Appendix F:
Noise Study

PSR #TD004 Baker Boulevard over Mojave River Bridge Replacement Project ***NSR***

Noise Study Report

Baker Boulevard over Mojave River Bridge Replacement Project

San Bernardino County, California

District 8-SBD R136.426

STPL-5954 (193)

March 2025

Caltrans

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Summary

The San Bernardino County Department of Public Works (County), in cooperation with the California Department of Transportation (Caltrans), proposes to replace the existing two-lane timber bridge on Baker Boulevard with a new four lane structure as part of the Baker Boulevard over Mojave River Bridge Replacement Project (Project). The purpose of the Project is to replace the existing structure with a new crossing that meets current structural design standards, in order to enhance safety and operations of the facility.

Existing Environment

A review of aerial photography and the County General Plan Land Use Map were studied to identify land uses that could be subject to traffic and construction noise impacts from the proposed Project. Existing land uses in the Project area were categorized by land use type and Activity Category, and the extent of frequent human use. Land uses in the Project vicinity consist of Commercial, Limited Industrial, and Public Facility (San Bernardino County, 2024). Receivers evaluated in this assessment included exterior areas where frequent human use occurs (within 500 feet of the proposed Project features, measured from edge of pavement) and would benefit from a lowered noise level. A total of 3 (three) receiver locations were modelled within this evaluation area. As stated in the Protocol, noise abatement is only considered where frequent human use occurs and where a lowered noise level would be of benefit. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as outdoor seating areas in commercial areas.

The geometry of the Project relative to nearby existing and planned land uses was also identified. The topography of the proposed Project right of way (ROW) is generally flat, with the Mojave River being the only topographical feature depressed below the surrounding area.

A short-term measurement location was selected to serve as representative modeling locations and for noise model calibration purposes.

Short-term monitoring was conducted at 1 (one) location on December 17, 2024, using Larson David Model 824 Type 1 sound level meters. The measurement was taken for a duration of 20-minutes at the site. Meteorological conditions (temperature, wind speed and direction, relative humidity) were logged for each measurement session on field data forms, provided in **Appendix C**.

Future Traffic Noise Impacts

Traffic noise levels were predicted using the Federal Highway Administration (FHWA) Traffic Noise Model Version 2.5 (TNM 2.5). Loudest-hour traffic volumes, traffic speeds, and vehicle classification percentages under existing and design year (2050) conditions were provided by the Baker Bridge Replacement and Travel Demand Forecasting Memo (Fehr & Peers, February 2025) for input into the traffic noise model.

Under the No-Build Alternative, Baker Boulevard would not be widened to 4 lanes. For receivers R-1 and R-2, which are on Noise Abatement Criteria (NAC) Activity Category E land uses, and R-3, which is a NAC B land use, noise levels ranged from 45 to 65 A-weighted decibels (dBA) Equivalent Sound Level over one hour (Leq(h)) and would not exceed their respective NAC criteria. No evaluated receivers would approach or exceed their respective NAC Activity Category standard under No-Build conditions in 2050.

The design year traffic noise modeling results for the Build Alternative range from 45 to 66 dBA Leq(h) for receivers R-1 through R-3. Noise levels from existing to design year Build conditions are expected to increase by up to 4 dBA. No evaluated receivers would approach or exceed their respective NAC Activity Category standard under Build conditions in 2050. Therefore, no noise abatement evaluation is required.

Construction Noise Impacts

No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with the Caltrans' Standard Specifications 14-8.02 "Noise Control." Construction noise would be short-term, intermittent and overshadowed by traffic noise within the Project area.

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List of Abbreviated Terms

ADT	Annual Daily Traffic
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
County	San Bernardino County Department of Public Works
CNEL	Community Noise Equivalent Level
dB	Decibels
dBA	A-weighted Decibels
FHWA	Federal Highway Administration
HOT	High-occupancy toll
HOV	High-occupancy vehicle
Hz	Hertz
kHz	Kilohertz
L_{dn}	Day-Night Level
L_{eq}	Equivalent Sound Level
L_{eq}(h)	Equivalent Sound Level over one hour
L_{max}	Maximum Sound Level
L_{xx}	Percentile-Exceeded Sound Level
µPa	Micro-Pascals
mph	Miles Per Hour
NAC	Noise Abatement Criteria
NADR	Noise Abatement Decision Report
NEPA	National Environmental Policy Act
NSR	Noise Study Report
Project	Baker Boulevard over Mojave River Bridge Replacement Project
Protocol	Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects
ROW	Right-of-way
SPL	Sound Pressure Level
TeNS	Caltrans' Technical Noise Supplement
TNM 2.5	FHWA Traffic Noise Model Version 2.5

Chapter 1. Introduction

1.1. Purpose of the Noise Study Report

The purpose of this Noise Study Report (NSR) is to evaluate noise impacts and abatement under the requirements of Title 23, Part 772 of the Code of Federal Regulations (23 CFR 772) "Procedures for Abatement of Highway Traffic Noise." 23 CFR 772 provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and Federal-aid highway projects. According to 23 CFR 772.3, all highway projects that are developed in conformance with this regulation are deemed to be in conformance with FHWA noise standards. Compliance with 23 CFR 772 provides compliance with the noise impact assessment requirements of the National Environmental Policy Act (NEPA).

The Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects (Protocol) (Caltrans 2020) provides Caltrans policy for implementing 23 CFR 772 in California. The Protocol outlines the requirements for preparing NSRs.

1.2. Project Purpose and Need

The purpose of the Project is to improve structure safety and operations through replacement of the existing bridge and roadway approaches. The Project is needed to meet current bridge structural design and safety standards along with projected future traffic capacity needs albeit the project in and of itself will not generate increase traffic volume and/or demand.

Chapter 2. Project Description

The County in cooperation with Caltrans, proposes to implement the Project in the community of Baker, California (**Figure 1. Project Vicinity** and **Figure 2. Project Location**). The Project will replace the existing two lane, timber bridge on Baker Boulevard, with a new four lane structure.

2.1. No Build Alternative

Under the no-build alternative, the existing bridge would not be repaired. The worn and deteriorating bridge would not be improved.

