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M e m o r a n d u m

To: Reena Gohil, Environmental Planner
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District 10 Environmental
1976 E. Charter Way
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Date: May 30, 2017

Subject: Traffic Technical Memorandum: Hickman Road over Tuolumne River Bridge Replacement Project, Stanislaus County (BRLO-5938(199))

Introduction

Stanislaus County (County) Department of Public Works proposes to replace the existing bridge on Hickman Road over Tuolumne River (Bridge No. 38C-0004) located 0.15 mile south of State Route 132 near the town of Waterford in northern Stanislaus County. The general setting is urban with recreational, commercial retail, and public facility uses. The bridge currently carries vehicular traffic over Tuolumne River.

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

Project Purpose and Need

The existing Hickman Road bridge was last inspected by Caltrans in 2013 and has a sufficiency rating (SR) of 64.7 out of a possible score of 100, and is classified as Structurally Deficient (SD). In addition, the existing bridge is deemed "Scour Critical" with a scour rating of 3, meaning that the local scour and predicted future degradation will continue to undermine the bridge supports.

The purpose of this project is to remove the existing structurally deficient structure and replace it with a new bridge designed to current structural and geometric standards while minimizing adverse impacts to the Tuolumne River and the surrounding riparian area.

Project Description

Existing Bridge

Constructed in 1946, the existing Hickman Road over Tuolumne River Bridge is a reinforced concrete (RC) box girder on RC solid pier walls and RC wing abutments supported by steel piles. The bridge is 652.9 feet long, 33.5 feet wide, and within the existing 175 to 200 feet public right-of-way. The curb-to-curb width is 27.9 feet, with two 12-foot-wide travel lanes and two 2-foot-wide shoulders. The bridge is classified as SD and Scour Critical. The Caltrans bridge inspection report identifies major deficiencies:

- The bridge deck has 12 to 16 inch long transverse and pattern cracks throughout.
- There are several edge spalls of up to 3 feet long by 4 inch wide and 1 inch deep along the right curb in Span 4.
- There is an erosion gully of approximately 3 feet wide by 5 feet deep along the right slope embankment at Abutment 8 due to roadway runoff.
- The scour protection at Piers 4 and 5 has deteriorated in front and at the upstream right side of the footing with up to 6 feet wide sections missing.
- Settlement and displacement has been observed at Piers 4 and 5.

Replacement Bridge

The replacement bridge will consist of a 750-foot long cast-in-place (CIP) post-tensioned box girder with two 12-foot-wide travel lanes and two 8-foot-wide shoulders and one 5-foot wide sidewalk placed along the upstream edge. The replacement bridge will be constructed immediately upstream of the existing structure, in order to keep the existing road and bridge open to public traffic during construction. The new upstream road alignment will transition and connect back to the existing Hickman Road alignment using a design speed of 45 mph.

Utility Relocation

Several utilities run through the project site, including a PG&E gas pipe and AT&T telecommunication lines which are mounted to the existing bridge on the upstream and downstream face respectively. There are no overhead utilities located within the project area. All existing utilities will be relocated onto the new bridge without the need for a temporary relocation.

Right-of-Way

Construction of the new bridge on the proposed upstream alignment will require additional permanent right-of-way takes. In addition, temporary construction easements will be required to construct the project.

Detour Route

The new bridge will be constructed on a new upstream alignment adjacent to the existing bridge. Traffic will be able to use the existing bridge to cross Tuolumne River during the construction of the replacement bridge. The existing bridge will be demolished upon completion of the new bridge construction.

Demolition and Construction Staging

Demolition of the existing bridge will be performed in accordance with the Caltrans Standard Specifications modified to meet environmental permit requirements. All concrete and other debris resulting from the demolition of the existing bridge will be removed from the project site and disposed of by the contractor. The construction contractor will prepare a bridge demolition plan.

