

Bakersfield Temple

Noise and Vibration Impact Study

City of Bakersfield, CA

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1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This noise assessment was prepared to evaluate the potential noise impacts for the project study area and to recommend noise mitigation measures, if necessary, to minimize the potential noise impacts. The assessment was conducted and compared to the noise standards set forth by the Federal, State, and Local agencies. The project described below must demonstrate compliance with the applicable noise criteria as outlined within the City of Bakersfield Noise Element and City Code.

The following is provided in this report:

- A description of the study area and the proposed project;
- Information regarding the fundamentals of noise;
- A description of the local noise guidelines and standards;
- An analysis of traffic noise impacts to the sensitive receptors and the project site; and
- An analysis of construction noise impacts.

1.2 Site Location and Study Area

The project site is located at located at 12310 Stockdale Highway in the City of Bakersfield, CA, as shown in Exhibit A. The land use designation of the site is commercial and the land is vacant. Land uses surrounding the project site include single-family residential to the north, a community park to the east, a mini storage facility to the southeast, a specialty care center to the west, and a church to the south. Jewetta Avenue is to the east of the project site, and Stockdale Highway is to the south.

1.3 Proposed Project Description

The project will develop a 13.07-acre religious campus at the southwest corner of Stockdale Highway and Jewetta Ave, for the purpose of the construction of a place of worship for the Church of Jesus Christ of Latter Day Saints, a contemplated meetinghouse to be designed and built in future, and ancillary uses such as parking, park-like and garden areas, site maintenance facilities, and other ancillary support structures. The campus shall include a cross-lot easement to the north and site access from the north, west, and south.

Phase 1 is to include construction of a 30,000-sf temple, parking, site utilities, landscaping, trash enclosure, service building, and an ancillary building, with phase 1 construction anticipated to begin in 2026. The main floor of the temple has a primary parapet height of 24' – 6", for the majority of the building, with accent walls at the building quadrants which have a parapet height of 36' – 0". The mechanical penthouse, which is inset from the exterior walls, and central to the building, has a maximum parapet height of 45' at the base of the steeple. The steeple consists of an unoccupied tower, cupola, and finial ending at 123' – 6".

The Temple is where members can come individually or in groups to receive religious instruction, participate in marriage ceremonies, ordinances, baptisms, and other ceremonies, and pray and reflect.

Site improvements include paved walking paths, plazas, and gardens which will be open to the public during daytime hours. Phase 2 will include the design and construction of a 16,500-sf meetinghouse, parking, service building, pavilion structure, and trash enclosure. Temples differ from meetinghouses in their function. The future meetinghouse on site will be used primarily for Sunday worship services and will have membership activities during the week, mostly in the evenings. Phase 2 schedule is unknown at this time. Exhibit B demonstrates the site plan for the project.

Exhibit A Location Map





2.0 Fundamentals of Noise

This section of the report provides basic information about noise and presents some of the terms used within the report.

2.1 Sound, Noise, and Acoustics

Sound is a disturbance created by a moving or vibrating source and is capable of being detected by the hearing organs. Sound may be thought of as mechanical energy of a moving object transmitted by pressure waves through a medium to a human ear. For traffic or stationary noise, the medium of concern is air. *Noise* is defined as sound that is loud, unpleasant, unexpected, or unwanted.

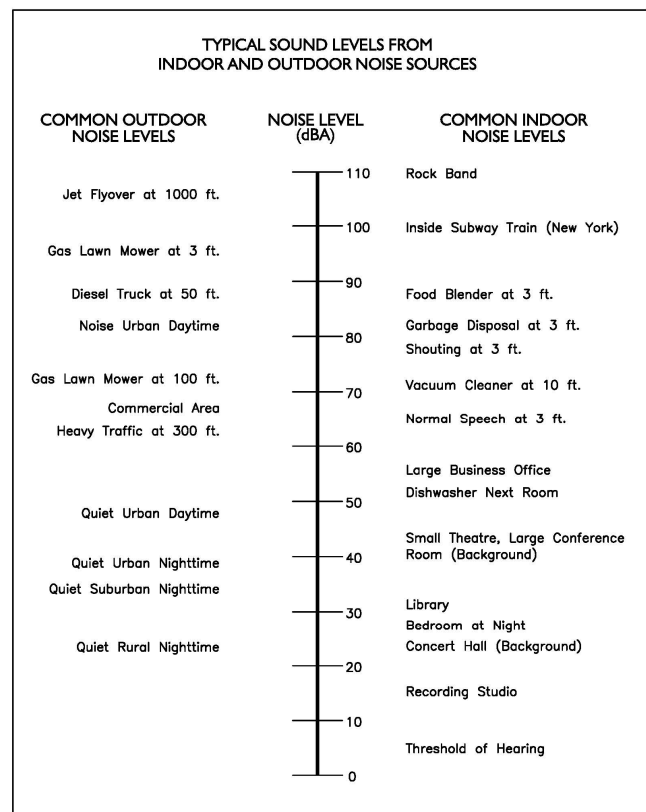
2.2 Frequency and Hertz

A continuous sound is described by its *frequency* (pitch) and its *amplitude* (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch (bass sounding) and high-frequency sounds are high in pitch (squeak). These oscillations per second (cycles) are commonly referred to as Hertz (Hz). The human ear can hear from the bass pitch starting at 20 Hz to the high pitch of 20,000 Hz.

2.3 Sound Pressure Levels and Decibels

The *amplitude* of a sound determines its loudness. The loudness of sound increases or decreases as the amplitude increases or decreases. Sound pressure amplitude is measure in units of micro-Newton per square inch meter (N/m²), also called micro-Pascal (μPa). One μPa is approximately one hundred billionths (0.0000000001) of normal atmospheric pressure. Sound pressure level (SPL or L_p) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called decibels abbreviated dB. Exhibit C illustrates references sound levels for different noise sources.

Exhibit C: Typical A-Weighted Noise Levels



2.4 Addition of Decibels

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. When two sounds or equal SPL are combined, they will produce an SPL 3 dB greater than the original single SPL. In other words, sound energy must be doubled to produce a 3 dB increase. If two sounds differ by approximately 10 dB, the higher sound level is the predominant sound.

2.5 Sensitive Receptors

Noise-sensitive land uses include residential (single and multi-family dwellings, mobile home parks, dormitories, and similar uses); transient lodging (including hotels, motels, and similar uses); hospitals, nursing homes, convalescent hospitals, and other facilities for long-term medical care; public or private educational facilities, libraries, churches, and places of public assembly.