2.2. Build Alternative

The existing bridge was originally built in 1931 as a 93-foot (plus or minus) 5 span simple-supported stringer timber bridge crossing the Mojave River Channel on Baker Boulevard (formerly US 91 and State Route 31). It was repaired and lengthened in 1938. Repairs conducted in 1938 included replacement of all untreated Douglas Fir timber within the existing bridge with Redwood; the addition of 9 new spans to the west and 8 new spans to the east increasing bridge overall length to 408-feet (plus or minus), and channel excavation for the length of the structure to maintain a minimum clearance of 6-feet below the bottom stringer (soffit) of the bridge. The bridge currently exists as a 22-span simple-supported stringer timber bridge with a 5- to 6-inch-thick continuous cast in place reinforced concrete deck overlain with asphalt concrete and closed end reinforced concrete strutted abutments supported on Coastal Douglas Fir timber piles. The bents and abutments are set at a 45-degree skew to accommodate flows within the Mojave River Channel below. Timber railing and plywood planking accommodating an elevated 2-foot-wide walk on both sides of the bridge is worn and deteriorating. Current sufficiency rating per Caltrans biannual bridge inspection reports for the structure is roughly 76.

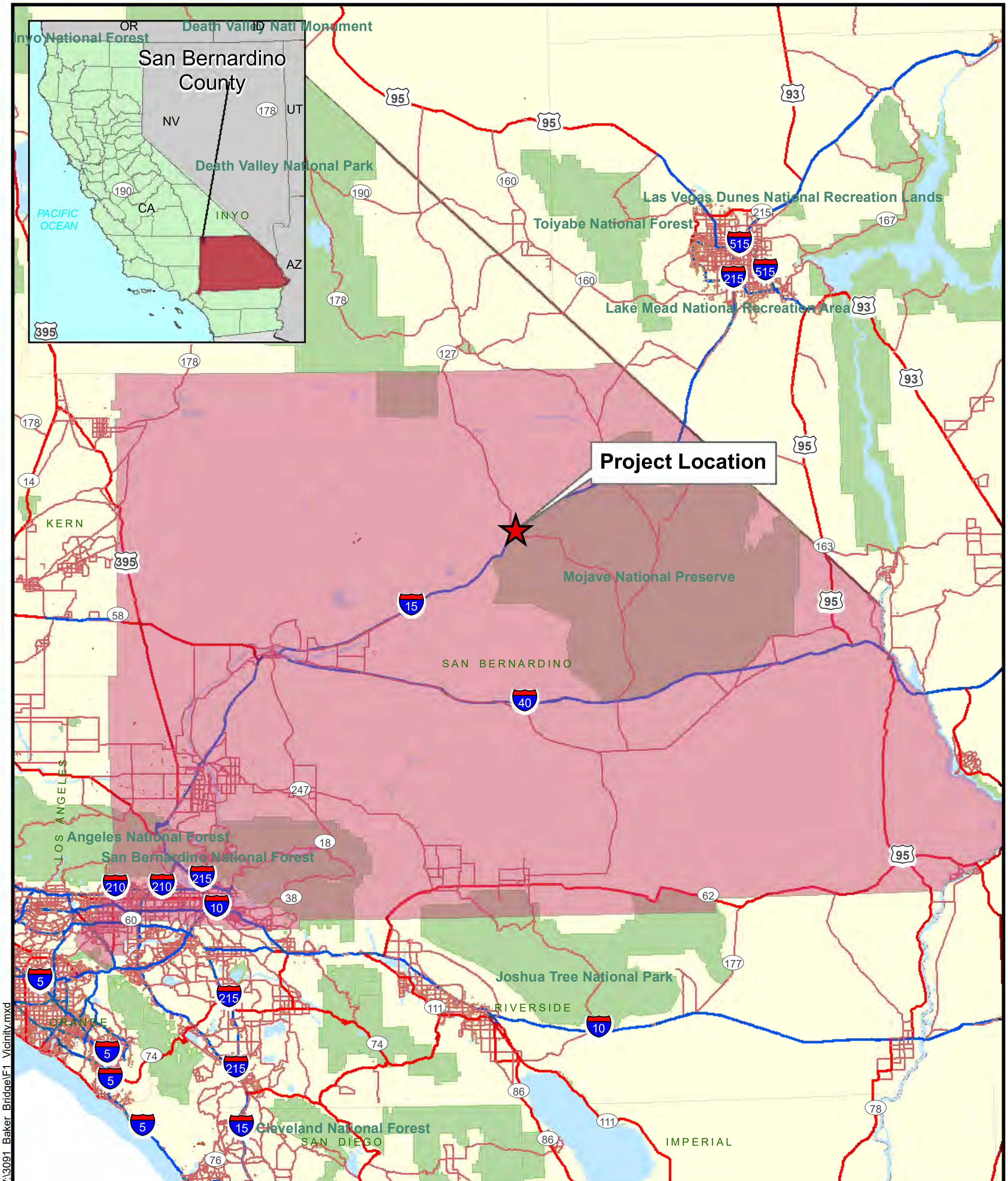
The Project includes the demolition of the existing two-lane 22 span simple-supported stringer timber bridge and its replacement with a four-lane, 10-span cast-in-place reinforced concrete slab structure founded on cast-in-drilled hole piles or driven concrete pile extensions (**Figure 3. Project Features**). This proposed structure will meet and address County and American Association of State Highway and Transportation Officials standards and criteria, or equivalent. Approximately 1,200 feet of approach roadway work would be required to widen Baker Boulevard to its ultimate width. The design would construct and/or tie into existing, planned and projected ultimate roadway improvements from 0.14 miles west of the existing structure to Death Valley Road (State Highway 127). Additionally, the new bridge will include sidewalks, streetlights, and bridge barrier railing meeting current Manual for Assessing Safety Hardware safety and testing requirements.

Existing driveways located within the Project area may require improvements to ensure conformity with the widened bridge and roadway approaches.

It is anticipated that excavators, dozers, dump trucks, concrete trucks, drill rigs, pile driving rigs and concrete pumps will be required to rehabilitate and widen the existing road surface and replace the bridge. Temporary and permanent ROW acquisition may be required for construction. The existing structure is well suited for either staged construction, with part of the new structure built adjacent to the existing bridge prior to removal of the existing bridge or a full detour (1.25-mile detour length) using adjacent SR-127/I-15 and the local road network to provide a complete closure for construction. Both options will keep the new bridge and approach road widenings within existing ROW. The Project will require relocation of overhead utilities, utilities attached to the bridge, and may require relocation of underground utilities along the roadway approaches. Construction may start as early as 2026 and may last 24 months.

The proposed Project may construct a permanent ramp providing access into the San Bernardino County Flood Control District owned floodway channel north of the bridge along the eastern levee to better facilitate channel maintenance and future bridge inspections.

The Project will be utilizing local funds and federal funds from FHWA, administered through Caltrans. As such, the Project requires compliance with both NEPA and the California Environmental Quality Act (CEQA). The lead agency for NEPA compliance is Caltrans and the lead agency for CEQA compliance is the County.



