Appendix H:
Noise Supporting Information

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Noise Impact Analysis Report
Shirk and Riggin Industrial Park Project
City of Visalia, Tulare County, California

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ACRONYMS AND ABBREVIATIONS

ALUCP	Airport Land Use Compatibility Plan
ANSI	American National Standards Institute
APN	Assessor's Parcel Number
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dB	decibel
dBA	A-weighted decibel
DNL	day-night average sound level
EPA	United States Environmental Protection Agency
FAA	Federal Aviation Administration
FCS	FirstCarbon Solutions
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
in/sec	inch per second
L_{dn}	day-night average sound level
L_{eq}	equivalent continuous sound level
L_{max}	maximum noise/sound level
L_{min}	minimum noise/sound level
MM	Mitigation Measure
NIH	National Institute of Health
ONAC	Office of Noise Abatement and Control
OSHA	Occupational Safety and Health Administration
PPV	peak particle velocity
rms	root mean square
RV	recreational vehicle
SEL	Single Event Level
SOI	Sphere of Influence
TNM 2.5	FHWA Traffic Noise Model, Version 2.5
UBC	Uniform Building Code
UDB	Urban Development Boundary
UGB	Urban Growth Boundary
USDOT	United States Department of Transportation
VdB	vibration in decibels
WHO	World Health Organization

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SECTION 1: INTRODUCTION

1.1 - Purpose of Analysis and Study Objectives

FirstCarbon Solutions (FCS) prepared this Noise Impact Analysis Report to determine the off-site and on-site noise impacts associated with the proposed Shirk and Riggin Industrial Park Project (proposed project) as required under the California Environmental Quality Act (CEQA). The following is provided in this report:

- A description of the study area, project site, and proposed project;
- Information regarding the fundamentals of noise and vibration;
- A description of the applicable State and local noise guidelines and standards;
- A description of the existing noise environment;
- An analysis of the potential short-term, construction-related noise and vibration impacts from the proposed project; and
- An analysis of long-term, operations-related noise and vibration impacts from the proposed project.

1.2 - Project Summary

1.2.1 - Site Location

The approximately 284-acre project site is currently located within the jurisdictional boundaries of the County of Tulare and is adjacent to the northern municipal boundary of the City of Visalia ("City"). The project site is located west of Shirk Street, north of Riggin Avenue, and east of North Kelsey Street and corresponds to Assessor's Parcel Numbers (APNs) 077-840-001, 077-840-002, and 077-840-003. The project site is within the City's Planning Area,[1] Urban Development Boundary (UDB) Tier 1 of the City of Visalia, and Sphere of Influence (SOI) of the City of Visalia. The project site has historically been and continues to be used for agricultural purposes.[2] As part of the proposed project, the project site would be annexed into the City. The project site has been designated by the City's General Plan for Industrial and Light Industrial uses. (Exhibit 1); the proposed project would involve a prezoning approval from the City that would prezone the project site to Industrial and Light Industrial.

1.2.2 - Project Description

Seefried Industrial Properties, Inc. (applicant) proposes to convert existing agricultural lands and develop the approximately 284-acre project site into a mixed use industrial park, consisting of eight

[1] "Planning Area" refers to the land area addressed by a General Plan, including land within the city limits and land outside the city limits that bears a relation to the City's planning. For purposes of the City's Planning Area, not all portions are intended for urban development; rather, the Urban Development Boundary shows the future urban development area pursuant to the City's land use vision reflected in its General Plan.

[2] The project site currently consists of an actively managed almond orchard, established around 2018.

light industrial buildings used for warehouse, distribution, storage, and light manufacturing; six flex industrial buildings offering small incubator space for small manufacturing, storage, and limited warehouse space; two drive-through, fast food/quick-serve restaurants; a gas station; a convenience store; a recreational vehicle (RV) and self storage facility; and a car wash. The total building footprint is approximately 3,720,149 square feet. The project site would include sufficient amounts of trailer stalls and car parking stalls to serve the proposed uses in accordance with applicable City requirements. The proposed project would also involve necessary on- and off-site infrastructure and improvements sufficient to serve the proposed uses. These would include detention basins on the east, west, and central portions of the project site, and other necessary stormwater facilities to be sized and installed in accordance with all applicable requirements and standards. Access would be provided via three access points along Shirk Street, three access points along Riggin Avenue, and three access points along Kelsey Street. Clancy Street south of the project site would be extended to replace the existing private road and would traverse south to north of the site. An internal network of drive aisles would connect the overall project. On-site orchards would need to be removed, and appropriate landscaping and lighting would be incorporated into the overall site design consistent with applicable City requirements and guidelines.

The proposed project would be annexed into the City, and upon annexation, would be served by the City for purposes of water, wastewater, and stormwater as well as all other non-utility public services. Non-City provided infrastructure would include natural gas (to be provided by Southern California Gas Company) and electrical services (to be provided by Southern California Edison [SCE]). The other City entitlements associated with the proposed project include a Development Agreement, prezoning (as noted above), approval of a resolution initiating annexation proceedings, a Tentative Parcel Map, a Conditional Use Permit (to allow for some of the uses proposed such as convenience store, drive-through lanes), some of the proposed lot sizes in the light industrial zoning, and lots without public street frontage, and Site Plan approval.

1.2.3 - Phasing and Construction

For the purposes of the environmental analysis and in accordance with the applicant's project development goals, construction of the proposed project is anticipated to begin in March 2024 and completed in March 2028, with operations commencing upon the completion of construction of the proposed project.[3]

As described above, given its size and nature, it is reasonable to assume the proposed project would be constructed in phases over time. However, because various market, economic and other considerations would ultimately determine how construction phasing would occur in connection with individual specific development proposal(s), this analysis utilizes the following assumptions based on reasonably available information for purposes of a conservative analysis. "Phase 1" of project construction is defined herein to consist of approximately 1,864,700 square feet of light industrial space. Construction of Phase 1 is assumed to begin in March 2024 and end in March 2025.

[3] Because vehicle fuel use becomes more efficient through time in compliance with applicable federal and State laws and regulations, these dates support a conservative evaluation of potential impacts. If the actual dates of construction are delayed, associated effects would be reduced accordingly.

"Phase 2" of project construction is defined herein to consist of approximately 830,700 square feet of light industrial space as well as the car wash, the convenience store with gasoline pumps, and both drive-thru, quick serve/fast food restaurants. Construction of Phase 2 is assumed to begin in September 2025 and end in September 2026.

"Phase 3" of project construction is defined herein to consist of the remaining approximately 779,270 square feet of light industrial space as well as approximately 84,480 square feet of flex industrial space and the self storage facility. Construction of Phase 3 is assumed to begin in March 2027 and end in March 2028.

The necessary landscaped areas, parking areas, and the water quality management basins would be included in each of the three phases, in amounts sufficient to serve each relevant phase.

While the above-described preliminary construction schedule for the proposed project assumes that Phases 1 through 3 would be built sequentially (i.e., none of the three phases would overlap), the potential remains for project phases to be constructed concurrently. Therefore, for the purpose of analyzing the reasonable worst-case scenario and fully disclosing all potential impacts, this analysis also evaluates impacts that could occur if there were concurrent (rather than sequential) phasing for the proposed project. Accordingly, impact discussions and mitigation measures related to each construction phase would be applicable to an individual specific development proposal taking place within the development area covered by the relevant phase.

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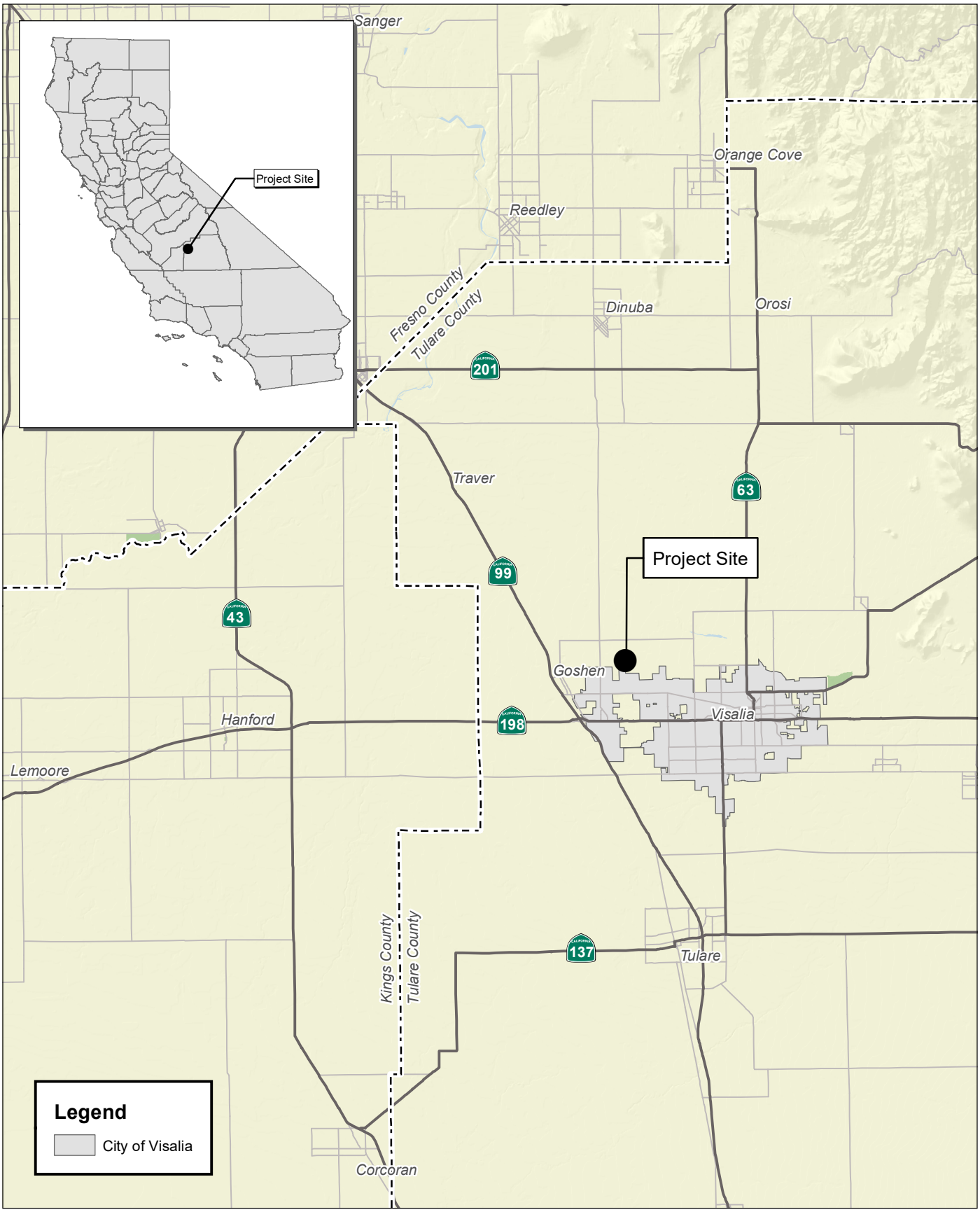

Source: Census 2000 Data, The California Spatial Information Library (CaSIL).

