3.8 Noise

This section describes the regulatory and environmental setting for noise in the vicinity of the Project. It also describes the potential impacts from noise on sensitive land uses that would result from the operation and/or construction of the Project and mitigation measures that would reduce significant impacts, where feasible and appropriate. Impacts related to excessive groundborne vibration and noise, and exposure of excessive noise levels are not included in this section; they are discussed in Chapter 4, *Other CEQA-Required Analysis*. Cumulative impacts from noise and vibration, in combination with planned, approved, and reasonably foreseeable projects, are discussed in Chapter 3.11, *Cumulative Impacts*.

3.8.1 Fundamentals of Environmental Noise

3.8.1.1 Overview of Noise and Sound

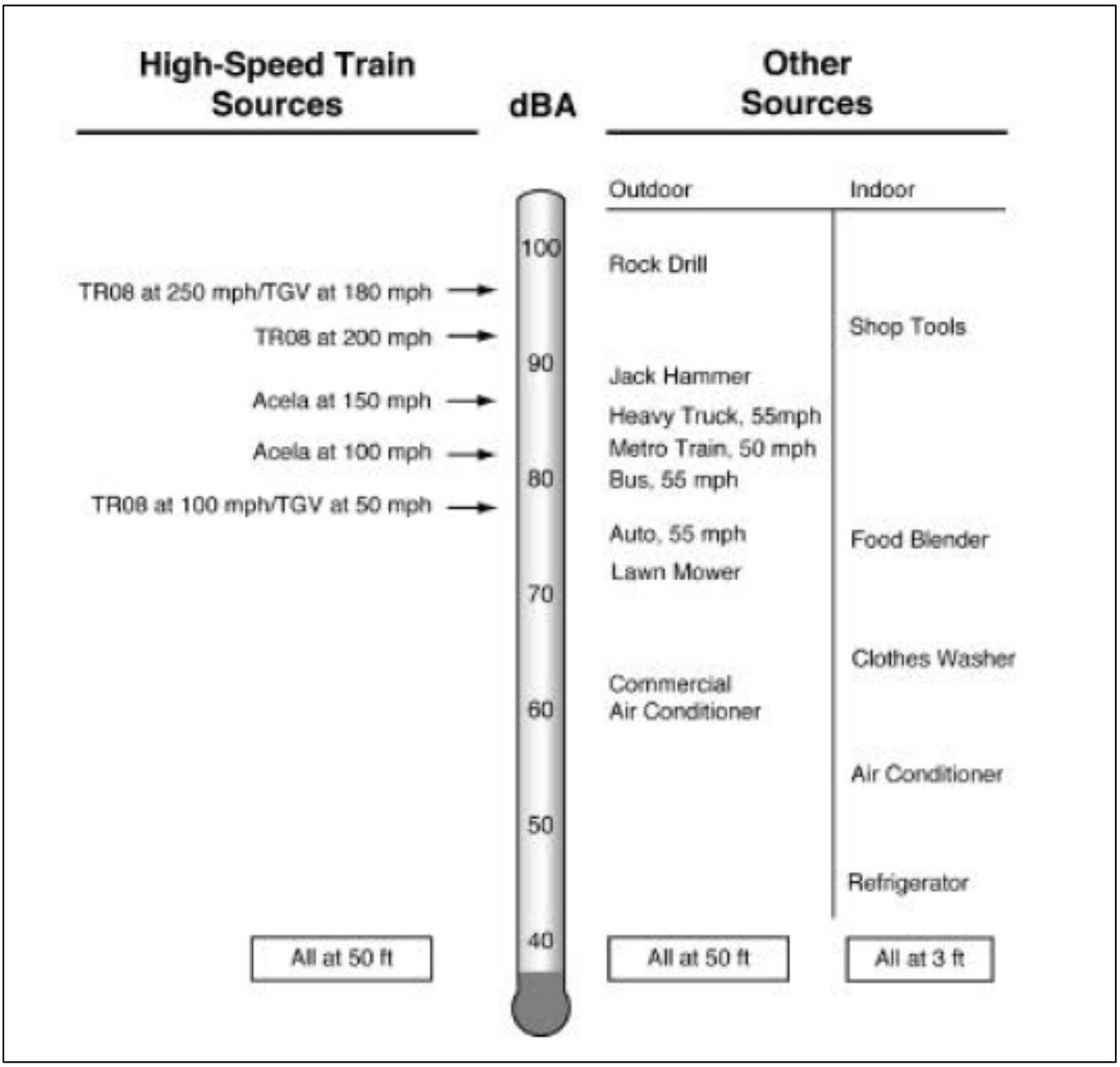
Noise is unwanted sound. Sound is measured in terms of sound pressure level and is usually expressed in decibels (dB). The human ear is less sensitive to higher and lower frequencies than it is to mid-range frequencies. Almost all noise ordinances, and this noise analysis, use the A-weighted decibel (dBA) system, which measures what humans hear in a more meaningful way. Similar to what humans hear, it reduces the sound levels of higher and lower frequency sounds. **Figure 3.8-1** shows typical cumulative day-night levels in (L_{dn}) for transit and non-transit sources.