V:\3091 Baker Bridge\F1 Vicinity.mxd

Source: ESRI 2008; Dokken Engineering10/24/2024; Created By: amyd

0 10 20 30 Miles

FIGURE 1
Project Vicinity

PSR#TD004 Baker Boulevard Over Mojave River Bridge Replacement
STPL-5954(193)
Baker, San Bernardino County, California

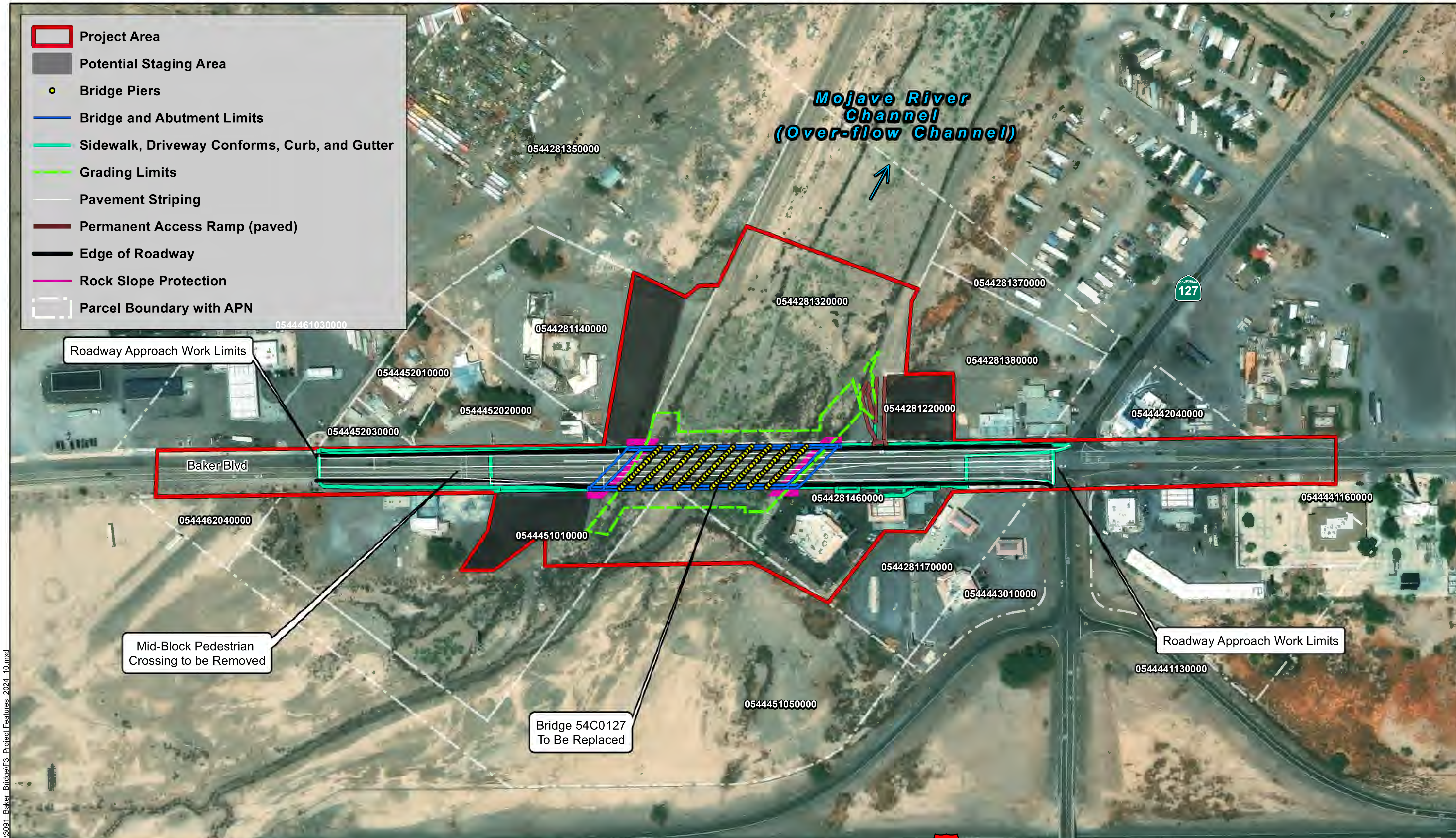
v:\1836_11thStBridge\Cultural\F2_Loc_10-12-10.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 2/26/2025; Created By: amyd

0 0.5 1 1.5 2 Miles

FIGURE 2
Project Location

PSR#TD004 Baker Boulevard Over Mojave River Bridge Replacement
STPL-5954(193)
Baker, San Bernardino County, California



V:\3091_Baker_Bridge\F3_Project Features_2024_10.mxd

Source: ESRI Maps Online; Dokken Engineering 1/31/2025; Created By: amyd

0 200 400 600 800 1,000 Feet

Figure 3
Project Features

PSR#TD004 Baker Boulevard Over Mojave River Bridge Replacement
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Baker, San Bernardino County, California

Chapter 3. Fundamentals of Traffic Noise

The following is a brief discussion of fundamental traffic noise concepts. For a detailed discussion, please refer to Caltrans' Technical Noise Supplement (TeNS) (Caltrans 2013), a technical supplement to the Protocol that is available on the Caltrans Web site (http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf).

3.1. Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receptor determine the sound level and characteristics of the noise perceived by the receptor. The field of acoustics deals primarily with the propagation and control of sound.

3.2. Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

3.3. Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this huge range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 mPa.

3.4. Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

3.5. A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in conjunction with highway-traffic noise. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels or dBA. **Table 3-1** describes typical A-weighted noise levels for various noise sources.

Table 3-1. Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	**— 70 —**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**— 60 —**	
		Large business office
Quiet urban daytime	**— 50 —**	Dishwasher next room
Quiet urban nighttime	**— 40 —**	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	**— 0 —**	Lowest threshold of human hearing

Source: Caltrans 2013.

3.6. Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3-dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear can discern 1-dB changes in sound levels, when exposed to steady, single-frequency (“pure-tone”) signals in the midfrequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people can begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound, would generally be perceived as barely detectable.

3.7. Noise Descriptors

Noise in our daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most used in traffic noise analysis.

- **Equivalent Sound Level (L_{eq}):** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that occurs during the same period. The 1-hour A-weighted equivalent sound level (L_{eq}[h]) is the energy average of A-weighted sound levels occurring during a one-hour period, and is the basis for NAC used by Caltrans and FHWA.

- **Percentile-Exceeded Sound Level (L_{xx}):** L_{xx} represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10% of the time, and L_{90} is the sound level exceeded 90% of the time).

- **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period.

- **Day-Night Level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.