Construction Activities

Construction will consist of the following activities:

- Removing trees, clearing, and grubbing to accommodate the new bridge structure and road approach work
- Excavating for the new bridge foundations (maximum of 80 to 100 feet deep)
- Constructing the new bridge and road approaches, including excavating for and placing asphalt concrete.
- Removing the existing bridge
- Placing erosion control native grass seeds and mulch

Table 1 provides a description of the type of equipment likely to be used during the construction of the proposed project.

Table 1. Construction Equipment

Equipment	Construction Purpose
Drill Rig	Construction of drilled or driven pile foundations
Backhoe	Soil manipulation + drainage work
Bobcat	Fill distribution
Bulldozer / Loader	Earthwork construction + clearing and grubbing
Crane	Placement of precast concrete girders or false work beams
Dump Truck	Fill material delivery
Excavator	Soil manipulation
Front-End Loader	Dirt or gravel manipulation
Grader	Ground grading and leveling
Haul Truck	Earthwork construction + clearing and grubbing
Roller / Compactor	Earthwork and asphalt concrete construction
Paver	Asphalt concrete construction
Truck with seed sprayer	Erosion control landscaping
Water Truck	Earthwork construction + dust control

Construction Sequence/Schedule and Timing

Construction is currently scheduled to start in 2018 and take approximately 8 months to complete.

Short-Term Traffic Impacts

Construction of the proposed project is currently scheduled to start in 2018 and take approximately 8 months to complete. A Standard Traffic Management Plan will be developed prior to the start of construction to help reduce the potential of short term impacts. During construction, the existing bridge will stay in place to accommodate traffic while the new bridge is being constructed on a new upstream alignment adjacent to the existing bridge. By keeping the current bridge open during construction, the short term impacts of detouring traffic will be avoided. However, minor short-term delays are anticipated when the new roadway alignment is tied back into the existing roadway, but these impacts are considered less than significant and will be addressed in the Standard Traffic Management Plan.

Prior to the start of construction, the construction contractor shall coordinate with the Stanislaus County Sherriff and Fire departments, California Highway Patrol, and local public and private ambulance and paramedic providers in the area to prepare a Construction Period Emergency Access Plan. The Emergency Access Plan shall identify phases of the project and construction scheduling and shall identify appropriate alternative emergency access routes.

Long-Term Impacts

The project is a bridge replacement project that will not increase or decrease future traffic capacity, add any additional lanes or create any long-term impact to vehicular traffic circulation in the area. In addition, the project will improve travel and safety conditions by widening the width of both shoulders to 8 feet and also by adding a sidewalk to the eastern side of the bridge. The sidewalk will end with a ramp down to the road shoulder on the south end of the bridge and extend to the existing sidewalk curve returns at the SR 132 intersection on the north end of the bridge. The added sidewalk will improve pedestrian safety and facilitate access to views of River Park and Tuolumne River Parkway.