2.6 Human Response to Changes in Noise Levels

In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, (A-weighted scale) and it perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, the A-scale weighting is typically reported in terms of A-weighted decibel (dBA). Typically, the human ear can barely perceive a change in noise level of 3 dB. A change in 5 dB is readily perceptible, and a change in 10 dB is perceived as being twice or half as loud. As previously discussed, a doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g. doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

Table 1: Decibel Changes and Loudness

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Not perceptible
3	Just perceptible
5	Clearly noticeable
10	Twice (or half) as loud
Source: https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm	

2.7 Noise Descriptors

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns, others are random. Some noise levels are constant while others are sporadic. Noise descriptors were created to describe the different time-varying noise levels.

A-Weighted Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high-frequency components of the sound in a manner similar to the response of the human ear. This is a numerical method of rating human judgment of loudness.

Ambient Noise Level: The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Community Noise Equivalent Level (CNEL): The average equivalent A-weighted sound level during a 24-hour day, obtained after the addition of five (5) decibels to sound levels in the evening from 7:00 to 10:00 PM and ten (10) decibels to sound levels in the night before 7:00 AM and after 10:00 PM.

Decibel (dB): A unit for measuring the amplitude of a sound pressure wave. The range of sound audible to the average human (from the quietest to the loudest perceptible sound) is difficult to measure on a linear scale: imagine trying to measure something from inches to miles with the same ruler. Therefore, the convention is to use a logarithmic scale, measured in decibels. A decibel is a logarithmic expression comparing a pressure to a reference pressure (20 micro-pascals) that provides a useful way to compare sounds of differing amplitudes.

dB(A): A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ): The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time-varying noise level. The energy average noise level during the sample period.

Habitable Room: Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking, or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms, and similar spaces.

L(n): The A-weighted sound level exceeded during a certain percentage of the sample time. For example, L10 in the sound level exceeded 10 percent of the sample time. Similarly, L50, L90, and L99, etc.

Noise: Any unwanted sound or sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Outdoor Living Area: Outdoor spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Percent Noise Levels: See L(n).

Sound Level (Noise Level): The weighted sound pressure level obtained by use of a sound level meter having a standard frequency filter for attenuating part of the sound spectrum.

Sound Level Meter: An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Single Event Noise Exposure Level (SENEL): The dB(A) level which, if it lasted for one second, would produce the same A-weighted sound energy as the actual event.

2.8 Traffic Noise Prediction

Noise levels associated with traffic depends on a variety of factors: volume of traffic; the speed of traffic; auto, medium truck (2-axle), and heavy truck percentage (3-axle and greater); and sound propagation. Higher traffic volume, speeds, and truck percentages equate to a louder volume in noise. A doubling of the Average Daily Traffic (ADT) along a roadway will increase noise levels by approximately 3 dB; reasons for this are discussed in the sections above.

2.9 Sound Propagation

As sound propagates from a source it spreads geometrically. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates at a rate of 6 dB per doubling of distance. The movement of vehicles down a roadway makes the source of the sound appear to propagate from a line (i.e., line source) rather than a point source. This line source results in the noise propagating from a roadway in a cylindrical spreading versus a spherical spreading that results from a point source. The sound level attenuates for a line source at a rate of 3 dB per doubling of distance.

As noise propagates from the source, it is affected by the ground and atmosphere. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the receiver. Soft site conditions such as grass, soft dirt, or landscaping attenuate noise at a rate of 1.5 dB per doubling of distance. When added to the geometric spreading, the excess ground attenuation results in an overall noise attenuation of 4.5 dB per doubling of distance for a line source and 7.5 dB per doubling of distance for a point source.

Research has demonstrated that atmospheric conditions can have a significant effect on noise levels when noise receivers are located 200 feet from a noise source. Wind, temperature, air humidity, and turbulence can further impact how far sound can travel.

3.0 Ground-Borne Vibration Fundamentals

3.1 Vibration Descriptors

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude.

PPV – Known as the peak particle velocity (PPV) which is the maximum instantaneous peak in vibration velocity, typically given in inches per second.

RMS – Known as root mean squared (RMS) can be used to denote vibration amplitude.

VdB – A commonly used abbreviation to describe the vibration level (VdB) for a vibration source.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Outdoor sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration. To counter the effects of ground-borne vibration, the Federal Transit Administration (FTA) has published guidance relative to vibration impacts. According to the FTA, fragile buildings can be exposed to ground-borne vibration levels of 0.3 inches per second without experiencing structural damage. Although ground borne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors; therefore, the vibration level threshold is assessed at occupied structures. Therefore, all vibration impacts are assessed at the structure of an affected property.

There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wavefront, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wavefront. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wavefront. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation. As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this

drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 Regulatory Setting

The proposed project is located in the City of Bakersfield, California, and noise regulations are addressed through the efforts of various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

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

- Publicize noise emission standards for interstate commerce
- Assist state and local abatement efforts
- Promote noise education and research

The Federal Office of Noise Abatement and Control (ONAC) originally was tasked with implementing the Noise Control Act. However, it was eventually eliminated leaving other federal agencies and committees to develop noise policies and programs. Some examples of these agencies are as follows: The Department of Transportation (DOT) assumed a significant role in noise control through its various agencies. The Federal Aviation Agency (FAA) is responsible for regulating noise from aircraft and airports. The Federal Highway Administration (FHWA) is responsible for regulating noise from the interstate highway system. The Occupational Safety and Health Administration (OSHA) is responsible for the prohibition of excessive noise exposure to workers. The United States Housing and Urban Development (HUD) is responsible for establishing noise regulations as it relates to exterior/interior noise levels for new HUD-assisted housing developments near high noise areas.

The federal government advocates that local jurisdictions use their land use regulatory authority to arrange new developments in such a way that “noise sensitive” uses are either prohibited from being constructed adjacent to a highway or that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation source, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 State Regulations

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the “Land Use Compatibility for Community Noise Environments Matrix.” The matrix allows the local jurisdiction to delineate the compatibility of sensitive uses with various incremental levels of noise.

The State of California has established noise insulation standards as outlined in Title 24 and the California Building Code (CBC) which in some cases requires acoustical analyses to outline exterior noise levels and to ensure interior noise levels do not exceed the interior threshold. The State mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan.

