

# **Dan Wilson Creek Bridge Deck Replacement Project**

SOLANO COUNTY, CALIFORNIA  
INTERSTATE 80 – SOL PM 13.92  
EA 04- 3G690; Project ID 04-1200-0153

## **Initial Study with Proposed Mitigated Negative Declaration**



**Prepared by the  
California Department of Transportation**

**June 2016**





## General Information about This Document

### What's in this document:

The California Department of Transportation (Caltrans) has prepared this Initial Study (IS), which examines the potential environmental impact of the proposed Interstate 80 (I-80) Dan Wilson Creek Bridge Deck Replacement project in Solano County, California. Caltrans is the lead agency under the California Environmental Quality Act (CEQA). The document tells you 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:

Caltrans District 4 Office, 111 Grand Avenue, Oakland, CA 94612

Fairfield Civic Center Main Library, 1150 Kentucky St., Fairfield, CA 94533

Fairfield Cordelia Library, 5050 Business Center Dr., Fairfield, CA 94534

- 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.

- Send your comments via post mail to:

California Department of Transportation, District 4, Attn: Wahida Rashid, P. O. Box 23660, Oakland, CA 94623-0660.

- Send comments via email to Wahida Rashid at: [Wahida.Rashid@dot.ca.gov](mailto:Wahida.Rashid@dot.ca.gov)

- At this time a public open house meeting is not planned for this project, if you would like to request an open house meeting please submit your request at: [Wahida.Rashid@dot.ca.gov](mailto:Wahida.Rashid@dot.ca.gov) by August 1st, 2016

- Be sure to send comments by the deadline: August 1st, 2016

### What happens next:

After comments are received from the public and reviewing agencies, Caltrans may (1) give environmental approval to the proposed project, (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.







## **Project Information**

### **Location**

The California Department of Transportation (Caltrans) proposes to rehabilitate the westbound structure of the Dan Wilson Creek Bridge (Bridge No. 23-0006), located along Interstate 80 (I-80) at postmile (PM) 13.92 in an unincorporated part of Solano County, near the community of Cordelia. Interstate 80 is a major freeway providing access to and from the San Francisco Bay Area and traverses through both suburban and urban areas in Solano County. The facility is a divided, multi-lane freeway on generally flat terrain.

### **Existing Facility**

The existing Dan Wilson Creek Bridge is comprised of two bridge structures, one eastbound and one westbound. According to Caltrans' Dan Wilson Creek Bridge Inspection Report, both structures were originally built in 1951 with a gap in between. In 1961, both bridges were widened to accommodate traffic needs. In 1983, the eastbound bridge was widened. Finally, in 2004, both bridges were joined by median widening to increase highway capacity.

Currently, each bridge structure is a 57-foot-long, three span, parallel-reinforced concrete slab bridge structure on spread footings. The westbound bridge carries a roadway with six lanes, each 11 to 12 feet wide, a right shoulder approximately 2 feet wide, a left shoulder approximately 11 feet wide, and a medium barrier 1 to 4 feet wide. The total width for the current bridge is approximately 84 feet 6 inches, and carries an average of 21,000 vehicles a day, 10 percent of which are trucks.

### **Purpose and Need**

The State Highway Operation and Protection Program (SHOPP) contains provisions to replace bridge structures when they become structurally deficient and/or functionally obsolete due to deterioration such as erosion of channel or stream beds beneath a bridge foundation.

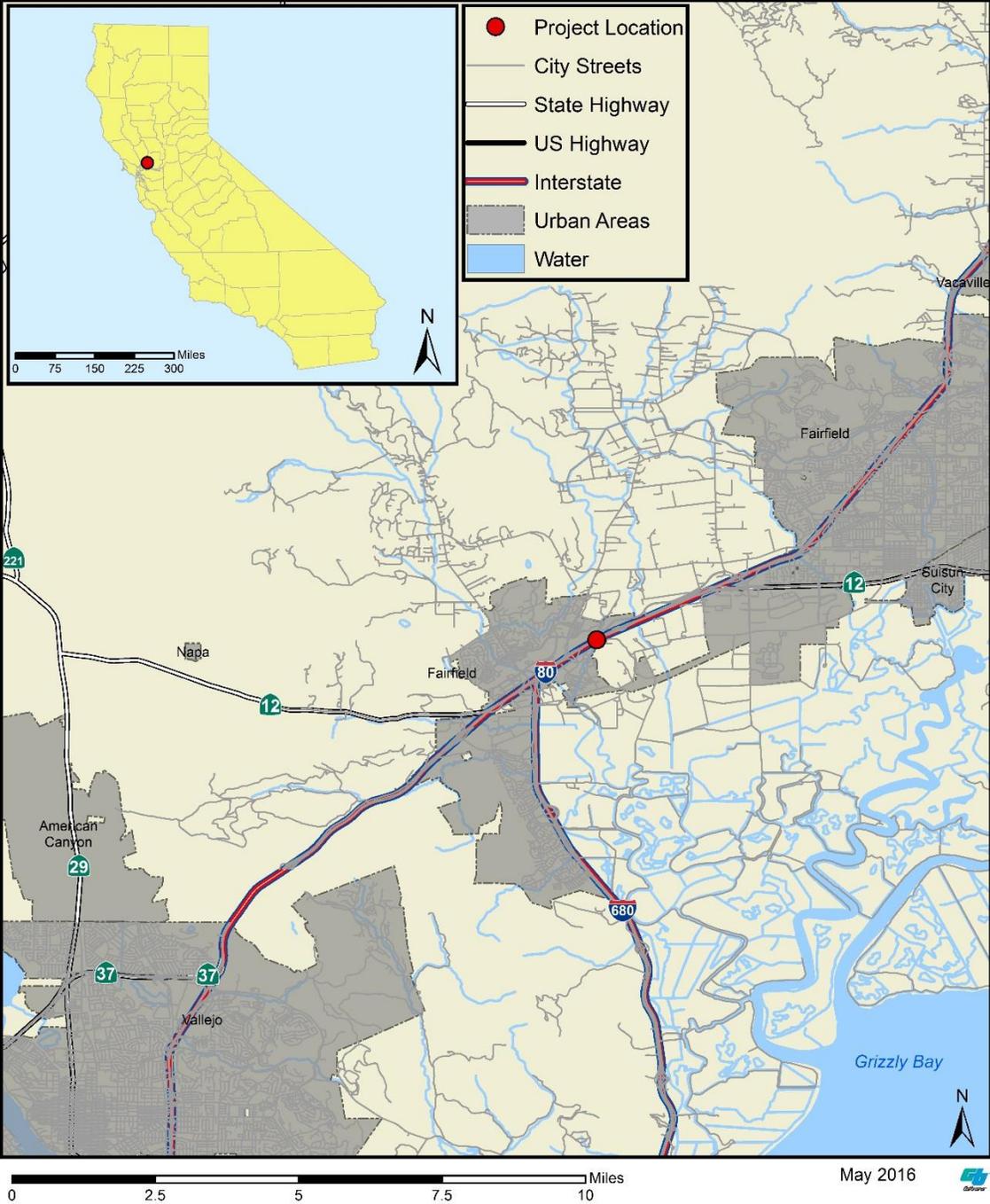
Rehabilitation of a portion of the westbound Dan Wilson Creek Bridge is needed to upgrade the bridge to existing standards, preserve and extend the life of the bridge and to continue uninterrupted service to accommodate travel demand on the roadway.

This project proposes to address the structural deficiencies of the Dan Wilson Creek Bridge and deck to maintain its functionality as a transportation facility. The most recent bridge inspection, performed on February 18, 2015, determined that the westbound bridge is structurally deficient. The inspection documented significant deterioration of the deck. The westbound bridge is in fact two structures; the original bridge built in 1951 and the widened portion in completed 1961. The 1961 structure requires complete replacement, whereas the 1951 structure requires deck rehabilitation. The problems are most prevalent in the unreinforced lightweight concrete overlay on the original portion of the bridge and the reinforced concrete deck slab of the widened portion of the structure. There are large cracks and some spalls in the bridge deck and approach slabs.

## **Project Funding and Programming**

This project is currently programmed for construction capital of \$2,600,000 in the State Highway Operations and Protection Program (SHOPP), under the Bridge Rehabilitation Program, for the 2016/17 fiscal year.

# Dan Wilson Creek Bridge Deck Replacement Project



Project Vicinity Map

## **Project Description**

This project will consider two alternatives, the build alternative and the no-build alternative.

## **Build Alternative**

### **Project Description**

Caltrans proposes a project to rehabilitate the westbound structure of the Dan Wilson Creek Bridge (Bridge No. 23-0006) located along Interstate 80 (I-80) at postmile (PM) 13.92 in an unincorporated part of Solano County, near the community of Cordelia. The project would replace a portion of the deteriorating, lightweight concrete overlay of the bridge deck with a full strength concrete deck overlay. The project would also replace the entire deck of the remaining portion with a new cast-in-place concrete slab bridge on cast-in-steel-shell (CISS) pile foundations with pile extensions.

The existing and proposed westbound cross-sections of the Dan Wilson Creek Bridge are shown in Figure 1 and Figure 2. Figure 3 shows the proposed elevations. For more details, preliminary project plans and cross section are located in Appendix D. These plans are not the final design of the project.

### **Project Construction Methods**

This project would replace the existing, deteriorating, lightweight concrete overlay of the 1951 westbound Dan Wilson Creek Bridge structure (Figure 1) with a full strength concrete deck overlay (Figure 2). It would also replace the entire westbound deck of the 1961 bridge structure (Figure 1) with a new cast-in-place concrete slab bridge on cast-in-steel-shell (CISS) pile foundations with pile extensions (Figure 2). The new bridge deck would be constructed to the same width as the existing bridge deck. No work will be done on the eastbound bridge structure. The project would result in no widening of the structure and would maintain the existing lane configuration.

### **Bridge Construction**

Construction would be done in two stages:

#### **Stage 1:**

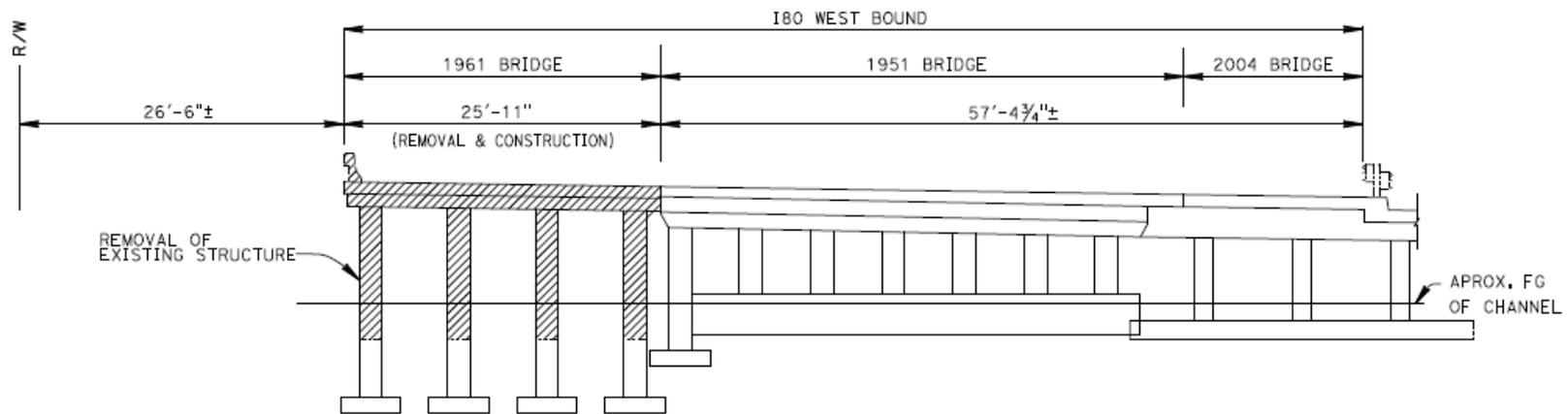
In Stage 1, the existing unreinforced lightweight concrete deck overlay on the westbound bridge structure and the associated approach slabs would be removed. The old concrete overlay would then be removed and replaced with reinforced concrete. The existing approach slabs at both ends of the bridge would be replaced with new approach slabs (Figure 3). Construction activities for Stage 1 would take place during night-time hours; nightly lane closures would be necessary.