- **Community Noise Equivalent Level (CNEL):** Similar to L_{dn}, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m., and a 5-dB penalty applied to the A-weighted sound levels occurring during evening hours between 7 p.m. and 10 p.m.

3.8. Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

3.8.1. Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 decibels for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 decibels for each doubling of distance from a line source.

3.8.2. Ground Absorption

The propagation path of noise from a highway to a receptor is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water,), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receptor, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 decibels per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 decibels per doubling of distance.

3.8.3. Atmospheric Effects

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) from the highway due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects.

3.8.4. Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receptor specifically to reduce noise. A barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. Vegetation between the highway and receptor is rarely effective in reducing noise because it does not create a solid barrier.

Chapter 4. Federal Regulations and State Policies

4.1. Federal Regulations

4.1.1. 23 CFR 772

23 CFR 772 provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and Federal-aid highway projects. Under 23 CFR 772.7, projects are categorized as Type I, Type II, or Type III projects.

- FHWA defines a Type I project as a proposed federal or federal-aid highway project for the construction of a highway on a new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment of the highway. The following projects are also considered to be Type I projects:

- The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a high-occupancy vehicle (HOV) lane, high-occupancy toll (HOT) lane, bus lane, or truck climbing lane,

- The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane,

- The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange,

- Restriping existing pavement for the purpose of adding a through traffic lane or an auxiliary lane,

- The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza.

If a project is determined to be a Type I project under this definition, the entire project area as defined in the environmental document is a Type I project.

A Type II project is a noise barrier retrofit project that involves no changes to highway capacity or alignment. A Type III project is a project that does not meet the classifications of a Type I or Type II project. Type III projects do not require a noise analysis.

Under 23 CFR 772.11, noise abatement must be considered for Type I projects if the project is predicted to result in a traffic noise impact. In such cases, 23 CFR 772 requires that the project sponsor "consider" noise abatement before adoption of the final NEPA document. This process involves identification of noise abatement measures that are reasonable, feasible, and likely to be incorporated into the project, and of noise impacts for which no apparent solution is available.

Traffic noise impacts, as defined in 23 CFR 772.5, occur when the predicted noise level in the design year approaches or exceeds the NAC specified in 23 CFR 772, or a predicted noise level substantially exceeds the existing noise level (a "substantial" noise increase). 23 CFR 772 does not specifically define the terms "substantial increase" or "approach"; these criteria are defined in the Protocol, as described below.

Table 4-1 summarizes NAC corresponding to various land use activity categories. Activity categories and related traffic noise impacts are determined based on the actual or permitted land use in a given area.

4.1.2. Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects

The Protocol specifies the policies, procedures, and practices to be used by agencies that sponsor new construction or reconstruction of federal or Federal-aid highway projects. The Protocol defines a noise increase as substantial when the predicted noise levels with project implementation exceed existing noise levels by 12 dBA or more. The Protocol also states that a sound level is considered to approach an NAC level when the sound level is within 1 dB of the NAC identified in 23 CFR 772 (e.g., 66 dBA is considered to approach the NAC of 67 dBA, but 65 dBA is not).

The Technical Noise Supplement to the Protocol provides detailed technical guidance for the evaluation of highway traffic noise. This includes field measurement methods, noise modeling methods, and report preparation guidance.

Table 4-1. Activity Categories and Noise Abatement Criteria (23 CFR 772)

Activity Category	Activity $L_{eq}[h]$[1]	Evaluation Location	Description of Activities
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67	Exterior	Residential.
C[2]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F			Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G			Undeveloped lands that are not permitted.

[1] The $L_{eq}(h)$ activity criteria values are for impact determination only and are not design standards for noise abatement measures. All values are dBA.

[2] Includes undeveloped lands permitted for this activity category.

4.2. State Regulations and Policies

4.2.1. California Environmental Quality Act

Noise analysis under CEQA may be required regardless of whether or not the project is a Type I project. The CEQA noise analysis is completely independent of the 23 CFR 772 analysis done for NEPA. Under CEQA, the baseline noise level is compared to the build noise level. The assessment entails looking at the setting of the noise impact and then how large or perceptible any noise increase would be in the given area. Key considerations include: the uniqueness of the setting, the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected, and the absolute noise level.

The significance of noise impacts under CEQA are addressed in the environmental document rather than the NSR. Even though the NSR does not specifically evaluate the significance of noise impacts under CEQA, it must contain the technical information that is needed to make that determination in the environmental document.

4.2.2. Section 216 of the California Streets and Highways Code

Section 216 of the California Streets and Highways Code relates to the noise effects of a proposed freeway project on public and private elementary and secondary schools. Under this code, a noise impact occurs if, because of a proposed freeway project, noise levels exceed 52 dBA-L_{eq}(h) in the interior of public or private elementary or secondary classrooms, libraries, multipurpose rooms, or spaces. This requirement does not replace the "approach or exceed" NAC criterion for FHWA Activity Category E for classroom interiors, but it is a requirement that must be addressed in addition to the requirements of 23 CFR 772.

If a project results in a noise impact under this code, noise abatement must be provided to reduce classroom noise to a level that is at or below 52 dBA-L_{eq}(h). If the noise levels generated from freeway and roadway sources exceed 52 dBA-L_{eq}(h) prior to the construction of the proposed freeway project, then noise abatement must be provided to reduce the noise to the level that existed prior to construction of the project.