Noise from transit systems is expressed in terms of a source-path-receiver framework. The source generates noise levels that depend on the type of source (e.g., a train) and its operating characteristics (e.g., speed). The receiver is the noise-sensitive uses (e.g., residence, hospital, and school) exposed to noise from the source. Between the source and the receiver is the path, where the noise is reduced by distance, intervening buildings, and topography. Environmental noise impacts are assessed at the location of the receiver. Noise criteria are established for the various types of receivers because not all receivers have the same noise sensitivity.

Analysts use four common noise measurement descriptors to assess noise impacts from traffic and transit projects: equivalent sound level (L_{eq}), day-night sound level (L_{dn}), maximum sound level (L_{max}), and sound exposure level (SEL). Their definitions are as follows:

- L_{eq}: The level of a constant sound for a specified period of time that has the same sound energy as an actual fluctuating noise over the same period of time. The peak-hour L_{eq} is used for all traffic and rail noise analyses at locations with daytime use, such as schools and libraries.
- L_{dn}: The L_{eq} over a 24-hour period, with 10 dBs added to nighttime sound levels (between 10 pm and 7 am) to account for the greater sensitivity and lower background sound levels during this time. The L_{dn} is the primary noise-level descriptor for rail noise at residential land uses.
- L_{max}: The loudest 1 second of noise over a measurement period, or L_{max}, is used in many local and state ordinances for noise emitted from private land uses and for construction noise impact evaluations.
- SEL: The SEL is the primary descriptor of a single noise event (e.g., noise from a train passing a specific location along the track). The SEL represents a receiver's cumulative noise exposure from an event and the total A-weighted sound during the event normalized to a 1-second interval.

Figure 3.8-1: Typical A-Weighted Sound Levels (including High Speed Train Sources)



Source: (Federal Rail Association High-Speed Ground Transportation Noise and Vibration Impact Assessment, 2005)

3.8.2 Regulatory Setting

3.8.2.1 Federal

Two United States Federal guidance documents primarily were used for the assessment of noise impacts associated with the project, the Federal Railroad Administration's (FRA) High-Speed Ground Transportation Noise and Vibration Impact Assessment Manual (FRA 2012), and the Federal Transit Administration's (FTA) Noise and Vibration Impact Assessment Manual (FTA 2018). The two manuals are complimentary, sharing much of the same basic information and guidance related to rail transportation noise and vibration impacts. The difference is that the FTA manual is more comprehensive, addressing all aspects of transit noise (including light rail, commuter rail, substations, maintenance facilities, stations, and highway sources, but not high-speed rail vehicles). The FRA manual is focused specifically on the prediction and assessment of noise and vibration impact from high-speed rail vehicle operations. The thresholds for moderate and severe noise impacts, as discussed below, are identical for both manuals.

Given the Project is a high-speed rail (HSR) related project, both the FTA and FRA noise impact assessment criteria for determining the severity of the noise exposure are applicable as follows:

- For construction of the Project and non-high-speed rail sources of noise (including station noise), the FTA analysis will apply; and
- For the operations of the high-speed trains associated with Project, the FRA analysis will apply.

