



**PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION**

411 Main Street, 2nd Floor Phone: (530) 879-6900
P.O. Box 3420 Fax: (530) 895-4899
Chico, CA 95927-3420 www.ci.chico.ca.us

To: John Holder
Project Manager
Caltrans District 3
(530) 741-5448

Date: July 18, 2019

From: Tracy R. Bettencourt, MPA - AICP
Regulatory and Grants Manager
City of Chico
Public Works Department
(530) 879-6903

File No.: Butte County – 99 – BUT R31.1-R31.7
District 3
EA: 03-OJ740
PIN:0319000145
SR 99 Corridor Bikeway Facility (Bikeway 99)

Subject: Noise Technical Memorandum for Bikeway 99 Phase 5

This memorandum discusses temporary construction noise impacts from implementation of the State Route (SR) 99 Corridor Bikeway Facility (Bikeway 99) Phase 5 Project (Figure 1. Project Vicinity and Figure 2. Project Location).

The 2019 Chico Bicycle Plan Update (Plan) was adopted by the City to encourage the community to use bicycles as a means of transportation. This Plan includes the SR 99 Corridor Bikeway Project; a combination of Class I and Class II/III facilities commencing at Eaton Road to the north and traversing southerly to Skyway, spanning approximately 7 miles long. The Project is phase 5 of the State Route 99 Corridor Bikeway Project and will close a critical gap in the existing infrastructure along the bikeway corridor.

Project Description

The City of Chico (City), in cooperation with the California Department of Transportation (Caltrans), proposes to construct a Class I bikeway street overcrossing above 20th Street, while establishing a bikeway gap closure along the east side of SR 99 corridor. The Project is located in Township 22 North, Range 1 East in the City of Chico, within Butte County, California (Figure 1. Project Vicinity, Figure 2. Project Location). The completed Bikeway 99 Corridor will serve as a continuous alternative transportation and recreational route from Eaton Road to Skyway, spanning nearly 7 miles. The current lack of a safe and direct pedestrian/bike path discourages residents from walking or biking to local schools, job centers, commercial areas, and public services. This Project will connect people to goods and services including the Chico Mall. The bikeway overcrossing would provide a link to both sides of 20th Street and Business Lane, offering access to local restaurants and businesses. The bikeway would enhance the safety of pedestrians and bicyclists by creating a route that is separate from traffic congestion on 20th Street.



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Additional safety features of the path include lighting, security cameras and the removal of thick vegetation in order to increase visibility on the bikeway. The design of the bridge is intended to incorporate the history, culture and overall atmosphere of Chico.

The proposed Project is consistent with the Land Use, Circulation, and Parks, Public Facilities and Services Elements of the City's 2030 General Plan (adopted in 2011 and amended in 2017) as well as the 2019 Chico Bicycle Plan Update. The Project will be implemented in a manner that is consistent with the City's Best Practices and Municipal Code.

In addition to the local funds utilized during the design phase, the Project includes both the Active Transportation Program and Congestion Mitigation and Air Quality Improvement grant program dollars, and, therefore, requires compliance with both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The lead agency for CEQA is the City of Chico and the lead NEPA agency is Caltrans.

Noise Setting

In accordance with the Caltrans Environmental Handbook guidelines, noise is defined as unwanted sound. Sound levels usually are measured and expressed in decibels (dB), with 0 dB being the threshold of hearing. Decibel levels range from 0 to 140: 50 dB for light traffic is considered a low decibel level, whereas 120 dB for a jet takeoff at 200 feet (ft.) is considered a high decibel level.

Under the Caltrans Traffic Noise Analysis Protocol (CaTNAP) 1998, projects that are not Type 1 only require an evaluation of predicted construction noise. The Project is not a Type 1 Project as defined in 23 CFR 772.5; "construction on new location or the physical alteration of an existing highway, which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes." The proposed Project is to construct a Class I multi-use path intended for pedestrians and bicyclists. Although it is a new facility, the expected uses will not generate substantial noise and therefore, only construction noise impacts are discussed.

The City of Chico defines noise as an unwanted sound that interferes with an individual's ability to perform a task or enjoy an activity. Temporary construction noise is allowed to exceed typical noise standards as established in the City's Municipal Code (2030 General Plan, Policy N-1.6, Chico Municipal Code Noise Chapter 9.38, Section 9.38.060). The Municipal Code states that construction work of a structure will be allowed between the hours of 10:00 a.m. and 6:00 p.m. on Sundays and holidays, and 7:00 a.m. and 9:00 p.m. on other days and is subject to one of the following limits:

- No individual device or piece of equipment shall produce a noise level exceeding 83 dBA at a distance of 25 feet from the source.
- The noise level at any point outside of the property plane of the Project shall not exceed 86 dBA.