Chapter 5. Study Methods and Procedures

5.1. Methods for Identifying Land Uses and Selecting Noise Measurement and Modeling Receiver Locations

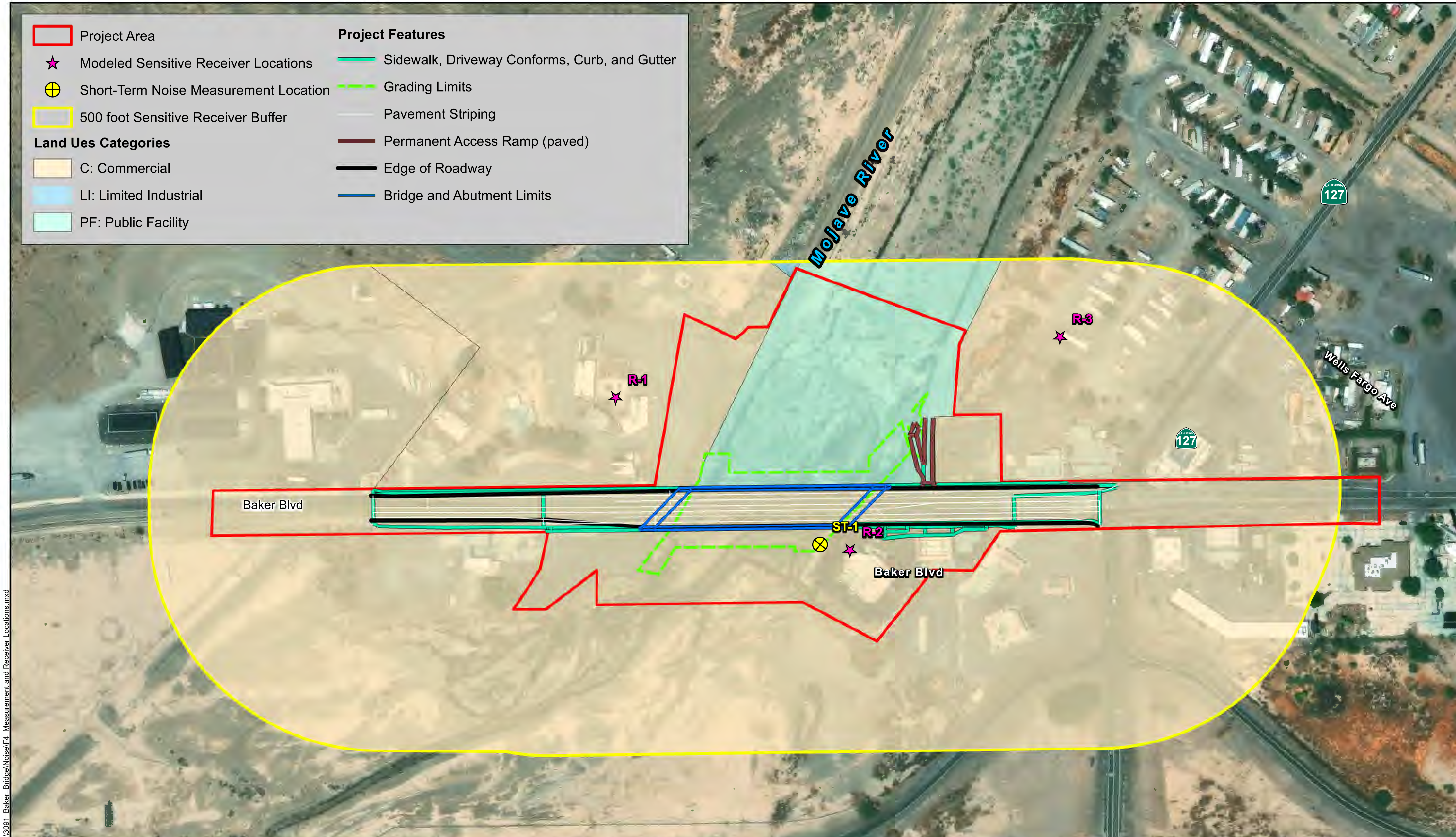
A review of aerial photography and the County General Plan Land Use Map were studied to identify land uses that could be subject to traffic and construction noise impacts from the proposed Project. Existing land uses in the Project area were categorized by land use type and Activity Category as defined in **Table 4-1**, and the extent of frequent human use. Land uses in the Project vicinity consist of Manufactured Home Park, Commercial, Limited Industrial, and Public Facility (San Bernardino County, 2024). Receivers evaluated in this assessment included exterior areas where frequent human use occurs (within 500 feet of the proposed Project features measured, from edge of pavement) and would benefit from a lowered noise level. A total of 3 (three) receiver locations were modelled within this evaluation area (**Figure 4. Noise Measurements and Receiver Locations**). As stated in the Protocol, noise abatement is only considered where frequent human use occurs and where a lowered noise level would be of benefit. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as outdoor seating areas in commercial areas.

The geometry of the Project relative to nearby existing and planned land uses was also identified. The topography of the proposed Project ROW is generally flat, with the Mojave River being the only topographical feature depressed below the surrounding area.

A short-term measurement location was selected to serve as representative modeling locations and for noise model calibration purposes.

5.2. Field Measurement Procedures

A field noise study was conducted in accordance with recommended procedures in TeNs. The following is a summary of the measurement equipment and procedures used to collect existing sound level data.



V:\3091_Baker_Bridge\Noise\F4_Measurement and Receiver Locations.mxd

Source: ESRI Maps Online; Dokken Engineering 2/27/2025; Created By: kchen

1 in = 200 ft

0 200 400 600 800 1,000 Feet

Figure 4
Noise Measurements and Receiver Locations

PSR#TD004 Baker Boulevard Over Mojave River Bridge Replacement
STPL-5954(193)
Baker, San Bernardino County, California

5.2.1. Short-Term Measurements

Short-term measurements were conducted on December 17, 2024 using a Larson Davis Model 824 Type 1 sound level meter. One (1) 20-minute measurement was taken. The short-term measurement was taken at an outdoor frequent human use area within the proposed Project area. The short-term measurement location is identified in **Figure 4. Noise Measurements and Receiver Locations**. Noise measurement field monitoring forms are in **Appendix C**.

During the short-term measurement, field staff attended the meter. Minute-to-minute L_{eq} values collected during the measurement period (20 minutes in duration) were logged manually, and dominant noise sources observed during each individual 1-minute period were also identified and logged. Using this approach, those minutes when traffic noise was observed to be a dominant contributor to noise levels at a given measurement location could be distinguished from one-minute noise levels where other non-traffic noise sources (such as aircraft and lawn equipment) contributed significantly to existing noise levels.

Temperature, wind speed, and humidity were recorded based on weather.com results at the time of the short-term monitoring session. During the short-term measurement at ST-1, wind speeds typically averaged 3 miles per hour (mph). The temperature was approximately 54°F, with relative humidity at 20%.

Vehicles were classified as automobiles, medium-duty trucks, or heavy-duty trucks. Automobiles are vehicles with two axles and four tires that are designed primarily to carry passengers. Small vans and light trucks are included in this category. Medium-duty trucks included all cargo vehicles with two axles and six tires. Heavy-duty trucks include all vehicles with three or more axles. The posted speed limit on Baker Boulevard is 35 mph. Traffic was observed to be travelling approximately 30-35 mph on Baker Boulevard during the short-term measurement, with heavy trucks moving at lower speeds than automobiles.

5.2.2. Long-Term Measurements

The current capacity along the existing 2-lane Baker Boulevard is approximately 19,000 vehicles per day. The Baker Bridge Replacement and Travel Demand Forecasting Memo (Fehr & Peers, February 2025) estimated the existing typical weekday ADT of 5,400. As the existing traffic volumes do not approach or exceed the existing roadway capacity, vehicles travel at the speed limit during both peak and non-peak traffic conditions. Therefore, the peak AM hour traffic volumes are representative of the worst noise hour as the traffic is free flowing at the speed limit of approximately 35 MPH. As the peak AM hour traffic is representative of the worst noise hour, no long-term measurements were conducted.