#### **Stage 2:**

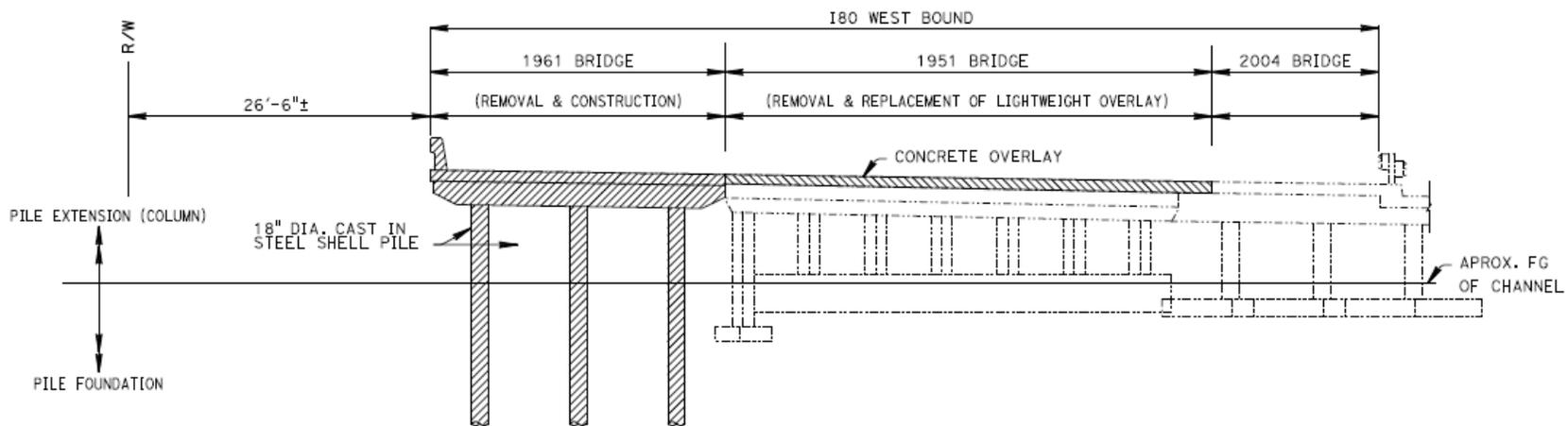
In Stage 2, the median bridge deck (2004 portion) and the newly constructed concrete deck overlay would be restriped to provide five lanes. K-rail, temporary concrete barrier rail, would be placed along the left edge of newly constructed concrete deck. The existing 1961 portion of the bridge deck and columns would be removed. The columns would be removed to an elevation of 3 feet below the stream bed (Figure 1). The existing abutments, the upper part of the substructural supports at the ends of the

bridge, would be retained (Figure 3). Three 18-inch-diameter CISS piles would be installed at each of the two bents. The existing westbound deck would be replaced with new reinforced cast-in-place concrete slabs. New approach slabs would be installed at both ends of the bridge. Solid concrete bridge railing would be constructed along the edge of the bridge deck. Finally, the K-rail would be removed and the roadway would be restriped to its existing, six-lane, configuration.

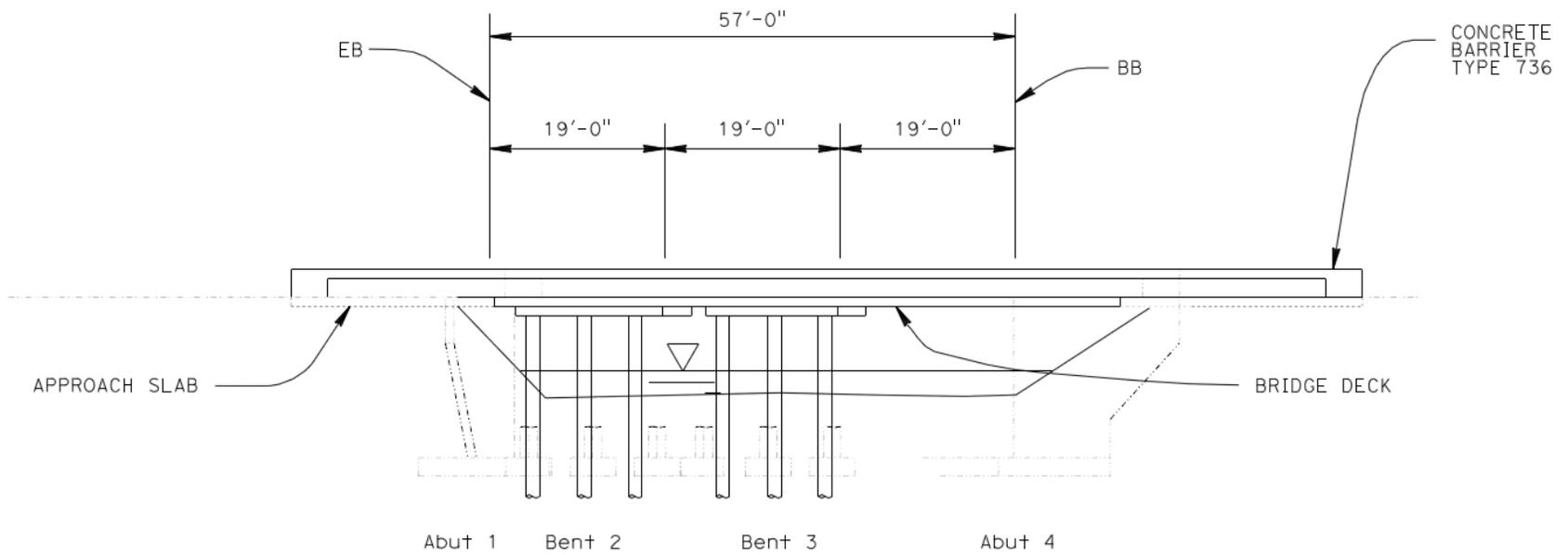
Construction in the waterway would be restricted to the dry season, June 15 through October 15. The estimated duration of work is 3 months. Work would be done from the embankment, behind the abutments at both ends of the structure.



**Figure 1. Dan Wilson Creek Bridge Existing Westbound Cross-section**



**Figure 2. Dan Wilson Creek Bridge Proposed Westbound Cross-section**



**Figure 3. Dan Wilson Creek Bridge Proposed Westbound Elevation**

## **Project Features**

### **Pavement Removal**

The existing deck overlay of the westbound deck would be chipped, scraped and ground off.

### **Pile Driving**

During Stage 2, a total of six CISS piles would be installed, three per each of the two bents. The piles would be 18 inches in diameter, and would be located in the creek. The piles (steel shells) would be hammer-driven. Once the steel shell reaches the specified depth, the inside would be cleared and a rebar cage would be lowered into the shell and concrete would be poured. Pile driving requires approximately one hour per pile. The depths of piles would be determined following geotechnical boring, but is estimated not to exceed 50 feet.

### **Abutments**

Abutments, would need to be reconstructed to accommodate the new bridge deck and approach slabs. In Stage 2, the abutments would be removed to approximately 1 foot below the bottom of the existing deck. The useful portions of the existing abutments will remain as part of the new bridge structure. A new connection would be constructed to attach the new deck to the top of the abutment stem, and would include a seat for the new approach slabs.

### **Midwest Guardrail System (MGS)**

The existing guardrail located at the east end of the bridge rail would be replaced with Midwest Guardrail System (MGS). On the west side of the bridge rail, new MGS would be installed. This new MGS would continue up to the existing guardrail.

### **Drainage**

The construction of the approach slabs would impact the existing drainage patterns in the median. The existing inlet and a short length of the drainage pipe connected to it, on the western approach slab, would be removed. A new inlet would be located just west of the approach slab and the existing slotted pipe would be cut and connected to the new inlet.

The existing inlet located on the eastern approach slab would be incorporated into the design of the approach slab. The portion of the existing slotted pipe within the limits of the approach slab would be removed. A new inlet would be installed just to the east of the approach. The remaining slotted pipe would drain to the new inlet which would connect to the existing inlet via an 18 inch culvert. All work for the inlets would be within, and under, the approach slab impact area.

## **Utilities**

There are overhead power lines located approximately 20 feet from the existing edge of deck that would not be impacted during construction. There is no gas facility within the area. There is a 4 inch galvanized iron sewer pipe, running around the east abutment and crossing the bridge from north to south. This pipe, owned by Caltrans and serving both Cordelia weigh stations, would be relocated by lowering it 2 feet and would be protected during construction.

## **Geotechnical Boring**

Prior to construction, geotechnical borings would be conducted to obtain information on the physical properties of soil and rock around a project site. Geotechnical boring would be necessary to determine the depth of the piles to be installed. The equipment used would be a rotary wash drilling system, which utilizes drilling fluid in a closed circulation system. Two holes would be drilled behind the abutments; each hole would take 2 to 3 days to complete. This would require a lane closure with possible night drilling. The holes would be backfilled with cement grout with a trimme pipe. Borings would be 80 feet deep and 4 inches in diameter.

## **Project Features during Construction**

### **Temporary Creek Diversion System**

A full creek diversion, to manage creek flow through the worksite during the proposed construction season, would be needed. The temporary creek diversion system and dimensions would be determined at the design phase of the project. Caltrans would determine the allowable diversion berm material options after weighing environmental and engineering considerations. A temporary creek crossing would be built during construction work in the channel. A pipe culvert would be installed at grade within the creek channel. The temporary creek crossing/work pad would be constructed on top of the culvert. Work in the creek channel and on the embankments would be restricted to the dry season (June 15 through October 15). The contractor would follow all Caltrans specifications for working within the creek channel. This creek crossing would be removed by hand at the conclusion of the project. A temporary bench, approximately 3 feet wide at the face of abutment wall, would be built to set the falsework pad.

### **Falsework**

Prior to construction, falsework for the replacement of the 1961 bridge would be placed to support the structure during construction of the substructure below the deck (substructure) and the superstructure (the deck itself and components above the deck). Falsework would be manually put in place before the construction of each bridge structural element. Structural pieces would be installed using cranes from the embankment behind abutments at both ends of bridge. Most falsework would be set in the creek channel. Once the piles/columns are in place, the falsework could be supported on the new columns. Falsework for removal and replacement of the lightweight concrete overlay on the portion of the bridge not supported at both ends (cantilever section) would be installed underneath the cantilever slab and

suspended from the sides of the existing 1951 and 2004 bridges. This falsework would not be set in the creek channel.

Removal of the falsework would require access to the creek channel north of the end of the abutments. Falsework removal would be done manually from the creek channel and also include crane work from the bridge deck above.

## **Transportation Management Plan (TMP) During Construction**

A Transportation Management Plan (TMP) would be prepared and implemented during the design phase to minimize or prevent delays and inconvenience to the traveling public and to address traffic impacts from stage construction and specific traffic handling concerns during construction.

During the replacement of the lightweight concrete overlay (1951 portion) and placement of the associated approach slabs, traffic would be handled using night-time lane closures. Lanes would be closed according to the allowable windows. A minimum of two lanes would be opened during nights.

During the replacement of the entire deck (1961 portion), closure of the rightmost lane would be necessary. The rightmost lane would be closed to traffic for 3 continuous months. Upon completion of the 1951 portion, K-rails would be attached to the edge of the deck overlay adjacent to the 1961 portion of the deck. The section of the roadway consisting of the median deck and concrete deck overlay is to be striped to accommodate 5 lanes of traffic. This condition would remain until the bridge deck replacement is complete. The entire roadway would then be restriped to the original 6 lane configuration.

The TMP may include press releases to notify and inform motorists, businesses, community groups, local entities, emergency services, and local officials of upcoming closures.

## **Temporary Access Ramps**

Access to the creek channel would be from the eastern and western embankments of the bridge. Two temporary ramps would be constructed to provide access north of the bridge and would require the removal of 24 trees. These access ramps would be located in the available space between the edge of shoulder and right of way just before abutment 1 and just after abutment 4. The access ramps would have an approximate length of 40 feet and width of 20 feet.

## **Restoration**

Following construction, the banks of the creek would be restored to their pre-construction condition. Areas of riparian impacts along the creek banks would be replanted with native species appropriate to the area. The creek banks would be re-vegetated using compost application/incorporation, hydroseed (using native species) application, and straw installation. Replacement highway planting would also take place for tree removal on roadside areas.

## **Right-of-Way Requirements**

No additional right of way requirements are anticipated for the proposed project

## **No-Build Alternative**

Under the No-Build Alternative, no major reconstruction on I-80 through the project area would occur. In the absence of a deck replacement and rehabilitation of the Dan Wilson Creek Bridge, to address the structural deficiencies, it is likely that its functionality as a transportation facility will not be maintained.



View of existing Dan Wilson Creek Bridge deck looking east



View of existing Dan Wilson Creek Bridge deck looking west



View of existing bridge piles/columns



View of existing bridge exterior and rail



**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.

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

**B. DETERMINATION**

On the basis of this initial evaluation:

<input type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	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.
<input type="checkbox"/>	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 project to rehabilitate the westbound structure of the Dan Wilson Creek Bridge (Bridge No. 23-0006) located along Interstate 80 (I-80) at postmile (PM) 13.92 in an unincorporated part of Solano County, near the community of Cordelia. The project would replace a portion of the deteriorating, lightweight concrete overlay of the bridge deck with a full strength concrete deck overlay and would replace the entire deck of the remaining portion with a new cast-in-place concrete slab bridge on cast-in-steel-shell (CISS) pile foundations with pile extensions.

## Determination

This 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 Initial Study 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 effect on agriculture and forestry, air quality, cultural resources, greenhouse gas emissions, land use/planning, mineral resources, noise, population/housing, public services, and recreation.

In addition, the proposed project would have less than significant effects to aesthetics, geology/soils, hazards and hazardous materials, hydrology/water quality, transportation/traffic and utilities/service systems.

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

- Compensatory mitigation for California red-legged frog.

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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.

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

The project is located on Interstate 80, which is not part of the State Scenic Highway System. No development exists immediately adjacent to the project. Other than from the highway, there are no public views directly into the creek channel and of the bridge. Views of the creek channel from the highway are limited.

All work in the creek channel would be on the north side of the westbound bridge. Access to the area under the bridge would cause some disturbance to the stream banks. Tree removal would be necessary for the construction of access ramps. Approximately 22 coast live oak and 2 Eucalyptus are expected to be removed within Caltrans' right-of-way. A temporary crossing/work pad would also be constructed. Temporary impacts during construction would be related to the presence of construction workers, materials and equipment.

Scenic Resources would not be adversely affected. The project would not block or disrupt existing views or vistas, have a substantial adverse effect on visual quality or visual character, or result in a substantial increase in light or glare. Other than the temporary presence of materials and work crews during construction, there would be a minimal change in the appearance of the highway environment as a result of the project.

Avoidance and minimization measures have been identified and can further lessen visual impacts of the project. The primary means of minimizing potential project impacts to visual resources involves replanting areas of disturbance along the creek banks and above the banks with native tree species appropriate to the area. The creek banks would be revegetated by hydroseeding with native species. The creek channel would be restored to its pre-construction conditions. Replacement highway planting would also take place for tree removal on roadside areas.