FTA Impact Criteria for Noise for Construction of High-Speed Rail

Table 3.8-1 shows the FTA noise assessment criteria for construction. The 8-hour L_{eq} noise exposure from construction noise calculations use the noise emission levels of the construction equipment, equipment location, and operating hours. The construction noise limits normally are assessed at the noise-sensitive receiver property line.

Table 3.8-1: FTA Construction Noise General Assessment Criteria

Land Use	8-hour L_{eq}, dBA	
	Day	Night
Residential	90	80
Commercial	100	100
Industrial	100	100

Source: (FTA, 2018)

FRA/FTA Impact Criteria for Noise for Operations of High-Speed Rail

For transit projects, the FTA has prepared a noise and vibration manual that describes the methodology for identifying impacts and criteria in determining the severity of the noise exposure for operations. The FRA provide a similar manual for high-speed rail projects, but that manual references the more general FTA manual for noise from non-rail sources. Therefore, the following land use categories are summarized from the 2018 manual (FTA 2018).

FTA provides different thresholds of noise impacts for land uses. **Table 3.8-2** lists the three FTA land use categories and the applicable noise metric for each category. For Category 2 land uses, noise exposure is characterized using L_{dn} (in dBA). In calculating L_{dn} (in dBA), noise generated during nighttime hours is

weighted more heavily than daytime noise to reflect greater sensitivity to noise during those hours. For Category 1 and Category 3 land uses, noise exposure is characterized using the peak-hour L_{eq} (in dBA) which is a time-averaged sound level over the noisiest hour of transit-related activity. Other land uses, such as commercial and industrial land uses not identified, are not considered noise-sensitive by FTA; thus, standards have not been defined for those land uses. Background information on the L_{dn} and L_{eq} noise descriptors are provided in the discussion of " Fundamentals of Environmental Noise" in Section 3.8.1.

Table 3.8-2: FTA Land Use Categories and Noise Metrics

Land Use Category	Noise Metric (dBA)	Description of Land Use Category
1	Outdoor $L_{eq(h)}$[a]	Land where quiet is an essential element of its intended purpose. Example land uses include preserved land for serenity and quiet, outdoor amphitheaters and concert pavilions, and national historic landmarks with considerable outdoor use. Recording studios and concert halls also are included in this category.
2	Outdoor L_{dn}[b]	This category is applicable for all residential land use and buildings where people normally sleep, such as hotels and hospitals.
3	Outdoor $L_{eq(h)}$[a]	This category is applicable to institutional land uses with primarily daytime and evening use. Example land uses include schools, libraries, theaters, and churches, where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds, and recreational facilities also are included in this category.

Notes:
[a] Leq for the noisiest hour of transit-related activity during hours of noise sensitivity.
[b] Ldn is a measure that counts for a full 24 hours of noise, with penalties for noise at night, which is defined as being between 10 pm and 7 am.
Source: (FTA, 2018)