5.3. Traffic Noise Level Prediction Methods

Traffic noise levels were predicted using the FHWA TNM 2.5. Key inputs to the traffic noise model were the locations of roadways, shielding features, ground type, and receivers. Three-dimensional representations of these inputs were developed using CAD drawings, aerials, and topographic contours provided by the project engineers.

Traffic noise was evaluated under existing conditions, design year No Build conditions, and design year conditions. Loudest-hour traffic volumes, vehicle classification percentages, and traffic speeds under existing and design year (2050) conditions were provided by the Baker Bridge Replacement and Travel Demand Forecasting Memo (Fehr & Peers, February 2025) for input into the traffic noise model. **Appendix A** contains a summary of the traffic volumes and assumptions used for modeling existing and design year Build and No Build Alternatives. To validate the accuracy of field noise measurements results, TNM 2.5 was used to compare measured noise levels to modeled noise levels at the field measurement location. Traffic volumes counted during the short-term measurement were normalized to one-hour volumes. These normalized volumes were assigned to the corresponding proposed Project area roadways to simulate the noise source strength during the actual measurement period. Modeled and measured noise levels were then compared to determine if a K-factor would need to be applied to any monitoring location.

5.4. Methods for Identifying Traffic Noise Impacts and Consideration of Abatement

Traffic noise impacts are considered to occur at receiver locations where predicted design year noise levels are 12 dB or more greater than existing noise levels, or where predicted design year noise levels approach or exceed the NAC for the applicable activity category. Where traffic noise impacts are identified, noise abatement must be considered for reasonableness and feasibility as required by 23 CFR 772 and the Protocol.

According to the Protocol, abatement measures are considered acoustically feasible if a minimum noise reduction of 5 dB at impacted receptor locations is predicted with implementation of the abatement measures. In addition, barriers should be designed to intercept the line-of-sight from the exhaust stack of a truck to the first tier of receptors, as required by the Highway Design Manual, Chapter 1100. Other factors that affect feasibility include topography, access requirements for driveways and ramps, presence of local cross streets, utility conflicts, other noise sources in the area, and safety considerations.

The overall reasonableness of noise abatement is determined by the following three factors:

- The noise reduction design goal.
- The cost of noise abatement.
- The viewpoints of benefited receptors (including property owners and residents of the benefited receptors).

The Caltrans' acoustical design goal is that a barrier must be predicted to provide at least 7 dB of noise reduction at one benefited receptor. This design goal applies to any receptor and is not limited to impacted receptors.

The Protocol defines the procedure for assessing reasonableness of noise barriers from a cost perspective. Based on 2023 construction costs an allowance of $146,000 is provided for each benefited receptor (i.e., receptors that receive at least 5 dB of noise reduction from a noise barrier). The total allowance for each barrier is calculated by multiplying the number of benefited receptors by $146,000. If the estimated construction cost of a barrier is less than the total calculated allowance for the barrier, the barrier is considered reasonable from a cost perspective. The viewpoints of benefits receptors are determined by a survey that is typically conducted after completion of the noise study report. The process for conducting the survey is described in detail in the Protocol.

The NSR identifies traffic noise impacts and evaluates noise abatement for acoustical feasibility. It also reports information that will be used in the reasonableness analysis including if the 7 dB design goal reduction in noise can be achieved and the abatement allowances. The NSR does not make any conclusions regarding reasonableness. The feasibility and reasonableness of noise abatement is reported in the Noise Abatement Decision Report (NADR).

Chapter 6. Existing Noise Environment

6.1. Existing Land Uses

A review of aerial photography and the County General Plan Land Use Map were studied to identify land uses that could be subject to traffic and construction noise impacts from the proposed Project. The following land uses were identified within 500 feet of the Project features:

- Commercial
- Limited Industrial
- Public Facility
- Resource/Land Management

As required by the Protocol, noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as outdoor seating areas in commercial areas.

6.2. Noise Measurement Results

The existing noise environment at sensitive receivers within the Project area were quantified through a short-term noise level measurement conducted at 1 (one) location on December 17th, 2024.

6.2.1. Short-Term Measurements

Table 6-1 summarizes the results of the short-term noise measurements conducted in the Project area. Short-term noise measurement, ST-1, was used to calibrate the noise model.

Table 6-1. Summary of Short-Term Measurements

Position	Address	Land Use	Start Time	Duration (minutes)	Measured L_{eq}	X	Direction	A	MT	HT	Bus	Moto	Observed Speed (mph)
ST-1	72083 Baker Blvd, Baker, CA 92309	Commercial	10:09 a.m.	20	59.0	Baker Boulevard	WB	27	0	8	0	0	35
							EB	21	0	5	0	1	35

Note: Refer to Figure 4 for measurement location.
A= Autos: MT=Medium Trucks: HT = Heavy Trucks, Moto = Motorcycle: WB= Westbound; EB= Eastbound

TNM 2.5 was used to compare measured traffic noise levels to modeled noise levels at the field measurement location. **Table 6-2** compares measured and modeled noise levels at the measurement location (see **Figure 4**). The predicted sound levels are within 3 dB of the measured sound levels and are, therefore, considered to be in reasonable agreement with the measured sound levels. Therefore, no further adjustment of the model was necessary.

Table 6-2. Comparison of Measured to Predicted Sound Levels in the TNM Model

Measurement Position	Measured Sound Level (dBA)	Predicted Sound Level (dBA)	Measured minus Predicted (dB)
ST-1	59.0	59.0	0

Table 7-1 in the section below and **Table B-1** in **Appendix B** presents existing noise levels at each receiver.

Chapter 7. Future Noise Environment, Impacts and Considered Abatement

The noise study was conducted to determine the future traffic noise impacts at sensitive receivers near and within the proposed Project area. Potential long-term noise impacts associated with Project operations arise solely from traffic noise. Traffic noise was evaluated for future scenarios design year 2050 No Build, and future design year 2050 build as worst-case conditions for three (3) receiver locations. These receiver locations are within the Commercial land use designation. The FHWA and Caltrans NAC Activity Category for this land use is listed below:

- Activity Category B, 67 dBA Leq((h)
- Activity Category E, 72 dBA Leq(h)

The predicted future worst-case traffic noise levels for the Build Alternative were extrapolated from existing traffic data provided by the Baker Bridge Replacement and Travel Demand Forecasting Memo (Fehr & Peers, February 2025).