**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:

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

No agricultural lands would be directly or indirectly affected by the project. The project would not convert farmland to non-agricultural use. The land in the project area is not used as farmland. 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:

- |  |                          |                          |                          |                                     |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Conflict with or obstruct implementation of the applicable air quality plan?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Expose sensitive receptors to substantial pollutant concentrations?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Create objectionable odors affecting a substantial number of people?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

The project would have no effect on the implementation of an air quality plan, is exempt from the requirement for a conformity determination, would not result in a cumulatively considerable net increase in any criteria pollutant, would not expose sensitive receptors to substantial pollutant concentrations, and would not create objectionable odors.

**IV. BIOLOGICAL RESOURCES:** Would the project:

- |  | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact        | No Impact                           |
|--|--------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| 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? | <input type="checkbox"/>       | <input checked="" type="checkbox"/>   | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?   | <input type="checkbox"/>       | <input checked="" type="checkbox"/>   | <input type="checkbox"/>            | <input type="checkbox"/>            |
| c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?   | <input type="checkbox"/>       | <input type="checkbox"/>              | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?   | <input type="checkbox"/>       | <input type="checkbox"/>              | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?  | <input type="checkbox"/>       | <input type="checkbox"/>              | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

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

The biological study area (BSA) is the area that the project’s activities may directly or indirectly effect. The project BSA includes the area within the project footprint plus a 250-foot buffer (Figure 4). The BSA consists of approximately 10.1 acres. The BSA was studied to determine the potential affects to federal and state listed species with potential to occur in the project area.

A total of seven land covers types were found within the BSA they include: developed, mixed oak woodland, non-native annual grassland, ruderal, open water, perennial drainage (Dan Wilson Creek), and perennial wetland (Table 1). Within the BSA, non-native grasslands are the most abundant. Trees surveyed include coast live oaks (*Quercus agrifolia*), blue oaks (*Quercus douglasii*) interior live oaks (*Quercus wislizeni*), valley oak (*Quercus lobata*) and Eucalyptus (*Eucalyptus globulus*).

There would be no permanent loss of any of the natural land cover types. The temporary effects anticipated within each land cover type are provided in Table 1. Construction activities are expected to have only temporary impacts on habitat and wildlife.

**Table 1. Total Project Impacts to Land Cover Types within the BSA**

Land Cover Types	Total Feature Acreage	Total Impacts
Developed	3.41	0.071
Mixed Oak Woodland	1.72	0.148
Non-Native Annual Grassland	3.67	0.039
Ruderal	0.59	0
Open Water	0.08	0
Perennial Drainage (Dan Wilson Creek)	0.14	0.04 (0.03 under bridge)
Perennial Wetland	0.50	0.032
<b>Total:</b>	<b>10.1</b>	<b>0.33</b>

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.

**General Avoidance and Minimization**

The avoidance and minimization measures below apply broadly to special status natural resources potentially affected by this project. Measures are discussed in detail in Appendix C.

**1. Demarcate Environmentally Sensitive Areas**

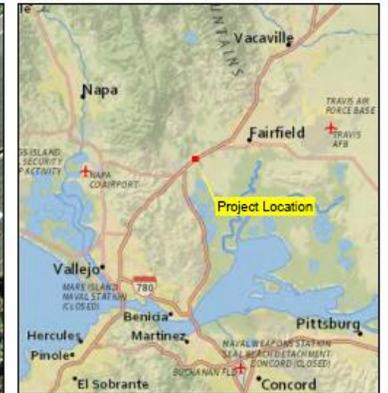
Before construction, a qualified biologist will identify Environmentally Sensitive Areas (ESAs) in or adjacent to the BSA so these areas can be fenced off (where practicable) to protect them during project construction.

**2. Conduct Environmental Awareness Training**

A United States Fish and Wildlife Service (USFWS) approved biologist will be retained to develop an environmental awareness training program, and train all construction employees in the importance of minimizing impacts to protected natural resources in the BSA, including all special status wildlife potentially on site (for example, bats, California red-legged frog, western pond turtle, breeding birds), their habitat, other special status features (such as wetlands).

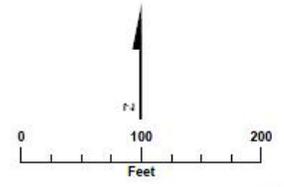
**3. Monitor Environmental Compliance**

A biologist will monitor construction activities when special-status species may be impacted, in and adjacent to all sensitive habitats in the construction area.



- LEGEND**
- Project Action Area (0.80 acre)
  - Biological Study Area (BSA) (10.1 acres)
  - National Hydrography Dataset (NHD) Flowline
  - ~ Dan Wilson Creek

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



**Figure 4. Dan Wilson Creek Biological Study Area**

**Wetlands and Other Waters of the United States**

The BSA lies within the Lower Sacramento and Suisun Bay Watersheds. Dan Wilson Creek, located within the BSA, flows roughly from west to east, starting in the hills west of Vacaville and Fairfield. It flows through the BSA and merges with Jameson Canyon Creek and Green Valley Creek before flowing into Peytonia Slough. Water is present in this drainage much of the year, if not year-round, and wetland riparian vegetation lines the drainage.

Approximately 0.68 acre of perennial wetland, 0.22 acre of perennial drainage (Dan Wilson Creek) are within the BSA (Table 2).

***Impacts***

Construction requires access to the creek channel under and adjacent to Dan Wilson Creek Bridge. A temporary creek diversion would be in-place, to manage creek flow, during construction. A temporary creek crossing would be built in the channel. The creek would be piped in its existing channel and a work pad and creek crossing would be built across the pipes. All in water work would be limited to the dry season (June 15 through October 15). The contractor would follow all Caltrans specifications for working within the creek channel.

A total of 0.03 acre of perennial wetland and 0.04 acre of perennial drainage would be temporarily impacted (Table 2). Impacts may include increased habitat fragmentation, increased toxicity and sedimentation of surrounding habitats, and changes to hydrologic features and patterns.

**Table 2. Temporary Impact Acreage to Wetlands and Other Waters**

	<b>Total Feature within BSA (acres)</b>	<b>Total Impacts (acres)</b>
Perennial Wetland	0.68	0.03
Dan Wilson Creek/Perennial Drainage	0.22	0.04
<b>Total Wetlands and Waters</b>	<b>0.9</b>	<b>0.07</b>

***Avoidance and Minimization***

In addition to the general avoidance and minimization measures the following would minimize project impacts to the BSA wetlands and other waters.

**1. Obtain Approval from Regulatory Agencies**

Before construction begins, Caltrans will obtain all required permits for potential impacts to aquatic habitat (including riparian), protected aquatic species, and water quality.

Caltrans will obtain the following permits:

- Clean Water Act 404 Permit from the U.S. Army Corps of Engineers

- Clean Water Act 401 Water Quality Certification from the Central Valley Regional Water Quality Control Board (RWQCB)
- Lake and Streambed Alteration Agreement from California Department of Fish and Wildlife (CDFW)
- Biological Opinion from the U.S. Fish and Wildlife Service (USFWS)

## **2. Protect Water Quality in Aquatic Habitats (Wetlands, Drainages)**

Best Management Practices before and during project construction will be implemented to preserve existing water quality within and adjacent to the BSA to minimize impacts to natural resources in the vicinity.

Caltrans will return temporarily disturbed portions of drainages to their original grades, to the extent practicable, once construction is complete. Wetlands will be revegetated with appropriate species. Avoidance measures are discussed in detail in Appendix C.

### **Mixed Oak Woodlands**

In the mixed oak woodlands within the proposed project's BSA, coast live oak is dominant with scattered Eucalyptus. Approximately 1.72 acre of mixed oak woodlands were mapped in the BSA (Table 1).

### ***Impacts***

The project would temporarily impact approximately 0.148 acre of mixed oak woodland within the BSA (Table 1). Approximately 22 coast live oaks and two eucalyptus are expected to be removed to construct access ramps.

### ***Avoidance and Minimization***

The area of tree and vegetation removal will be minimized to the extent possible. Coast live oak trees or other appropriate native species will be replanted upon completion of construction to revegetate disturbed areas.

### **Special Status Plant Species**

No rare, special status plant species are expected to occur in the BSA.

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

The following special-status species are present or have habitat present and have at least a moderate probability to occur within the BSA: migratory birds and bird nests, raptors (Swainson's hawk and white-tailed kite), bats (western red and Yuma myotis), western burrowing owl, tricolored blackbird, loggerhead shrike, western pond turtle and California red-legged frog.

### **Migratory Birds**

Some of the habitat in the BSA is potential breeding habitat for bird species, and numerous bird species may breed within and adjacent to the BSA.

## ***Impacts***

Project construction, vegetation clearing, removal of 24 trees, and an increase in people and construction equipment (with associated noise) may affect birds. This project could affect nesting birds, if occupied nests are disturbed or removed during the breeding season. A temporary increase in human presence, and other construction-related activity and noise (including pavers and pile drivers), may deter some birds from foraging, resting, or nesting in the BSA during construction. The project is not expected to impact breeding birds.

## ***Avoidance and Minimization***

Successful implementation of avoidance and minimization measures would avoid the loss of migratory bird nests, eggs, or young. Temporarily impacted areas will be revegetated upon project completion. Trees will be planted onsite to the maximum extent possible after completion of construction. Avoidance and minimization measures will include:

### **1. Constrain Shrub Removal to the Non-breeding Season**

Tree removal will be conducted during the period for most birds in the vicinity that is the non-breeding season, September 1 through January 31.

### **2. Conduct Preconstruction Surveys for Breeding Birds**

If vegetation removal is required between February 1 and October 31, a qualified wildlife biologist will conduct a preconstruction survey within 30 days of construction and/or vegetation removal to locate any nesting birds.

### **3. Create Protective Buffers for Breeding Birds**

If any active nests are discovered, USFWS and/or CDFW will be contacted to determine protective measures required to avoid take.

### **4. Monitor Construction to Protect Birds**

Qualified biologists may be required to monitor construction while protected migratory birds are in the BSA and/or nesting there. If an active nest is found after completing the preconstruction surveys and after construction begins, all construction activities will stop until a qualified biologist has evaluated the nest and erected the appropriate buffer around the nest. If establishment of the buffer is not feasible, USFWS and/or CDFW will be contacted for further avoidance and minimization guidelines.

### **5. Protect Swallows and Swifts**

Specific measures to avoid and minimize impacts to swallows and swifts that may nest or attempt to nest underneath Dan Wilson Creek Bridge or other work sites within the BSA are as follows:

In order to keep the birds from nesting in or on the bridges or other potential nesting sites during construction, suitable exclusion devices, such as appropriately sized netting, may need to be installed by a qualified staff or contractor before February 1 of the construction year. These exclusion structures would be left in place, monitored by qualified biologists every day, and maintained through August 31, or until work is complete. These avoidance measures will decrease the risk of project-related negative impacts to swallows and swifts, their nests, eggs, or nestlings.

## **Raptors**

Swainson's hawk, red-tailed hawk, and white-tailed kite were observed flying over the study area during various biological surveys. One unoccupied raptor nest was observed within the vicinity of the proposed project's BSA.

The Swainson's Hawk is state threatened and a federal species of concern. In and near the BSA, large trees provide potentially suitable nesting habitat, and ruderal and non-native grasslands provide suitable foraging habitat for the Swainson's hawk. Active Swainson's hawk nests were not observed inside the proposed project's BSA during surveys.

White-tailed kites are listed as a state fully protected species by the California Department of Fish and Wildlife (CDFW). Suitable foraging, nesting, and roosting habitat is present within the BSA. White-tailed kites were observed in the BSA during biological surveys.

## ***Impacts***

The project is not expected to impact raptors. Tree removal includes two eucalyptus, with potential nesting sites, though no nest were observed, and twenty-two coast live oak trees, which have a low potential for nesting sites. There may be a temporary loss of foraging habitat nesting, and roosting habitat. There may also be a loss of hunting opportunities as project disturbance may affect prey activity, availability, or accessibility within and around the BSA.

## ***Avoidance and Minimization***

General avoidance and minimization measures will reduce the risk of negative project impacts on raptors. Avoidance and minimization measures such as those for migratory birds will also minimize impacts, they include:

- 1. Constrain Shrub Removal to Non-breeding Season**
- 2. Conduct Preconstruction Surveys for Breeding Birds**
- 3. Create Protective Buffers for Breeding Birds**
- 4. Monitor Construction to Protect Birds**

Other avoidance and minimization measures for Swainson's Hawk include:

- 1. Preconstruction Surveys**
- 2. Monitoring and Avoidance of Active Nests**

Measures discussed in detail in Appendix C.

## **Bats (Western red bat and Yuma myotis)**

The western red bat, a state species of concern, and the Yuma myotis, a federal species of concern, have a moderate chance of being present in the BSA. According to the bat survey of the BSA, conducted during the late summer and early fall of 2011, a Yuma myotis bat was observed. Yuma myotis is commonly credited with roosting under bridges, in trees, in crevices and buildings which represents the structure and micro-habitat present within the BSA.

Western red bats were not detected at Dan Wilson Creek Bridge, however, red bats are known to overwinter in leaf litter, adjacent to foraging areas, this microhabitat is present within the BSA.

### ***Impacts***

Construction activity at Dan Wilson Creek Bridge may disturb western red bats or Yuma myotis bats. The timing of vegetation removal could affect bats that are using vegetation for roosting or as foraging substrate. Temporary loss of foraging and watering sites and night roosting sites for bats is likely during the construction period.