The Project would take place within Caltrans' right-of-way, City-owned right-of-way, and privately-owned property; adjacent to areas zoned as Regional Commercial. The nearest sensitive receptors are located in the Chico Mall and include business owners and members of the public; however, no residential neighborhoods are located in the immediate vicinity. The proposed alignment is located approximately 400 ft, minimum distance, from restaurants within the Chico Mall.

Noise sources that contribute to ambient noise levels in and adjacent to the Project site include moderate levels of traffic noise from 20th Street and SR 99. Table 1 summarizes common community noise sources and associated noise levels.



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Table 1. Population Density and Associated Ambient Noise Levels

Common Outdoor Activities	dBA, Ldn
Jet Fly-over at 300 m (1000 ft)	100-110
Gas Lawn Mower at 1 m (3 ft)	90-100
Diesel Truck at 15 m (50 ft)	80-90
Noisy Urban Area, Daytime	70-80
Gas Lawn Mower, 30 m (100 ft)	70-80
Commercial Area	60-70
Heavy Traffic at 90m (300 ft)	60-70
Quiet Urban Daytime	50-60
Quiet Urban Nighttime	40-50
Quiet Suburban Nighttime	30-40
Quiet Rural Nighttime	20-30
Source: City of Chico Draft EIR	

The Project vicinity could be classified as a “Commercial Area” and “Heavy Traffic” setting due to the close proximity to SR 99 and the Chico Mall, typical noise levels in these areas are of 60-70 dBA. The maximum allowable exterior noise levels for the City of Chico are listed in Table 2. During the day, for an intermittent noise level the maximum is 75 dBA.

Table 2. Maximum Allowable Exterior Noise Levels from Non-Transportation Sources

Noise Level Descriptor (dBA)	Exterior Noise Level (dBA)	
	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Average-Hourly Noise Level (L _{eq})	77	50
Intermittent Noise Level (L ₂ or L _{max})	75	65
Source: City of Chico 2030 General Plan		



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Environmental Consequences

Generally, noise levels at construction sites can vary from 55 dBA to a maximum of nearly 80 dBA when heavy equipment is used. During construction of the Project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction noise is regulated by Caltrans Standard Specifications Sections 7-1.011 “Sound Control Requirements,” and 14-8.02 “Noise Control,” which state that noise levels generated during construction shall comply with applicable local, state, and federal regulations, and that all equipment shall be fitted with adequate mufflers according to the manufacturers’ specifications.

Construction noise of this Project would be intermittent, and noise levels would vary depending on the type of construction activity. The loudest construction activities are likely to be engine noise from construction vehicles. For this Project, lowest construction equipment-related noise levels would be 55 dBA at a distance of 50 ft for sound from use of a pick-up truck. Highest noise levels would range from 80-100 dBA (at a distance of 50 ft) for jackhammering, potential vibratory pile driving and major earth work activities, for installation of the 20th Street Overcrossing (FHWA, 2019). Construction is expected to take approximately 15 months.

Implementation of the measures below would minimize the temporary noise impacts from construction.

Construction Noise Control/Minimization Measures

The City of Chico Municipal Code identifies 3 mechanisms to reduce the potential for impacts associated with construction or maintenance operations.

Section 9.38.060 (B2): Construction work of a structure will be allowed between the hours of 10:00 a.m. and 6:00 p.m. on Sundays and holidays, and 7:00 a.m. and 9:00 p.m. on other days and is subject to one of the following limits:

Section 9.38.060 (B2a): No individual device or piece of equipment shall produce a noise level exceeding 83 dBA at a distance of 25 feet from the source.

Section 9.38.060 (B2b): The noise level at any point outside of the property plane of the Project shall not exceed 86 dBA.

In order to comply with these requirements, the Project will follow the standard construction noise requirements regulated by Caltrans Sections 7-1.011 and 14-8.02 of the Standard Specifications. The following Caltrans requirement meets the City’s noise requirements:

Do not exceed 86 dBA at 50 feet from the job site activities from 9 p.m. to 6 a.m.

The Project will adhere to the City’s construction work windows identified in Section 9.38.060 of the Municipal Code.

NOI-1: Construction work of a structure will be allowed between the hours of 10:00 a.m. and 6:00 p.m. on Sundays and holidays, and 7:00 a.m. and 9:00 p.m. on other days and the noise level at any point outside of the property plane of the Project shall not exceed 86 dBA.

Summary

From the above discussion, it is concluded that the Project will not result in adverse noise impacts based on the following, 1) the Project is not a Type 1 project; 2) proposed construction duration is temporary; and 3) construction of the Project would implement proposed minimization measures. Temporary construction-related noise impacts will be minimized by implementation of Caltrans standard noise control requirements and local policies.