TNM 2.5 is sensitive to the volume of trucks on the roadway because trucks contribute disproportionately to the traffic noise. Truck percentages on modeled roadways were obtained via the Baker Bridge Replacement and Travel Demand Forecasting Memo (Fehr & Peers, February 2025). A summary of traffic data used for the existing and design year conditions for the Build and No Build Alternatives are presented in **Appendix A**.

Table B-1 in **Appendix B** summarizes the traffic noise modeling results for the design year (2050) conditions with the No Build and Build Alternatives. The modeled future noise levels for the Build Alternative were compared to the respective NAC land use Activity Category to determine whether a traffic noise impact would occur. Traffic noise impacts occur when either of the following occurs: (1) if the traffic noise level at a sensitive receptor location is predicted to “approach or exceed” the NAC, or (2) if the predicted traffic noise level is 12 dBA or more over the corresponding modeled existing noise level at the sensitive receptor locations analyzed. When traffic noise impacts occur, noise abatement measures must be considered.

As stated in the TeNS, modeling results are rounded up to the nearest decibel before comparisons are made. In some cases, this can result in relative changes that may not appear intuitive. An example would be a comparison between sound levels of 64.4 and

64.5 dBA L_{eq}. The difference between these two values is 0.1 dB. However, after rounding, the difference is reported as 1 dB.

7.1. Future Noise Impacts

Under the No-Build Alternative, Baker Boulevard would not be widened to 4 lanes. The traffic noise modeling results for the design year No Build alternative range from 45 to 65 dBA Leq(h), as shown in **Table 7-1**. None of the analyzed receivers would approach or exceed its respective NAC Activity Category standard under No Build conditions in the design year 2050.

The design year (2050) traffic noise modeling results for the Build Alternative range from 45 to 66 dBA L_{eq}(h) for receivers R-1 and R-2, as shown in **Table 7-1**. Noise levels from existing to design year Build conditions are expected to increase by up to 4 dBA L_{eq}(h). None of the analyzed receivers would approach or exceed its respective NAC Activity Category standard in the design year 2050.

Table 7-1. Comparison of Modeled Existing and Future Noise Levels

Receiver ID	Location	Land Use	Number of Dwelling Units	Noise Abatement Category	Modeled Existing 2024 Peak Noise Level, dBA L_{eq}(h)	Modeled 2050 No Build Peak Noise Level, dBA L_{eq}(h)	Modeled 2050 Build Peak Noise Level, dBA L_{eq}(h)
R-1	Royal Hawaiian Motel 7940 W Baker Blvd, Baker, CA 92364	Motel (Abandoned)	0	E(72)	42	45	45
R-2	Taco Bell 72083 Baker Blvd, Baker, CA 92309	Commercial	0	E(72)	62	65	66
R-3	56300 Death Valley Road, Baker, CA 92364	Manufactured Home Park	16	B(67)	50	53	54

7.2. Preliminary Noise Abatement Analysis

In accordance with 23 CFR 772, noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. Potential noise abatement measures identified in the Protocol include the following:

- Avoiding the impact by using design alternatives, such as altering the horizontal and vertical alignment of the project;
- Constructing noise sound walls;
- Acquiring property to serve as a buffer zone;
- Using traffic management measures to regulate types of vehicles and speeds; and
- Acoustically insulating public-use or nonprofit institutional structures.

Noise barriers are the only form of noise abatement considered for this project for noise impacts under 23 CFR 772. Each noise barrier evaluated has been evaluated for feasibility based on achievable noise reduction. For each noise barrier found to be acoustically feasible, reasonable cost allowances were calculated by multiplying the number of benefited receptors by $146,000.

For any noise barrier to be considered reasonable from a cost perspective the estimated cost of the noise barrier should be equal to or less than the total cost allowance calculated for the barrier. The cost calculations of the noise barrier must include all items appropriate and necessary for construction of the barrier, such as traffic control, drainage modification, retaining walls, landscaping for graffiti abatement, and right-of-way costs. Construction cost estimates are not provided in this NSR, but are presented in the NADR. The NADR is a design responsibility and is prepared to compile information from the NSR, other relevant environmental studies, and design considerations into a single, comprehensive document before public review of the project. The NADR is prepared by the project engineer after completion of the NSR and prior to publication of the draft environmental document. The NADR includes noise abatement construction cost estimates that have been prepared and signed by the project engineer based on site-specific conditions. Construction cost estimates are compared to reasonableness allowances in the NADR to identify which wall configurations are reasonable from a cost perspective.

The following is a discussion of noise abatement considered for each evaluation area where traffic noise impacts are predicted.

7.2.1. Receiver R-1 and R-2

Receivers R-1 and R-2 represent an unoccupied motel and a fast-food restaurant that falls under NAC Activity Category E and would not exceed the 72 dBA NAC criteria. Both locations would also not experience a 12 dBA increase in predicted noise levels with

Project implementation. As such, traffic noise impacts are not predicted for R-1 and R-2 under future build conditions. Noise abatement does not need to be considered, and preparation of a NADR is not warranted for these receivers.

7.2.2. Receiver R-3

Receiver R-3 is a single noise receiver representing a manufactured home park with multiple residences, which fall under NAC Activity Category E and would not exceed the 67 dBA NAC criteria. The location would also not experience a 12 dBA increase in predicted noise levels with Project implementation. As such, traffic noise impacts are not predicted for R-3 under future build conditions. Noise abatement does not need to be considered, and preparation of a NADR is not warranted for this receiver.

Chapter 8. Construction Noise

During construction of the Project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. **Table 8-1** summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dB at 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance. To minimize the construction-generated noise, abatement measures as specified in the special provisions under Standard Specification 14-8.02 “Noise Control” must be followed:

- Control and monitor noise resulting from work activities
- Do not exceed 86 dBA at 50 feet from the job site activities from 9 p.m. to 6 a.m.

Table 8-1. Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration 2006.

No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Standard Specification 14-8.02 and applicable County noise standards. Construction noise would be short-term, intermittent, and overshadowed by local traffic noise. Compliance with the County General Plan Noise Element and noise ordinance for construction is recommended to minimize construction noise.

Chapter 9. References

Caltrans. 2013. Technical Noise Supplement. September. Sacramento, CA: Environmental Program, Noise, Air Quality, and Hazardous Waste Management Office. Sacramento, CA. Available: (http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf).

Caltrans. 2020. Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects. April. 2020. Sacramento, CA. Available: (https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/traffic-noise-protocol-april-2020-a11y.pdf).