### ***Avoidance and Minimization***

The following avoidance and minimization measures are recommended:

- Avoidance should be attempted to the greatest extent possible. When avoidance is not possible, minimize disturbances whenever practicable.
- Bat surveys should be conducted no more than 30 days before construction activity initiation.
- Prior to construction, occupied sites should be noted and specific mitigation requirements for particular sites should be developed by a qualified biologist.
- Schedule construction during the months of the year when bats are least likely to be present.
- Do not alter the existing structure within which bats are currently roosting.
- Where known day roosts exist, monitor bat use of the sites throughout the construction period.
- Minimize the storage and use of fossil-fuel powered equipment under or at the open ends of occupied bridges and crossings.
- Limit lighting to the tops of bridges only.
- Exclude bats from limited areas during construction activity.
- Bat exclusion (all seasons):

-Roosting sites on Dan Wilson Creek Bridge that include day roosting bats should exclude bat access to the greatest extent possible.

- If bats are present, bat exclusion should occur only after all bats have left the roost (during a 24-hour cycle or seasonally).

- Following a survey with negative results, barriers to exclude bats from the entire structure should be erected. Additionally, all crevices that allow roosting should be temporarily closed to bats.

- Sites where exclusion barriers, or other mechanisms to exclude bats, are used should be inspected regularly and repaired quickly. If holes or gaps are present on the exclusion material, additional surveys for bats should be performed prior to erection or repair of the exclusion material.

### **Western Burrowing Owl**

The western burrowing owl is a state species of special concern. Non-native annual grassland in the project site is potentially suitable habitat for western burrowing owl.

#### ***Impacts***

The project is not expected to impact western burrowing owls. No small mammal burrows were observed within the temporary impact area during the March 14, 2016 site visit, nor were western burrowing owl observed during any of the other biological surveys.

### **Tricolored Blackbird**

The tricolored blackbird is a state species of special concern. Potential breeding habitat in the project area may include open-water habitats, such as wetlands, in addition to any other flooded or spiny vegetation (such as Himalayan blackberry) near open water. The grassland, wetland and ruderal habitat in the project site may provide suitable nesting and foraging opportunities. The nearest California Natural Diversity Database (CNDDB) record for tricolored blackbirds is approximately 4.9 miles west of the BSA. They were not observed during other biological surveys.

#### ***Impacts***

The project is not expected to impact the tricolored blackbird. The tricolored blackbird and its nesting and foraging habitat may be temporarily impacted (Table 3).

**Table 3. Impact Acreage to Potential Tricolored Blackbird Habitat**

<b>Habitat Type</b>	<b>Feature Acreage (ac)</b>	<b>Temporary Impacts (ac)</b>
Ruderal <sup>b</sup>	0.59	0.0046
Non-native Annual Grassland <sup>b</sup>	3.67	0.039
Perennial drainage <sup>a, b</sup>	0.14	0.04
Perennial Wetland <sup>a, b</sup>	0.5	0.032

<sup>a</sup>Nesting habitat

<sup>b</sup>Foraging habitat

#### ***Avoidance and Minimization***

General avoidance and minimization measures will reduce the risk of negative project impacts on tricolored blackbirds. Avoidance and minimization measures such as those for migratory birds will also minimize impacts, they include:

- 1. Constrain Shrub Removal to Non-breeding Season**
- 2. Conduct Preconstruction Surveys for Breeding Birds**
- 3. Create Protective Buffers for Breeding Birds**
- 4. Monitor Construction to Protect Birds**

Measures discussed in detail in Appendix C

## Loggerhead Shrike

Loggerhead shrikes, state species of special concern, were observed during BSA surveys. Breeding and foraging habitat exists in and adjacent to the BSA.

### **Impacts**

The project is not expected to impact the loggerhead shrike. Project construction would result in the temporary loss of potential loggerhead shrike foraging, nesting, and dispersal habitat (Table 4). There also may be a loss of hunting opportunities. Project disturbance may affect prey activity, availability, or accessibility within and around the BSA.

**Table 4. Impact Acreage to Potential Loggerhead Shrike Habitat**

Habitat Type	Feature Acreage in BSA (ac)	Temporary Impacts (ac)
Mixed Oak Woodland <sup>a,b</sup>	1.72	0.148
Non-native Annual Grassland <sup>b</sup>	3.67	0.039
<i>Total Nesting Habitat Impacted</i>	<i>1.72</i>	<i>0.148</i>
<i>Total Foraging Habitat Impacted</i>	<i>5.39</i>	<i>0.187</i>

<sup>a</sup>Nesting habitat;

<sup>b</sup>Foraging habitat

### **Avoidance and Minimization**

General avoidance and minimization measures will reduce the risk of negative project impacts on loggerhead shrikes. Avoidance and minimization measures such as those for migratory birds will also minimize impacts, they include:

- 1. Constrain Shrub Removal to Non-breeding Season**
- 2. Conduct Preconstruction Surveys for Breeding Birds**
- 3. Create Protective Buffers for Breeding Birds**
- 4. Monitor Construction to Protect Birds**

Measures discussed in detail in Appendix C

## Western Pond Turtle

The western pond turtle is a state species of special concern. Slow moving rivers, streams, backwaters, small lakes, stock ponds, drainage ditches, agricultural sloughs, and their associated uplands are typical habitat for these turtles. Suitable habitat (upland and aquatic) is present in the BSA.

A western pond turtle was observed at the pond north of the BSA on March 14, 2016.

### **Impacts**

The project is not expected to impact the western pond turtle. Western pond turtles are present in the BSA and may be affected by construction activities, particularly in or near any aquatic

habitat, or the upland habitat adjacent to the aquatic habitat. Any digging or moving of heavy equipment on upland habitat within 1,300 feet of aquatic habitat could collapse turtle burrows/excavation sites and kill turtles, their eggs, or their young. Potential project impacts to western pond turtle habitat include direct temporary impacts to habitat (Table 5).

**Table 5. Impact Acreage to Potential Western Pond Turtle Habitat**

Habitat Type	Feature Acreages in BSA	Temporary Impacts
Ruderal <sup>a</sup>	0.59	0.0046
Non-native Annual Grassland <sup>a</sup>	3.67	0.039
Perennial Drainage (Dan Wilson Creek) <sup>a,b</sup>	0.21	0.04
<b>Total Upland Habitat Impacted</b>	<b>4.47</b>	<b>0.084</b>
<b>Total Aquatic Habitat Impacted</b>	<b>0.21</b>	<b>0.04</b>

<sup>a</sup>=Upland (includes nesting)

<sup>b</sup>=Aquatic

Other potential direct temporary project impacts to western pond turtles and their habitat:

- Construction activity in and around habitat occupied by western pond turtle may render that habitat temporarily unsuitable or inaccessible.
- Construction equipment activity, sound, and human presence and activity may displace turtles to areas away from construction.
- Measures to prevent animal entrapment within the active construction area may block turtle access to resources they normally would have used, as well as block their ability to move through the BSA (temporarily increase habitat fragmentation and impede wildlife movement).
- Vegetation trimming and clearing could reduce habitat suitability by reducing shelter from predators, the sun, wind, and temperature extremes.

**Avoidance and Minimization**

The following Avoidance and Minimization measures will help reduce potential impacts to western pond turtles:

- Construction activities in the riparian areas will occur during the summer months to minimize potential impacts to aquatic species, and only during daylight hours (unless CDFW is consulted).
- A qualified biologist will conduct preconstruction surveys for western pond turtle immediately preceding construction activities in or adjacent to aquatic habitat (creeks and wetlands).
- If western pond turtles are present, a qualified biologist will relocate the animal to a safe place with suitable habitat.
- A biologist will inspect the water and work areas to ensure they are clear of wildlife and to ensure the water diversion equipment does not endanger protected wildlife species.
- Wildlife exclusion barriers will be put in place so that special status wildlife cannot enter work areas in aquatic habitat.

- Qualified biologists will inspect wildlife exclusion barriers regularly and alert the project lead if repairs are required—any repairs must be made before the end of the day to ensure protected wildlife does not enter the work area.
- If any western pond turtles are harmed, work at that site will be stopped, and the biologist will contact CDFW immediately.

**California Red-legged Frog**

The California red-legged frog is a federally threatened and a state species of special concern. California red-legged frogs are nearly endemic to California, their optimal habitat includes upland habitat (grasslands, oak woodlands and savannah, scrub, and riparian woodlands) with numerous mammal burrows surrounding aquatic breeding sites.

No California red-legged frogs were observed within the BSA, but surveys determined that the BSA contains potentially suitable aquatic and upland habitat. A review of the CNDDDB identified two separate occurrences of California red-legged frogs approximately 2.5 miles southwest of the BSA.

***Impacts***

Ground disturbing activity and presence and use of heavy equipment in potential California red-legged frog upland habitat can result in mortality of individuals (above ground or in burrows). The direct effects of the project include temporary loss of habitat and foraging opportunities (Table 6). Bridge construction activity may also block access to habitat on the other side of I-80. This project may affect, but is not likely to adversely affect the California red-legged frog.

**Table 6. Impact Acreage to Potential California Red-legged Frog Habitat**

Habitat Type	Total Feature Acreage	Total Impacts (ac)
Mixed Oak Woodland <sup>a</sup>	1.72	0.148
Ruderal <sup>a</sup>	0.59	0.0046
Non-native Annual Grassland <sup>a</sup>	3.67	0.039
Perennial Drainage (Dan Wilson Creek) <sup>b</sup>	0.14	0.01
Perennial Wetland <sup>b</sup>	0.5	0.032
<i>Total Upland Habitat Impacted</i>	<i>5.98</i>	<i>0.19</i>
<i>Total Aquatic Habitat Impacted</i>	<i>0.64</i>	<i>0.042</i>

<sup>a</sup>= Upland Habitat

<sup>b</sup>= Aquatic Habitat

***Avoidance and Minimization***

Typical practices for silt management (for example, installation of silt fence around riparian areas) may help alleviate the potential for a California red-legged frog to occur in the BSA. Additional measures, such as the installation of species-specific exclusion fence around riparian areas and aquatic habitat, will help reduce the potential project impacts to dispersing frogs.

Other recommended avoidance and minimization measures are as follows:

- A USFWS-approved biologist should conduct a preconstruction survey immediately preceding any construction activities or ground disturbance within potential California red-legged frog habitat.
- A biological monitor should be onsite for all project-related work activities near aquatic habitat to minimize take, in the event that California red-legged frog are discovered during construction.
- All work within the vicinity of Dan Wilson Creek should occur between June 15 and October 15 (outside of the rainy season), and should not occur during any rain event at any time of year.
- If any California red-legged frog are observed in the BSA, USFWS will be contacted, and the frog will be moved offsite by an USFWS-approved biologist.
- A USFWS-approved biologist will conduct all handling of California red-legged frog using nets or bare hands, and following approved protocol and decontamination procedures.
- All construction areas should be clearly marked and activities should be confined to these areas. No construction will be allowed within biologically sensitive areas, which shall be marked with orange ESA fencing.
- All work within and adjacent to Dan Wilson Creek should be conducted during daylight hours from 30 minutes after sunrise to 30 minutes before sunset (unless a CDFW or USFWS representative is contacted).

### ***Compensatory Mitigation***

Upon completion of construction, potential California red-legged frog habitat (riparian and wetland) that was disturbed will be restored. Plantings will be installed in areas of vegetation removal.

### **Federal Endangered Species Act Consultation Summary**

Caltrans initiates consultation with USFWS or National Marine Fisheries Service (for fish 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 will be initiated with the submission of a Biological Assessment prepared for the project.

For the proposed project, a Biological Opinion (BO) will be obtained from the USFWS as Caltrans has determined that the project may affect, but not likely to adversely affect the California red-legged frog. Caltrans has made a no effects determination on all other federally listed species that may occur within the BSA. If prior to commencement of construction, western pond turtle, western burrowing owl, Swainson's hawk, white-tailed kite, tricolored blackbird, loggerhead shrike, western red bat and Yuma myotis bat, become federally-listed then a Section 7 consultation will be initiated for those species.

**California Endangered Species Act Consultation Summary**

The California Endangered Species Act (CESA) generally parallels the main provisions of the federal ESA, but extends the take prohibitions to species proposed for listing. Section 2080 and 2081 of the 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.

CESA allows for take incidental to otherwise lawful activities 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. Caltrans will not, at this time, seek an incidental take permit for western pond turtle, western burrowing owl, Swainson’s hawk, white-tailed kite, tricolored blackbird, loggerhead shrike, western red bat and Yuma myotis bat. Should these species become state listed between now and commencement of construction then Caltrans may apply for an incidental take permit for western pond turtle, western burrowing owl, Swainson’s hawk, white-tailed kite, tricolored blackbird, loggerhead shrike, western red bat and Yuma myotis bat respectively.

**Other Regulatory Requirements**

The project would also require a 401 Water Quality Certification from the Regional Water Quality Control Board, a 404 Nationwide Permit from the United States Army Corps of Engineers and a 1602 Lake and Streambed Alteration Agreement from the CDFW.

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

No historic properties have been identified. The project would not cause a substantial adverse change in the significance of historical or archaeological resources. No impacts to sensitive paleontological resources are anticipated.

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC), which will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact 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.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
<b>VI. GEOLOGY AND SOILS:</b> Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i ) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project contains no components which would contribute to soil or slope instability. All slopes will be stabilized using standard Caltrans erosion-control BMPs.

According to the USGS, 2013 Association of Bay Area (ABAG), the entire project is located in an area that was classified as having “very strong ground shaking.” Caltrans will apply the Seismic Design Criteria into the design as a minimization measure.

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

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](http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf)

## Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to 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 (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF<sub>6</sub>), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. 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. The dominant GHG emitted is CO<sub>2</sub>, 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)<sup>1</sup>.