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Exhibit 1
Regional Location Map

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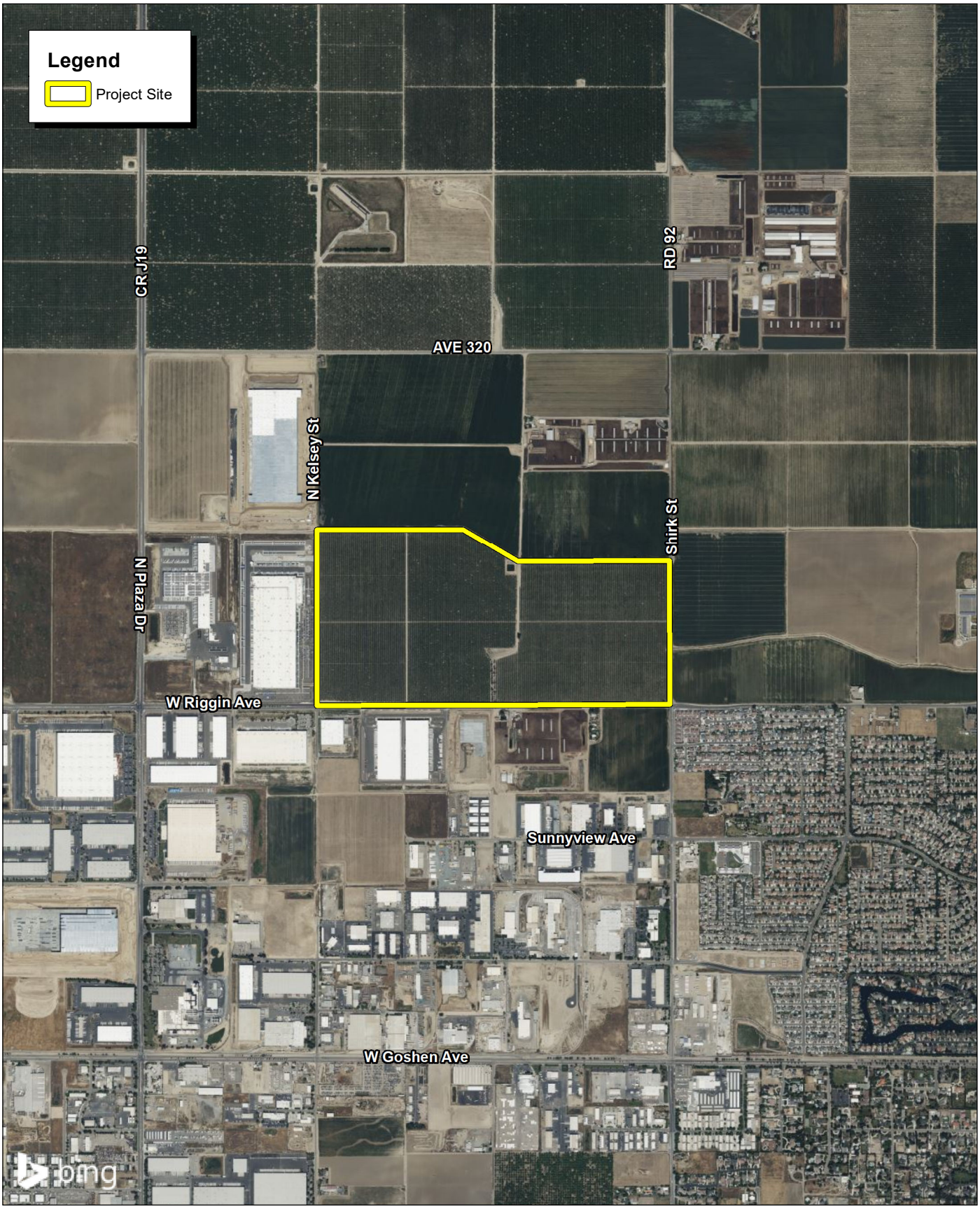

Source: Bing Aerial Imagery.

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2,000 1,000 0 2,000 Feet

Exhibit 2
Local Vicinity Map

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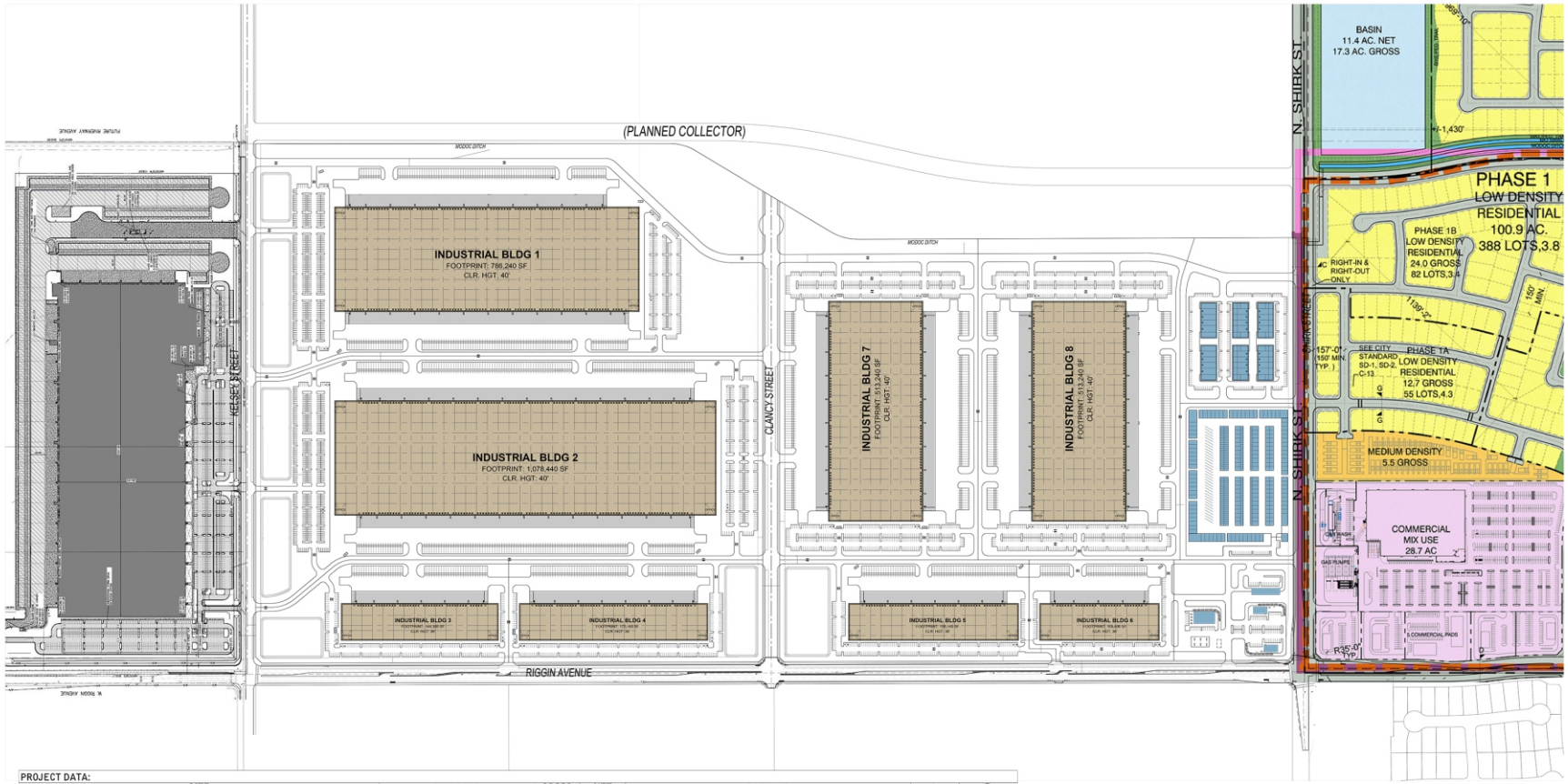
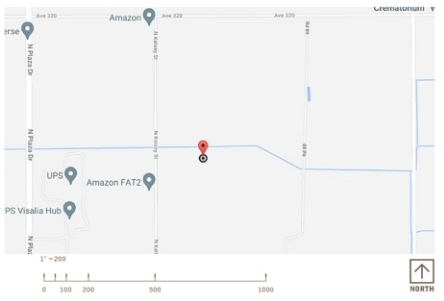


PROJECT DATA:

SITE						BUILDING		GROSS	NET	PARKING				▲	○
SITE	SITE AREA (SF)	SITE AREA (ACRE)	DETENTION (SF)	DETENTION (%)	NET SITE AREA (SF)	BLDG.	BUILDING FOOTPRINT	GROSS COVERAGE	NET COVERAGE	PARKING PROVIDED	PARKING RATIO	REQ. ACC. STALLS	TRAILER PARKING	DOCK-HIGH DOORS	GRADE-LEVEL DOORS
						1	786,240			598	@0.76/1000 SF	*12 STALLS*	193	171	4
						2	1,078,440			687	@0.64/1000 SF	*14 STALLS*	246	214	4
						3	144,300			244	@1.69/1000 SF	*7 STALLS*	47	43	2
						4	173,160			275	@1.59/1000 SF	*7 STALLS*	60	54	2
						5	156,140			244	@1.56/1000 SF	*7 STALLS*	57	47	2
						6	109,890			177	@1.61/1000 SF	*6 STALLS*	37	29	2
						7	513,240			578	@1.13/1000 SF	*12 STALLS*	147	128	4
						8	513,240			528	@1.03/1000 SF	*11 STALLS*	147	128	4
						FLEX IND	84,480			269	@3.18/1000 SF	*7 STALLS*	-	-	-
						SELF STORAGE	144,800			35	@0.24/1000 SF	*2 STALLS*	-	-	-
						CARWASH	4,560			17	@3.73/1000 SF	*1 STALLS*	-	-	-
						DRIVE-THRU 1	2,368			37	@15.62/1000 SF	*2 STALLS*	-	-	-
						DRIVE-THRU 2	2,368			37	@15.62/1000 SF	*2 STALLS*	-	-	-
						C-STORE	6,922			24	@3.47/1000 SF	*1 STALLS*	-	-	-
TOTAL	12,194,988	280	1,363,370	11.2%	10,831,618		3,720,149	30.5%	34.3%	3,750	@1.01/1000 SF	*102 STALLS*	934	814	24
1	12,194,988	279.96	1,363,370	11.2%	10,831,618			30.5%	34.3%						



Source: Seefried Industrial Properties; Ware Malcomb, 09/15/2022.

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Exhibit 3
Site Plan

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SECTION 2: NOISE AND VIBRATION FUNDAMENTALS

2.1 - Characteristics of Noise

Sound can be described in terms of its loudness (amplitude) and frequency (pitch). Although the terms "sound" and "noise" are often used synonymously, noise is commonly defined as sound that is either loud, unpleasant, unexpected, or undesired.[3] Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

Several noise measurement scales exist, which are used to describe noise in a particular location. A *decibel* (dB) is a unit of measurement that indicates the relative intensity of a sound. The 0 point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of less than 3.0 dB are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of 3.0 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. Each 10-dB increase in sound level is perceived as approximately a doubling of loudness. Because the human ear is not equally sensitive to sound at all frequencies, the A-weighted scale (dBA) is used to reflect the normal hearing sensitivity range of the human ear. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. See Table 1 for examples of A-weighted noise levels from common sources. Because decibels are logarithmic units, they cannot be simply added or subtracted. For example, two cars each producing 60 dBA of noise would not produce a combined 120 dBA.