The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

4.3 City of Bakersfield Noise Regulations

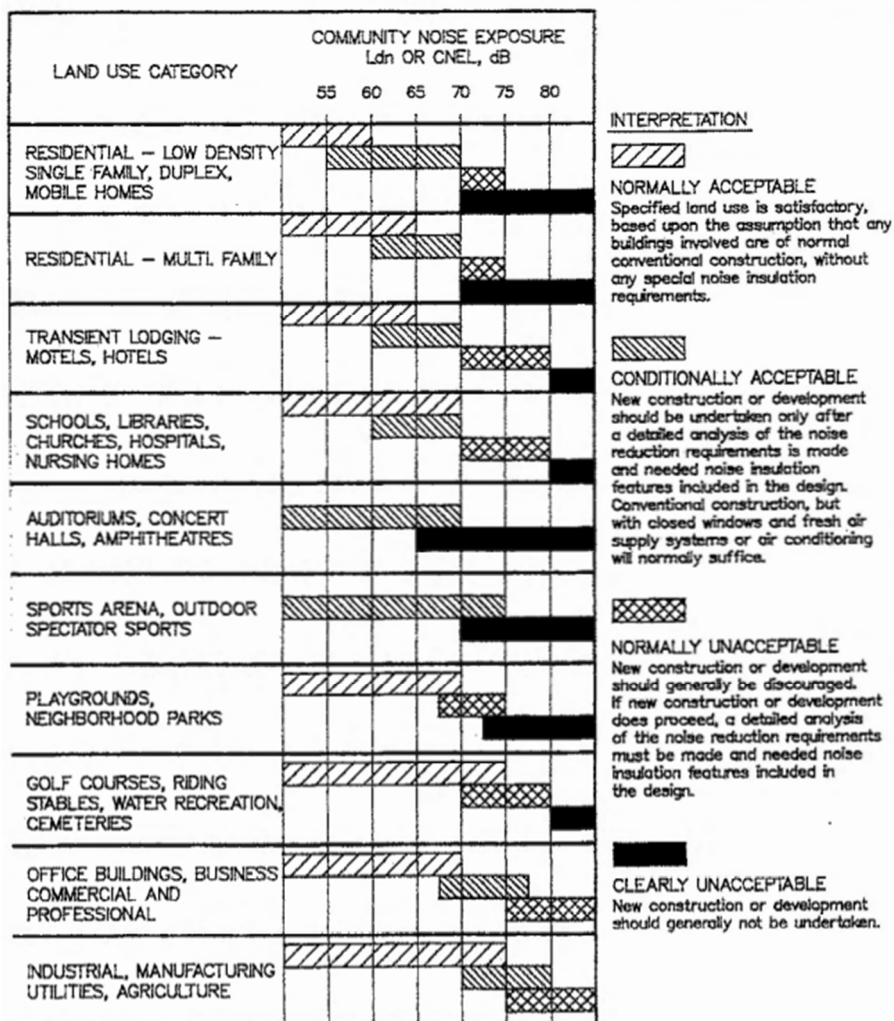
The City of Bakersfield outlines their noise regulations and standards within the Noise Element from the General Plan and Chapter 9.22 from the City Code.

City of Bakersfield General Plan

Figure VII-1 (Exhibit D of this report) of the Noise Element outlines the exterior noise standards for community noise environments.

Exhibit D: Land Use Compatibility Guidelines

LAND USE COMPATABILITY FOR COMMUNITY NOISE ENVIRONMENTS



(Source: Office of Noise Control, California Department of Health)

Policies and Implementation Measures

Policies and implementation measures from the Noise Element that would mitigate potential impacts on noise include the following.

Table 2: City Exterior Noise Level Standards

TABLE VII-2			
NOISE LEVEL PERFORMANCE STANDARDS*			
Exterior Noise Level Standards			
Category	Cumulative Number of minutes in any one-hour time period	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
1	30	55	50
2	15	60	55
3	5	65	60
4	1	70	65
5	0	75	70

* Each of the noise level standards specified in this table shall be reduced by five (5) dB(A) for pure tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards should be applied at a residential or other noise-sensitive land use and not on the property of a noise-generating land use.

Policies

1. Identify noise-impact areas exposed to existing or projected noise levels exceeding 65 dB CNEL (exterior) or the performance standards described in Table VII-2. The noise exposure contour maps on file at the City of Bakersfield and County of Kern indicate areas where existing and projected noise exposures exceed 65 dB CNEL (exterior) for the major noise sources identified (I-1).
2. Prohibit new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into project design to reduce noise to acceptable levels. (I-2, I-3, I-6, I-7).
3. Review discretionary industrial, commercial or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses. Additionally, the development of new noise-generating land uses which are not preempted from local noise regulation will be reviewed if resulting noise levels will exceed the performance standards contained within Table VII-2 in areas containing residential or other noise-sensitive land uses (I-3, I-6, I-7).
4. Require noise level criteria applied to land uses other than residential or other noise-sensitive uses to be consistent with the recommendations of the California Office of Noise Control (see Figure VII-1 (I-4)).

5. Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise (I-7).
6. Encourage interjurisdictional coordination and cooperation with regard to noise impact issues (I-8).
7. Establish threshold standards for the determination of the existence of project and cumulative noise impacts for mobile noise generating land uses that are significant, and will therefore require mitigation to achieve acceptable noise standards that do not exceed the standards contained in this element (I-9, I-10).

Implementation

3. Require development of proposed residential or other noise sensitive land uses in noise-impacted area to comply with the noise standards of 65 dB CNEL or less in outdoor activity areas and 45 dB CNEL or less within interior living spaces and the performance standards within Table VII-2.
4. Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dB CNEL and interior noise levels in excess of 45 dB CNEL and so that impacts on noise sensitive uses shall not exceed the performance standards in Table VII-2. At time of any discretionary approval, such as a request for zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall:
 - a) Be the responsibility of the applicant.
 - b) Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.
 - c) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.
 - d) Include estimated noise levels in terms of CNEL and the standards of Table VII-2 (if applicable) for existing and projected future (10-20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.
 - e) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.
 - f) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.

10. Standards for project noise impacts for mobile sources. A significant increase of existing ambient noise levels affecting existing noise-sensitive land uses (receptors), and requiring the adoption of practical and feasible mitigation measures, is deemed to occur where a project will cause:

- An increase of the existing ambient noise level by 5 dB or more, where the existing ambient level is less than 60 dB CNEL

- An increase of the existing ambient noise level by 3 dB or more, where the existing ambient level is 60 to 65 dB CNEL;
- An increase of the existing ambient noise level by 1.5 dB or more, where the existing ambient level is greater than 65 dB CNEL.

Standards for cumulative noise impacts for mobile sources. A project's contribution to noise increase would normally be considered cumulatively considerable and considered significant when ambient noise levels affect noise sensitive land uses (receptors) and when the following occurs.

- A project increases the ambient (cumulative without project) noise level by 1 dB or more; and
- The cumulative with project noise levels cause the following:
 - o An increase of the existing ambient noise level by 5 dB or more, where the existing ambient level is less than 60 dB CNEL;
 - o An increase of the existing ambient noise level by 3 dB or more, where the existing ambient level is 60 to 65 dB CNEL;
 - o An increase on the existing ambient noise level by 1.5 dB or more, where the existing ambient level is greater than 65 dB CNEL.

City of Bakersfield Code of Ordinances

Chapter 9.22 – Noise

9.22.030. – Noise Generally.

