| c. The biologist(s) will be given the authority to communicate verbally or by telephone, email message, or hardcopy with Caltrans personnel, construction personnel, or other person(s) at the project site or otherwise associated with the project.
| d. The biologist(s) will have oversight over implementation of the Terms and Conditions of the BO and will have the direct authority to stop project activities that may result in the take of listed species or if the requirements associated with the Terms and Conditions of the BO are not being fulfilled. The USFWS-approved biologist(s) will coordinate with the Resident Engineer to stop work if necessary.
| e. If work is stopped, the biologist(s) will notify USFWS and CDFW by telephone or email within 24 hours.
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| **Migratory birds**             | 1. Preconstruction nest surveys will be conducted within the BSA for all bird species (if construction occurs during the bird breeding season from February 1 through August 31) no more than 72 hours prior to construction activities. If rare, threatened, or endangered species are detected, Caltrans will consult with the California Department of Fish and Wildlife (CDFW) or the U.S. Fish and Wildlife Service (USFWS) as appropriate.  
2. With the exception of nests of listed bird species, unoccupied nests (nests without birds or eggs) will be removed to deter birds from re-establishing nests within the project area. If an active bird nest is found, it will be avoided/buffered to the extent determined by a qualified biologist to avoid take or abandonment of an active bird nest.  
3. Qualified biologists will monitor for signs of bird stress and expand buffer areas as needed until the young have fledged. If establishment of the buffer is not feasible, CDFW and USFWS will be contacted for further A&M guidelines.  
4. If occupied nests–nests with birds or eggs–are present within the project area, work within 300 feet of raptor species or 50 feet of all other species will be avoided. |
| **Aesthetics**                  | 1. Seed all disturbed areas with appropriate vegetation.  
2. Include aesthetic elements or treatments inside the roundabout circle that ensure it would be visually appealing. These should be designed in consultation with the Office of Landscape Architecture and approved by the District Landscape Architect. |
| **Air Quality**                 | 1. The construction contractor must comply with the Caltrans’ Standard Specifications in Section 14-9 (2015).  
a. Section 14-9-02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.  
b. Section 10-5 is directed at controlling dust. If dust calming materials other than water are to be used, material specifications are described in Section 18.  
2. Water or a dust calming material will be applied to the site and equipment as often as necessary to control airborne dust emissions.  
3. Where dust is a problem during dry weather or mud tracking is a problem during wet weather, a stabilized access road will be designed to support the heaviest vehicles and equipment that will be used.  
4. Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by CA Code of Regulations Title 17, Section 93114.  
5. Entrances and exits to and from unpaved staging areas will be stabilized and properly maintained.  
6. Stockpiles will be covered and utilize berms to prevent discharge of dust.  
7. All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust during transportation. |
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<td>8. Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to reduce PM emissions. Sweepers will be available onsite for housekeeping, as needed.</td>
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<td>9. To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.</td>
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<td>10. In an anticipated storm event, disturbed areas which require temporary protection will be applied with hydraulic mulch until permanent vegetation is established. As temporarily protected areas will be re-disturbed for further construction, this process is repeated prior to every storm event.</td>
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<td>a. Vegetation will be planted as soon as practical after grading to reduce windblown PM in cultural resources and hydrology and water quality.</td>
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<td>Cultural Resources</td>
<td>1. If cultural materials are discovered during construction, all work must stop within a 60 foot radius of the discovery area until a qualified archaeologist can assess the nature and significance of the find. Immediately protect the discovery area and notify the engineer and Department archaeologist.</td>
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<td>2. If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC, which will notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact Brett Rushing, District Office Chief, Caltrans District 4 Office of Cultural Resource Studies, at the same time as the coroner so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.</td>
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<tr>
<td>Hydrology and Water Quality</td>
<td>1. Treatment BMPs address post-construction water quality impacts and remove pollutants from storm water runoff before it is discharged to receiving waters.</td>
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<td>2. Construction site BMPs include sediment control, tracking control, and concrete washouts. Perimeter control such as silt fencing or fiber rolls can prevent sediment from washing into waters of the US. Street sweeping or construction site entrances may prevent trucks from tracking sediment on the roads.</td>
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<td>3. The project will replace all existing treatment destroyed by the proposed project in order to comply with the Statewide NPDES Permit. Caltrans is required to maintain all BMPs currently installed.</td>
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<td>Greenhouse Gas Emissions</td>
<td>1. Caltrans Standard Specification 14-9.01, Standard Specification 10, and Standard Specification 18, which address the requirements of the local air pollution control district. In addition, the YSAQMD CEQA Guidelines provides the following feasible control measures for construction emissions (see Section III, Air Quality):</td>
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|                                 | a. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the
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<th>Protected or Regulated Resource</th>
<th>Proposed Avoidance, Minimization and Mitigation Measures</th>
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<td>California airborne toxics control measure Title 13,</td>
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<td>Section 2485 of California Code of Regulations (CCR).</td>
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<td>Clear signage shall be provided for construction</td>
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<td>workers at all access points.</td>
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<td>b.</td>
<td>Implementation of idling restrictions during construction</td>
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<td>will reduce temporary greenhouse gas emissions from</td>
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<td>this project.</td>
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<td>c.</td>
<td>All new lighting structures will utilize light-emitting</td>
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<td>diode (LED) light bulbs</td>
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</table>
Appendix D: Species Lists – National Marine Fisheries Service (NMFS), United States Fish and Wildlife Service (USFWS)