Table 1: A-Weighted Decibel Scale

Common Noise Sources	Sound Level, dBA
Near Jet Engine	130
Rock and Roll Band	110
Jet Flyover at 1,000 feet	100
Power Motor	90
Food Blender	80
Living Room Music	70
Human Voice at 3 feet	60
Residential Air Conditioner at 50 feet	50
Bird Calls	40
Quiet Living Room	30
Average Whisper	20
Rustling Leaves	10

Common Noise Sources	Sound Level, dBA
Notes: dBA = A-weighted decibel These noise levels are approximations intended for general reference and information use. They do not meet the standard required for detailed noise analysis but are provided for the reader to gain a rudimentary concept of various noise levels. Source: Cowan, James P. 1993. Handbook of Environmental Acoustics.	

2.1.1 - Noise Descriptors

Table 2 briefly defines common noise measurement descriptors and other sound terminology used in this analysis.

Table 2: Sound Terminology

Term	Definition
Sound	A vibratory disturbance created by a vibrating object which, when transmitted by pressure waves through a medium such as air, can be detected by a receiving mechanism such as the human ear or a microphone.
Noise	Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
Ambient Noise	The composite of noise from all sources near and far in a given environment.
Decibel (dB)	A unitless measure of sound on a logarithmic scale, which represents the squared ratio of sound pressure amplitude to a reference sound pressure. The reference pressure is 20 micropascals, representing the threshold of human hearing (0 dB).
A-Weighted Decibel (dBA)	An overall frequency-weighted sound level that approximates the frequency response of the human ear.
Equivalent Noise Level (L_{eq})	The average sound energy occurring over a specified time period. In effect, L_{eq} is the steady-state sound level that in a stated period would contain the same acoustical energy as the time-varying sound that actually occurs during the same period.
Maximum and Minimum Noise Levels (L_{max} and L_{min})	The maximum or minimum instantaneous sound level measured during a measurement period.
Day-Night Level (DNL or L_{dn})	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring between 10:00 p.m. and 7:00 a.m. (nighttime).

Term	Definition
Community Noise Equivalent Level (CNEL)	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the A-weighted sound levels occurring between 7:00 p.m. and 10:00 p.m. and 10 dB added to the A-weighted sound levels occurring between 10:00 p.m. and 7:00 a.m.
Statistical Descriptor (L_X)	L_X is used to represent the noise level exceeded X percent of a specified time period. For example, L_{90} represents the noise level that is exceeded 90 percent of a specified time period. L_{90} is commonly used to represent ambient or background steady-state noise levels.
Source: Data compiled by FirstCarbon Solutions (FCS) 2022.	

2.1.2 - Effects of Environmental Noise

The degree to which noise can impact an environment ranges from levels that interfere with speech and sleep to levels that can cause adverse health effects. Most human response to noise is subjective. Factors that influence individual responses may include the intensity, frequency, and pattern of noise; the amount of background or existing noise present; and the nature of work or human activity that is exposed to intruding noise.

According to the National Institute of Health (NIH), extended or repeated exposure to sounds at or above 85 dB can cause hearing loss. Sounds of 75 dBA or less, even after continuous and repeated exposure, are unlikely to cause hearing loss.[4] The World Health Organization (WHO) reports that adults should not be exposed to sudden "impulse" noise events of 140 dB or greater. For children, this limit is 120 dB.[5]

Exposure to elevated nighttime noise levels can disrupt sleep, leading to increased levels of fatigue and decreased work or school performance. For the preservation of healthy sleeping environments, the WHO recommends that continuous interior noise levels should not exceed 30 dBA L_{eq} and that individual noise events of 45 dBA or higher be limited.[6]

Some epidemiological studies have shown a weak association between long-term exposure to noise levels of 65 to 70 dBA L_{eq} or greater and cardiovascular effects, including ischemic heart disease and hypertension. However, at this time, the relationship is largely inconclusive.

It is generally accepted that people with normal hearing sensitivity can barely perceive a 3 dBA change in noise levels, though if changes occur to the character of a sound (i.e., changes to the frequency content), then changes less than 3 dBA may be more noticeable.[7] Changes of 5 dBA may

[4] National Institute of Health (NIH), National Institute on Deafness and Other Communication. Website: www.nidcd.nih.gov/health/noise-induced-hearing-loss. Accessed January 3, 2023.
[5] World Health Organization (WHO). 1999. Guidelines for Community Noise.
[6] Ibid.
[7] California Department of Transportation (Caltrans). 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol.

be readily perceptible, and as noted above, changes of 10 dBA are perceived as a doubling in loudness.[8] However, few people are highly annoyed by daytime noise levels below 55 dBA.[9]

Loud noises, such as those from construction activities, can interfere with peoples' abilities to effectively communicate via speech, as well as other activities, resulting in annoyance or inconvenience. The EPA has found that a home interior noise level of 45 dBA L_{eq} generally protects speech and communication by providing 100 percent intelligibility of speech sounds.[10] Other common daily activities that may be disrupted by elevated interior noise levels include watching television, listening to music, or activities requiring concentration (such as reading). The EPA has determined that, given the preservation of an indoor noise level associated with 100 percent speech intelligibility (i.e., 45 dBA L_{eq}), the average community reaction is not evident at 45 DBA L_{eq} and this noise level is "7 dBA below levels associated with significant complaints and threats of legal action." Any complaints and annoyance are dependent on "attitude and other non-level related factors."

2.1.3 - Noise Attenuation

Generally speaking, noise levels decrease, or "attenuate," as distances from noise sources to receivers increases. For each doubling of distance, noise from stationary or small, localized sources, commonly referred to as "point sources," may attenuate at a rate of 6 dBA for each doubling of distance. This attenuation is referred to as the inverse square law. For example, if a point source emits a noise level of 80 dBA at a reference distance of 50 feet, its noise level would be approximately 74 dBA at a distance of 100 feet, 68 dBA at a distance of 200 feet, etc. Noise emitted by "line" sources, such as highways, attenuates at the rate of 3 dBA for each doubling of distance.[11]

Factors such as ground absorption and atmospheric effects may also affect the propagation of noise. In particular, ground attenuation by non-reflective surfaces such as soft dirt or grass may contribute to increased attenuation rates of up to an additional 8 to 10 dBA per doubling of distance.[12]

Noise is most audible when traveling by direct line of sight, an unobstructed visual path between a noise source and a receiver. Barriers that break the line of sight between noise sources and receivers, such as walls and buildings, can greatly reduce source noise levels by allowing noise to reach receivers by diffraction only. Barriers can reduce source noise levels by up to 20 dBA, though it is generally infeasible for temporary barriers to reduce source noise levels by more than 15 dBA.[13] In cases where the noise path from source to receiver is direct but grazes the top of a barrier, noise attenuation of up to 5 dBA may still occur.[14]

[8] California Department of Transportation (Caltrans). 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol.
[9] World Health Organization (WHO). 1999. Guidelines for Community Noise.
[10] United States Environmental Protection Agency (EPA). 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.
[11] California Department of Transportation (Caltrans). 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol.
[12] Ibid.
[13] Ibid.
[14] Ibid.

2.2 - Characteristics of Groundborne Vibration and Noise

Vibration is an oscillatory motion that can be described in terms of displacement, velocity, and acceleration.[15] Unlike noise, vibration is not a common environmental issue, as it is unusual for vibration from vehicle sources to be perceptible. Common sources of vibration may include trains, construction activities, and certain industrial operations.

2.2.1 - Vibration Descriptors

Table 3 briefly defines common vibration measurement descriptors and other terminology used in this analysis.

Table 3: Vibration Terminology

Term	Definition
Peak particle velocity (PPV)	PPV is commonly used to describe and quantify vibration impacts to buildings and other structures. PPV levels represent the maximum instantaneous peak of a vibration signal and are generally measured in inches per second (in/sec).
Vibration decibels (VdB)	The vibration velocity level in decibel scale.
Source: Data compiled by FirstCarbon Solutions (FCS) 2022.	

2.2.2 - Effects of Vibration

High levels of vibration may cause damage to buildings or even physical personal injury. However, vibration levels rarely affect human health outside the personal operation of certain construction equipment or industrial tools. Instead, most people consider environmental vibration to be an annoyance that may affect concentration or disturb sleep. Background vibration in residential areas is usually not perceptible, and perceptible indoor vibrations are generally caused by sources within buildings themselves, such as slamming doors or heavy footsteps. Vibration from traffic on smooth roadways is rarely perceptible, even from larger vehicles such as buses or trucks.[16] The threshold of human perception of vibration is approximately 0.01-0.02 in/sec PPV.[17]

[15] Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment.
[16] California Department of Transportation (Caltrans). 2020. Transportation and Construction Vibration Guidance Manual.
[17] Ibid.

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SECTION 3: REGULATORY SETTING

3.1 - Federal Laws and Regulations

3.1.1 - Federal Transit Administration Standards and Guidelines

The Federal Transit Administration (FTA) has established industry accepted standards for vibration impact criteria and impact assessment. These guidelines are published in its Transit Noise and Vibration Impact Assessment document. The FTA guidelines include thresholds for construction vibration impacts for various structural categories as shown in Table 4.[18]

Table 4: Federal Transit Administration Construction Vibration Impact Criteria

Building Category	PPV (in/sec)	Approximate VdB
I. Reinforced—Concrete, Steel or Timber (no plaster)	0.5	102
II. Engineered Concrete and Masonry (no plaster)	0.3	98
III. Non-engineered Timber and Masonry Buildings	0.2	94
IV. Buildings Extremely Susceptible to Vibration Damage	0.12	90

Notes:
PPV = peak particle velocity
VdB = vibration measured as rms velocity in decibels of 1 microinch per second
Source: Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. September.

The FTA has also established construction noise criteria for residential land uses. They are 80 dB L_{eq} during daytime hours and 70 dBA L_{eq} during nighttime hours. Over 30-day periods of construction, the criteria is a 75 dBA L_{dn} average.

3.1.2 - Occupational Safety and Health Administration, Occupational Noise Exposure

Occupational Safety and Health Administration (OHSA), *Occupational Noise Exposure; Hearing Conservation* Amendment (Federal Register 48 [46], 9738–9785, 1983) stipulates that protection against the effects of noise exposure shall be provided for employees when sound levels exceed 90 dBA over an 8-hour exposure period. Protection shall consist of feasible administrative or engineering controls. If such controls fail to reduce sound levels to within acceptable levels, personal protective equipment shall be provided and used to reduce exposure of the employee. Additionally, a Hearing Conservation Program must be instituted by the employers whenever employee noise exposure equals or exceeds the action level of an 8-hour time-weighted average sound level of 85 dBA L_{eq}. The Hearing Conservation Program requirements consist of periodic area and personal noise monitoring, performance and evaluation of audiograms, provision of hearing protection, annual employee training, and record keeping.

[18] Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual.

3.1.3 - Noise Control Act

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting State and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees.

Among the agencies now regulating noise are the Occupational Safety and Health Administration (OSHA), which limits noise exposure of workers to 90 dB L_{eq} or less for 8 continuous hours or 105 dB L_{eq} or less for 1 continuous hour; the United States Department of Transportation (USDOT), which assumed a significant role in noise control through its various operating agencies; and the Federal Aviation Administration (FAA), which regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the FTA. Transit noise is regulated by the federal Urban Mass Transit Administration, while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise-sensitive" uses are either prohibited from being sited adjacent to a highway, or alternatively, that developments are planned and constructed in such a manner that minimize potential noise impacts.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by transportation sources, local jurisdictions are limited to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

3.2 - State Laws and Regulations

3.2.1 - 2017 General Plan Guidelines

The State of California's 2017 General Plan Guidelines propose county and city standards for acceptable exterior noise levels based on land use. These standards are incorporated into land use planning processes to prevent or reduce noise and land use incompatibilities. The State's suggested compatibility considerations between various land uses and exterior noise levels are not regulatory in nature, but are recommendations intended to aid communities in determining their own noise-acceptability standards.