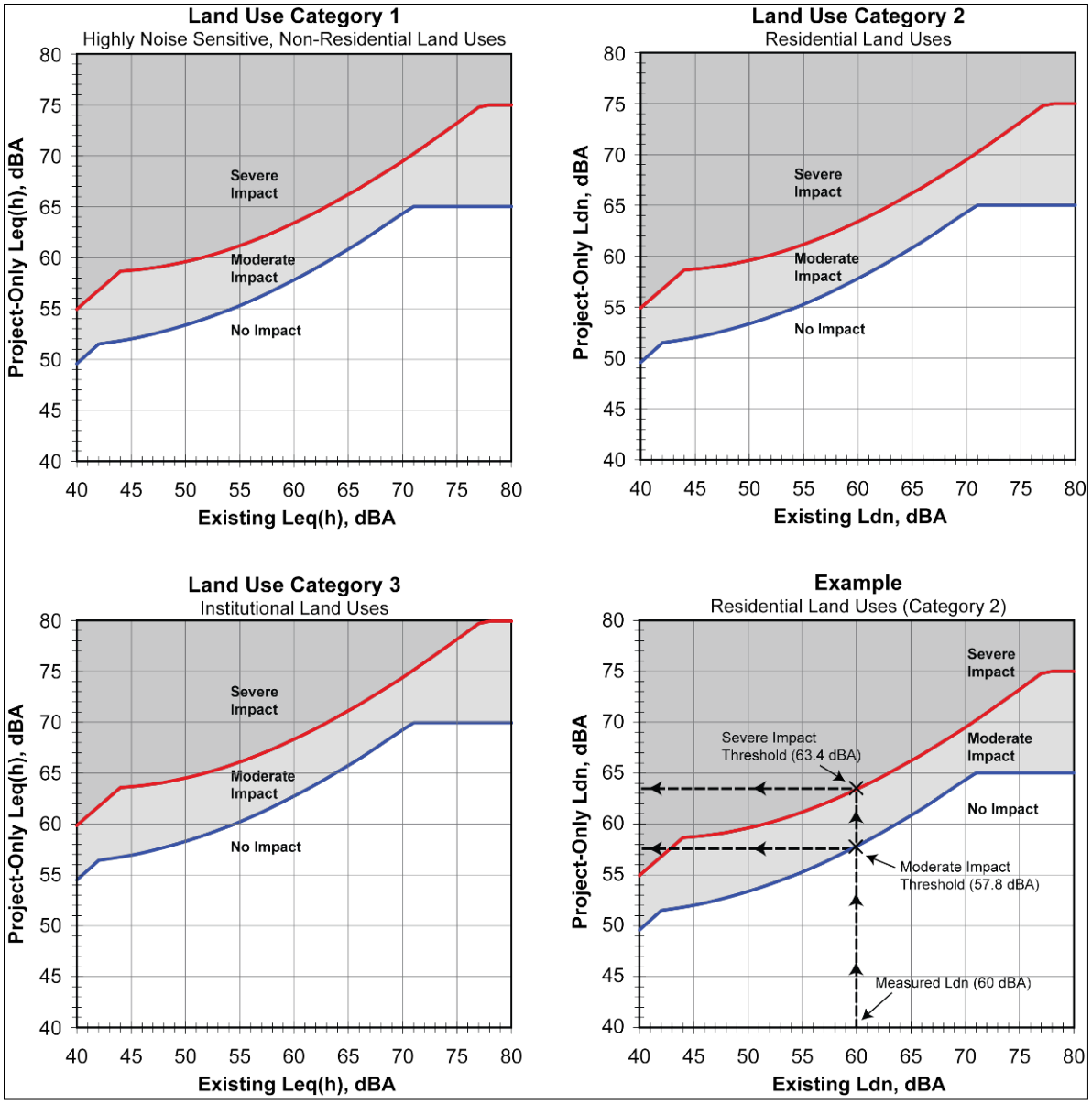
The FRA/FTA noise impact threshold is a sliding scale, based on existing noise exposure and land use of sensitive receivers. In areas where existing noise exposure is higher, the allowable increase above the existing noise exposure decreases. For example, in an area with an existing noise level of 55 dBA, the allowable increase in noise level is 3 dBA, resulting in a total future noise impact threshold of 58 dBA. For an area with an existing noise level of 60 dBA, the allowable increase in noise level is only 2 dBA, resulting in a total future noise impact threshold of 62 dBA. The FTA defines two levels of noise impact: moderate and severe.

The FRA/FTA noise impact criteria are shown graphically in **Figure 3.8-2** for the different categories of land use, defined in **Table 3.8-2**, along with an example of how the criteria are applied. The two graphs on the left are for non-residential land uses where L_{eq}(h) (in dBA)represents the noise exposure metric, and the top right graph is for residential land uses where L_{dn} (in dBA) represents the noise exposure metric.

The sample graph in the bottom right corner of **Figure 3.8-2** clarifies the concept of a sliding scale for noise impact. Assuming that the existing noise has been measured at 60 dBA L_{dn} (i.e., based on the noise measurement, this level represents the total noise from all existing noise sources over a 24-hour period, including traffic, aircraft, lawnmowers, children playing, and birds chirping). Following the vertical line from the measured 60 dBA on the horizontal axis, the intersection with the moderate and severe impact curves identifies the noise thresholds for moderate and severe impacts along the vertical axis: 57.8 dBA L_{dn} for moderate impact and 63.4 dBA L_{dn} for severe impact.