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<sup>1</sup> [http://climatechange.transportation.org/ghg\\_mitigation/](http://climatechange.transportation.org/ghg_mitigation/)

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.<sup>2</sup>

## **Regulatory Setting**

### ***State***

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and proactive approach to dealing with 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 (EO) S-3-05 (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 2020, and 3) 80 percent below the year 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Assembly Bill 32 (AB 32), Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall 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."

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 10 percent by 2020.

Senate Bill 97 (SB 97) Chapter 185, 2007, Greenhouse Gas Emissions: This bill required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

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,

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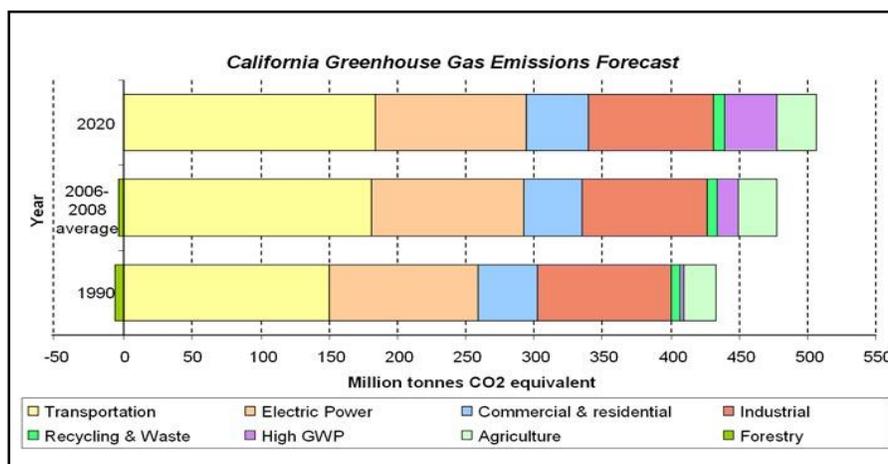
<sup>2</sup> [http://www.fhwa.dot.gov/environment/climate\\_change/mitigation/](http://www.fhwa.dot.gov/environment/climate_change/mitigation/)

land-use, and housing policies to plan for the achievement of the emissions target for their region.

**Project Analysis**

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of GHG.<sup>3</sup> In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines sections 15064(h) (I) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 contains the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.



**Figure 5. California Greenhouse Gas Forecast**

Source: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>

Caltrans and its parent agency, the State Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made

<sup>3</sup> This approach is supported by the AEP: Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.<sup>4</sup>

The purpose of this project is to address the structural deficiencies of the Dan Wilson Creek Bridge and deck in order to maintain its functionality as a transportation facility. This project proposes to replace part of the bridge deck and rehabilitate the surface of the remaining deck.

The proposed project is not a capacity increasing project so it is not anticipated to have any increase in operational GHG emissions as a result. By keeping the existing lane configuration, the project will not result in an increase in car use or a change in truck traffic above the existing levels and thus will not result in an increase in CO<sub>2</sub> emissions due to this project. As discussed below, construction emissions will be unavoidable, but there will likely be long-term GHG benefits associated reduced maintenance and improved operation through smoother pavement surfaces.

### **Construction Emissions**

Greenhouse gas 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.

### **CEQA Conclusion**

Although construction emissions are unavoidable and are expected to be minimal, the proposed project will not increase capacity and is not expected to result in additional operational CO<sub>2</sub> emissions. However, it is Caltrans' determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a determination regarding significance of the project's direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following section.

### **Greenhouse Gas Reduction Strategies**

The Department 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. Many of the strategies the Department is using to help meet the targets in AB 32 come from then-Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the

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<sup>4</sup> Caltrans' Climate Action Program is located at the following web address:  
[http://www.dot.ca.gov/hq/tpp/offices/ogm/key\\_reports\\_files/State\\_Wide\\_Strategy/Caltrans\\_Climate\\_Action\\_Program.pdf](http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf)



**Figure 6: Mobility Pyramid**

economy. The Strategic Growth Plan relies on a complete systems approach to attain CO<sub>2</sub> reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 6: The Mobility Pyramid.

The Department 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. The Department works closely with local jurisdictions on planning activities, but does not have local land use planning authority. The Department assists

efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; the Department 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.

The Department 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 (Steinberg 2008), SB 391(Liu 2009) requires the State’s long-range transportation plan to meet California’s climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas (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.

Table 7 summarizes the Departmental and statewide efforts that the Department is implementing to reduce GHG emissions. More detailed information about each strategy is included in the [Climate Action Program at Caltrans](#) (December 2006).

Table 7. Climate Change/CO2 Reduction Strategies						
Strategy	Program	Partnership		Method/Process	Estimated CO <sub>2</sub> Savings Million Metric Tons (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.045 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

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)<sup>5</sup> 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:

<sup>5</sup> [http://www.dot.ca.gov/hq/tpp/offices/orip/climate\\_change/projects\\_and\\_studies.shtml](http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml)

1) According to Caltrans' Standard Specifications, the contractor must comply with all of the Bay Area Air Quality Management District rules, ordinances, and regulations regarding air quality restrictions.

2) Compliance with Title 13, California Code of Regulations §2449(d)(3)-Adopted by the Air Resources Board on June 15, 2008, this regulation would restrict idling of construction vehicles to no longer than 5 consecutive minutes. The Contractor must comply with this regulation in order to reduce harmful emissions from diesel-powered construction vehicles.

3) To the extent that it is feasible for the project, the use of reclaimed water may be used to reduce GHG emissions produced during construction. Currently 30 percent of the electricity used in California is used for the treatment and delivery of water. Use of reclaimed water helps conserve this energy, which reduces greenhouse gas emissions from electricity production.

### **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<sup>6</sup>, 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

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<sup>6</sup> <http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation>

by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop The California Climate Adaptation Strategy (Dec 2009)<sup>7</sup>, which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report<sup>8</sup> to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.
- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise.

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academies Study.

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

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<sup>7</sup> <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>

<sup>8</sup> *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at [http://www.nap.edu/catalog.php?record\\_id=13389](http://www.nap.edu/catalog.php?record_id=13389).

information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data

All projects that have filed a Notice of Preparation as of the date of EO S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. This project was programmed for construction after 2013. The proposed project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

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.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
<b>VIII. HAZARDS AND HAZARDOUS MATERIALS:</b> Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Caltrans would survey the Dan Wilson Creek Bridge for asbestos-containing materials and any lead-based paints or coatings. In particular, the concrete decks that would be removed would have to be screened for asbestos content in the aggregate material, as mandated by the US Environmental Protection Agency. A past survey of this bridge identified the drain pipes embedded in the concrete substructure as made from asbestos-containing materials, but the bridge concrete was not tested at that time.

It is likely that a subsurface investigation to collect soil samples would also be conducted during the design phase of the project. Past soil sampling in this freeway corridor, including the Dan Wilson Creek bridge location, found fairly low levels of lead, surprisingly, but there was a notable standard deviation in the reported lead concentrations. With new, more-restrictive lead contamination regulations recently issued by the Department of Toxic Substances Control, it would be best to collect and analyze soil samples within the specific footprint of this proposed project to characterize the lead, which was the limited extent of the analytical schedule for the past site investigation, but lead would still be the primary contaminant of concern.

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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**IX. HYDROLOGY AND WATER QUALITY:** Would the project:

- |   |                          |                          |                                     |                                     |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Violate any water quality standards or waste discharge requirements?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

or river, in a manner which would result in substantial erosion or siltation on- or off-site?

- |   |                          |                          |                                     |                                     |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| f) Otherwise substantially degrade water quality?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| j) Inundation by seiche, tsunami, or mudflow  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

The project area is within Zone AE base floodplain (Figure 7). A Zone AE denotes a base floodplain where flood elevations have been determined. No fill is expected to be placed within the base floodplain as part of the project. The majority of the work is deck work and is not expected to affect the floodplain. The proposed CISS piles used would be slightly wider than the existing piles, which are 16 by 16 inches. However the volume of the proposed round piles would be slightly smaller than the volume of the square piles and fewer piles would be used. As a result the CISS piles are not expected to have a significant impact on the floodplain.

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 jurisdiction of the San Francisco Bay Regional Water Quality Control Board. The project requires Section 401 certification because of permanent fill to Waters of the United States and construction activities in the creek.

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 statewide Construction General Permit (2009-0009-DWQ, CAS000002, as amended by 2010-0014-DWQ and 2012-0006-DWQ) for construction activities applies to storm water discharges from land where clearing, grading, and excavation result in an acre or more of disturbed soil area (DSA).

Construction that is subject to the Construction General Permit (CGP) requires a Storm Water Pollution Prevention Plan (SWPPP). Construction not subject to the CGP must comply with the Water Pollution Control Program (WPCP) section of Caltrans Standard Specifications. This project has less than 1 acre of DSA and will require a WCPC.

### ***Impacts***

Potential water quality impacts to receiving waters would result from staging and active construction areas. An increase of 0.11 acre of impervious surface, by virtue of the deck replacement of the 1961 structure, and the removal of 24 trees would also result in potential permanent impacts. Impacts could result in the release of fluids, concrete material, sediment and litter beyond the perimeter of the site. Impacts may include pH changes to receiving waters and turbidity increases.

### ***Minimization and Restoration***

Treatment BMPs address water quality impacts and remove pollutants from storm water runoff before it is discharged to receiving waters. This project will need to treat runoff from new (0.11 acre) impervious surface.

To address temporary and permanent impacts permanent stormwater treatment measures will be implemented. The preferred treatment is bioretention, which may be designed as either a basin or swale configuration. Additionally a creek diversion will be implemented, in order to provide a dry working environment within the creek channel. Prior to commencement of construction activities a WPCP must be prepared by the contractor.

Following construction, the banks of the creek will be restored to their original slope. Areas of riparian impacts along the creek banks will be replanted with native species appropriate to the area.

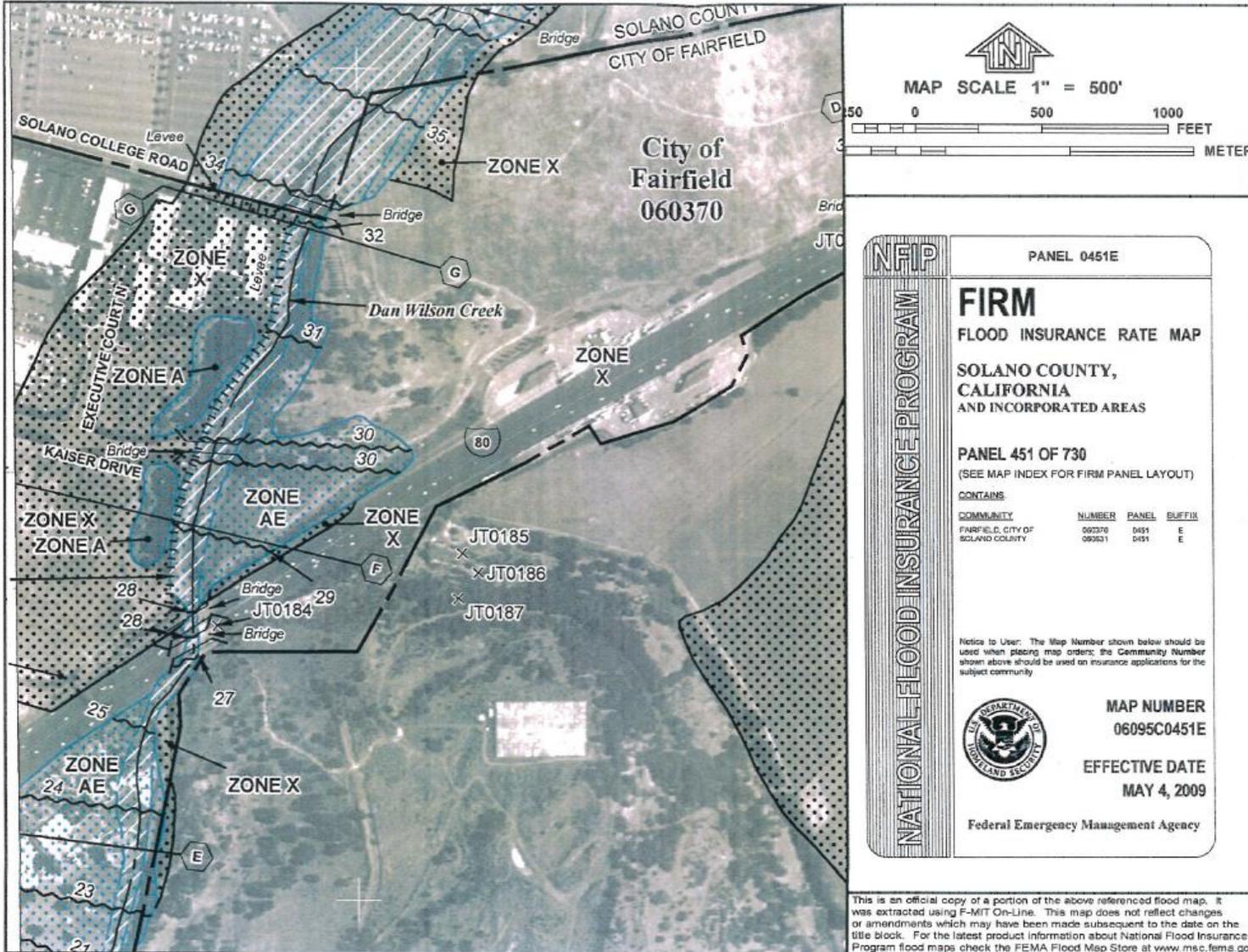


Figure 7. Flood Insurance Rate Map, Solano County

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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**X. LAND USE AND PLANNING:** Would the project:

- |   |                          |                          |                          |                                     |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Physically divide an established community?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

This project complies with the stated goals, guidelines, and recommendations of the County of Solano’s plans and is consistent with state, regional, and local plans and programs.