- A. It is unlawful for any person to willfully make or continue, or allow to be made or continued, any loud, unnecessary noise which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to persons residing within one thousand feet of the noise source.
- B. The standards which may be considered in determining whether a violation of the provisions of this section exists may include, but are not limited to the following:
 1. The level of the noise;
 2. The level and intensity of any background noise;
 3. The proximity of the noise to residential sleeping facilities;
 4. The nature and zoning of the area within which the noise occurs;
 5. The density of habitation of the area within which the noise occurs;
 6. The time of the day or night the noise occurs;
 7. The duration of the noise;
 8. Whether the noise is recurrent, intermittent or constant.
- C. Refrigerator trucks shall be permitted to operate in any commercial or manufacturing zone at all hours; provided, however, that such use does not emit noise or vibration detrimentally impacting neighboring residential properties and the occupants thereof between ten p.m. and seven a.m.

(Ord. 3924 § 3, 1999)

9.22.040. – Exemptions.

The following activities shall be exempted from the provisions of this chapter:

- A. The emission of sound for the purpose of alerting persons to the existence of an emergency or the emission of sound in the performance of emergency works for as long a period of time as is necessary to constitute adequate alerting of persons to the existence of the emergency or the emergency work;
- B. Warning devices for the protection of the public safety, as for example, police, fire, ambulance, commercial, residential and vehicle alarm devices, and train horns;
- C. All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions.

(Ord. 3924 § 3, 1999)

9.22.050. – Noise during construction.

- A. Except as provided herein or in subsection B, C or D of this section, it is unlawful for any person, firm or corporation to erect, demolish, alter or repair any building, or to grade or excavate land, streets or highways, other than between the hours of six a.m. and nine p.m. on weekdays, and between eight a.m. and nine p.m. on weekends; provided, however, that city crews and those of the city's contractors performing street work between nine p.m. and six a.m. are exempt here from if the city engineer has directed that work be performed between such hours to alleviate potential traffic congestion.
- B. Notwithstanding any other provisions of this chapter, if the city manager determines that the public health and safety will not be impaired by the erection, demolition, alteration or repair of any building or the excavating and grading of land, streets or highways between the hours of nine p.m. and six a.m., and if he or she further determines that loss or inconvenience would result to any party in interest by virtue of the requirements provided in subsection A of this section, he or she may grant a permit for such work to be done between the hours of nine p.m. and six a.m., upon application being made at the time the permit for the work is awarded or during the progress of the work. Such permit may be granted for a period not to exceed three days, and may be extended by the city manager for a period not to exceed three days.
- C. The provisions of this section shall not apply to any work of construction performed one thousand feet or more from the nearest residential dwelling.
- D. The provisions of this section shall not apply to performance of emergency work as defined in this chapter.

(Ord. 3924 § 3, 1999)

Applicability to Project

The daytime exterior noise standard of 55 dBA L50 (Leq for relatively constant sources) for sensitive land uses will be applied to the project, in accordance with Table VII-2 of the Noise Element in the City's General Plan (Table 2 of this report). Construction activities must follow established hours of operation

as specified in Section 9.22.050 of the City's Code. In addition, mitigation is required for mobile noise sources that increase the existing ambient level by more than 5 dBA when the existing ambient level is less than 60 dBA CNEL, as outlined in Implementation Measure 10 of the Noise Element. According to Implementation Measure 3, the noise limit for outdoor activity areas of noise-sensitive uses is 65 dB CNEL.

5.0 Study Method and Procedure

The following section describes the noise modeling procedures and assumptions used for this assessment.

5.1 Noise Measurement Procedure and Criteria

Noise measurements are taken to determine the existing noise levels. A noise receiver or receptor is any location in the noise analysis in which noise might produce an impact. The following criteria are used to select measurement locations and receptors:

- Locations expected to receive the highest noise impacts, such as the first row of houses
- Locations that are acoustically representative and equivalent of the area of concern
- Human land usage
- Sites clear of major obstruction and contamination

All measurements equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA). MD noise measurement procedures are presented below:

- The sound level meter was calibrated (Piccolo-II) before and after the measurement
- Following the calibration of equipment, a windscreen was placed over the microphone
- Frequency weighting was set on “A” and slow response
- Results of the noise measurements were recorded on field data sheets
- Temperature and sky conditions were observed and documented

5.2 Noise Measurement Locations

The noise monitoring location was selected to obtain a baseline of the existing noise environment. One (1) long-term noise measurement was conducted at the Project site. Appendix A includes photos, the field sheet, and measured noise data. Exhibit E illustrates the location of the measurement.

5.3 Stationary Noise Modeling

SoundPLAN (SP) acoustical modeling software was utilized to model future worst-case stationary noise impacts to the adjacent land uses. SP is capable of evaluating multiple stationary noise source impacts at various receiver locations. SP's software utilizes algorithms (based on the inverse square law and reference equipment noise level data) to calculate noise level projections. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations. See Appendix B for inputs and outputs.

The future worst-case daytime noise level projections were modeled using referenced sound level data for the various stationary on-site sources (HVAC, parking). The SP model assumes that every noise source is operating simultaneously (worst-case scenario) when the noise will, in reality, be intermittent and

lower in noise level. Measured and referenced sound level data was utilized to model the various stationary on-site noise sources associated with project operation as shown in Table 3 (see Appendix C).

Parking was modeled using the SoundPLAN parking tool. Daytime vehicle movements per hour for each parking lot area were calculated from the peak hour project trip generation (provided by Fehr & Peers) for the proposed project (i.e., 0.4 to 0.5 movements per parking spot per hour). A total of 17 HVAC units are assumed for the temple phase of the project and another 9 units for the meetinghouse phase of the project, each with a capacity of 5 tons. Each HVAC unit will have a sound power level of 67.7 dBA. The units were modeled as point sources located on the ground in an enclosure and on the rooftops, with each point source representing a group of 2 to 3 HVAC units. As a worst-case scenario, the model assumes that all HVAC units are operating simultaneously and continuously. Appendix B provides the SoundPLAN inputs and outputs.

The future worst-case nighttime noise level projections were also modeled. The model assumes that HVAC units are operating throughout the night but that there is no parking lot traffic during nighttime hours.

Table 3: SoundPLAN Modeling Assumptions

Noise Source	Source Type	Reference Level	Descriptor
5-Ton HVAC Unit	Point Source	67.7	dBA, Lw
Parking	Area (Parking Tool)	0.4 to 0.5	Movements per hr
Source: See Appendix B.			

5.4 Traffic Noise Prediction Modeling

The FHWA Traffic Noise Prediction Methodology (FHWA-RD-77-108) was utilized to model future traffic noise levels on the project site and existing and existing plus project traffic noise volumes along roadways affected by project generated vehicle traffic. The FHWA model arrives at the predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Existing traffic noise levels were taken from the March 2025 Bakersfield Special Use Site Traffic Impact Analysis prepared by Fehr & Peers. Project-generated traffic was taken from the July 2025 Bakersfield LDS Church Project Traffic Impact Analysis prepared by Fehr & Peers.