3.3 - Local Laws and Regulations

The project site is located within the City of Visalia's SOI, in Tulare County, California. The City is the relevant land use agency since the project site would be annexed into the City of Visalia prior to commencement of any construction activities, and therefore the City's noise standards would apply.

The City of Visalia addresses noise in its adopted General Plan and its Municipal Code.[19]

It should be noted that the General Plan points to the Tulare County Comprehensive Airport Land Use Plan for noise/land use guidance concerning the Visalia Municipal Airport.

3.3.1 - Visalia General Plan

The City of Visalia establishes land use compatibility standards and noise policies in the Safety and Noise Chapter of the City's General Plan.[20] Objectives and policies most relevant to this analysis consist of the following:

Objective N-O-1 Strive to achieve an acceptable noise environment for present and future residents of Visalia.

Objective N-O-2 Protect the City's economic base by preventing the encroachment of incompatible land uses near known noise-producing industries, railroads, airports and other sources.

Objective N-O-3 Protect noise-sensitive land uses such as schools, hospitals, and senior care facilities from encroachment of and exposure to excessive levels of noise.

Policy N-P-2 Promote the use of noise attenuation measures to improve the acoustic environment inside residences where existing single-family residential development is located in a noise-impacted environment such as along an arterial street or adjacent to a noise-producing use.

Policy N-P-3 Establish performance standards for noise reduction for new housing that may be exposed to community noise levels above 65 dB DNL/CNEL, as shown on the Noise Contour Maps, based on the target acceptable noise levels for outdoor activity levels and interior spaces in Tables 8-2 and 8-3. Noise mitigation measures that may be considered to achieve these noise level targets include but are not limited to the following:

- Construct façades with substantial weight and insulation;
- Use sound-rated windows with enhanced noise reduction for primary sleeping and activity areas;
- Use sound-rated doors for all exterior entries at primary sleeping and activity areas;
- Use minimum setbacks and exterior barriers;
- Use acoustic baffling of vents for chimneys, attic and gable ends;
- Install a mechanical ventilation system that provides fresh air under closed window conditions.

[19] City of Visalia, 2021. City of Visalia, California, Municipal Code.
[20] City of Visalia, 2014. Visalia General Plan Update. October 14.

Alternative acoustical designs that achieve the prescribed noise level standards may be approved, provided that a qualified Acoustical Consultant submits information demonstrating that the alternative designs will achieve and maintain the specific targets for outdoor activity areas and interior spaces.

Policy N-P-4 Where new development of industrial, commercial or other noise-generating land uses (including roadways, railroads, and airports) may result in noise levels that exceed the noise level exposure criteria established by Tables 8-2 and 8-3, require a noise study to determine impacts, and require developers to mitigate these impacts in conformance with Tables 8-2 and 8-3 as a condition of permit approval through appropriate means.

Noise mitigation measures may include but are not limited to:

- Screen and control noise sources, such as parking and loading facilities, outdoor activities, and mechanical equipment;
- Increase setbacks for noise sources from adjacent dwellings;
- Retain fences, walls, and landscaping that serve as noise buffers;
- Use soundproofing materials and double glazed windows;
- Use open space, building orientation and design, landscaping and running water to mask sounds; and
- Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.

Alternative acoustical designs that achieve the prescribed noise level reduction may be approved, provided a qualified Acoustical Consultant submits information demonstrating that the alternative designs will achieve and maintain the specific targets for outdoor activity areas and interior spaces. As a last resort, developers may propose to construct noise walls along State highways and arterials when compatible with aesthetic concerns and neighborhood character. This would be a developer responsibility, with no City funding.

Policy N-P-5 Continue to enforce applicable State Noise Insulation Standards (California Administrative Code, Title 24) and Uniform Building Code (UBC) noise requirements.

Policy N-P-7 Use the land use compatibility zone guidelines contained in the Airport Master Plan or more current information on airport noise to assess noise compatibility of airport operation with proposed land uses.

The City's noise land use compatibility standards are established by Table 8-3 and Table 8-4 of the City's adopted General Plan (shown in Figures 1 and 2, respectively, below). Table 8-3 and Table 8-4 do not contain quantitative standards for light industrial land uses (as receivers) such as the proposed project (since light industrial land uses are not considered to be noise-sensitive). The City General Plan's guidance surrounding the siting of industrial uses primarily concerns minimizing the noise impacts of new and existing industrial uses on noise-sensitive uses (e.g., residences, schools, churches, hospitals, etc.), not the effect of noise impacts to industrial uses (i.e., as a receiving use).

However, it is worth noting that State's 2017 General Plan Guidelines suggest that noise environments up to 75 dBA CNEL are "normally acceptable" for industrial uses.[21]

Table 8-3: Transportation Noise Sources

Noise-Sensitive Land Use	*Outdoor Activity Areas*[1]		*Interior Spaces*
	DNL/CNEL[2]*, dB*	*DNL/CNEL*[2]*, dB*	*L_{eq} dB*[3]
Residential	65	45	--
Transient Lodging	65	45	--
Hospitals, Nursing Homes	65	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	65	--	45
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45

Notes:

(1) Outdoor activity areas generally include backyards of single-family residences and outdoor patios, decks or common recreation areas of multi-family developments.

(2) The CNEL is used for quantification of aircraft noise exposure as required by CAC Title 21.

(3) As determined for a typical worst-case hour during periods of use.

Figure 1: Visalia General Plan–Transportation Noise Sources

Table 8-4: Stationary Noise Sources[1]

	Daytime (7:00 a.m. – 10:00 p.m.)	*Nighttime (10:00 p.m. – 7:00 a.m.)*
Hourly Equivalent Sound Level (L_{eq}), dBA	50	45
Maximum Sound Level (L_{max}), dBA	70	65

(1) As determined at the property line of the receiving noise-sensitive use.

Figure 2: Visalia General Plan–Stationary Noise Sources

3.3.2 - Visalia Municipal Code

Chapter 8.36 of the Visalia Municipal Code contains a number of regulations that would apply to noise generated by the proposed project's temporary construction activities and long-term operations. Regulations that are relevant to the analysis of the proposed project's potential construction and operational noise impacts are addressed below:

Section 8.36.040: Exterior Noise Standards–Fixed Noise Sources

A. It is unlawful for any person at any location within the City to create any noise, or to allow the creation of any noise, on property owned, leased, occupied or otherwise controlled by such person which causes the exterior noise level, when measured at the property line of any affected noise-sensitive land use, to exceed any of the categorical noise level standards as set forth in the following table [table shown in Figure 3]:

[21] California Office of Planning and Research. 2017. State of California General Plan Guidelines. Figure 2 Appendix D.

NOISE LEVEL STANDARDS, dBA

Category	Cumulative Number of minutes in any one-hour time period	Evening and Daytime 6 a.m. to 7 p.m.	Nighttime 7 p.m. to 6 a.m.
1	30	50	45
2	15	55	50
3	5	60	55
4	1	65	60
5	0	70	65

Figure 3: Section 8.36.040 Exterior Noise Standards for Fixed Noise Sources

B. In the event the measured ambient noise level without the alleged offensive source in operation exceeds an applicable noise level standard in any category above, the applicable standard or standards shall be adjusted so as to equal the ambient noise level.

C. Each of the noise level standards specified above shall be reduced by five dB for pure tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

D. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level without the source can be measured, the noise level measured while the source is in operation shall be compared directly to the noise level standards.

The Visalia Municipal Code defines a "Fixed noise source" as "a device, machine or combination thereof which creates sound which is affixed or installed on real property, including but not limited to residential, agricultural, industrial and commercial machinery and equipment, pumps, fans, compressors, air conditioners and refrigeration equipment." Based on this definition, the proposed project's construction vehicles would not be considered "fixed noise sources." Thus, Section 8.36.040 standards would not apply to the proposed project's construction vehicle activities.

Section 8.36.050: Exterior Noise Standards–Mobile Noise Sources Prohibition Against Use

According to Municipal Code Section 8.36.050, it is unlawful to operate any of the below-listed devices, appliances, equipment or vehicles on public or private property abutting noise-sensitive land uses between the weekday hours of 7:00 p.m. and 6:00 a.m., or between the weekend hours of 7:00 p.m. and 9:00 a.m.

A. Power-assisted leaf blowers, lawn mowers, edgers or other power equipment used for the maintenance of property;

B. Vehicle equipment, which equipment is not expressly regulated by State or federal statute, such as car radios or sound amplification equipment which is audible more than twenty-five (25) feet from the exterior of the vehicle;

C. Construction equipment including jackhammers, portable generators, pneumatic equipment, trenchers, or other such equipment, except for emergency repair purposes as provided in Section 8.36.070.

8.36.060: Residential Interior Noise Standards

Municipal Code Section 8.36.060 sets out noise standards based on noise levels experienced within a dwelling unit. Relevant portions of that section are set out below.

A. It is unlawful for any person, at any location within the City, to operate or cause to be operated, any source of sound or to allow the creation of any noise which causes the noise level when measured inside a dwelling unit to exceed any of the categorized noise level standards as set forth in the following table [table shown in Figure 4]:

NOISE LEVEL STANDARDS, dBA			
Category	Cumulative Number of minutes in any one-hour time period	Evening and Daytime 6 a.m. to 7 p.m.	Nighttime 7 p.m. to 6 a.m.
1	5	45	35
2	1	50	40
3	0	55	45

Figure 4: Section 8.36.060 Residential Interior Noise Standards

B. In the event the measured ambient noise level without the alleged offensive source in operation exceeds an applicable noise level standard in any category above, the applicable standard or standards shall be adjusted so as to equal the ambient noise level.

C. Each of the noise level standards specified above shall be reduced by five dB for pure tone noises, noises consisting primarily of speech or music, or four recurring impulsive noises.

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SECTION 4: EXISTING NOISE CONDITIONS

4.1 - Project Location

The project site is located in an area developed with industrial warehouse buildings to the west and to the south, residential homes to the southeast, and agricultural land to the east and north. The dominant noise source currently impacting the project site and surrounding area is traffic on adjacent roadways.

4.2 - Traffic Noise

In addition to reviewing available information about ambient noise levels set out in the City's General Plan, existing peak-hour traffic noise levels were also modeled using the FHWA Traffic Noise Model, Version 2.5 (TNM 2.5). Hourly noise levels were estimated for select roadway segments based on roadway-specific parameters and existing (year 2022) traffic volumes obtained from the traffic analysis prepared for the proposed project by Kimley-Horn.[22] The results are shown below in Table 5and they are generally consistent with the noise levels set out in the City's General Plan. Modeling outputs are provided in Appendix B.

Table 5: Existing Traffic Noise Levels

Roadway Segment	Peak-hour	2022 Existing Noise Level (dBA L_{eq})
Riggin Avenue, West of Shirk Street	AM	64.0
	PM	63.7
Riggin Avenue, East of Shirk Street	AM	63.6
	PM	63.3
Shirk Street, South of Riggin Avenue	AM	62.9
	PM	62.7
Shirk Street, North of Riggin Avenue	AM	58.5
	PM	57.7
Riggin Avenue, West of Akers Street	AM	66.1
	PM	65.1
Riggin Avenue, East of Akers Street	AM	66.3
	PM	67.6
Akers Street, North of Riggin Avenue	AM	63.3
	PM	67.2
Akers Street, South of Riggin Avenue	AM	66.5
	PM	65.2

[22] Kimley-Horn. 2023. Transportation Impact Analysis Shirk & Riggin Industrial Park. October.