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References

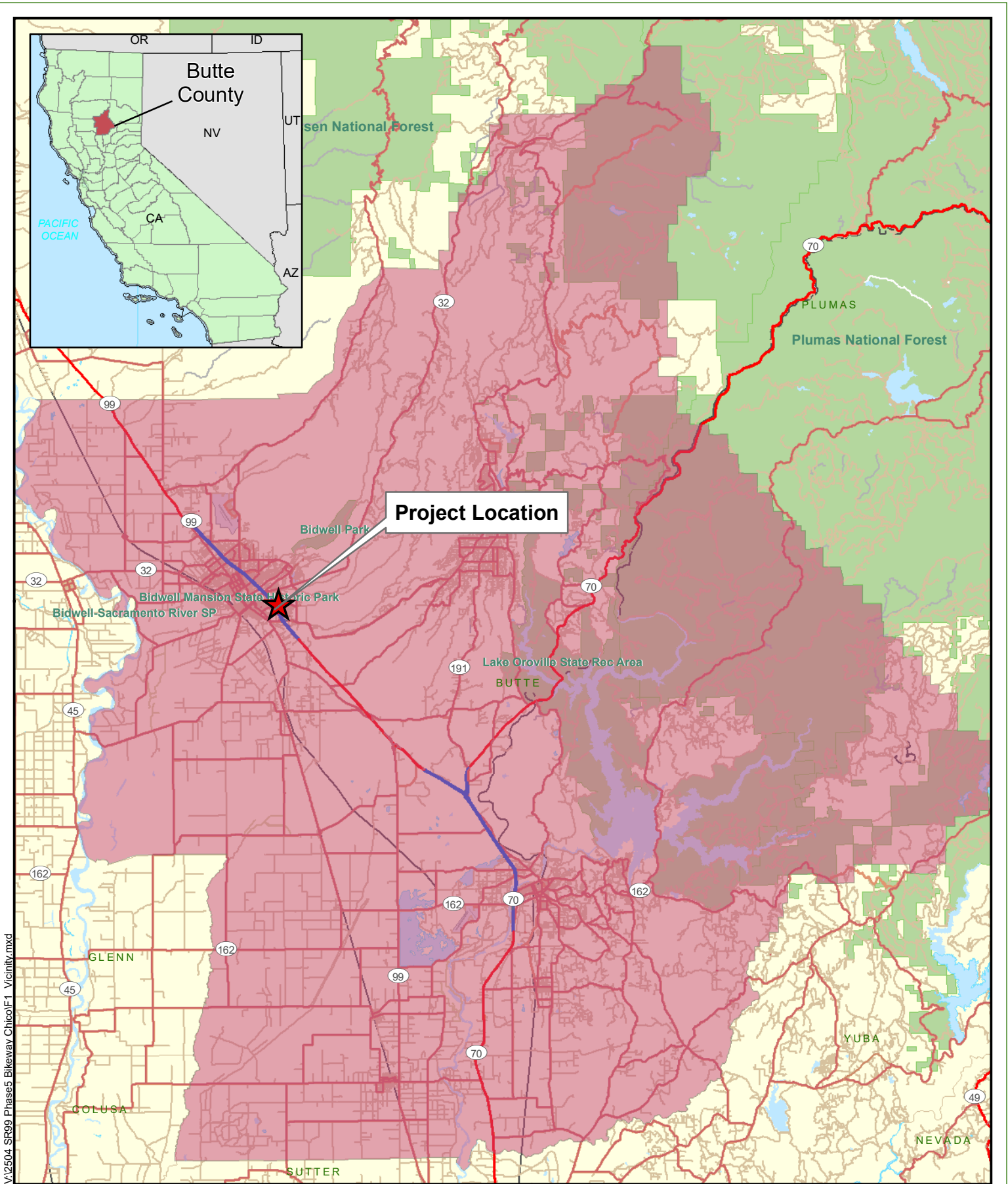
City of Chico. General Plan 2030. Chapter 13 – Noise (Policy N-1.6).

City of Chico. Municipal Code. Chapter 9.38- Noise.

California Department of Transportation: Construction Manual. 2018. Chapter 7, Section 1: Environmental Rules and Requirements.

California Department of Transportation: Standard Specifications. 2018. Section 14: Environmental Stewardship.

Federal Highway Administration. Construction Noise Handbook. 2019.