Project-generated vehicle traffic will result in an incremental increase in ambient noise levels. To determine the project's noise impact to the surrounding land uses, MD generated noise contours for existing ADT, and existing plus project conditions. Table 4 indicates the roadway parameters and vehicle distribution utilized for the modeling. Noise contours are used to provide a characterization of sound levels experienced at a set distance from the centerline of a subject roadway. They are intended to represent a worst-case scenario and do not take into account structures, sound walls, topography, and/or other sound attenuating features that may further reduce the actual noise level. Noise contours are developed for comparative purposes and are used to demonstrate potential increases/decreases

along subject roadways as a result of a project. The referenced traffic data and traffic noise calculation worksheets outputs are located in Appendix C.

- Roadway classification – (e.g., freeway, major arterial, arterial, secondary, collector, etc.),
- Roadway Active Width – (distance between the center of the outermost travel lanes on each side of the roadway)
- Average Daily Traffic Volumes (ADT), Speeds, Percentages of autos, medium and heavy trucks
- Roadway grade and angle of view
- Site Conditions (e.g., soft vs. hard)
- Percentage of total ADT which flows each hour throughout a 24-hour period

Table 4: Roadway Parameters and Vehicle Distribution

Roadway/Type	Segment	Existing ADT ¹	Existing + Project ADT ¹	Speed (MPH)	Site Conditions
Allen Rd.	N. of Stockdale Hwy.	26,500	26,639	50	Soft
Stockdale Hwy.	E. of Allen Rd.	13,800	13,939	50	Hard
Jewetta Ave.	N. of Stockdale Hwy.	7,900	8,039	45	Hard
Motor-Vehicle Type ²		Daytime %	Evening %	Night %	Total % of
		(7AM to 7 PM)	(7 PM to 10 PM)	(10 PM to 7 AM)	Traffic Flow
Automobiles		77.5	12.9	9.6	97.4
Medium Trucks		84.8	4.9	10.3	1.8
Heavy Trucks		86.5	2.7	10.8	0.7
Notes:					
¹ Fehr & Peers traffic impact analysis report, March 2025 & August 2025.					
² https://dot.ca.gov/programs/traffic-operations/census					

The traffic noise calculation worksheet outputs are located in Appendix C.

5.5 FHWA Roadway Construction Noise Model

The construction noise analysis utilizes the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM), together with several key construction parameters. Key inputs include distance to the sensitive receiver, equipment usage, % usage factor, and baseline parameters for the project site.

The project was analyzed based on the different construction phases. The construction noise calculation output worksheet is in Appendix D.

Construction noise was modeled for the construction noise focused on the buildings and construction noise along the northern property line. Equipment and a schedule from a nearly identical temple and meetinghouse project currently under construction in Modesto, CA were used. The model assumes that 2 pieces of equipment operate within a 150-foot stretch along the northern property line, 10' from the residential wall (for an average of 44 feet from the residential receptors to the north), during an 8-hour period, as a worst-case scenario. This assumption is based on the given schedule of completing each phase of work on the northern property line within 10 working days or less.

6.0 Existing Noise Environment

One (1) 24-hour noise measurement was conducted at the project site to document the existing noise environment. The measurements include the 1-hour Leq, Lmin, Lmax, and other statistical data (e.g., L2, L8). The results of the noise measurement are presented in Table 5. Noise measurement field sheets are provided in Appendix A.

Table 5: Long-Term Noise Measurement Data for (LT1) (dBA)¹

Date	Start Time	Stop Time	1-Hour dB(A)							
			L _{EQ}	L _{MAX}	L _{MIN}	L ₂	L ₈	L ₂₅	L ₅₀	L ₉₀
4/11/2025	9:00 AM	10:00 AM	49.3	68.4	37.7	55.7	52.3	49.2	47.1	45.1
4/11/2025	10:00 AM	11:00 AM	46.6	63.1	37.8	51.5	49.7	46.9	45.6	43.5
4/11/2025	11:00 AM	12:00 PM	49.7	70.8	39.4	54.7	51.7	49.1	47.5	45
4/11/2025	12:00 PM	1:00 PM	48.5	66	41.6	52.3	50.5	48.1	47.1	45
4/11/2025	1:00 PM	2:00 PM	47.5	65.2	39.2	52.6	50.9	48.3	46.2	43.5
4/11/2025	2:00 PM	3:00 PM	49	71.9	37.4	54.4	48.2	46.8	45	42.7
4/11/2025	3:00 PM	4:00 PM	46.7	64.4	38	52.6	49.1	47	45.7	43.7
4/11/2025	4:00 PM	5:00 PM	46.6	60.1	37.3	50.3	49.2	47.6	45.8	42.8
4/11/2025	5:00 PM	6:00 PM	48.8	67.8	38.5	52.3	50.9	48.9	47.8	46.2
4/11/2025	6:00 PM	7:00 PM	49.6	68.8	39.9	56.1	51.5	50	48.2	46.6
4/11/2025	7:00 PM	8:00 PM	55	81.7	40.9	58.1	54.7	51.9	50.2	48.2
4/11/2025	8:00 PM	9:00 PM	52.9	75	43.9	58.7	55.9	52.1	50.6	49
4/11/2025	9:00 PM	10:00 PM	53	62.5	43	55.3	54.8	53.9	52.8	50.4
4/11/2025	10:00 PM	11:00 PM	51.1	69.2	43.1	54	53.5	51.8	50.1	48.6
4/11/2025	11:00 PM	12:00 AM	52.6	76.6	41.8	57.6	54.1	51.4	49.3	46.9
4/12/2025	12:00 AM	1:00 AM	48.6	59.8	36	52.4	51.4	50	48.4	43.2
4/12/2025	1:00 AM	2:00 AM	45.2	58.3	33.9	50.9	47.7	45.7	44.3	40.7
4/12/2025	2:00 AM	3:00 AM	43	55.9	32.7	47.9	46.2	43.9	42	38.9
4/12/2025	3:00 AM	4:00 AM	45.9	60.2	33.5	51.1	48.8	46.7	45.1	39.8
4/12/2025	4:00 AM	5:00 AM	49.2	64.6	36	53.9	51.7	50.2	49	44.5
4/12/2025	5:00 AM	6:00 AM	50	62.5	40.2	53.3	52.4	50.9	49.7	46.6
4/12/2025	6:00 AM	7:00 AM	52.7	62	44.9	57.1	54.5	53.1	52	50.3
4/12/2025	7:00 AM	8:00 AM	50.6	63.5	40.8	54.3	52.9	51.4	50.4	46.8
4/12/2025	8:00 AM	9:00 AM	48	63.5	39.5	52.6	50	48.5	47.2	45.1
CNEL			56.3							
Notes: ¹ Long-term noise monitoring location (NM1) is illustrated in Exhibit E. The quietest hourly daytime noise interval is highlighted in yellow. The quietest nighttime noise interval is highlighted in green.										