Caltrans. 2013. Transportation and Construction Vibration Guidance Manual. September. Sacramento, CA: Environmental Program, Noise, Air Quality, and Hazardous Waste Management Office. Sacramento, CA. Available: (http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf)

Caltrans. 2022. Traffic Census Program. Available: (https://dot.ca.gov/programs/traffic-operations/census)

Federal Highway Administration. 2006. Roadway Construction Noise Model. February, 15, 2006. Available: (http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/).

Fehr & Peers. February 2025. Baker Bridge Replacement and Travel Demand Forecasting Memo

Appendix A Traffic Data

Table A-1. Existing Calibration Traffic Volumes Used in TNM (ST-1)

Segment	Direction	Total Hour Traffic	Auto #	MT #	HT #	Bus #	Moto #	Observed Speed (mph)
Baker Boulevard	Eastbound	81	63	0	15	0	3	35/0/35/0/35
	Westbound	105	81	0	24	0	0	35/0/35/0/0

Source: Dokken Engineering, December 2024
MT = medium truck, HT = heavy truck, Moto = Motorcycle

Table A-2. Existing Year 2024 Peak Hour Traffic Volumes Used in TNM

Segment	Direction	Number of Lanes	Total AM Peak Hour Traffic	A %	MT %	HT %	Bus %	Moto %	Speed (A/MT/HT)
Baker Boulevard	Eastbound	1	270	53	38	9	0	0	35/35/35/0/0
	Westbound	1	270	53	38	9	0	0	35/35/35/0/0

Source: Fehr & Peers. November 2024
A = Auto, MT = medium truck, HT = heavy truck, Moto = Motorcycle

Table A-3. Design Year 2050 No Build Peak Hour Traffic Volumes Used in TNM

Segment	Direction	Number of Lanes	Total AM Peak Hour Traffic	A %	MT %	HT %	Bus %	Moto %	Speed (A/MT/HT)
Baker Boulevard	Eastbound	1	485	53	38	9	0	0	35/35/35/0/0
	Westbound	1	485	53	38	9	0	0	35/35/35/0/0

Source: Fehr & Peers. November 2024
A = Auto, MT = medium truck, HT = heavy truck, Moto = Motorcycle

Table A-4. Design Year 2050 Build Peak Hour Traffic Volumes Used in TNM

Segment	Direction	Number of Lanes	Total AM Peak Hour Traffic	A %	MT %	HT %	Bus %	Moto %	Speed (A/MT/HT)
Baker Boulevard	Eastbound	2	485	53	38	9	0	0	35/35/35/0/0
	Westbound	2	485	53	38	9	0	0	35/35/35/0/0

Source: Fehr & Peers. November 2024
A = Auto, MT = medium truck, HT = heavy truck, Moto = Motorcycle

Appendix B Predicted Existing and Future Noise Levels

Table B-1. Predicted Future Peak Hour Noise Levels

Receiver ID*	Land Use	Noise Abatement category (NAC)	Number of Dwelling Units	Address	Baker Boulevard over Mojave River Bridge Replacement Future Peak Hour Noise Levels -Leq, dBA																								Barrier Feasible (5 dB I.L.)	Barrier meets Caltrans Acoustical Design Goal (7 dB I.L.)
					Modeled Existing Year 2024 Noise Level Leq, dBA	Design Year 2050 Noise Level No Build Leq, dBA	Design Year 2050 Noise Level Build Leq, dBA	Existing to Design year No Build Noise Increase	Existing to Design year Build Noise Increase	Design Year No Build to Build increase	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																			
											6 feet			8 feet			10 feet			12 feet			14 feet			16 feet				
											Leq	I.L.	NBR	Leq	I.L.	NBR	Leq	I.L.	NBR	Leq	I.L.	NBR	Leq	I.L.	NBR	Leq	I.L.	NBR		
R-1	Motel (Abandoned)	E(72)	0	72020 Baker Blvd, Baker, CA 92309	42	45	45	3	3	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
R-2	Commercial	E(72)	0	72083 Baker Blvd, Baker, CA 92309	62	65	66	3	4	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
R-3	Manufactured Home Park	B(67)	16	56300 Death Valley Road, Baker, CA 92364	50	53	54	3	4	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

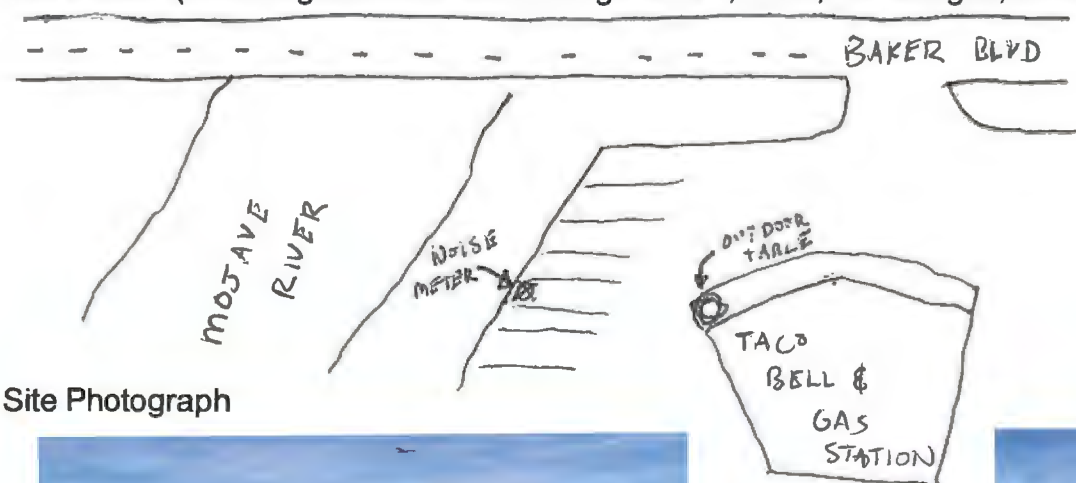
<u>Bold and underlined</u> indicates impacted receiver exceeding the NAC.

Appendix C Field Data

Noise Field Data Sheet

Project Name and Number	BAKER BLVD OVER MOJAVE RIVER Bridge Replacement STPL-5954(1
Receptor Site	ST-1
Latitude/Longitude/Description	35.264085, -116.076543
Start Date & Time	10:09 AM
End Date & Time	10:29 AM
Relative Humidity (%),Temperature (degrees F), Wind Speed/Direction	20% Humidity 54°F 3 mph SW wind
Vehicle Speeds	30 - 35 mph
Notes	N/A

Site Sketch (including landmarks—building corners, trees, street signs, curbs, fences)



Site Photograph

Equipment	Meter Type: LARSON DAVIS 824
	Calibrator: LARSON DAVIS
Company meter #	A3562
Staff	ZACH L