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

- |   |                          |                          |                          |                                     |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

There are no documented mineral resources within the project area.

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

- |   |                          |                          |                          |                                     |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

The project would not introduce permanent new noise impacts or increase ambient noise levels. Construction noise would be temporary and would be within acceptable levels for construction activity. There are no sensitive receptors within the area. 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. Construction activities would be performed with special provisions to avoid and minimize effects from construction noise generated during this time.

Potentially Significant Impact    Less Than Significant with Mitigation    Less Than Significant Impact    No Impact

**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 residences or persons and would not induce growth. There would be no impact.

**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 would ensure accessibility through the project area for vehicles associated with essential services.

Potentially Significant Impact    Less Than Significant with Mitigation    Less Than Significant Impact    No Impact

**XV. RECREATION:**

- 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?
- 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?

The project does not include any recreational areas, nor would it limit the access to recreational areas. There would be no impact.

**XVI. TRANSPORTATION/TRAFFIC:** Would the project:

- a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?
- b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?
- c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
- d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- e) Result in inadequate emergency access?

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

Impacts to traffic during construction would result in traffic delays. Stage 1 of construction would require night-time lane closures. No delays are expected during stage 1 construction. Stage 2 would involve closure of the westbound’s rightmost lane for 3 continuous summer months. The proposed lane drop occurs immediately downstream of the off-ramp to the Truck Scales at Cordelia. The existing HOV lane would remain in operation throughout both stages of construction. Stage 2 construction could result in delays under 15 minutes on weekdays during the morning and afternoon commute periods and up to 15 minutes of delays on Saturdays and Sundays as indicated by Highway Operations’ findings. Calculations also indicate that on Mondays through Thursdays, there may be delays of up to 12 minutes between 6 AM and 8 AM while the maximum delay of 15 minutes may occur on westbound I-80 from 4pm-6pm on Sundays.

Prior to construction, affected local communities and jurisdictions would be contacted to inform them about the project and anticipated delays, as well as for their concurrence with planned traffic management activities. Once in construction, this delay could be lessened using various Transportation Management strategies. The Transportation Management Plan (TMP) would include press releases to notify and inform motorist, businesses, community groups, local entities, emergency services, and local officials of upcoming closure or detours. Various TMP elements such as Portable Changeable Message Signs, Construction Area Signs, and a Planned Lane Closure Website would be utilized to alleviate and minimize delay to the traveling public.

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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**XVII. UTILITIES AND SERVICE SYSTEMS:** Would the project:

- |   |                          |                          |                                     |                                     |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

- |  |                          |                          |                          |                                     |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Comply with federal, state, and local statutes and regulations related to solid waste?                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

The project proposes alterations and upgrades to existing drainage facilities and would add 0.11 acre of additional impervious area. The construction of the approach slabs would impact the existing drainage patterns in the median. Two new inlets would be installed just west and east of the approach slabs and the existing slotted pipe would be cut and connected to the new western inlet.

Additional treatment for increased runoff from this new impervious area would be provided by bioretention-type measures. The total volume of additional runoff flowing away from the project area would not cause increases that would result in impacts to the connecting drainage systems, and improvements to local drainage should reduce local flooding issues. The proposed project is not expected to produce solid waste other than temporary debris related to construction, which will have no effect on the environment.

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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**XVIII. MANDATORY FINDINGS OF SIGNIFICANCE**

- |  |                          |                                     |                          |                                     |
|--|--------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?   | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

If a project will not cause a direct or indirect impact on a resource, it will 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 would have a significant effect on the environment are for biological resources, specifically the California red-legged frog. With mitigation measures employed as described in the biological resource section, the impacts to these resources would be reduced to a level of insignificance.

Within the biological resource study area the Caltrans I-80 Express Lanes Project was identified. This project underwent an environmental review to identify, account for and mitigate for potential significant impacts. All projects will 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 Interstate 80 Dan Wilson Creek Bridge Proj0ect. Oakland, CA. May 16, 2016

Caltrans District 4 Office of Cultural Resources. Memorandum, "Section 106 Compliance for the Dan Wilson Creek Bridge Deck Project on Interstate 80 in Solano County, California". Oakland, CA. May 18, 2016.

Caltrans District 4 Office of Environmental Engineering. Memorandum, "Comments from the Air/Noise/Energy Branch" and "Comments from the Hazardous Waste Branch". Oakland, CA. September 1, 2011.

Caltrans District 4 Office of Environmental Engineering. Memorandum, "Comments from the Hazardous Waste Branch". Oakland, CA. August 8, 2015.

Caltrans District 4 Office of Geotechnical Design – West. Paleontological Identification Report. Oakland, CA. October 21, 2015

Caltrans District 4 Office of Geotechnical Design – West. Structures Preliminary Geotechnical Report for Dan Wilson Creek Bridge Widening. Oakland, CA. March 3, 2015

Caltrans District 4 Office of Highway Operations. Memorandum, "Assessment of Proposed Construction Staging". Oakland, CA. October 28, 2015.

Caltrans District 4 Office of Highway Operations. Memorandum, "Assessment of Proposed Construction Staging". Oakland, CA. September 4, 2015.

Caltrans District 4 Office of Hydraulics Engineering. Memorandum, "Floodplain Encroachment Review". Oakland, CA. March 10, 2016.

Caltrans District 4 Office of Landscape Architecture. Visual Assessment (Revised), Dan Wilson Creek Bridge Rehabilitation. Oakland, CA. May 13, 2016

Caltrans District 4 Office of Water Quality. Water Quality Study for the Dan Wilson Creek Bridge Project. Oakland, CA. May 16, 2016.



## Appendix B: List of Preparers

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## Appendix C: Avoidance, Minimization and Mitigation Measures for Biological Resources

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 protected 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 red-legged frog (CRLF), western pond turtle (WPT), Swainson’s hawk (SWHA), white-tailed kite, tricolored blackbird, loggerhead shrike, bats (western red and Yuma myotis), migratory birds and raptors. Measures taken to minimize the likelihood of take of federally listed species have been identified through consultation with the U.S. Fish and Wildlife Service (USFWS) pursuant to 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 will ultimately be incorporated into the contractor’s bid package but are not listed here. The list below is categorized by species and includes a general overview of the most important and applicable measures. The proposed avoidance, minimization and mitigation measures are as follows:

Protected or Regulated Resource	Proposed Avoidance, Minimization and Mitigation Measures
<p style="text-align: center;"><b>General Avoidance and Minimization Measures</b></p>	<ol style="list-style-type: none"> <li>1. <b>Demarcate Environmentally Sensitive Areas</b>            Before construction, a qualified biologist will identify ESAs in or adjacent to the BSA so these areas can be fenced off (where practicable) to protect them during project construction. The protected areas will be marked as ESAs and identified clearly on construction plans. Fencing will be installed before construction activities are initiated (including brush clearing) and will be maintained throughout the construction period. The temporary fencing will be orange, commercial-grade woven polypropylene, at least 4 feet high (Tensor Polygrid or equivalent), and will be tightly strung on posts set no more than 10 feet apart. Examples of ESAs that will likely exist within or adjacent to the BSA will include wetlands, riparian areas, CRLF and western pond turtle habitat, and breeding bird nests.</li> <li>2. <b>Conduct Environmental Awareness Training</b>            A USFWS -approved biologist will be retained to develop an environmental awareness training program, and train all construction employees in the importance of minimizing impacts to protected natural resources in the BSA, including all special status wildlife potentially on site (for example, bats, CRLF, western pond turtle, breeding birds), their habitat, other special status features (such as wetlands). Topics covered will include the life history of special status species potentially in or near the BSA, the need to avoid negative impacts to protected resources, specific requirements from state or federal agencies, and penalties for not complying with these requirements. If and when new construction employees are added to the project, the contractor’s superintendent will ensure that the newly hired personnel receive the mandatory training before starting work. The USFWS -approved biologist will develop an environmental awareness handout that will be provided for every contract employee, and will describe and illustrate protected species and habitats to be avoided, and the associated permit requirements.</li> </ol>

Protected or Regulated Resource	Proposed Avoidance, Minimization and Mitigation Measures
	<p>3. <b>Monitor Environmental Compliance</b>  A biologist will monitor construction activities when special-status species may be impacted, in and adjacent to all sensitive habitats in the construction area. The biologist will: Inspect the ESA fencing in the construction area each week. Assist the construction crew as needed to comply with all project restrictions, guidelines, and requirements. Ensure the contractor maintains the staked and flagged perimeters of the construction and staging areas where they are adjacent to ESAs.</p>
<p><b>Wetlands and other Waters of the United States</b></p>	<p>1. <b>Obtain Approval from Regulatory Agencies.</b>  Before construction begins, Caltrans will procure all required permits, certificates, and any other required documentation for potential impacts to aquatic habitat (including riparian), protected aquatic species, and water quality. Caltrans will need to acquire a CWA Section 401 water quality certification, CWA Section 404 individual permit, Fish and Game Code Section 1602 permit, and USFWS Biological Opinion. Caltrans shall adhere to all of the conditions required by the regulatory agencies, and shall indicate those requirements clearly in construction plans and specifications. Construction will be monitored as needed throughout the project to ensure these regulatory requirements are met.</p> <p>2. <b>Protect Water Quality in Aquatic Habitats (Wetlands, Drainages)</b> Preserving existing water quality within and adjacent to the BSA is an effective way to spatially minimize impacts to natural resources in the vicinity. Caltrans will implement the following BMPs before and during project construction. Any work in Dan Wilson Creek will take place during the dry season (June 15 to October 15). No equipment used in or around drainages or other aquatic habitat can be leaking engine fluids. All vehicle maintenance, staging, fueling, or material storage will occur at least 200 feet from aquatic habitat (wetlands or drainages). Any equipment washing will occur in a self-contained area so no wash water can enter any natural areas or aquatic features. Construction rubble (concrete, asphalt, etc.) will be removed and disposed of appropriately. An erosion control plan will be prepared for, and followed by, the project. The plan will include the following elements: Erosion control measures will be used for the duration of the project. The project SWPPP will detail what measures must be taken and required parameters. Sandbagged silt fences will be installed in all named and unnamed waterways in which construction work occurs, both upstream and downstream of the construction site. Any accumulated sediment will be removed and disposed of at the Solano County Landfill or other approved disposal site. Soil exposure will be minimized through BMPs, soil stabilization, and ground cover. Dust-producing surfaces will be sprinkled daily, if necessary, with erosion control measures to prevent runoff. The contractor will conduct periodic maintenance of erosion and sediment control measures. All temporary erosion and sediment control measures will be removed as directed by the engineer, or after the BSA is stabilized. At the end of construction, native seed mixes will be used to revegetate disturbed areas. Materials will only be stockpiled in the non-traffic areas, and stockpile areas will be surrounded by a filter fabric fence and an interceptor dike. Stockpile slopes cannot be steeper than 2:1. Discharge from dewatering operations and runoff from disturbed</p>

Protected or Regulated Resource	Proposed Avoidance, Minimization and Mitigation Measures
	<p>areas must conform to the water quality requirements specified in the RWQCB discharge permit.</p>
<p><b>Mixed Oak Woodlands</b></p>	<p>The area of tree and vegetation removal will be minimized to the extent possible. Coast live oak trees or other appropriate native species will be replanted upon completion of construction to revegetate disturbed areas.</p>
<p><b>Migratory Birds/ Raptors</b></p>	<ol style="list-style-type: none"> <li>1. <b>Constrain Shrub Removal to the Non-breeding Season</b> Tree removal will be conducted during the period for most birds in the vicinity that is the non-breeding season, September 1 through January 31.</li> <li>2. <b>Conduct Preconstruction Surveys for Breeding Birds</b> If vegetation removal is required between February 1 and October 31, a qualified wildlife biologist will conduct a preconstruction survey within 30 days of construction and/or vegetation removal to locate any nesting birds.</li> <li>3. <b>Create Protective Buffers for Breeding Birds</b> If any active nests are discovered, USFWS and/or CDFW will be contacted to determine protective measures required to avoid take. These measures could include fencing off an area where a nest occurs, or shifting construction work temporally or spatially away from the nesting birds.</li> <li>4. <b>Monitor Construction to Protect Birds</b> Qualified biologists may be required to monitor construction while protected migratory birds are in the BSA and/or nesting there. If an active nest is found after completing the preconstruction surveys and after construction begins, all construction activities will stop until a qualified biologist has evaluated the nest and erected the appropriate buffer around the nest. If establishment of the buffer is not feasible, USFWS and/or CDFW will be contacted for further avoidance and minimization guidelines.</li> <li>5. <b>Protect Swallows and Swifts</b> Specific measures to avoid and minimize impacts to swallows and swifts that may nest or attempt to nest underneath Dan Wilson Creek Bridge or other work sites within the BSA are as follows. In order to keep the birds from nesting in or on the bridges or other potential nesting sites during construction, suitable exclusion devices, such as appropriately sized netting, may need to be installed by a qualified staff or contractor before February 1 of the construction year. These exclusion structures would be left in place, monitored by qualified biologists every day, and maintained through August 31, or until work is complete. These avoidance measures will decrease the risk of project-related negative impacts to swallows and swifts, their nests, eggs, or nestlings.</li> </ol> <p>In order to keep the birds from nesting in or on the bridges or other potential nesting sites during construction, suitable exclusion devices, such as appropriately sized netting, may need to be installed by a qualified staff or contractor before February 1 of the construction year. These exclusion structures would be left in place, monitored by qualified biologists every day, and maintained through August 31, or until work is complete. These avoidance measures will decrease the risk of project-related negative impacts to swallows and swifts, their nests, eggs, or nestlings.</p>