The data presented in Table 5 and the field notes provided in Appendix A, indicate that ambient noise levels in the project vicinity range between 43 and 55 dBA Leq. The total noise level was 56.3 dBA CNEL. The quietest daytime level of 46.6 dBA Leq is highlighted in yellow and occurred twice at 10 AM and at 4 PM. The quietest nighttime level of 43 dBA Leq is highlighted in green and occurred at 2 AM. The field data indicates that traffic along Stockdale Highway and noise from the children's hospital to the west are the dominant noise sources.

Measurement Locations



= Long-term Measurement location



7.0 Future Noise Environment Impacts and Mitigation

This assessment analyzes future noise impacts to sensitive receptors and the project and compares the results to the City's Noise Standards. The analysis details the estimated exterior noise levels associated with traffic from adjacent roadway sources. The City has established different significance thresholds for different types of noise impacts.

7.1 Future Off-Site Exterior Noise

The exterior noise level off-site of the project will be impacted by transportation-related sources and stationary sources from the site. The following outlines the impacts associated with exterior noise levels.

7.1.1 Future Off-Site Traffic Noise Impact

The potential off-site noise impacts caused by the increase in vehicular traffic as a result of the project were calculated from the centerline of affected road segments to the nearest sensitive receptors. The impact of the existing residential wall was considered in the CNEL evaluation but was not factored into the contour analysis. The noise levels both with and without project-generated vehicle traffic were compared and the increase was calculated. The distance to the 70, 65, 60, and 55 dBA CNEL noise contours are also provided for reference (Appendix C). Noise contours were calculated for the following scenarios and conditions:

- Existing Condition: This scenario refers to the existing year traffic noise condition and is demonstrated in Table 6.
- Existing + Project Condition: This scenario refers to the existing year plus project traffic noise condition and is demonstrated in Table 6.

As shown in Table 6, the addition of project-generated vehicle traffic to Allen Road, Stockdale Highway and Jewetta Avenue would result in negligible increases in ambient noise levels and would not be significant. The increase to the existing ambient level is less than 5 dB and thus requires no mitigation in accordance with Implementation Measure 10 of the Noise Element.

<Table 6, next page>

Table 6: Existing Scenario - Noise Levels Along Roadways (dBA CNEL)
Existing Without Project Exterior Noise Levels

Roadway	Segment	CNEL (dBA)	Distance to Contour (Ft)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Allen Rd.	N. of Stockdale Hwy.	47.0	68	146	316	680
Stockdale Hwy.	E. of Allen Rd.	54.2	55	174	549	1735
Jewetta Ave.	N. of Stockdale Hwy.	59.4	25	79	249	788

Existing With Project Exterior Noise Levels

Roadway	Segment	CNEL (dBA)	Distance to Contour (Ft)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Allen Rd.	N. of Stockdale Hwy.	47.0	68	147	317	682
Stockdale Hwy.	E. of Allen Rd.	54.2	55	175	554	1753
Jewetta Ave.	N. of Stockdale Hwy.	59.4	25	80	254	802

Change in Existing Noise Levels as a Result of Project

Roadway ¹	Segment	CNEL at 80 Feet dBA ²			
		Existing Without Project	Existing With Project	Change in Noise Level	Potential Significant Impact
Allen Rd.	N. of Stockdale Hwy.	47.0	47.0	0	No
Stockdale Hwy.	E. of Allen Rd.	54.2	54.2	0	No
Jewetta Ave.	N. of Stockdale Hwy.	59.4	59.4	0	No

Notes:
¹ Exterior noise levels calculated at 5 feet above ground level.
² Noise levels calculated from centerline of subject roadway.

7.1.2 Noise Impacts to Off-Site Receptors Due to Stationary Sources

Sensitive receptors that may be affected by project operational noise include existing residences to the north, a specialty care center to the west, and a church to the south. The worst-case stationary noise was modeled using SoundPLAN acoustical modeling software. Worst-case assumes that all equipment is always operational, when in reality, the noise will be intermittent and cycle on/off depending on customer usage. The model includes the existing 6.5-foot-tall CMU wall to the north of the project site.

A total of four (4) receptors were modeled to evaluate the proposed project's operational impact. Exhibits F and G show the projected levels at these receptors. A receptor is denoted by a yellow dot. Receptor 1 represents the nearby church use. Receptor 2 represents the care center use. Receptors 3 and 4 represent residential uses.

This study compares the Project's operational plus ambient noise levels to the ambient only condition for both daytime and nighttime scenarios.

Project-Only Levels

Exhibit F shows the daytime "Project-Only" noise levels and contours at the nearest sensitive receptors and Exhibit G shows the nighttime "Project-Only" noise levels. Daytime operation assumes that HVAC equipment is operating simultaneously and continuously, and that the peak hour project-generated trips

occur in each parking area. Nighttime operation assumes that HVAC equipment is operating simultaneously and continuously, and that the parking areas are not in operation.

The model indicates that the project-only noise levels during daytime operation are 40 dBA at the existing church use, 43 dBA at the specialty care center use and range from 39 dBA Leq to 43 dBA Leq at the existing residential uses. The project-only noise level thus meets the City's daytime noise level limit of 55 dBA Leq for noise-sensitive uses (i.e., residential receptors).

The project-only hourly noise levels during nighttime operation are 37 dBA at the existing church use, 39 dBA at the specialty care center use and range from 36 to 39 dBA Leq at residential receptors. The project-only noise level thus meets the County's nighttime noise level limit of 50 dBA Leq for noise-sensitive uses.

Project Plus Ambient Operational Noise Levels

Table 7 presents the ambient noise level, the project's noise level, and the combined project plus ambient noise level condition for daytime hours. As a worst-case scenario, MD compared the project operational noise level to the quietest existing daytime hourly noise level (47 dBA Leq at 10 AM and 4 PM) to show the maximum potential noise impact due to the project.

Table 7: Worst-Case Predicted Daytime Operational Leq Noise Levels (dBA)

Receptor¹	Existing Ambient Noise Level (dBA, Leq)²	Project Noise Level (dBA, Leq)³	Maximum Permitted Daytime Noise Level (dBA, Leq)⁴	Total Combined Noise Level (dBA, Leq)	Change in Noise Level as Result of Project
1	47	40	55	48	1
2	47	43	55	48	1
3	47	43	55	48	1
4	47	39	55	48	1
Notes: ¹ Receptor 1 represents a nearby church use. Receptor 2 represents a specialty care center use. Receptors 3-4 represent residential uses. ² See Appendix A for the ambient noise measurement. ³ See Exhibit F for the daytime operational noise level projections at said receptors. ⁴ See Table VII-2 of the Noise Element in the City's General Plan.					