Pincetich, Christopher@DOT

From: Pincetich, Christopher@DOT
Sent: Thursday, November 10, 2016 11:31 AM
To: 'nmfswrca.specieslists@noaa.gov'
Subject: Caltrans State Route 12/113 Intersection Improvement Project

Quad Name Birds Landing
Quad Number 38121-B7

**ESA Anadromous Fish**

- SONCC Coho ESU (T) -
- CCC Coho ESU (E) -
- CC Chinook Salmon ESU (T) -
- CVSR Chinook Salmon ESU (T) - X
- SRWR Chinook Salmon ESU (E) - X
- NC Steelhead DPS (T) -
- CCC Steelhead DPS (T) - X
- SCCC Steelhead DPS (T) -
- SC Steelhead DPS (E) -
- CCV Steelhead DPS (T) - X
- Eulachon (T) -
- sDPS Green Sturgeon (T) -

**ESA Anadromous Fish Critical Habitat**

- SONCC Coho Critical Habitat -
- CCC Coho Critical Habitat -
- CC Chinook Salmon Critical Habitat -
- CVSR Chinook Salmon Critical Habitat -
Consultation Code: 08ESMF00-2017-SLI-0267
Event Code: 08ESMF00-2017-E-00480
Project Name: Solano 12/113 Intersection Improvement Project

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

To Whom It May Concern:

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

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

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

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

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2)
of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

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

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

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

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

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

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

Attachment
Official Species List

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

Consultation Code: 08ESMF00-2017-SLI-0267
Event Code: 08ESMF00-2017-E-00480

Project Type: TRANSPORTATION

Project Name: Solano 12/113 Intersection Improvement Project
Project Description: Construct intersection improvement.

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

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

Project Counties: Solano, CA
Endangered Species Act Species List

There are a total of 15 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the Has Critical Habitat column may or may not lie within your project area. See the Critical habitats within your project area section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

<table>
<thead>
<tr>
<th>Amphibians</th>
<th>Status</th>
<th>Has Critical Habitat</th>
<th>Condition(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>California red-legged frog (<em>Rana draytonii</em>)</td>
<td>Threatened</td>
<td>Final designated</td>
<td></td>
</tr>
<tr>
<td>Population: Wherever found</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California tiger Salamander (<em>Ambystoma californiense</em>)</td>
<td>Threatened</td>
<td>Final designated</td>
<td></td>
</tr>
<tr>
<td>Population: U.S.A. (Central CA DPS)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Birds                                           |             |                      |              |
|                                                 |             |                      |              |
| California Clapper rail (*Rallus longirostris obsoletus*) | Endangered |                      |              |
| Population: Wherever found                       |             |                      |              |
| California Least tern (*Sterna antillarum browni*) | Endangered  |                      |              |
| Population: Wherever found                       |             |                      |              |