Roadway Segment	Peak-hour	2022 Existing Noise Level (dBA L_{eq})

Notes:
[1] Modeling results do not take into account mitigating features such as topography, vegetative screening, fencing, building design, or structure screening. Rather, it assumes a worst-case of having a direct line of sight on flat terrain.
Source: FirstCarbon Solutions (FCS) 2023.

SECTION 5: THRESHOLDS OF SIGNIFICANCE AND IMPACT ANALYSIS

5.1 - Thresholds of Significance

According to CEQA Guidelines updated Appendix G (2019), to determine whether impacts related to noise and vibration are significant environmental effects, the following questions are analyzed and evaluated.

Would the proposed project:

a) Generate 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?

b) Generate excessive groundborne vibration or groundborne noise levels?

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

5.2 - Substantial Noise Increase in Excess of Standards

5.2.1 - Construction Noise Impacts

Construction Equipment Noise

Noise would be generated by construction of the proposed project, which is estimated to occur over an approximately four-year period. The proposed project is anticipated to utilize a standard five-day work week, and construction would occur during standard daytime hours, which are generally between 7:00 a.m. and 5:00 p.m. Construction would not occur during prohibited hours, as set forth by Section 8.36.050(C) of the Visalia Municipal Code. The prohibited hours are between 7:00 p.m. and 6:00 a.m. on weekdays and between 7:00 p.m. and 9:00 p.m. on weekends. As such, construction activities would not have the potential to result in exceedances of the FTA's nighttime construction noise criteria—there would be no nighttime construction.

Noise from grading activities is typically the foremost concern when evaluating a project's construction noise impact, as grading activities often require extensive use of heavy-duty, diesel-powered earthmoving equipment. For the proposed project, grading would have the greatest–and noisiest–construction vehicle requirements, as a fleet of grading vehicles would be required to grade the approximately 284-acre site over the course of construction. Other construction phases would have reduced vehicle requirements. For example, construction of the proposed tilt-up warehouse buildings could at times require a crane truck, several construction forklifts, and skid steer loaders, but these vehicles are much less powerful than the types of heavy-duty scrapers, graders, and bulldozers that would be required to grade the project site. As such, the following analysis assesses noise impacts that may result from the proposed project's grading activities as the indicator of the

loudest equipment and thus the reasonable worst-case for purposes of identifying significant effects and ensuring an appropriately conservative evaluation.

Grading for the proposed project would be required for each of the three development phases. Grading for the Phase 1 land uses would require grading vehicles to operate in the western portion of the project site, over 400 feet from the nearest residential land uses. Grading for the Phase 2 and Phase 3 land uses would require grading vehicles to operate near the proposed project's southern boundary along Riggin Avenue, within 100 feet of residential land uses that are also located along this roadway. The loudest grading activities would be characterized by extensive use of graders, which would be utilized across the project site to level the site and establish proper slopes and drainages. Bulldozers may operate in conjunction with grader activities. Given these considerations, the maximum noise impact associated with the proposed project's grading activities has been evaluated by modeling the noise levels that would be associated with a grader and a bulldozer grading a half-acre parcel of land in proximity to surrounding residential land uses, which would occur as part of Phase 2 and Phase 3.[23] As noted, Phase 1 areas are located over 400 feet from the nearest residential land uses. Therefore, Phase 1 grading would have reduced noise impacts to nearby residential land uses.

While the above-described preliminary construction schedule for the proposed project assumes that Phases 1 through 3 would be built sequentially (i.e., none of the three phases would overlap), the potential remains for project phases to be constructed concurrently. Therefore, for the purpose of analyzing the reasonable worst-case scenario and fully disclosing all potential impacts, this paragraph discusses impacts that could occur if there were concurrent (rather than sequential) phasing for the proposed project. If concurrent phasing were to occur (i.e., if all phases were graded simultaneously), noise levels would still be similar to what is estimated by this analysis. This is because the analysis addresses a scenario in which grading vehicles operate across a half-acre parcel that is located within 100 feet of residential land uses. Concurrent grading on other phases' parcels would occur over 400 feet away at a minimum and would therefore have a limited effect on construction noise levels. Given the size of the project site and its parcels, it is rather unlikely that grading for multiple phases would occur at minimum project-to-receptor distances simultaneously. Concurrent grading activities are more likely to be thousands of feet apart on any given workday.

Table 6 compares the proposed project's estimated grading-related noise levels at nearby residential land uses to the FTA's 80 dBA L_{eq} daytime construction noise criteria for residential uses. As shown, estimated noise levels would not exceed this criterion. Noise levels also would not exceed 75 dBA L_{eq}, meaning that they would not result in 30-day exceedances of the FTA's 75 dBA L_{dn} criteria, as well. Other construction phases would result in noise levels that are less than the grading-related noise levels shown in Table 6 because they would utilize equipment that is less noisy than the equipment utilized by this analysis or because they would involve activities that are located farther from receptors than the activities analyzed herein. Therefore, the proposed project's construction-related noise impact would be less than significant. No mitigation would be required.

[23] These vehicles are estimated to grade roughly a half-acre parcel on any given workday. As such, this modeling scenario addresses noise impacts that may occur during workdays in which graders and bulldozers are operating in nearest proximity to residential land uses.

Table 6: Unmitigated Construction Noise Levels–Grading

Receptor	Location	Grading Noise Level (dBA Leq)	Significance Criteria (dBA Leq)	Potentially Significant?
Residences near intersection of Riggin Avenue and Road 88	Exterior	72.8	80	No
Residences south of Riggin Avenue	Exterior	72.8	80	No
Residences near intersection of Riggin Avenue and Shirk Street	Exterior	66.4	80	No
Notes: dBA = A-weighted decibel L_{eq} = equivalent noise level				

Construction-related Traffic Noise

Haul trips, construction worker vehicle trips, and other construction-related trips would occur over the course of the proposed project's construction. The greatest off-site traffic noise impacts would be associated with haul trips generated by the proposed project's grading phase. The proposed project is anticipated to require approximately 130,000 cubic yards of soil import, which would equate to approximately 5,650 truckloads of imported soils. Over the course of the proposed project's grading phase, this would correlate with approximately 35 truck trips per day, or a few truck trips per hour. This level of haul truck activity would have a relatively minor effect on roadside ambient noise levels and would not be capable of causing or materially contributing to exceedances of the exterior or interior significance criteria at roadside residential land uses in the project vicinity.

5.2.2 - Mobile Source Operational Noise Impacts

Table 7 shows a summary of existing peak-hour traffic-related noise levels that were modeled using TNM 2.5 for select roadway segments in the vicinity of the proposed project. Noise levels were modeled based on roadway-specific parameters and peak-hour traffic volumes obtained from the traffic analysis prepared for the project.[24] The "2022 Existing Without Project" scenario represents year 2022 traffic conditions and is intended to estimate existing roadside peak-hour ambient noise conditions, without the proposed project. The "2022 Existing With Project" scenario represents year 2022 traffic conditions with the addition of project-related traffic. This is a hypothetical scenario to highlight the individual noise increases that could be generated by the proposed project's traffic solely. In reality, due to the development of related projects and ambient traffic growth, traffic conditions—and therefore roadside noise levels—would be markedly different by the time of proposed project buildout, which is assumed to be no earlier than 2028.

Table 8 assesses the impacts of the proposed project at full buildout in 2028. Year 2028 is chosen as it represents the earliest year in which full buildout of the proposed project may occur. The "2028 Without Project" scenario is intended to estimate roadside peak-hour ambient noise conditions that could exist even without development of the proposed project. The "2028 With Project" scenario

[24] Kimley-Horn. 2023. Transportation Impact Analysis Shirk & Riggin Industrial Park. October.

represents year 2028 traffic conditions (as explained above) with the addition of proposed project-related traffic at full buildout. This scenario is intended to estimate roadside peak-hour ambient noise conditions that could exist with full buildout of the proposed project at the earliest potential year. Modeling outputs are provided in Appendix B.

It should be noted that, while the traffic analysis also analyzed year 2033 "With and Without Project" traffic scenarios, the year 2033 peak-hour and average daily traffic volumes all show that the percent contribution of the proposed project would be less in future years compared to the reasonable worst-case scenario of traffic conditions in year 2028. This is because the proposed project is assumed to be at full buildout in 2028, while background (non-project related) traffic volumes will only continue to increase in future years past 2028 as other growth occurs in the City. Therefore, this analysis presents the reasonable worst-case traffic noise level contribution of the proposed project.

As shown in Table 7, many roadway segments already experience hourly noise levels in excess of 65 dBA L_{eq}, suggesting that their 24-hour CNEL levels may also exceed 65 dBA. Even without development of the proposed project, nearly every roadway segment is estimated to experience noise increases from a minimum 0.9 dBA L_{eq} to a maximum 9.5 dBA L_{eq} by 2028, compared to existing traffic noise levels. As shown in Table 8, the addition of the proposed project's traffic would increase noise levels up to an additional 2.6 dBA L_{eq} upon full buildout, compared to "2028 Without Project" estimated conditions. With the addition of the proposed project's traffic, all studied segments would be estimated to experience hourly noise levels in excess of 65 dBA L_{eq}, suggesting that 24-hour CNEL levels may also exceed the 65 dBA threshold of significance.

Consistent with the respective land use visions for the project site and vicinity as reflected in the General Plans of both the City and the County, the area surrounding the proposed project has undergone, and is continuing to undergo, substantial growth and transformative land use changes via the conversion of primarily agricultural uses into residential, commercial, and industrial uses that are associated with significantly greater traffic generation. Given this rapid growth and the proliferation of related urban commercial, industrial, and residential subdivision projects in the area, it is difficult to ascertain the individual effects that the proposed project's traffic alone would have on the area's roadside ambient noise levels. However, taken together, the noise levels shown in Table 7 and Table 8 indicate that the proposed project would contribute—at times considerably—to future traffic-related noise increases. For example, without the proposed project, some roadway segments (such as Shirk Street, north of Riggin Avenue) would experience hourly noise levels that are approximately 65 dBA L_{eq} or lower by 2028. However, with the proposed project, it is estimated that every studied roadway segment would experience hourly noise levels in excess of 65 dBA L_{eq} by 2028.

Ultimately, the proposed project would contribute to increasing traffic volumes–and therefore traffic-related noise levels in its primary trip distribution area, which is generally bounded by the project site/Riggin Avenue to the north, State Route (SR) 99 to the west, Akers Street to the east, and SR 198 to the south. Riggin Avenue and major north–south thoroughfares in this area such as Shirk Street and Akers Street already experience noise levels of approximately 65 dBA CNEL or higher, or they would experience these approximate noise levels by the proposed project's earliest buildout

year of 2028. A substantial portion of the proposed project's traffic would also utilize these roadways and thus would exacerbate this situation by contributing further trips to areas that would already be experiencing exceedances beyond the 65 dBA CNEL threshold of significance. As a result, residential land uses and other noise-sensitive receptors that are adjacent to these roadways would be exposed to exterior ambient noise levels in excess of 65 dBA CNEL, depending on their setback from these roadways and whether there are any noise barriers in place.