The project is not anticipated to operate during nighttime hours; however, the HVAC equipment servicing the project will be in operation. Therefore, an analysis on the project's operational nighttime noise levels was evaluated and provided in Table 8. As shown in Table 8, nighttime noise levels will comply with the City's noise ordinance.

<Table 8, next page>

Table 8: Worst-Case Predicted Nighttime Operational Leq Noise Levels (dBA)

Receptor ¹	Existing Ambient Noise Level (dBA, Leq) ²	Project Noise Level (dBA, Leq) ³	Maximum Permitted Nighttime Noise Level (dBA, Leq) ⁴	Total Combined Noise Level (dBA, Leq)	Change in Noise Level as Result of Project
1	43	37	50	44	1
2	43	39	50	44	1
3	43	39	50	44	1
4	43	36	50	44	1
Notes: ¹ Receptor 1 represents a nearby church use. Receptor 2 represents a specialty care center use. Receptors 3-4 represent residential uses. ² See Appendix A for the ambient noise measurement. ³ See Exhibit G for the nighttime operational noise level projections at said receptors. ⁴ See Table VII-2 of the Noise Element in the City's General Plan.					

As shown in Tables 7 and 8, project-only noise levels will meet the daytime and nighttime exterior noise limits for sensitive uses as defined in Table VII-2 of the Noise Element in the City's General Plan (Table 2 of this report). Project plus ambient noise will increase the existing ambient levels at the nearby church use by 1 dB, at the care center use by 1 dB and at residential receptors by up to 1 dB during the day and the night. See Table 1 (Section 2 of this report) for the characteristics associated with changes in noise levels. It takes a change of 3 dB for the human ear to perceive a difference. Therefore, the change in noise level would be "Not Perceptible" at all receptors.

Exhibit F

Daytime Operational Noise Level Contours

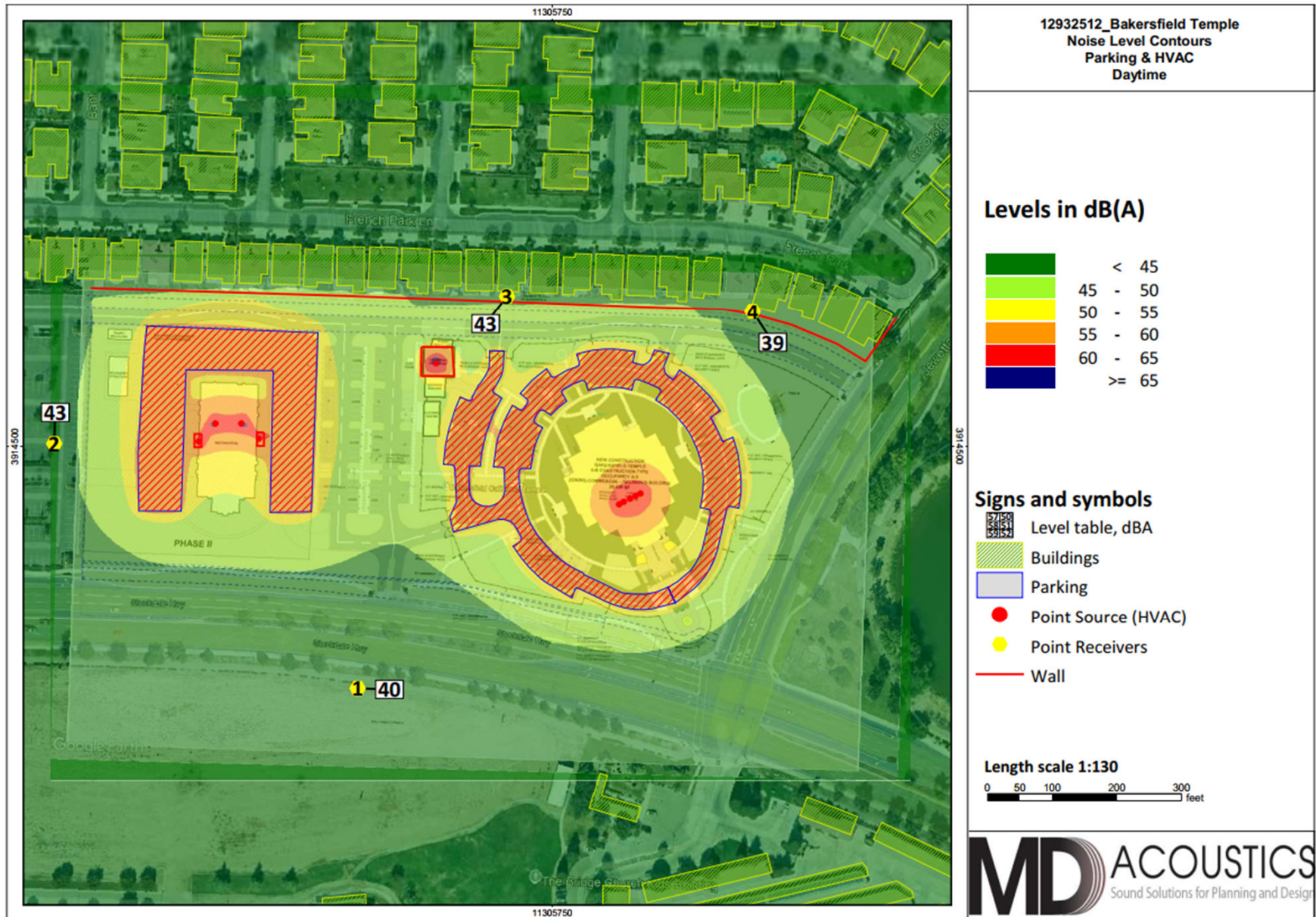


Exhibit G

Nighttime Operational Noise Level Contours



8.0 Construction Noise and Vibration Impacts

The degree of construction noise may vary for different areas of the project site and also vary depending on the construction activities. Project construction will occur in five (5) phases: site preparation, grading, building construction, paving, and finishing. This section summarizes and discusses noise and ground-borne vibration modeling efforts, impact analysis, and mitigation, if necessary.

8.1 Construction Noise

Typical construction equipment noise levels are presented in Table 9.

