MARK THOMAS

MEMORANDUM

To:	Chris Carroll, Caltrans District 3 North Region Local Assistance	Project No.:	SA-17133
Cc:	Tracy Bettencourt, City of Chico		
From:	Julie Passalacqua, Mark Thomas		
Date:	October 27, 2020		
RE:	**BRLO-5037(022) - Salem Street Bridge Construction Noise Technical Memorandum**		

PURPOSE

The purpose of this construction noise technical memorandum is to demonstrate the noise generated from the construction of the Salem Street over Little Chico Creek Bridge Replacement Project will result in less than significant impacts to the area residents.

PROJECT DESCRIPTION

Project Need

The existing bridge has been given a sufficiency rating of 75.4 and has a status of functionally obsolete. The structure does not meet current AASHTO standards due to its narrow lane and sidewalk widths. The existing sidewalks exceed the ADA Compliance allowable slope of 7.5% on the roadway approaches. There are significant rock pockets, delamination, spalling and exposed rebar on various girders, overhang areas and on the bridge railing. In addition, the west abutment has erosion due to roadway runoff. A Life Cycle Cost Analysis determined that bridge replacement was the most cost-effective alternative for the project.

Existing Conditions

The project site is located on Salem Street just south of West 9th Street (State Route 32) near downtown Chico. The bridge serves the Barber neighborhood and is heavily used by Chico State students. The bridge has an Average Daily Traffic (ADT) of 5,200 and sees substantial bicycle and pedestrian traffic. The structure, built in 1916, is a 64-foot long three-span reinforced concrete "T" girder bridge. The structure is approximately 34 feet wide consisting of two narrow travel lanes and sidewalks on both sides.

Proposed Improvements

The proposed project will replace the existing bridge along the same alignment as the existing structure. The new bridge will accommodate two 12-foot travel lanes, five-foot shoulders and six-foot sidewalks each way. The profile will be lowered slightly, while maintaining the same bridge soffit elevation as the existing structure. The new bridge is anticipated to be a single-span structure, approximately 70 feet long. The structure type is expected to be a cast-in-place, post-tensioned concrete slab.

Construction of the bridge will involve excavation for and construction of concrete abutments, founded on cast-in-drilled-hole piles. Other temporary work within Little Chico Creek includes removal of the existing structure, falsework erection and removal, and installation of scour and erosion countermeasures at the abutments. Little Chico Creek is a seasonal creek and construction is anticipated to proceed without the need for a temporary water diversion system.

The roadway and bridge profile will be lowered approximately 0.75 feet from the existing Salem Street Bridge deck. The roadway approaches will extend approximately 90 feet north and south along Salem Street.

Construction of the roadway approaches will involve removal of existing pavement and placement of aggregate base and hot mix asphalt pavement. New curb, gutter and sidewalk will be constructed on the approach roadways and will connect with the existing pedestrian sidewalks.

Temporary construction easements will be needed from the four parcels adjacent to the bridge to facilitate driveway/walkway conforms, utility relocations, and allow construction access.

CONSTRUCTION NOISE

Project construction would generate noise that could affect sensitive receptors within the project vicinity. The FHWA defines a noise sensitive receptor as a property where frequent outside human use occurs and where a lowered noise level would be beneficial.

The table below shows typical equipment noise levels for various construction equipment and activities, including measured sound levels as a distance of 50 feet from the source. Noise sources associated with the project construction would include excavation, construction truck traffic, and other noises typically associated with a construction site.

Construction Equipment Noise Levels

Construction Equipment	Maximum Noise Level dBA at 50 feet
Backhoe	78
Compactor (ground)	83
Compressor (air)	78
Concrete Mix Truck	79
Concrete Pump Truck	81
Crane	81
Dozer	82
Drill Rig Truck	79
Dump Truck	76
Excavator	81
Front End Loader	79
Generator	81
Paver	77
Pneumatic Tools	85
Pumps	81
Roller	80
Scraper	84

Source: FHWA Roadway Construction Noise Model User's Guide, 2006

There are several sensitive receptors bordering the project area. These include four residential properties located at 912, 940, 945, and 950 Salem Street, and one commercial property located at 243 W 9th Street. These receptors are located approximately 35 feet west, 30 feet south, 45 feet east, 60 feet south and 65 feet north of the bridge respectively.

The City of Chico's Noise Ordinance, contained in Chapter 9.38 of the City's Municipal Code, states, "…no person shall produce, suffer or allow to be produced on public property by human voice, machine, animal, or device, or any combination of same, a noise level that exceeds sixty (60) dBA at a distance of 25 feet or more from the source." Per Section 9.38.060, construction-related source noise is exempt from the provisions set forth in the noise ordinance except (i) the construction-related noise must not exceed 86 dBA at any point outside of the

property plane of the project; and (ii) construction noise generating activities are restricted to the hours of 7:00 a.m. to 9:00 p.m., Monday through Saturday and 10:00 a.m. to 6:00 p.m. on Sunday and holidays.

EQUIPMENT NOISE CONTROL

To avoid substantial construction-period noise impacts to nearby sensitive receptors, the best practices listed below will be included during project construction. With implementation of these standard construction-period specifications, the project will not result in excessive construction-period noise effects.

1. Project-related noise-generating activities at, or adjacent to, the construction site shall comply with the Chico Municipal Code Section 9.38.060.B. and shall be restricted to the hours of 7:00 a.m. to 9:00 p.m., Monday through Saturday. Should it become necessary to work on Sundays or holidays, construction hours shall be limited to 10:00 a.m. to 6:00 p.m. Should it become necessary to work after 9:00 p.m. and before 7:00 a.m., businesses will be notified, and the generated noise levels will be subject to a special provision that would prohibit noise from exceeding 83 dBA at a distance of 25 feet from the source.
2. All internal combustion engine driven equipment shall be equipped with the appropriate intake and exhaust mufflers, which are in good condition.
3. "Unnecessary" idling of internal combustion engines shall be strictly prohibited.
4. Avoid staging construction equipment within 200 feet of Residences and locate all stationary noise-generating construction equipment as far as practical from existing noise receptors. Construct temporary barriers to screen noise generating equipment when located in areas adjoining noise-sensitive land uses.
5. "Quiet" air compressors and other stationary noise sources shall be used when applicable.
6. All construction traffic shall be routed to and from the project site via designated truck routes. Construction-related heavy truck traffic shall be prohibited in residential areas where feasible. Construction truck traffic shall be prohibited in the project vicinity during non-allowed hours.
7. The businesses, residents and schools in the project area shall be notified in writing by the City of the construction schedule.
8. The City shall designate a "noise disturbance coordinator" who will be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint and implement reasonable measures to correct the problem. The contractor shall visibly post the telephone number for the disturbance coordinator at the construction site. The City shall include the telephone number in the notice sent to residents regarding the construction schedule.