Although many roadway-adjacent residential uses do possess permanent roadway noise barriers (such as residential uses along Riggin Avenue and Shirk Street near the project site where there are substantial masonry barriers) that would shield their exposure to excess ambient noise levels from traffic, some residential uses are not shielded by such barriers. As one such example, there are single-family residences located along Akers Street, south of Riggin Avenue, that face this roadway without any shielding to afford them reductions in traffic-related noise levels. Existing noise levels along this roadway segment are below 65 dBA CNEL. Without the proposed project, this roadway segment's noise levels are projected to increase beyond 65 dBA CNEL by 2028, which would expose unshielded roadside residences to significant noise levels. Traffic from the proposed project would further exacerbate these 2028 conditions.

It would be infeasible to install permanent roadway noise barriers for every roadside residential receptor (and other sensitive land uses) within the proposed project's trip distribution area due to, among other factors, ingress and egress access requirements for properties, zoning requirements, limitations on acquisition of property for construction of noise barriers, and traffic safety constraints such as line of sight and minimum setback requirements for installation of noise barriers. Therefore, as there is no feasible mitigation available to reduce this impact to less than significant, the proposed project's off-site mobile source operational noise impact from traffic generation would be considered significant and unavoidable.

Table 7: Traffic Noise Increase Summary–Existing Conditions

Roadway Segment	Peak-hour	2022 Existing Without Project (dBA L_{eq})	2022 Existing With Project (dBA L_{eq})	Increase Over Existing? (dBA)	Significant?
Riggin Avenue, West of Shirk Street	AM	64.0	66.3	2.3	No
	PM	63.7	65.8	1.9	No
Riggin Avenue, East of Shirk Street	AM	63.6	65.1	1.5	No
	PM	65.4	64.8	1.5	No
Shirk Street, South of Riggin Avenue	AM	62.9	66.7	3.8	Yes
	PM	62.7	66.2	3.5	Yes
Shirk Street, North of Riggin Avenue	AM	58.5	64.0	5.5	Yes
	PM	57.7	63.4	5.7	Yes

Roadway Segment	Peak-hour	2022 Existing Without Project (dBA L_{eq})	2022 Existing With Project (dBA L_{eq})	Increase Over Existing? (dBA)	Significant?
Riggin Avenue, West of Akers Street	AM	66.1	67.3	1.2	No
	PM	65.1	66.4	1.3	No
Riggin Avenue, East of Akers Street	AM	67.6	68.3	0.7	No
	PM	66.3	67.1	0.8	No
Akers Street, North of Riggin Avenue	AM	67.2	67.3	0.1	No
	PM	63.3	63.5	0.2	No
Akers Street, South of Riggin Avenue	AM	66.5	66.7	0.2	No
	PM	65.2	65.4	0.2	No

Notes:
dBA = A-weighted decibel
L_{eq} = equivalent noise level
[1] Modeling results do not take into account mitigating features such as topography, vegetative screening, fencing, building design, or structure screening. Rather, it assumes a worst-case of having a direct line of sight on flat terrain. The modeling also does not consider that increased traffic conditions along roadway segments may result in reduced average travel speeds, which could have a moderating effect on noise increases.
Source: FirstCarbon Solutions (FCS) 2023.

Table 8 Traffic Noise Increase Summary–Future Conditions

Roadway Segment	Peak-hour	2028 Without Project (dBA L_{eq})	2028 With Project (dBA L_{eq})	Increase over 2028 Without Project? (dBA)	Significant?
Riggin Avenue, West of Shirk Street	AM	65.8	67.5	1.7	No
	PM	66.4	67.7	1.3	No
Riggin Avenue, East of Shirk Street	AM	65.6	67.5	1.9	No
	PM	67.2	67.8	0.6	No
Shirk Street, South of Riggin Avenue	AM	65.3	67.9	2.6	No
	PM	67.9	69.3	1.4	No
Shirk Street, North of Riggin Avenue	AM	62.3	65.8	2.5	No
	PM	67.2	68.5	1.3	No
Riggin Avenue, West of Akers Street	AM	68.2	69.0	0.8	No
	PM	69.3	70.2	0.9	No
Riggin Avenue, East of Akers Street	AM	68.9	69.4	0.5	No
	PM	68.8	69.3	0.5	No

Roadway Segment	Peak-hour	2028 Without Project (dBA L_{eq})	2028 With Project (dBA L_{eq})	Increase over 2028 Without Project? (dBA)	Significant?
Akers Street, North of Riggin Avenue	AM	68.1	68.2	0.1	No
	PM	65.3	65.5	0.2	No
Akers Street, South of Riggin Avenue	AM	67.9	68.0	0.1	No
	PM	68.6	68.7	0.1	No

Notes:
[1] Modeling results do not take into account mitigating features such as topography, vegetative screening, fencing, building design, or structure screening. Rather, it assumes a worst-case of having a direct line of sight on flat terrain. The modeling also does not consider that increased traffic conditions along roadway segments may result in reduced average travel speeds, which could have a moderating effect on noise increases.
Source: FirstCarbon Solutions (FCS) 2023.

5.2.3 - Stationary Source Operational Noise

Parking Lot Activities

The proposed project would include approximately 3,797 surface parking spaces spread across the approximately 284-acre site. Its parking facilities and the intermittent noises associated with them (e.g., doors slamming, engines starting, backup monitors, drive-through intercoms, etc.) would have a nominal effect on surrounding exterior noise levels. Parking areas associated with the gas station, convenience store, and fast food restaurant uses constructed and the industrial buildings constructed would have the greatest potential to expose surrounding residential land uses to substantial parking-related noise levels because of their proximities to surrounding residential land uses and their greater relative trip generation, but even these uses' parking areas would be spread across dozens of acres, which would have the effect of reducing parking-related noise levels at surrounding residential land uses. Parking lot noise impacts have been estimated based on a daytime hourly activity of 602 cars and trucks per hour and a nighttime hourly activity of 539 cars and trucks per hour for the proposed gas station, convenience store, and fast food restaurant uses. These figures are equivalent to the aforementioned land use maximum vehicle trip generation. In other words, the analysis fully accounts for the peak hourly vehicle activities that may be associated with these land uses.

For the proposed industrial buildings, parking lot noise impacts have been estimated based on a daytime hourly activity of 265 cars and trucks per hour and a nighttime hourly activity of 265 cars and trucks per hour (also equivalent to these uses' maximum vehicle trip generation). Noise levels at nearby residential uses were calculated based on these trip generation rates and distances to nearby parking areas. Table 9 shows the parking lot-related noise levels that are estimated to occur at the nearest residential uses. As shown, parking lot-related noise levels would not exceed the daytime or nighttime significance criteria for residential land uses. They also would have little to no effect on the area's 24-hour CNEL noise levels, which are indicated to range between 60 dBA and 65 dBA according to the General Plan.

Parking lot activities also would not be expected to expose surrounding residential land uses to noises that are in excess of the General Plan instantaneous (i.e., L_{max}) noise standards, which are a minimum 65 dBA L_{max} during nighttime hours. Moreover, sporadic noises from sources such as car alarms or audible indicators would not be considered a significant environmental effect because of their sporadic nature.

Table 9: Parking Lot Activities Noise Levels

Receptor	Time of Day	Parking Lot Activities Noise Level (dBA L_{eq})	Significance Criteria (dBA L_{eq})	Potentially Significant?
Residences near intersection of Riggin Avenue and Road 88	Day	25	50	No
	Night	25	45	No
Residences south of Riggin Avenue	Day	33	50	No
	Night	33	45	No
Residences near intersection of Riggin Avenue and Shirk Street	Day	31	50	No
	Night	31	45	No

Notes:
dBA = A-weighted decibel
L_{eq} = equivalent noise level

Mechanical Ventilation Equipment Operations

At the time of preparation of this analysis, details were not available pertaining to the proposed rooftop mechanical ventilation systems for the proposed project. Therefore, a reference noise level for typical rooftop mechanical ventilation systems was used. Noise levels from commercially available rooftop mechanical ventilation equipment range from 50 dBA to 60 dBA L_{eq} at a distance of 25 feet. The proposed project's rooftop mechanical ventilation equipment would be located hundreds of feet from the nearest residential receptors. In addition, in most cases they would be located behind parapets or otherwise screened, due to buildings or other structures that would block the line of sight to off-site receptors. However, based on distance attenuation alone, it is reasonable to conclude that noise levels from this equipment would be less than 40 dBA L_{eq} at these residential land uses simply. There is no potential for this equipment to expose residential land uses to noise levels in excess of the minimum 45 dBA L_{eq} nighttime significance criteria because, as noted, noise levels would be less than 40 dBA L_{eq} at residential land uses. Additionally, because ambient noise levels near Riggin Avenue are indicated to be between 60 dBA and 65 dBA CNEL according to the Visalia General Plan Update, the proposed project's mechanical ventilation equipment-related noise levels would have a negligible effect on 24-hour CNEL noise levels at surrounding residential land uses.

Truck Loading Activities

Noise would also be generated by truck loading and unloading activities at the proposed industrial buildings. The proposed project is estimated to generate a total of approximately 737 truck trips per

day. As the proposed project would have 24-hour operations, truck loading activity would correspond with roughly 31 truck trips per hour, on average. Typical maximum noise levels from truck loading and unloading activity are 70 dBA L_{max} at a reference distance of 50 feet.

A total of approximately 814 dock-high doors and approximately 24 grade-level doors would be spread across the proposed eight industrial buildings, but the proposed project has been designed to orient these loading areas away from surrounding residential uses. (See Exhibit 3.) Residential uses would be no less than approximately 450 feet from all truck loading areas, and they would also be shielded from these areas by the massing of the proposed project's industrial and other buildings. Based on this distance and shielding, truck loading-related noise levels at surrounding residential uses would not be expected to exceed 40 dBA L_{max} or 40 dBA L_{eq}. These noise levels would be below the minimum 45 dBA L_{eq} and 65 dBA L_{max} nighttime significance criteria. Additionally, because ambient noise levels near Riggin Avenue, as documented in the Visalia General Plan Update, are indicated to be between 60 dBA and 65 dBA CNEL, the proposed project's truck loading-related noise levels would have a negligible effect on 24-hour CNEL noise levels at surrounding residential uses.

Drive-through Car Wash Land Use

The proposed project would include the construction and operation of a drive-through car wash facility. At the time of preparation of this analysis, details were not available pertaining to the design of the facility or its mechanical equipment. Therefore, reference noise levels for typical drive-through (i.e., "tunnel") car washes were used to evaluate whether operations of the proposed project's car wash may result in significant noise impacts. The car wash facility would be located to the north of the proposed drive-through restaurant uses, in the southeastern quadrant of the proposed project. The nearest residential uses at the intersection of Riggin Avenue and Shirk Street would be located approximately 500 feet south of the car wash facility.

Typical drive-through car wash facilities contain numerous noise sources. Vehicles themselves generate noise when accessing the facilities, and self service vacuum equipment generates noise when used by car wash patrons. Car washing equipment within the drive-through tunnel generates noise. The loudest noise levels are commonly associated with dryer blower equipment at the tunnel exit. Measured noise levels from car wash blower operations have been documented to range from 70 dBA to 83 dBA L_{eq} at a reference distance of 40 feet. During busy periods, car wash blowers have been observed to operate continuously for extended periods.