V:\2504 SR99 Phase5 Bikeway Chico\F1 Vicinity.mxd

Source: ESRI 2008; Dokken Engineering 7/24/2019; Created By: hsheldon

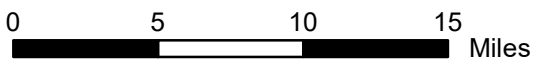
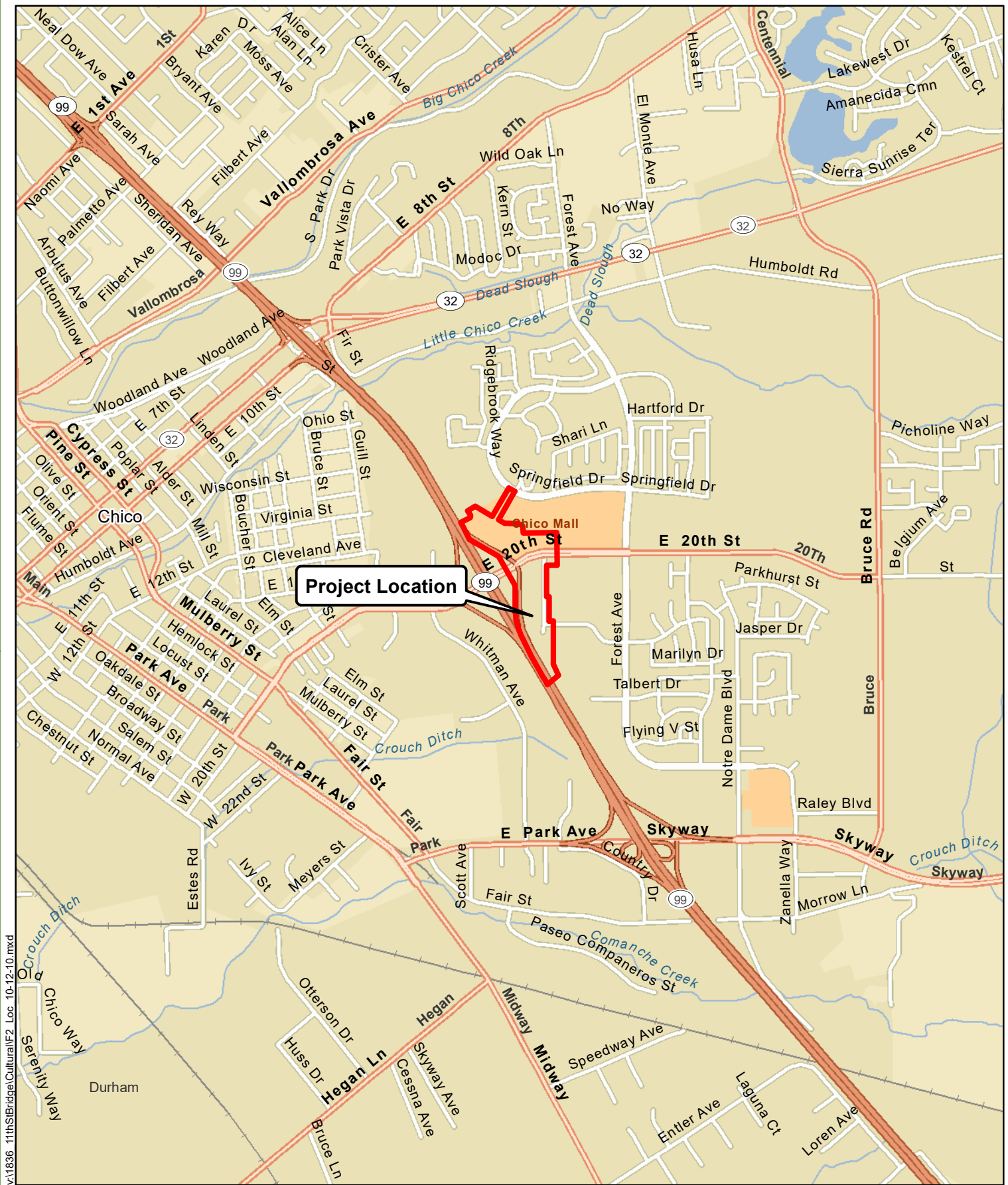


FIGURE 1
Project Vicinity

EA 03-OJ740
PIN 0319000145

SR99 Corridor Bikeway Facility (Bikeway 99) Phase 5
City of Chico, Butte County, California



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 Source: ESRI World Street Maps Online; Dokken Engineering 7/24/2019; Created By: hsheldon

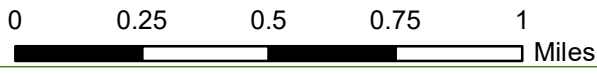


FIGURE 2
Project Location
 EA 03-0J740
 PIN 0319000145
 SR99 Corridor Bikeway Facility (Bikeway 99) Phase 5
 City of Chico, Butte County, California