The curves that are shown in **Figure 3.8-2** are defined in terms of operational project-only noise (on the vertical axes) and existing noise (on the horizontal axes). The project-only noise is the noise that would be introduced into the environment by a project; it is not the future noise levels with the project. The project-only noise does not include noise from existing noise sources in the area that would not change because of the project, such as automobile traffic and airplanes.

Figure 3.8-2: FRA/FTA Impact Criteria for Noise



Source: (FTA, 2018)

3.8.3 State

There are no applicable state plans, policies, or regulations related to noise for the Project.

3.8.3.1 Regional and Local

Madera County General Plan

The following Madera County General Plan (Madera County, 1995) policies are relevant to the Project.

Transportation Noise Source Policies

- Policy 7.A.2: Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed 60 Ldn (in dBA) within the outdoor activity areas of existing or planned noise-sensitive land uses and 45 Ldn (in dBA) in interior spaces of existing or planned noise-sensitive land uses.

Non-Transportation Noise Source Policies

- Policy 7.A.5: Noise which will be created by new non-transportation noise sources, or existing non-transportation noise sources which undergo modifications that may increase noise levels, shall be mitigated so as not to exceed the noise level standards of **Table 3.8-3**, Madera County Maximum Allowable Noise Exposure for Non-Transportation Noise Sources), on lands designated for noise-sensitive uses (Madera County, 1995). This policy does not apply to noise levels associated with agricultural operations.

Table 3.8-3: Madera County Maximum Allowable Noise Exposure for Non-Transportation Noise Sources[1]

Sound Level	Daytime (7 am to 10 pm)	Nighttime (10 pm to 7 am)
Hourly Leq, dB	50	45
Maximum level, dB	70	65

Notes:
Each of the noise levels specified above shall be lowered by 5 dB for pure tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).
[1] As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers at the property line.
Source: (Madera County, 1995)

Madera County Noise Ordinance

The following Madera County Noise Ordinance Chapter 9.58 -Noise Control (Madera County, 2001) sections are relevant to the Project.

- Section 9.58.020 specifically lists the prohibited acts related to noise and vibration.
- Section 9.58.011 - Definitions. "Hz (hertz)" means a unit of measurement for a pitch that describes the number of cycles per second in sound vibration. Speech information usually falls between 200 Hz and 6000 Hz. "Middle C" on the piano falls at two hundred sixty-two Hz."

- Section 9.58.020F of Madera County's noise ordinance requires that operating or permitting the operation of any device that creates a noise which is above the noise perception threshold as defined in Section 9.58 at or beyond the property boundary of the source if on private property, or 155 feet (46 meters) from the source if on a public right-of-way, will be in violation of Chapter 9.58 of the Madera County Noise Ordinance.
- Section 9.58.020FG of Madera County's noise ordinance states that construction activities are limited to the hours of 7 am and 7 pm, Monday through Friday, and 9 am and 5 pm on Saturdays. Construction activities will be prohibited on Sundays.

3.8.4 Environmental Setting

Existing Noise Levels

The existing noise environment is dominated by transportation sources, mainly trains in the Project Footprint and area roadway traffic. Trains that are used for the San Joaquins operation are diesel-based Amtrak trains. Noise -sensitive receivers were assessed in the area using the FTA transit noise and vibration impact assessment manual's definitions of noise -sensitive land uses (FTA, 2018).

Existing noise levels were estimated using the generic noise environment from the FTA Noise and Vibration Manual's Table 6, "Estimating Existing Noise Exposure for General Noise Assessment". **Table 3.8-4** summarizes the assumed existing noise environment in the Project Footprint.

Table 3.8-4: Existing Noise Levels in Project Corridor

Dominant Existing Noise Source	Distance from Major Noise Source (feet)*	L_{dn} (dBA)
Interstate Highway**	200 to 400	60
	400 to 800	55
	800 and up	50
Railway	120 to 240	60
	240 to 500	55
	500 to 800	50
	800 and up	45

Notes:

* Distances do not include shielding from intervening rows of buildings. Generally, for estimating shielding attenuation in populated areas, assume one row of buildings every 100 feet, 4.5 dB for the first row and 1.5 dB for every subsequent row up to a maximum of 10 dB attenuation.