Table 10 shows noise levels that could be generated at surrounding residential land uses by the proposed project's drive-through car wash facility, based on the reasonable worst-case 83 dBA L_{eq} at 40 feet noise level described above. As shown, residential land uses south of Riggin Avenue and residential land uses near the intersection of Riggin Avenue and Shirk Street may be exposed to noise levels in excess of the 50 dBA L_{eq} daytime and 45 dBA L_{eq} nighttime significance criteria as a result of the proposed project's drive-through car wash operations. Without mitigation, this impact would be potentially significant.

Instantaneous L_{max} noise levels from the proposed project's drive-through car wash would not be substantially greater than the noise levels shown in Table 11 because drive-through car wash equipment typically generate consistent noise levels. Therefore, this equipment would not result in exceedances of the General Plan's L_{max} noise standards for residential land uses, which are a

minimum 65 dBA L_{max} during nighttime hours. Additionally, because ambient noise levels near Riggin Avenue are indicated to be between 60 dBA and 65 dBA CNEL according to the Visalia General Plan Update, the drive-through car wash-related noise levels would not have the potential to cause 24-hour CNEL noise levels to increase by greater than the 5 dBA significance criteria because noise levels would not exceed 60 dBA L_{eq} without mitigation.

Table 10: Drive-through Car Wash Noise Levels

Receptor	Time of Day	Drive-thru Car Wash Noise Level (dBA L_{eq})	Significance Criteria (dBA L_{eq})	Potentially Significant?
Residences near intersection of Riggin Avenue and Road 88	Day	39	50	No
	Night	39	45	No
Residences south of Riggin Avenue	Day	55	50	Yes
	Night	55	45	Yes
Residences near intersection of Riggin Avenue and Shirk Street	Day	60	50	Yes
	Night	60	45	Yes

Notes:
dBA = A-weighted decibel
L_{eq} = equivalent noise level

MM NOI-1 is recommended to ensure that noise impacts from the proposed project's drive-through car wash do not exceed the 50 dBA L_{eq} daytime and 45 dBA L_{eq} nighttime significance thresholds, which are based on the standards established by Visalia Municipal Code Section 8.36.040 and Table 8-4 of the General Plan. Implementation of MM NOI-1 would ensure that noise impacts associated with the drive-thru car wash are in compliance with the Visalia Municipal Code's regulations concerning fixed noise sources and the General Plan's guidance concerning stationary noise sources.

MM NOI-1 would require the proposed project to conduct an in-depth study of the drive-through car wash prior to the issuance of its building permits. The study would assess whether the car wash's design, mechanical equipment, and hours of operation would be capable of ensuring that car wash-related noise levels at surrounding residential uses are in compliance with the Visalia Municipal Code and consistent with the General Plan Update (as described above). If these details have yet to be established at the time of the study, the study would indicate how the drive-through car wash may be designed and operated in order to ensure compliance and consistency with these standards. Building permits would not be issued unless it has been demonstrated by a qualified acoustic professional that operations of the drive-through car wash would not exceed the applicable 50 dBA L_{eq} daytime and 45 dBA L_{eq} nighttime limits established by the General Plan and Municipal Code. Further, if noise reduction measures are recommended by the acoustical study, they would be included in the car wash's plans, specifications, and other related permitting documents. Therefore, after implementation of MM NOI-1, this impact would be less than significant.

Drive-through Restaurant Land Uses

The proposed project would include the construction of two drive-through restaurant land uses. At the time of preparation of this analysis, details were not available pertaining to the design of the drive-thru restaurants, though it is known that they would be located in the southeastern corner of the project site, as shown in Exhibit 2-8. Therefore, reference noise levels for typical drive-through restaurants were used to evaluate whether operations of the proposed project's drive-through restaurants may result in significant noise impacts.

Typical drive-through restaurants contain numerous noise sources. Vehicles themselves generate noise when accessing the facilities and idling in queues, and drive-through speakers also generate noise. The potential for on-site vehicle activities (i.e., cars accessing and parking at the project site, including the drive-through restaurants) to generate significant noise levels was assessed under the analysis for parking lot activities and determined to be less than significant. Regarding drive-through queueing, data on car idling noise levels is fairly limited but the following screening analysis rules out the potential for idling in the drive-through lanes to be a significant source of noise. In order to generate a noise level of approximately 45 dBA at the nearest residential uses near the intersection of Riggin Avenue and Shirk Street, which would be approximately 200 feet from the proposed project's nearest drive-through lane, noise from car idling would have to be approximately 77 dBA at five feet–the noise level of a busy highway. Reasonably, car idling noise would be significantly less than this because vehicle idling noise is not as loud as a busy highway. Therefore, this screening analysis demonstrates that noise due to car idling at the nearest residential land uses would be significantly less than the minimum 45 dBA L_{eq} nighttime noise threshold.

The proposed drive-through speakers would be located more than 200 feet from the nearest residential uses near the intersection of Riggin Avenue and Shirk Street. Assuming that the noise level from a drive-through speaker is approximately 75 dBA at five feet, based on distance attenuation alone, the noise level at 200 feet would be less than 40 dBA. And because drive-through speakers would only produce intermittent noises, this further demonstrates that noise due to drive-through speakers at the nearest residential land uses would be significantly less than the minimum 45 dBA L_{eq} nighttime noise threshold.

Instantaneous L_{max} noise levels from the proposed project's drive-through restaurants would not result in exceedances of the General Plan's L_{max} noise standards for residential land uses, which are a minimum 65 dBA L_{max} during nighttime hours, because noise levels at residential land uses would be less than 40 dBA. Additionally, because ambient noise levels near Riggin Avenue are indicated to be between 60 dBA and 65 dBA CNEL according to the Visalia General Plan, the drive-through restaurant-related noise levels would not have the potential to cause 24-hour CNEL noise levels to increase by greater than the 5 dBA significance criteria because noise levels would be less than 40 dBA.

Prospective Warehouses

The proposed project requests that the project site be zoned Industrial and Light Industrial, which allows for the development of warehouses. It is highly likely that some sort of warehouse uses will be constructed on the site, which could house any number of uses that are permitted by this zoning. Therefore, future uses in these buildings—more specifically, noise generated by future uses—may

have the potential to affect surrounding noise-sensitive receptors, especially those that are located along or near Riggin Avenue. Although it is unlikely that the interior operations of future warehouse, distribution, storage, and light manufacturing uses would be audible, much less be considered significantly considerable, there are residential land uses that are located within hundreds of feet from the proposed warehouse buildings. To be conservative, MM NOI-2 is recommended to prevent significant impacts from occurring. MM NOI-2 would require specific uses with the potential to result in noise-related conflicts between operations and existing or future noise-sensitive receptors to provide an acoustical analysis demonstrating compliance with the City's noise standards prior to issuance of operational permits. Permits would not be issued unless it has been demonstrated by a qualified acoustic professional that operations would not exceed the City's noise standards. Therefore, after implementation of MM NOI-2, impacts related to future warehouse uses would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Based on the above analysis, impacts from noise generated by the proposed project's drive-through car wash could result in substantial noise increases at residential land uses located along Riggin Avenue and near the intersection of Riggin Avenue and Shirk Street. However, implementation of the following mitigation measure would ensure that the drive-through car wash is designed so that its operational noise levels would be below significance criteria at these nearby residential land uses:

MM NOI-1

a) Prior to the issuance of building permits for a drive-through car wash, an in-depth acoustical study prepared by a qualified acoustic professional shall be submitted for review and approval to the City Community Development Department that demonstrates that the design and operations of a proposed drive-through car wash would not result in exceedances of the Visalia Municipal Code's applicable daytime and nighttime noise limits for residential land uses. The study shall evaluate factors such as:

- The location and orientation of noise-generating equipment, such as dryer blowers and vacuums.
- The location and orientation of the drive-through car wash tunnel.
- The hours of operation.
- The location of the drive-through car wash on the project site, as moving the location of the entire use could also aid in distancing its operations, and therefore reducing its noise impacts, at nearby residential land uses.

b) Based on the results of the acoustical study, the project applicant shall be required to incorporate, at a minimum, design features or reduction measures to reduce any identified operational noise impact to meet applicable noise performance criteria. These reduction measures shall be included on all relevant

plans, specifications, and other permitting documents. Measures and design features may include, but are not limited to the following:

- Locating the car wash facility further away from sensitive receptors, therefore reducing its noise impacts at nearby residential land uses.
- Orienting the facility so that the carwash exit (where the drying blowers would be located) is located facing away from nearby residential land uses.
- Providing sound blankets to hang around the edge of the carwash exit tunnel to help shield the dryer blower noise.
- Locating the dryer blowers further inside the car wash tunnel to help shield the dryer blower noise.
- Providing screening, such as a structure or sound wall, to shield the carwash exit where the dryer blowers would be located from nearby residential land uses.

Impacts from noise generated by the proposed project's future speculative warehouse uses could also result in substantial noise increases at existing residential land uses located along Riggin Avenue and near the intersection of Riggin Avenue and Shirk Street, or at future residential land uses in the vicinity of the project site. Implementation of the following mitigation measure would ensure that noise from operations of future speculative warehouse uses would not result in exceedances of the significance criteria or the City's noise standards at receptors:

MM NOI-2

a) When specific uses within the project area are proposed that could result in a noise-related conflict between an industrial or other stationary noise source and existing or future noise-sensitive receptors, an acoustical analysis shall be required by the City that quantifies the proposed use's operational noise levels and recommends appropriate reduction measures, as necessary, to achieve compliance with the City's noise standards. The analysis shall be prepared by a qualified acoustic professional. All recommended reduction measures shall be noted on plans, specifications, and other relevant permitting documents prior to the issuance of building permits.

b) Based on the results of the acoustical study, the project applicant shall be required to incorporate, at a minimum, design features or reduction measures to reduce any identified operational noise impact to meet applicable noise performance criteria. Reduction measures and design features may include, but are not limited to the following:
   - Locating the warehouse facility further away from sensitive receptors, therefore reducing its noise impacts at nearby residential land uses.
   - Orienting the facility so that the warehouse truck loading/unloading areas are located facing away from nearby residential land uses.
   - Providing gasket loading dock doors to help shield truck loading and unloading noise.

- Providing screening, such as a structure or sound wall, to shield truck loading and unloading areas from nearby residential land uses.

5.3 - Groundborne Vibration/Noise Levels

5.3.1 - Short-term Construction Vibration Impacts

Construction of the proposed project would require a variety of large, steel-tracked earthmoving vehicles. According to the FTA, large bulldozers and similar heavy-equipment can generate groundborne vibration levels up to 0.089 in/sec PPV at a reference distance of 25 feet. In other words, these vehicles' construction activities could expose buildings within 25 feet to groundborne vibration levels up to 0.089 in/sec PPV. However, there are no buildings within 25 feet of the proposed project or its construction activities, meaning that construction of the proposed project would not expose surrounding buildings to groundborne vibration levels in excess of 0.089 in/sec PPV. This groundborne vibration level is below even the most stringent significance criteria for FTA's category of "Buildings Extremely Susceptible to Vibration Damage." Therefore, it reasons that construction of the proposed project would not expose any surrounding buildings to potentially damaging levels of groundborne vibration.

5.3.2 - Operational Vibration Impacts

Given the nature of the proposed uses, and the fact that such land uses are located hundreds of feet from the project site's primary use areas, implementation of the project would not include any permanent sources that would expose persons in the project vicinity to groundborne vibration levels that could be perceptible without instruments at any existing sensitive land use in the project vicinity. The analysis above indicates that it is unlikely any vibration generated on-site would be potentially damaging or perceptible at off-site sensitive land uses and structures. Additionally, the proposed project's related truck and vehicle travel would not be considered a significant source of vibration, as truck and vehicle travel rarely generates perceptible groundborne vibration. Therefore, project operational activities would not generate excessive groundborne vibration levels as measured at off-site receptors, and this impact would be less than significant. In addition, there are no existing significant permanent sources of groundborne vibration in the project vicinity to which the proposed project would be exposed.

