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Memorandum

To: Mark E. Mueller
California Department of Transportation
District 1 Local Assistance
PO Box 3700,
Eureka, CA 95502

Date: June 24, 2016

Subject: Traffic Technical Memorandum: Wolf Creek Road over Upper Wolf Creek Bridge (Bridge No.14C-0048) Replacement Project

Introduction

On behalf of Lake County, Drake Haglan & Associates is providing a traffic technical memorandum to discuss the proposed Chalk Mountain Road over North Fork Cache Creek Bridge Replacement project's potential to impact surrounding traffic conditions. The project site is located near the intersection of Wolf Creek Road and Spring Valley Road in the Spring Valley Lakes community in eastern Lake County approximately 5 miles northeast of Clear Lake Oaks (Attachment ^o, Figures 1 and 2, Regional and Project Location Map). The proposed project will replace the existing bridge, Bridge No. 14C-0049, where Wolf Creek Road crosses Upper Wolf Creek. The existing bridge was originally constructed in 1967 and is a two span 82-foot long modified steel railroad car frame with timber decking, supported on reinforced concrete abutment and pier walls, founded on spread footings.

Project Purpose and Need

The bridge has a sufficiency rating (SR) of 60.1 and has been designated as functionally obsolete (FO) per the Caltrans Structure Maintenance & Investigations, Local Agency Bridge List (July 2015). The functionally obsolete designation is a result of the insufficient deck width. Wolf Creek Road is a two lane road and the clear width of the existing bridge is too narrow to support standard lane and shoulder widths for a two lane facility. Additionally, the existing bridge fails to meet the current Caltrans design standard for freeboard requirements. Hydraulic studies indicate that the existing bridge may be overtopped during a 100-year storm event.

Caltrans has reviewed the preliminary details of the project and supports a full replacement scope. The purpose of the proposed project is to provide a replacement structure that is consistent with appropriate

Caltrans structural design standards, is placed on a road alignment that meets the appropriate AASHTO roadway geometry standards, and is hydraulically capable of passing and clearing the design storm events (50-year storm plus 2 feet of freeboard and 100-year storm).

Project Description

The replacement bridge will be wider to comply with current AASHTO standards for local rural roads, including 9-foot travel lanes and 2-foot shoulders, plus crash-tested vehicular barriers. A 5-foot sidewalk (Lake County standard) will also be proposed on the north side of the replacement structure to accommodate school children accessing a nearby bus stop. The replacement bridge will be approximately 84 feet long. This length is appropriate for a single span bridge, which would reduce the construction duration and increase the hydraulic capacity of the channel.

It is anticipated that deep foundations will be needed to support the replacement bridge. The underlying formation of the soil is rock overlaid by alluvial and fan deposits which have washed down from the mountains. The upper material is subject to scour; this is often best suited for concrete piles, as they can be designed to act as columns if the soil material scours away. The most feasible pile type will be determined during the type selection process, when further geotechnical information is available.

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 bridge demolition will be removed from the project site and disposed of by the contractor. The construction contractor will prepare a bridge demolition plan.

It is anticipated that construction will occur when the creek bed is dry or near dry. However, if water is present during construction, temporary cofferdams will be installed upstream and downstream of the construction site. A temporary series of culverts will be installed between the cofferdams to carry water through the work area. The work area will then be dewatered by pumping. The temporary cofferdams and culverts will be completely removed after the completion of replacement bridge construction, the placement of rock slope protection (RSP), and the removal of the existing bridge. All in-channel work will be limited to the dry season (July-October).

Because the proposed bridge is relatively short, falsework beams will be able to span from one abutment to the other without the need for falsework bents or other temporary supports in the creek channel.

Detour Route

The replacement bridge will likely be constructed with a temporary detour in order to avoid staged construction. For residents the temporary detour would take about 10 minutes and be less than 3 miles (Figure 3). If closing the road is determined by the fire district to be unacceptable, a temporary creek crossing will be constructed onsite to handle public traffic through the site. The crossing would be constructed on the north side of the existing bridge.

Right-of-Way

Temporary construction easements will be needed from the two adjacent properties north of the existing bridge to construct the temporary creek crossing if required. Temporary construction easements may also be required from all seven properties adjacent to the bridge site to construct the project. Additional permanent right-of-way takes is not anticipated. Detailed easements have not been determined at this point.

Utilities

There are several utilities at the site, both overhead and underground. Overhead electric and communication lines run parallel to the bridge on the north side of Wolf Creek Road. These lines may need to be temporarily relocated or de-energized during the construction of the replacement bridge; to be determined as the design of the project progresses.

A 6-inch waterline, owned and operated by the Special Districts Administration, runs along the south side of Wolf Creek Road, and is attached to the superstructure of the existing bridge. This waterline will need to be relocated to the new structure.

Short-Term Traffic Impacts

Construction of the proposed project is anticipated to take between 4 to 6 months to complete, pending the scope of the final design and construction plans. Construction is anticipated for the spring of 2019. All work within the Upper Wolf Creek channel will be conducted in accordance with the regulatory agency permits. The replacement bridge will likely be constructed with a temporary detour in order to avoid staged construction. For residents the temporary detour would take about 10 minutes and be less than 3 miles. If closing the road is determined by the fire district to be unacceptable, a temporary creek crossing will be constructed onsite to handle public traffic through the site. The crossing would be constructed on the north side of the existing bridge.

Detailed detour signage plans will be reviewed and approved by the County's traffic engineer and provided in the engineering plan set. Development of the detour will also include coordination with Caltrans. County staff will provide Public Outreach brochures and meetings prior to construction to keep residents informed of the project. Emergency vehicle access would be maintained at all times.

Long-Term Impacts

The project is a bridge replacement project that will not increase or decrease future traffic capacity or create any long-term impact to traffic circulation in the area. Roadway users will continue to be able to travel on the new bridge by motor vehicle, bicycle, or on-foot after construction is complete.

Conclusion

Minor short-term traffic-related impacts are anticipated with the proposed project. The replacement bridge will likely be constructed with a temporary detour in order to avoid staged construction. For residents the temporary detour would take about 10 minutes and be less than 3 miles. If closing the road is determined by the fire district to be unacceptable, a temporary creek crossing will be constructed onsite to handle public traffic through the site. The crossing would be constructed on the north side of the existing bridge. 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. Providing safer vehicular, bicycle and pedestrian access through the replacement of the deficient bridge will offset temporary impacts related to construction activity.

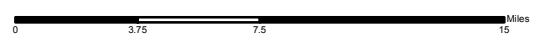
A handwritten signature in black ink that reads "Jennifer Hildebrandt". The signature is written in a cursive style with a long horizontal flourish extending to the right.

Jennifer Hildebrandt, M.S.
Environmental Services Manager

Attachment A
Proposed Project Maps

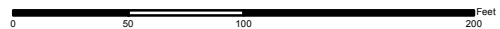


★ Project Location - Wolf Creek Road Bridge








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Legend

-  Construction Zone - Wolf Road Bridge Replacement
-  Road Closed
-  Detour Route