** Roadways with four or more lanes that permit trucks, with traffic at 60 miles per hour (i.e., State Route 99 for the Project Footprint).

dBA = A-weighted decibels

L_{dn} = day-night noise level

Source: (AECOM, 2024)

Noise Sensitive Receivers

Existing land uses in the vicinity of the Project are agricultural. Receivers potentially sensitive to train noise are not located in the immediate proximity of the Project. As shown in **Figure 3.8-3**, a single residence is located approximately 880 feet to the east of the northern portion of the Project site. Madera Community College (Existing Receiver [ER] 1) is located approximately 3,600 feet to the west of the Project. The nearest noise-sensitive residential uses are between the Project Footprint and State Route 99, located about 4,000 feet to the northwest of the Project along Avenue 13 (ER2) and 1 mile to the west of the Project along Avenue 13 (ER3).

Figure 3.8-3: Noise-Sensitive Receivers

Source: (AECOM, 2024)

3.8.5 Impact Analysis

3.8.5.1 Methods for Analysis

Noise conditions were identified for new noise-sensitive developments located within areas with the potential to be affected by substantial existing or future mobile noise sources (e.g., aircraft, automobile, and railroad lines) and stationary noise sources (e.g., construction activities).

Existing physical conditions, which constitute the baseline for purposes of determining whether potential impacts are significant, were compared to future anticipated conditions under buildout of the Project. Aerial images (Google Earth, 2024) of the Project Footprint were used to determine the potential locations of noise-sensitive receptors and noise-generating land uses in the area. Baseline ambient noise levels were based on predictions from traffic noise modeling, and stationary-source noise levels were based on manufacturers' specifications.

To assess noise impacts from construction and operation, sensitive receptors and their relative levels of exposure were identified. Construction and operational noise levels were predicted using the FTA and FRA Transit Noise and Vibration Impact Assessment methodologies, respectively, for noise prediction. The noise emission levels referenced and usage factors are based on Federal Highway Administration's (FHWA's) Roadway Construction Noise Model (FHWA, 2006).

Noise levels and resultant levels at the locations of sensitive receptors were calculated and compared to FTA and FRA methods.

3.8.5.2 Thresholds of Significance

The CEQA Guidelines Appendix G, California Code of Regulations, Title 14, § 15000 et seq. (2024) identifies significance criteria to be considered for determining whether a project could have significant impacts on noise resources. An impact would be considered significant if construction or operation of the Project would have any of the following consequences:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

3.8.5.3 Impacts and Mitigation Measures

Impact NOI-1	Construction and operation of the Project would not result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
Level of Impact	**Less than Significant with Mitigation Incorporated**

Project Construction

Table 3.8-5 summarizes the estimated construction noise levels and residential noise impact distances for each of the planned construction activities. The screening distances identify the distance within which the specified land use could be exposed to noise levels above the local or FTA criteria. The impact distances relevant to the FTA criteria from **Table 3.8-2** reflect the types of equipment anticipated to be used. The potential for noise impact would be greatest during platform work. The results of the analysis indicate that noise could affect residences within approximately 45 feet; there are no residences located within the daytime impact distance. Commercial uses would need to be located within approximately 18 feet to be affected by construction noise; there are no commercial uses located within the Project corridor. There are no noise-sensitive uses within the impact distances as identified in **Table 3.8-5**.

As shown in **Table 3.8-5**, construction noise at the nearest resident to the Project Footprint would result in a noise level of 45 to 69 dBA Leq. This level of construction noise would be below the existing noise level in the Project Footprint **Table 3.8-4** and Madera County's thresholds (**Table 3.8-3**), except for ER4 where the construction noise would be above the existing noise level in the project area and above the County's Threshold. As shown in **Table 3.8-3**, project-related construction noise would be below the FTA's threshold, and local noise ordinances exempt construction noise. However, the Project would generate substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Therefore, the Project during construction would have a significant impact.