5.4 - Excessive Noise Levels from Airport Activity

A significant impact would occur if the proposed project would expose people residing or working in the project area to excessive noise levels for a project located in the vicinity of a private airstrip or airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport.

The project site is not located in the vicinity of a private airstrip. The nearest public airport to the project site is the Visalia Municipal Airport, located approximately 2.68 miles southwest of the project site. The Tulare County Comprehensive Airport Land Use Compatibility Plan (ALUCP) shows the southwest corner of the project site to lie within the Visalia Municipal Airport's Airport Influence Area but outside the aircraft 55 dBA CNEL noise contours. Based on this distance and the proposed

project's orientation to the airport's runways, the proposed project would not be exposed to excessive noise levels from aircraft. Therefore, the project is consistent with the goals and policies of the ALUCP.

Implementation of the proposed project would not expose persons at the project site to noise levels from aircraft that would be in excess of acceptable standards for the proposed land uses, and no impact would occur.

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Appendix A:
Noise Calculation Worksheets

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A.1 - Construction Noise Calculations

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Construction Noise Impact Calculation - Exterior (Unmitigated)

Noise Source: Grader and Bulldozer - 1/2-acre parce

No.	Receptor	Noise Level at Receptor (dBA Leq)	Usage % of Noise Source	Existing Shielding (dBA) [2]	Workday Noise Level (dBA Leq)
1	Residences near intersection of Riggin Ave. and Rd. 88	76.8	0.4	0	72.8
2	Residences south of Riggin Ave.	76.8	0.4	0	72.8
3	Residences near intersection of Riggin Ave. and Shirk St.	70.4	0.4	0	66.4
4					
5					
6					
7					
8					
9					
10					

Notes:
[1] Noise level calculated based on a grader and bulldozer grading a 1/2-acre parcel of land.
[2] Shielding due to existing terrain or structures - assumed to be 0.

Source:
Federal Transit Administration. 2018. Transit Noise and Vibration Impact Assessment Manual.
Federal Highway Administration. Roadway Construction Noise Model (RCNM) Version 2.0.

Construction Noise Impact Calculation - Exterior (Mitigated)

Noise Source: Grader and Bulldozer - 1/2-acre parce

No.	Receptor	Noise Level at Receptor (dBA Leq)	Usage % of Noise Source	Existing Shielding (dBA) [2]	Noise Barrier Shielding (dBA) [3]	Workday Noise Level (dBA Leq)
1	Residences near intersection of Riggin Ave. and Rd. 88	76.8	0.4	0	-10	62.8
2	Residences south of Riggin Ave.	76.8	0.4	0	-10	62.8
3	Residences near intersection of Riggin Ave. and Shirk St.	70.4	0.4	0	-10	56.4
4						
5						
6						
7						
8						
9						
10						

Notes:
[1] Noise level calculated based on a grader and bulldozer grading a 1/2-acre parcel of land.
[2] Shielding due to existing terrain or structures - assumed to be 0.
[3] Shielding due to noise barriers required by MM-NOI-1.

Source:
Federal Transit Administration. 2018. Transit Noise and Vibration Impact Assessment Manual.
Federal Highway Administration. Roadway Construction Noise Model (RCNM) Version 2.0.

Construction Noise Impact Calculation - Interior (Unmitigated)

Noise Source: Grader and Bulldozer - 1/2-acre parce

No.	Receptor	Noise Level at Receptor (dBA Leq)	Usage % of Noise Source	Existing Shielding (dBA) [2]	Exterior to Interior Reduction (dBA) [3]	Workday Noise Level (dBA Leq)
1	Residences near intersection of Riggin Ave. and Rd. 88	73.4	0.4	0	-15	54.4
2	Residences south of Riggin Ave.	70.9	0.4	0	-15	51.9
3	Residences near intersection of Riggin Ave. and Shirk St.	69.9	0.4	0	-15	50.9
4						
5						
6						
7						
8						
9						
10						

Notes:
[1] Noise level calculated based on a grader and bulldozer grading a 1/2-acre parcel of land.
[2] Shielding due to existing terrain or structures - assumed to be 0.
[3] Attenuation due to the exterior to interior reduction in sound.

Source:
Federal Transit Administration. 2018. Transit Noise and Vibration Impact Assessment Manual.
Federal Highway Administration. Roadway Construction Noise Model (RCNM) Version 2.0.

Construction Noise Impact Calculation - Interior (Mitigated)

Noise Source: Grader and Bulldozer - 1/2-acre parce

No.	Receptor	Noise Level at Receptor (dBA Leq)	Usage % of Noise Source	Existing Shielding (dBA) [2]	Exterior to Interior Reduction (dBA) [3]	Noise Barrier Shielding (dBA) [4]	Workday Noise Level (dBA Leq)
1	Residences near intersection of Riggin Ave. and Rd. 88	73.4	0.4	0	-15	-10	44.4
2	Residences south of Riggin Ave.	70.9	0.4	0	-15	-10	41.9
3	Residences near intersection of Riggin Ave. and Shirk St.	69.9	0.4	0	-15	-10	40.9
4							
5							
6							
7							
8							
9							
10							

Notes:
[1] Noise level calculated based on a grader and bulldozer grading a 1/2-acre parcel of land.
[2] Shielding due to existing terrain or structures - assumed to be 0.
[3] Attenuation due to the exterior to interior reduction in sound.
[4] Shielding due to noise barriers required by MM-NOI-1.

Source:
Federal Transit Administration. 2018. Transit Noise and Vibration Impact Assessment Manual.
Federal Highway Administration. Roadway Construction Noise Model (RCNM) Version 2.0.

A.2 - FTA Parking Lot Noise Calculation

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Parking Lot Activity Noise Calculation

Receptor: Residences near intersection of Riggin Ave. and Rd. 88

	A.M.	P.M.
Maximum Vehicle Activity per Hour:	265	265
Noise Level Near Center of Activity (dBA Leq):	51	51

No.	Receptor	Distance from Center of Activity in (ft)	Shielding (dBA)[1]	Calculated Maximum Hourly Noise Level (dBA Leq)	
				A.M.	P.M.
1	Residences near intersection of Riggin Ave. and Rd. 88	950	0	25	25
2					
3					
4					

Receptor: Residences south of Riggin Ave.

	A.M.	P.M.
Maximum Vehicle Activity per Hour:	265	265
Noise Level Near Center of Activity (dBA Leq):	51	51

No.	Receptor	Distance from Center of Activity in (ft)	Shielding (dBA)[1]	Calculated Maximum Hourly Noise Level (dBA Leq)	
				A.M.	P.M.
1	Residences south of Riggin Ave.	400	0	33	33
2					
3					
4					

Receptor: Residences near intersection of Riggin Ave. and Shirk St.

	A.M.	P.M.
Maximum Vehicle Activity per Hour:	602	539
Noise Level Near Center of Activity (dBA Leq):	54	54

No.	Receptor	Distance from Center of Activity in (ft)	Shielding (dBA)[1]	Calculated Maximum Hourly Noise Level (dBA Leq)	
				A.M.	P.M.
1	Residences near intersection of Riggin Ave. and Shirk St.	500	0	31	31
2					
3					
4					

Notes:
[1] Shielding due to terrain or structures

Source:
Federal Transit Administration. 2018. Transit Noise and Vibration Impact Assessment Manual.

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A.3 - Car Wash Noise Calculation

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Car Wash Activity Noise Calculation

Noise Source: Dryer Blowers at Tunnel Exit
Reference Noise Level at 40ft (dBA Leq): 83

No.	Receptor	Distance from Center of Activity in (ft)	Shielding (dBA)[1]	Calculated Maximum Hourly Noise Level (dBA Leq)	
				A.M.	P.M.
1	Residences near intersection of Riggin Ave. and Rd. 88	2,000	10	39	39
2	Residences south of Riggin Ave.	975	0	55	55
3	Residences near intersection of Riggin Ave. and Shirk St.	550	0	60	60
4					
5					
6					
7					
8					
9					
10					

Notes:
[1] Shielding due to terrain or structures

Source:
Federal Transit Administration. 2018. Transit Noise and Vibration Impact Assessment Manual.

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Appendix B:
Traffic Noise Modeling Worksheets

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<Organization?> 20 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers S of Riggin: PM 2028
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	68.6	66	68.6	10	Snd Lvl	68.6	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers N of Riggin: PM 2028
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers N of Riggin: PM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers S of Riggin: PM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?> 20 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers S of Riggin: PM Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers N of Riggin: PM Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers N of Riggin: PM Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	63.3	66	63.3	10	----	63.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers S of Riggin: PM Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers N of Riggin: AM Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers N of Riggin: AM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers N of Riggin: AM 2028
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers N of Riggin: AM Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers S of Riggin: AM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers S of Riggin: AM 2028
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers S of Riggin: AM Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Akers S of Riggin: AM Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?> 20 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Shirk: PM Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Shirk: AM 2028
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?> 20 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Shirk: AM Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Akers: AM 2028
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?> 20 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Shirk: PM Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>

20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Shirk: AM Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?> 20 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Shirk: AM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Shirk: PM Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>

23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Akers: PM Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?> 20 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Shirk: PM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Akers: PM Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Shirk: AM Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?> 20 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Shirk: PM 2028
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?> 20 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Shirk: PM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>

23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Akers: PM Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>

23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Akers: PM 2028
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>

23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Akers: AM Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Shirk: AM Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?> 20 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Shirk: AM 2028
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>

23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Akers: PM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Akers: PM 2028
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	68.8	66	68.8	10	Snd Lvl	68.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Shirk: PM 2028
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>

23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Akers: PM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Shirk: PM Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	63.3	66	63.3	10	----	63.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?> 20 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Shirk: AM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?> 23 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Akers: PM Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>

23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Akers: AM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>

23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin W of Akers: AM Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>

23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Akers: AM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Akers: AM 2028
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>

23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Akers: AM Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>

23 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Riggin E of Akers: AM Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Shirk N of Riggin: PM Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	57.7	66	57.7	10	----	57.7	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?> 20 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Shirk N of Riggin: PM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Shirk S of Riggin: PM 2028
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Shirk N of Riggin: PM 2028
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?> 20 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Shirk S of Riggin: PM Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?> 20 October 2023
<Analysis By?> TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Shirk S of Riggin: PM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
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Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
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RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Shirk N of Riggin: PM Existing + Project
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Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
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RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Shirk S of Riggin: PM Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
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RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Shirk N of Riggin: AM 2028 + Project
BARRIER DESIGN: INPUT HEIGHTS
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Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
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RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
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BARRIER DESIGN: INPUT HEIGHTS
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Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	62.3	66	62.3	10	----	62.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
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RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
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Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
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RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
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Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	58.5	66	58.5	10	----	58.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
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RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
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Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
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RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Shirk S of Riggin: AM 2028
BARRIER DESIGN: INPUT HEIGHTS
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Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Shirk S of Riggin: AM Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
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Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>
20 October 2023
TNM 2.5
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RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Visalia Shirk Riggin Project
RUN: Shirk S of Riggin: AM Existing
BARRIER DESIGN: INPUT HEIGHTS
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Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	62.9	66	62.9	10	----	62.9	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0