Conclusions

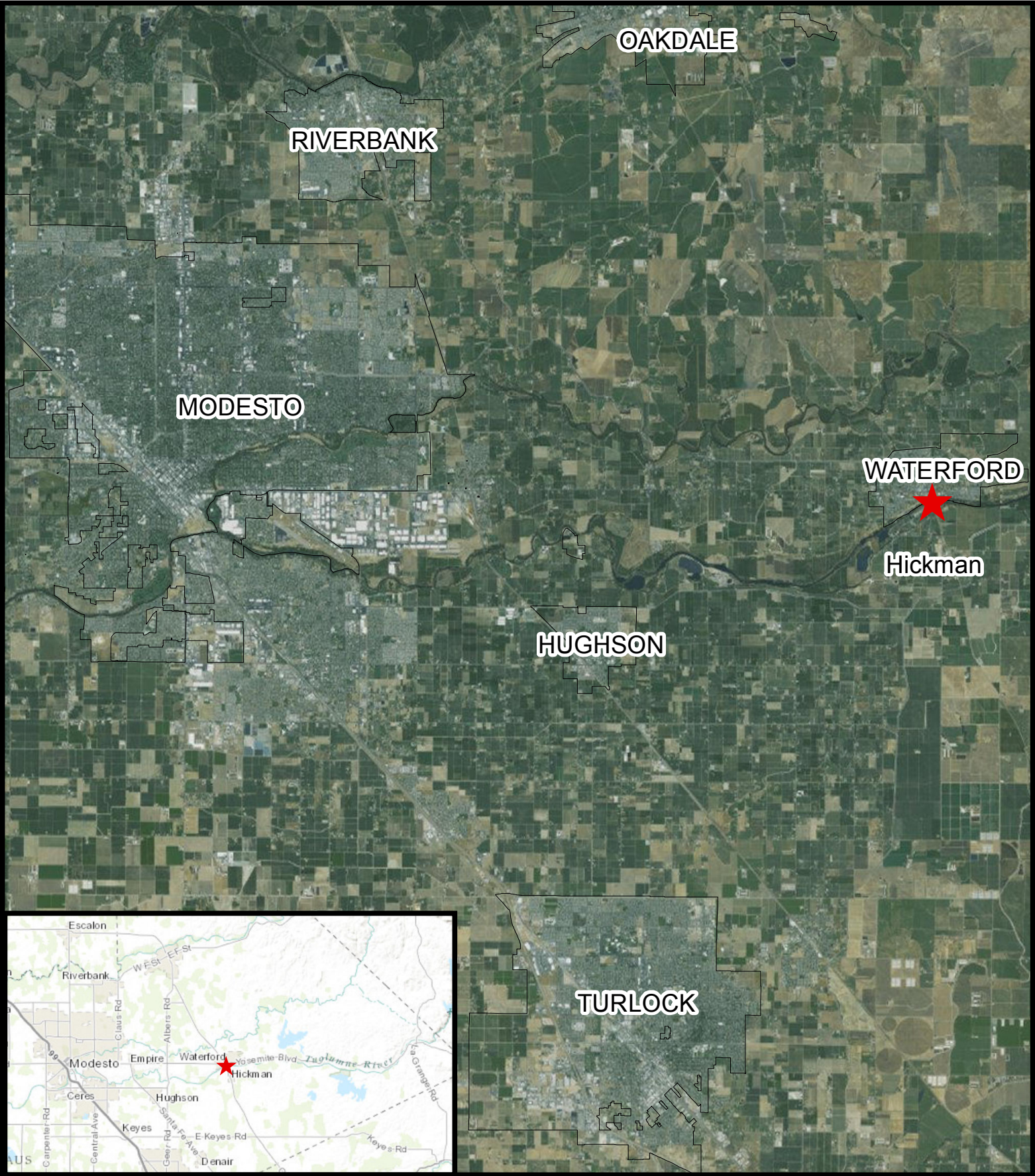
Since the new bridge will be constructed on a new alignment adjacent to the existing Hickman Road Bridge, the existing bridge will be able to accommodate current traffic conditions during construction. Thus, a detour will not be necessary and the only short term impacts anticipated from the project will be minor delays when the new roadway alignment is tied back into the existing roadway. These short-term impacts will be addressed in the Standard Traffic Management Plan that will be developed prior to the start of construction. Furthermore, the project is not anticipated to create any long term impacts to traffic circulation in the area, as the proposed project will not increase roadway capacity or change traffic patterns. In addition, the new bridge will improve upon current conditions by widening both shoulders and adding a sidewalk to the eastern side of the bridge. By providing safer vehicular, bicycle,

and pedestrian access through the replacement of the deficient bridge, potential short-term impacts related to construction activities will be offset.