MM NOI-1: To address construction noise impacts in the vicinity of Environmental Receptor 4 (ER4), where noise levels are expected to exceed existing ambient levels and Madera County's thresholds, the following mitigation measures are recommended for inclusion in the Environmental Impact Report (EIR):

- **Temporary Noise Barriers**: Install temporary noise barriers or sound blankets around active construction areas near ER4. These barriers shall be at least 8 feet tall and provide a minimum noise reduction of 10 dBA, based on site-specific conditions.
- **Use of Quiet Equipment**: Utilize modern, well-maintained construction equipment equipped with noise-reducing devices such as mufflers and enclosures. Remove or retrofit excessively noisy equipment, and consider alternative quieter construction methods where feasible.
- **Construction Hours Limitations**: Restrict construction activities to the hours of 7:00 AM to 7:00 PM on weekdays and Saturdays, with no work on Sundays or legal holidays unless specifically approved by Madera County.
- **Equipment Staging and Stockpiling**: Locate equipment staging areas and material stockpiles as far as practicable from ER4 and other sensitive receptors. These locations must be detailed in the Construction Noise Control Plan for County approval.
- **Community Outreach**: Develop and implement a community outreach program to notify residents near the project, particularly those near ER4, about the construction schedule, expected noise levels, and

contact information for a designated liaison. Provide notifications through mail, signage, and regular updates.

- **Noise Monitoring**: Conduct noise monitoring during construction activities near ER4 to ensure compliance with local thresholds. Measure noise levels at representative sensitive receptors and implement additional measures immediately if exceedances are identified.
- **Staggered High-Noise Activities**: Phase construction activities to avoid simultaneous operation of multiple high-noise-generating equipment near ER4. Include a staggered schedule in the Construction Noise Control Plan.

Implementation of these measures will ensure that construction noise impacts near ER4 are minimized and brought within acceptable levels, in compliance with Madera County's thresholds and applicable standards. With these measures in place, construction noise impacts are expected to remain less than significant.

Table 3.8-5: Noise Impact Assessment for Construction Activities

Construction Activity and Equipment	Noise Level at 50 feet (L_{eq}, dBA)	Threshold (dBA)		Approximate Noise Impact Distance (feet)		Project Construction Noise (dBA), at Noise-Sensitive Use Near the Project							
						ER1		ER2		ER3		ER4	
		Local	FTA	Based on Local Threshold (CEQA)	Based on FTA Threshold	Distance (feet)	Noise Level, dBA	Distance (feet)	Noise Level, dBA	Distance (feet)	Noise Level, dBA	Distance (feet)	Noise Level, dBA
Cotton Bridge Work	**94**	Daytime construction - Exempt Nighttime construction - Exempt.	Residential: Daytime - 90 Nighttime - 80 Commercial: Daytime - 100 Nighttime - 100	Not applicable	Residential: Daytime - 74 Nighttime - 187 Commercial: 30	3600	57	4000	56	5280	54	880	69
Concrete Batch Plant	75												
Concrete Pump Truck	74												
Crane	73												
Compressor (air)	74												
Flat Bed Truck	70												
Generator	78												
Vibratory Pile Driver(and impact hammer daytime only)	94												
Site Work	**85**			Not applicable	Residential: Daytime - 31 Nighttime - 77 Commercial: 12		48		47		45		60
Grader	81												
Excavator	77												
Compactor	76												
Auger/Bore Drill Rig	77												
Backhoe	74												
Platform Work	**89**			Not applicable	Residential: Daytime - 45 Nighttime - 113 Commercial: 18		52		51		49		64
Dozer	88												
Grader	85												
Tamper	85												
Aligner	84												
Swinger	83												
Welders	85												
Crane	85												
Wheel Loader	74												
Paver	84												
Concrete Pump	75												
Ballast Regulator	75												
Rail grinder	83												

Notes: CEQA = California Environmental Quality Act; dBA = A-weighted decibels; FTA = Federal Transit Administration; L_{eq} = equivalent sound level; ER = Existing Receiver.
Source: (AECOM, 2024)

Project Operations

The proposed HSR system is grade-separated, eliminating the need for crossing signals or transit warning systems. Permanent noise sources during operations would include HSR train operations and station platform waning horns and announcements. The operation of the high-speed trains along this corridor was evaluated under a previous environmental study (*Merced to Fresno Final Environmental Impact Report/Statement, 2012*) and no additional trains would be added as part of this Project; however, some of the previously analyzed trains would now stop at the Madera HSR Station. For this analysis it was assumed that trains slowing down, briefly stopping at the station, and accelerating back up to revenue speed would create less noise than trains passing through at high speed without stopping (which generate a significant amount of aerodynamic noise at higher speeds).