| Crustaceans                                     |             |                      |              |
|                                                 |             |                      |              |
| Conservancy fairy shrimp (*Branchinecta conservatio*) | Endangered  | Final designated     |              |
| Population: Wherever found                       |             |                      |              |
| Vernal Pool fairy shrimp                         | Threatened  | Final designated     |              |

http://ecos.fws.gov/ipac, 11/14/2016 12:38 PM
<table>
<thead>
<tr>
<th><strong>(Branchinecta lynchii)</strong></th>
<th>Population: Whichever found</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vernal Pool tadpole shrimp <em>(Lepidurus packardi)</em></td>
<td>Population: Whichever found</td>
</tr>
<tr>
<td><strong>Fishes</strong></td>
<td></td>
</tr>
<tr>
<td>Delta smelt <em>(Hypomesus transpacificus)</em></td>
<td>Population: Whichever found</td>
</tr>
<tr>
<td><strong>Flowering Plants</strong></td>
<td></td>
</tr>
<tr>
<td>Keck's Checker-mallow <em>(Sidalcea keckii)</em></td>
<td>Population: Whichever found</td>
</tr>
<tr>
<td><strong>Insects</strong></td>
<td></td>
</tr>
<tr>
<td>Delta Green Ground beetle <em>(Elaphrus virida)</em></td>
<td>Population: Whichever found</td>
</tr>
<tr>
<td>San Bruno Elfin butterfly <em>(Callophrys mostii bayensis)</em></td>
<td>Population: Whichever found</td>
</tr>
<tr>
<td>Valley Elderberry Longhorn beetle <em>(Deinocerus californicus dimorphus)</em></td>
<td>Population: Whichever found</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
</tr>
<tr>
<td>Salt Marsh Harvest mouse</td>
<td>Endangered</td>
</tr>
<tr>
<td>Species</td>
<td>Status</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------</td>
</tr>
<tr>
<td><em>Reithrodontomys ravienris</em></td>
<td></td>
</tr>
<tr>
<td>Population: wherever found</td>
<td></td>
</tr>
<tr>
<td>Reptiles</td>
<td></td>
</tr>
<tr>
<td>Giant Garter snake (<em>Thamnophis gigas</em>)</td>
<td>Threatened</td>
</tr>
<tr>
<td>Population: Wherever found</td>
<td></td>
</tr>
</tbody>
</table>
Critical habitats that lie within your project area

There are no critical habitats within your project area.
Appendix E: MTC Project Assessment Determination

Jang, Karen@DOT

From: Fund Management System <fms@mtc.ca.gov>
Sent: Thursday, May 26, 2016 2:12 PM
To: Adam Crenshaw
Cc: Fund Management System; Harold Brazil
Subject: FMS POAQC Project TIP ID SOL110061 (SR12-SR113 Intersection Improvements)
update: Project is not a POAQC

Dear Project Sponsor

Based on the recent interagency consultation with the Air Quality Conformity Task force, Project TIP ID SOL110061 (FMS ID:6355.00) does not fit the definition of a project of air quality concern as defined by 40 CFR 93.123(b)(1) or 40 CFR 93.128 and therefore is not subject to PM2.5 project level conformity requirement. Please save this email as documentation confirming the project has undergone and completed the interagency consultation requirement for PM2.5 project level conformity. Note project sponsors are required to undergo a proactive public involvement process which provides opportunity for public review as outlined by 40 CFR 93.105(e). For projects that are not of air quality concern, a comment period is only required for project level conformity determinations if such a comment period would have been required under NEPA. For more information, please see FHWA PM2.5 Project Level Conformity Frequently Asked Questions (FAQ): http://www.fhwa.dot.gov/environment/air_quality/conformity/reference/faqs/pm25faqs.cfm

If you have any questions, please direct them to Harold Brazil at hbrazil@mtc.ca.gov or by phone at (510) 817-5747.
Appendix F: Title VI Non-Discrimination Policy

March 2013

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

MALCOLM DOUGHERTY
Director