Protected or Regulated Resource	Proposed Avoidance, Minimization and Mitigation Measures
<p style="text-align: center;"><b>Swainson's Hawk</b></p>	<ol style="list-style-type: none"> <li><b>1. Preconstruction Surveys</b> Preconstruction surveys following CDFW guidelines (CDFW 2000), or best available science, should be conducted by a qualified biologist within 1 week of project activities beginning. The surveys should record the presence or absence of SWHA nests. Results would help determine the appropriate level of monitoring during project activities during the breeding season. Since SWHA are known to reuse the same nests for more than 1 year and/or refurbish nests of other raptors or corvid species (Bechard et al. 2010), future survey focus should be placed on previous nest locations and large trees within the study area, especially those in the eastern portion of the study area. CDFW shall be consulted if an active SWHA nest is detected within 0.5 mile of project activities, and "Monitoring and Avoidance of Active Nests" measures shall be followed. If no active SWHA nests are detected during preconstruction surveys, no further action is required. However, if a SWHA establishes a nest after construction has begun, either within the BSA or in the vicinity 0.5 mile, CDFW must be consulted and measures in Monitoring and Avoidance of Active Nests must be followed.</li> <li><b>2. Monitoring and Avoidance of Active Nests</b> If an active SWHA nest is found during the breeding season, either before or during project activities, the project will avoid disturbing the nest during the remainder of the breeding season, or while the nest is occupied by adults or young. Avoidance will include establishment of a CDFW-approved no-disturbance buffer zone, demarcated with orange ESA exclusion fencing. The buffer will be determined by a qualified biologist and CDFW, and will take into account the noise level of the disturbance, ambient noise levels, line-of-sight between the disturbance and the active nest, and any other physical barriers. If construction must occur inside a SWHA buffer zone, CDFW must be consulted before the zone is entered, and a qualified biologist must be onsite to monitor SWHA behavior whenever any construction activity takes place within the SWHA buffer zone. If the biologist observes SWHA stress behavior (for example, panicked flight, head bobbing, beak gaping, feather erection, defecation, postural changes), then all work creating the disturbance to the hawk must cease until further consultation with CDFW. After a qualified biologist determines that the juvenile hawks have successfully fledged and left the nest, and approval from CDFW is granted, work may resume inside the SWHA buffer zone.</li> </ol>
<p style="text-align: center;"><b>White-tailed Kite</b></p>	<p>A qualified biologist will conduct preconstruction surveys in the spring, before the start of construction. If kites or other raptors are observed nesting, CDFW will be contacted and a suitable buffer zone will be established.</p>
<p style="text-align: center;"><b>Bats (Western red bat/Yuma myotis)</b></p>	<ol style="list-style-type: none"> <li>1. Bat surveys should be conducted no more than 30 days before construction activity initiation.</li> <li>2. Prior to construction, occupied sites should be noted and specific mitigation requirements for particular sites should be developed by a qualified biologist.</li> <li>3. Avoidance whenever possible: Schedule construction during the months of the year when bats are least likely to be present do not alter the existing structure within which bats are currently roosting. Where known day roosts exist, monitor bat use of the sites throughout the construction period.</li> </ol>

Protected or Regulated Resource	Proposed Avoidance, Minimization and Mitigation Measures
	<ol style="list-style-type: none"> <li>4. Minimization, to the greatest extent practicable: Construction should occur in discrete areas of bridge at a time. Minimize the storage and use of fossil-fuel powered equipment under or at the open ends of occupied bridges and crossings. Limit lighting to the tops of bridges only. Exclude bats from limited areas during construction activity.</li> <li>5. Bat exclusion (all seasons): Roosting sites on Dan Wilson Creek Bridge that include day roosting bats should exclude bat access to the greatest extent possible. If bats are present, bat exclusion should occur only after all bats have left the roost (during a 24-hour cycle or seasonally).</li> <li>6. Following a survey with negative results, barriers to exclude bats from the entire structure should be erected. Additionally, all crevices that allow roosting should be temporarily closed to bats.</li> <li>7. Sites where exclusion barriers, or other mechanisms to exclude bats, are used should be inspected regularly and repaired quickly. If holes or gaps are present on the exclusion material, additional surveys for bats should be performed prior to erection or repair of the exclusion material.</li> </ol>
<b>Tricolored Blackbird</b>	If any breeding colonies of tricolored blackbirds are discovered in or adjacent to the BSA, CDFW will be consulted regarding appropriate measures to protect the birds.
<b>Loggerhead Shrike</b>	If breeding loggerhead shrike are discovered in or near the BSA, CDFW will be contacted and they will provide guidance for any additional avoidance and minimization efforts required.
<b>Western pond turtle</b>	<ol style="list-style-type: none"> <li>1. Construction activities in the riparian areas will occur during the summer months to minimize potential impacts to aquatic species, and only during daylight hours (unless CDFW is consulted).</li> <li>2. A qualified biologist will conduct preconstruction surveys for western pond turtle immediately preceding construction activities in or adjacent to aquatic habitat (creeks and wetlands).</li> <li>3. If western pond turtles are present, a qualified biologist will relocate the animal to a safe place with suitable habitat.</li> <li>4. A biologist will inspect the water and work areas to ensure they are clear of wildlife and to ensure the water diversion equipment does not endanger protected wildlife species.</li> <li>5. Wildlife exclusion barriers will be put in place so that special status wildlife (CRLF, western pond turtle, CCC steelhead) cannot enter work areas in aquatic habitat.</li> <li>6. Qualified biologists will inspect wildlife exclusion barriers regularly and alert Caltrans if repairs are required—any repairs must be made before the end of the day to ensure protected wildlife does not enter the work area.</li> <li>7. If any western pond turtles are harmed, work at that site will be stopped, and the biologist will contact CDFW and Caltrans immediately.</li> </ol>
<b>California red-legged frog</b>	<p>Typical practices for silt management (for example, installation of silt fence around riparian areas) may help alleviate the potential for a CRLF to occur in the BSA. However, additional measures, such as the installation of species-specific exclusion fence around riparian areas and aquatic habitat, will help reduce the potential project impacts to dispersing frogs.</p> <p>Other recommended avoidance and minimization measures are as follows:</p>

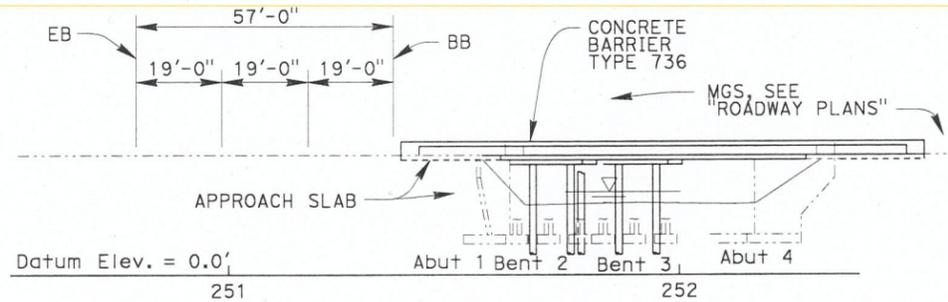
Protected or Regulated Resource	Proposed Avoidance, Minimization and Mitigation Measures
	<ol style="list-style-type: none"> <li>1. A USFWS-approved biologist should conduct a preconstruction survey immediately preceding any construction activities or ground disturbance within potential CRLF habitat.</li> <li>2. A biological monitor should be onsite for all project-related work activities near aquatic habitat to minimize take, in the event that CRLF are discovered during construction.</li> <li>3. All work within the vicinity of Dan Wilson Creek should occur between June 15 and October 15 (outside of the rainy season), and should not occur during any rain event at any time of year.</li> <li>4. If any CRLF are observed in the BSA, USFWS will be contacted, and the frog will be moved offsite by an USFWS-approved biologist.</li> <li>5. A USFWS-approved biologist will conduct all handling of CRLF using nets or bare hands, and following approved protocol and decontamination procedures (USFWS 2005).</li> <li>6. All construction areas should be clearly marked and activities should be confined to these areas. No construction will be allowed within biologically sensitive areas, which shall be marked with orange ESA fencing.</li> <li>7. All work within and adjacent to Dan Wilson Creek should be conducted during daylight hours from 30 minutes after sunrise to 30 minutes before sunset (unless a CDFW or USFWS representative is contacted).</li> </ol>

**Appendix D: Preliminary Project Plans and Cross Section**

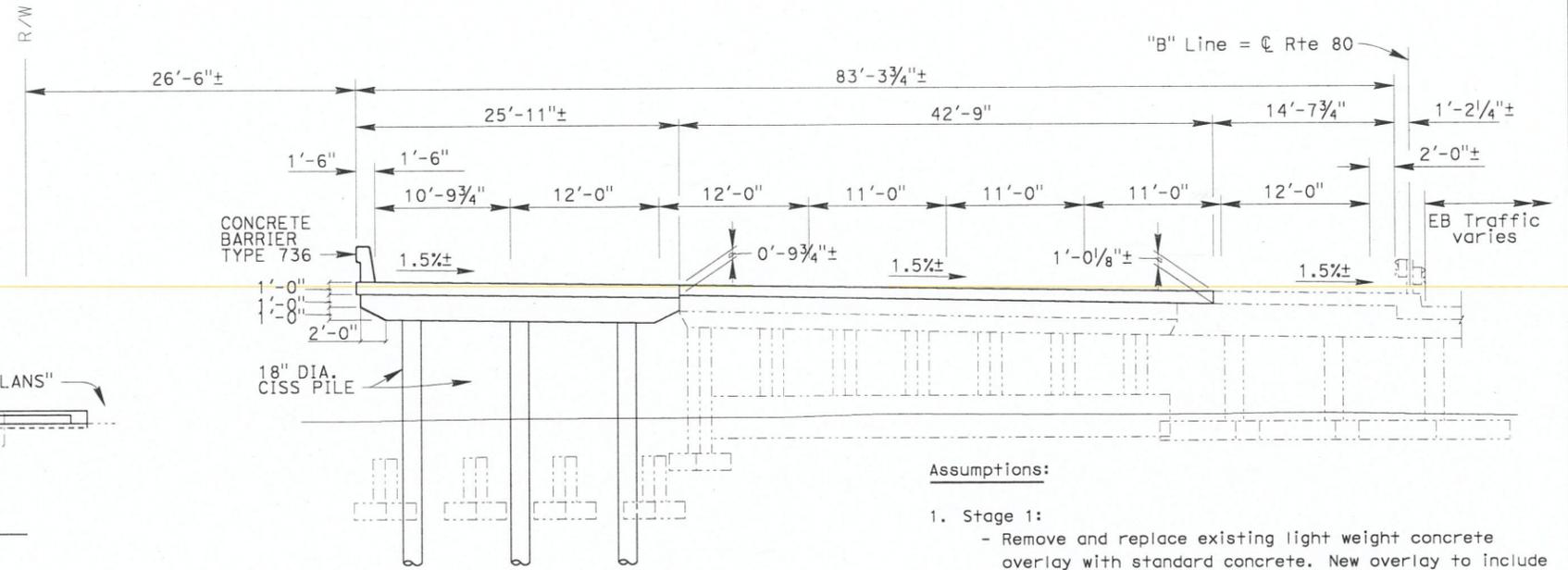
DIST	COUNTY	ROUTE	POST MILE
04	Soi	80	X

DRAFT

DATE OF ESTIMATE	11/10/15
BRIDGE REMOVAL	
STRUCTURE DEPTH	N/A
LENGTH	N/A
WIDTH	N/A
AREA	N/A
COST/SQFT INCLUDING TRO, MOBILIZATION & 25% CONTINGENCY	N/A
TOTAL COST	\$1,652,000.00



MIRRORED ELEVATION  
1/4" : 1'



TYPICAL SECTION  
(Shows future lane configuration)  
3/4" : 1'

Assumptions:

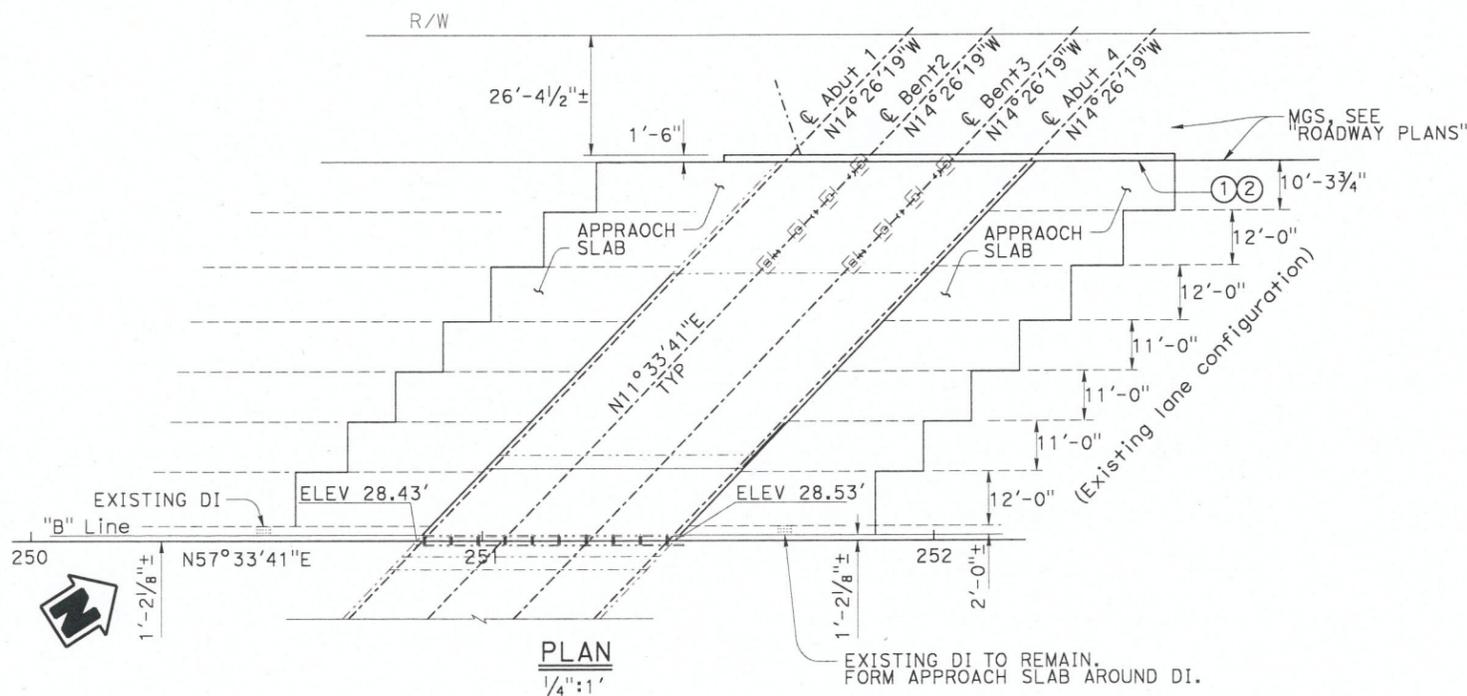
- Stage 1:
  - Remove and replace existing light weight concrete overlay with standard concrete. New overlay to include a double layer reinforcing steel mat. Work is to be done, one lane at a time as night work.
  - Remove existing PCC concrete at both ends of the bridge and install new Structure Approach Type R(30D). Work is to be done, one lane at a time as night work.
- Stage 2:
  - Restripe portion of bridge consisting of the median bridge deck and the new concrete deck overlay to provide five, 11'-0" lanes.
  - Remove existing 1960 bridge deck and columns to an elevation of 3 feet below channel grade. Retain existing new abutments.
  - Install three 18" dia. CISS piles per pier (Total of 6 piles). Top of pipe to extend up to bottom of pier cap.
  - Construct new reinforced concrete slab bridge deck associated pier caps.
  - Install new Structure Approach Type N(30D) at both ends of the bridge.
  - Install new barrier rail along edge of deck.
  - Restripe roadway to original lane configuration.

NOTES:

- Paint "DAN WILSON CREEK BR."
- Paint "BR. NO. 23-0006"

LEGEND:

- - - - - Indicates existing structure
- Indicates new structure

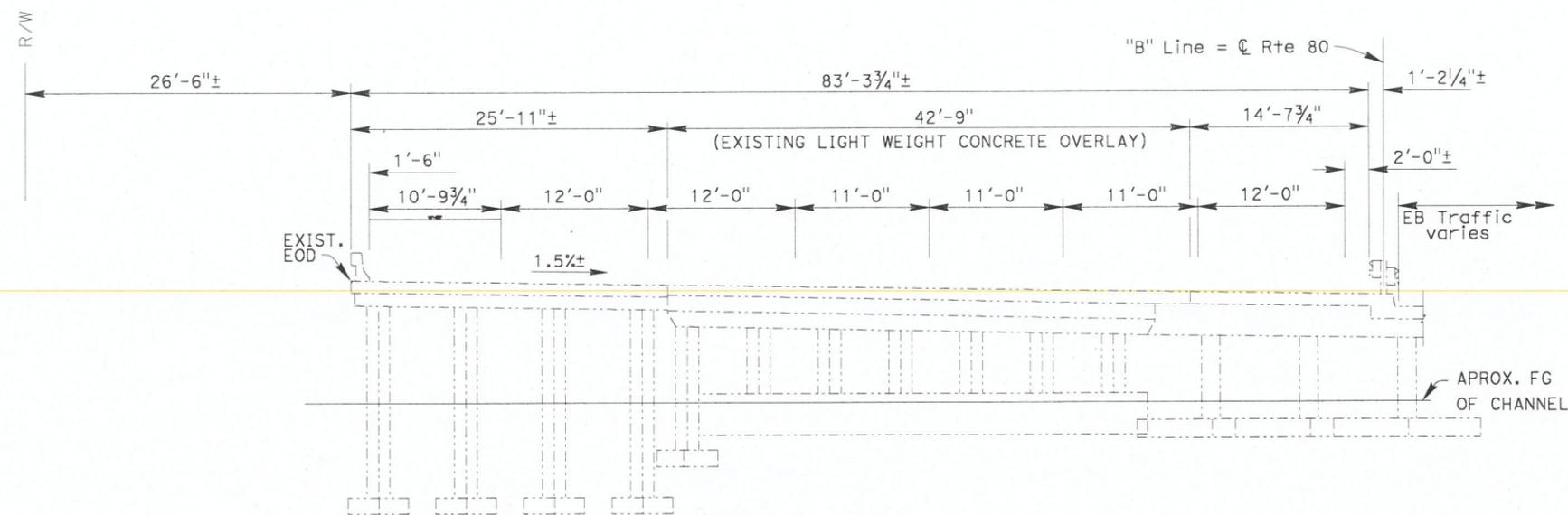


PLAN  
1/4" : 1'

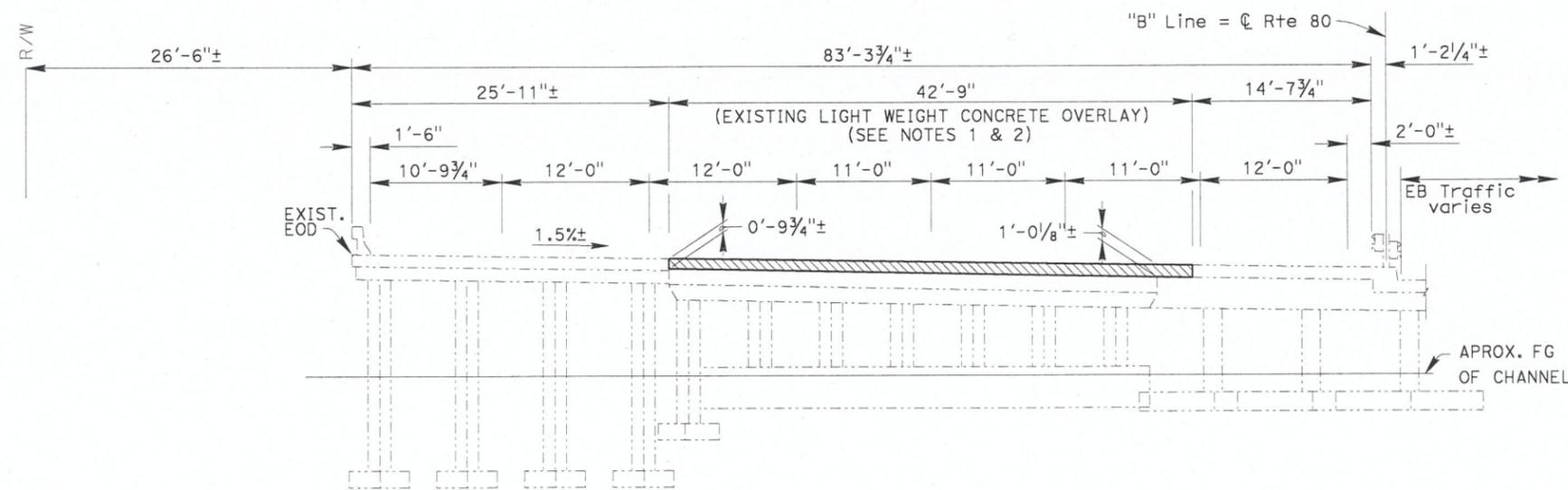
Sheet 1 of 3

DAN WILSON CREEK BRIDGE (DECK REPLACE)			
DESIGNED BY P. Lutz	DATE 9-16-15	STRUCTURE DESIGN BRANCH	PLANNING STUDY
DRAWN BY P. Lutz	DATE 9-16-15		
CHECKED BY K. Mori	DATE 9-16-15		BRIDGE NO. 23-0006
APPROVED X	DATE X	9	SCALE: 1/4" : 1'

DIST	COUNTY	ROUTE	POST MILE
04	SoI	80	X



**TYPICAL SECTION**  
(EXISTING STRUCTURE)  
3/4":1'



**TYPICAL SECTION**  
STAGE 1  
3/4":1'

DRAFT

**LEGEND:**

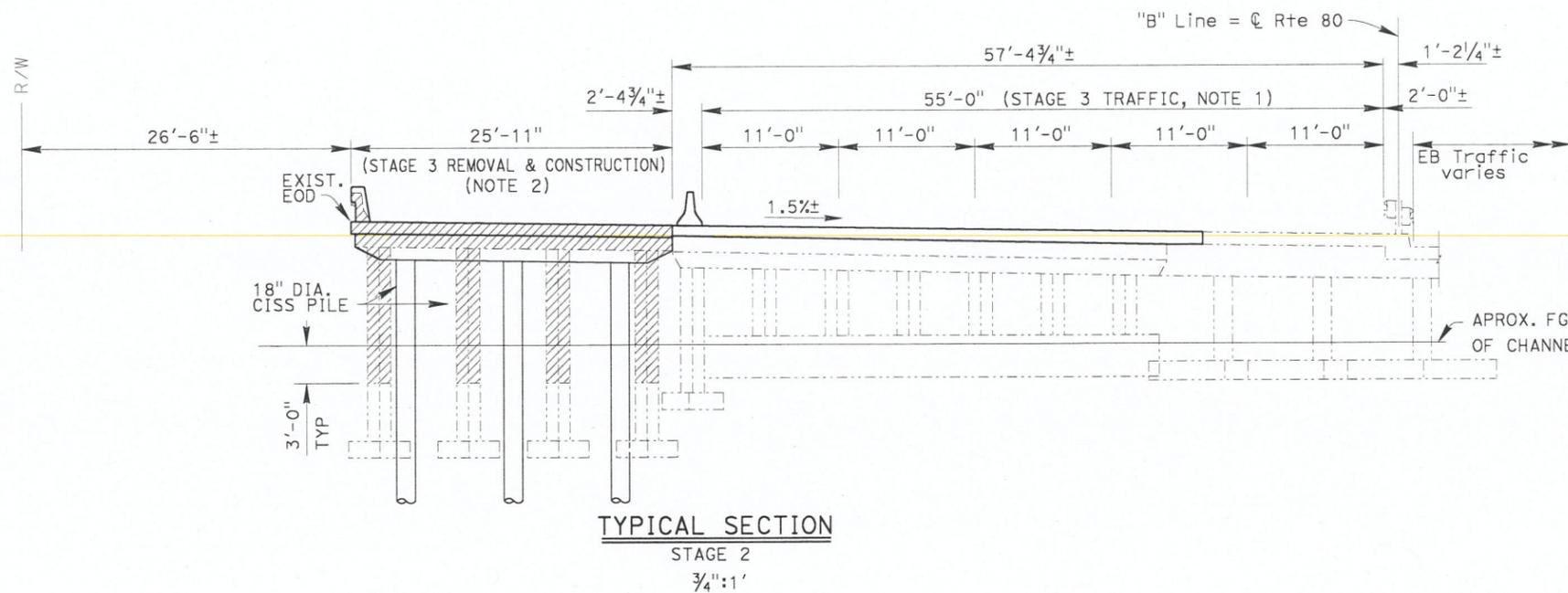
- Indicates existing structure
- Indicates new structure
- ▨ Indicates concrete removal (1960 bridge deck)
- ▩ Indicates light weight concrete removal (1950 bridge deck overlay)

**NOTE:**

1. Light weight concrete overlay to be removed and replaced during "Night Work" operations, one lane at a time.
2. Staging of Light weight concrete replacement work to be determined by District.
3. Existing lane configuration shown.

DAN WILSON CREEK BRIDGE (DECK REPLACE)				
DESIGNED BY P. Lutz	DATE 9-16-15	<b>STRUCTURE DESIGN BRANCH</b> <b>9</b>	<b>PLANNING STUDY</b>	
DRAWN BY P. Lutz	DATE 9-16-15			<b>GENERAL PLAN</b>
CHECKED BY K. Mori	DATE 9-16-15		BRIDGE NO. 23-0006	UNIT: 3594
APPROVED X	DATE X		SCALE: 1/4" : 1'	PROJECT NO. & PHASE: K

DIST	COUNTY	ROUTE	POST MILE
04	SoI	80	X



DRAFT

- LEGEND:**
- Indicates existing structure
  - Indicates new structure
  - ▨ Indicates concrete removal (1960 bridge deck)
  - ▩ Indicates light weight concrete removal (1950 bridge deck overlay)

- NOTES:**
1. Restripe portion of bridge consisting of the median bridge deck and new concrete deck overlay to provide five, 11'-0" lanes
  2. Remove existing 1960 bridge deck and columns to an elevation of 3 feet below channel grade. Retain existing abutments.
  3. Place 18" dia. CISS piles at the Piers.
  4. Construct new bridge deck, concrete barrier railing and approach slabs.
  5. Restripe roadway to original lane configuration.

Sheet 3 of 3

<b>DAN WILSON CREEK BRIDGE (DECK REPLACE)</b>				
DESIGNED BY P. Lutz	DATE 9-16-15	<b>STRUCTURE DESIGN BRANCH 9</b>	<b>PLANNING STUDY</b>	
DRAWN BY P. Lutz	DATE 9-16-15		<b>GENERAL PLAN</b>	
CHECKED BY K. Mori	DATE 9-16-15		BRIDGE NO. 23-0006	UNIT: 3594
APPROVED X	DATE X		SCALE: 1/4" : 1'	PROJECT NO. & PHASE: K