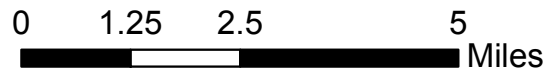


Garett Peterson
Environmental Planne

Appendix: Figures



Project Location

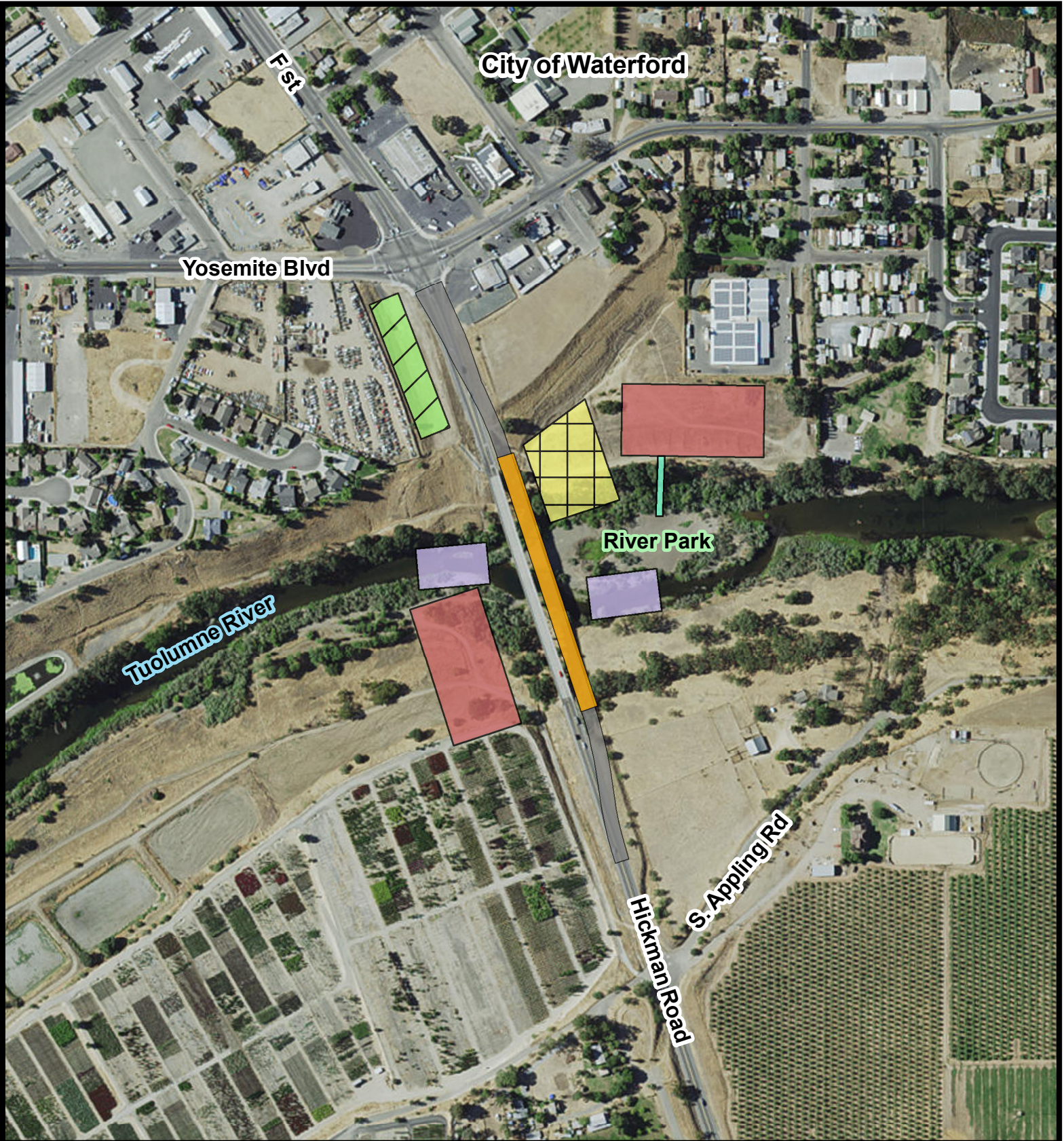


Sources: Esri Online Basemap, Aerial Imagery, Stanislaus County
 Coordinate System: NAD 83
 State Plane California II FIPS
 Notes: This map was created for informational and display purposes only.

Project Name:
Hickman Road Bridge Replacement Project

Regional Map

Figure 1



- Proposed Bridge
- Proposed Road Alignment
- Staging Area
- Crane Assembly Area
- Crane Pad
- Access ramp trestle
- Work Trestle Low Flow Channel