The Project noise impact evaluation was performed in accordance with FTA general assessment methodology for station noise evaluation and FRA methodology for assessing high-speed rail operations. The assessment of railroad operation noise considered noise from the type of train, track, and stationary noise sources at intersection locations. Operational noise source that was calculated included high-speed rail transit vehicles, and transit-warning devices, which are summarized in Appendix A (Noise and Vibration Technical Study) for the Project (AECOM, 2024). The existing noise level and the Project-calculated noise level were combined to compute the noise exposure at the receiving locations as shown in **Table 3.8-5** the Project would have a minimal increase in noise levels over the existing conditions during operation of the proposed stations. Based on FRA standards, the initial screening distance for the Project is approximately 1,200 feet, while under FTA guidelines, the initial screening distance is approximately 1,600 feet. The initial screening distance is a guideline distance provided by the Federal agencies (FRA and FTA) for the specific project under consideration. It serves as a starting point to determine whether further detailed noise analysis is necessary. If noise-sensitive receivers (such as residences) are located beyond this initial screening distance from the Project's noise sources (high-speed rail train operations), it generally indicates that significant noise impacts are unlikely according to the agency's criteria.

After applying the nighttime penalty and adjusting for increased rail traffic of 58 high-speed rail trains per day and 6 trains per night (one-way operations), 116 trains per day and 12 high-speed rail trains per night (round trip), the screening distances increase significantly.

Per FTA Table 4-7, and after adjustment using Table 4-8, the screening distance increases to approximately 3,900 feet, reflecting the higher cumulative noise effects due to increased high-speed rail train frequency. Additionally, per FRA Table 4-1, and after adjustment using Table 4-2, the screening distance increases to approximately 4,750 feet. There are existing noise-sensitive receptors located within this 3,900-feet and 4,750-feet distance from the Project; and a single residence is located approximately 880 feet to the east of the northern portion of the Project site. However, the Project would have a minimal increase in noise levels over the existing conditions during operation of the proposed stations, therefore, impacts would be less than significant.

As shown in **Table 3.8-6** under the CEQA columns, minimal noise impacts would occur due to the proposed stations, under existing and future conditions. The Project would not generate substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of

standards established in the local general plan or noise ordinance or applicable standards of other agencies. Therefore, the during operation the Project would have a less than significant impact.

Table 3.8-6: Project Operational Station Noise Levels, dBA

Noise Sensitive Site	Land Use	Noise Level (L_{dn}/L_{eq}[1]dBA)		FTA Noise Level Criteria (dBA)			CEQA (dBA)		
		Existing	Project	Moderate Impact[2]	Severe Impact[2]	Impact[2]	Existing + Project	Increase over Existing	Significant Impact?
ER1	Institutional at 3600 feet	50.0	39.8	58.4	64.6	None	50.4	0.4	Less than significant
ER2	Residential at 4000 feet	50.0	38.2	53.4	59.6	None	50.3	0.3	Less than significant
ER3	Residential at 1 mile	50.0	36.4	53.4	59.6	None	50.2	0.2	Less than significant
ER4	Residential at 880 feet	50.0	40.8	58.4	64.6	None	50.5	0.5	Less than significant

Notes: CEQA = California Environmental Quality Act; dBA = A-weighted decibels; FTA = Federal Transit Administration; Leq = equivalent sound level; ER = Existing Receiver; FR

[1] Ldn is used for Category 2 (residential) land use and Leq is used for Category 3 (institutional) land use.

[2] Based on **Figure 3.8-3**.

Source: (AECOM, 2024)