Table 9: Typical Construction Equipment Noise Levels¹

EQUIPMENT POWERED BY INTERNAL COMBUSTION ENGINES	
Type	Noise Levels (dBA) at 50 Feet
Earth Moving	
Compactors (Ground)	80
Front Loaders	80
Backhoes	80
Tractors	84
Scrapers, Graders	85
Pavers	85
Trucks	84
Materials Handling	
Concrete Mixers	85
Concrete Pumps	82
Cranes	85
Stationary	
Pumps	77
Generators	82
Compressors	80
Notes: ¹ Referenced Noise Levels from the FHWA Construction Noise Handbook	

Construction noise associated with each phase of the project was calculated at nearby sensitive receptors utilizing methodology presented in the Federal Highway Administration (FHWA) Construction Noise Model together with several key construction parameters including distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site.

This report includes the average Leq(8h) for all the construction phases and equipment across the site. This report also includes a maximum Leq(8h) for construction that would occur along the northern property line. The first analysis measures distance from the proposed temple building, which represents the majority of where construction activity will occur. This analysis assumes that all equipment for the

phase is operating each day, averaged at the temple building location. The second analysis calculates the two loudest pieces of equipment used at the property line, based on another nearly identical temple and meeting house in construction currently in Modesto, CA. As a worst case, this analysis assumes that the two loudest pieces of equipment will be operating about 10 feet from the property line within a 150-foot segment during an 8-hour day, for an average of 44 feet from any one receptor located 10 feet from the northern property line.

8.1.1 Average Construction Noise Impact

Construction activities throughout the site are anticipated to include five phases: site preparation, grading, building construction, paving, and architectural coating. Noise levels associated with each phase are shown in Table 10. The construction noise calculation output worksheet is located in Appendix D.

Table 10: Average Construction Noise Level by Phase (dBA, Leq)

Location	Phase	Construction Noise Level (dBA, Leq)
North Residential	Prep	68.7
	Grade	69.4
	Build	67.1
	Paving	67.9
	Arch Coat	55.0
South Church	Prep	58.1
	Grade	58.8
	Build	56.5
	Paving	57.3
	Arch Coat	44.4
West Care Center	Prep	55.3
	Grade	55.9
	Build	53.7
	Paving	54.4
	Arch Coat	41.6

As shown in Table 10, average project construction noise levels will range between 54 to 69 dBA Leq(8h) at the nearest sensitive receptor, which are the residential uses north of the project. Noise levels at other sensitive receptors are lower due to increased distance.

8.1.2 Property Line Construction Noise Impact

Construction noise from activity occurring along the northern property line has also been analyzed. Activities along the northern property line include grading, fine grading, paving, and landscaping. Although the equipment will be nearer to sensitive receptors, construction along the northern property line has the benefit of being near the property line's concrete masonry block wall, making the insertion loss from the wall more effective, which will have an estimated reduction of 6 dB. The wall is assumed to be solid and a minimum of 6.5' tall from either side based on information from the applicant who visually inspected during a site visit. Given the schedule and equipment from nearly identical temple and

meetinghouse project currently under construction in Modesto, CA, the estimated Leq(8h) level will be 72 to 79 dBA Leq(8h).

Construction activities will fall below the 80 dBA Leq(8h) FTA guideline for daytime residential receptors per the FTA Transit Noise and Vibration Impact Assessment Manual. The Project will be required to adhere to Section 9.22.050 of the City of Bakersfield Noise Ordinance, which allows construction between six a.m. and nine p.m. on weekdays, and between eight a.m. and nine p.m. on weekends. Therefore, the impact is less than significant.

8.2 Construction Vibration

Construction activities can produce vibration that may be felt by adjacent land uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary vibration source during construction may be from a vibratory roller. A vibratory roller has a vibration impact of 0.210 inches per second peak particle velocity (PPV) at 25 feet which is perceptible and can be a risk to nearby fragile structures.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{\text{equipment}} = PPV_{\text{ref}} (100/D_{\text{rec}})^n$$

Where: PPV_{ref} = reference PPV at 100ft.

D_{rec} = distance from equipment to receiver in ft.

$n = 1.5$ (the value related to the attenuation rate through the ground)

The thresholds from the Caltrans Transportation and Construction Induced Vibration Guidance Manual in Table 11 (below) provides general thresholds and guidelines as to the vibration damage potential from vibratory impacts.

Table 11: Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5
Source: Table 19, Transportation and Construction Vibration Guidance Manual, Caltrans, Sept. 2013. Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.		

Table 12 gives approximate vibration levels for particular construction activities. This data provides a reasonable estimate for a wide range of soil conditions.

Table 12: Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (dVB) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill	0.008 in soil	66
(slurry wall)	0.017 in rock	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58
Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2018.		

The nearest existing buildings are 20 feet north of the edge of the project site. At this distance, a vibratory roller would yield a worst-case 0.268 PPV (in/sec), which is below the threshold for new residential structures and will not result in architectural damage. The impact is less than significant. The ground-borne vibration worksheet is provided in Appendix E.

8.3 Construction Noise Reduction Best Practices

Construction operations must follow the City's Noise Ordinance, which states that construction, repair or excavation work performed must occur within the permissible hours. The impact is less than significant. However, the following best practice noise reduction policies are recommended:

1. Construction shall occur during the hours of six a.m. and nine p.m. on weekdays, and between eight a.m. and nine p.m. on weekends.
2. The contractor should locate equipment staging areas as far as possible, away from the sensitive receptors.
3. Idling equipment should be turned off when not in use.
4. Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.
5. When feasible, the contractor shall use electric equipment in place of diesel equipment.

6. The contractor shall ensure all construction equipment is equipped with appropriate noise attenuating devices.

9.0 CEQA Analysis

The California Environmental Quality Act Guidelines (Appendix D) establishes thresholds for noise impact analysis as presented below:

(a) Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise Code, or applicable standards of other agencies?

Transportation Noise Impacts

Transportation noise impacts would be considered significant if the existing plus project levels are expected to increase by more than 3 dB. Compared to existing traffic noise levels, existing plus project traffic noise levels are expected to increase by up to 0.2 dB CNEL at existing land uses. The impact is therefore less than significant.

Stationary Noise Sources

Stationary noise impacts would be considered significant if they result in exceedances specified by Table VII-2 of the Noise Element within the City's General Plan. Implementation of the proposed project may result in stationary noise related to rooftop HVAC units and parking. All equipment is required to meet the stationary noise limits of 55 dBA Leq at the adjacent sensitive receptors.

Operational noise levels at the sensitive receptors are expected to reach up to 43 dBA Leq during the day and up to 39 dBA Leq during the night. These noise levels meet the City's daytime noise standard of 55 dBA and the nighttime noise standard of 50 dBA. Therefore, the impact would be less than significant.

Construction Noise and Vibration

The grading on-site construction activities will generate the highest temporary noise levels. The loudest construction equipment on the site will be tractors, graders, scrapers, and dozers. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings. The maximum Leq level for the loudest phase of construction is expected to be 69 dBA Leq at the nearest existing adjacent residential building for construction averaged at the temple and a maximum 79 dBA Leq for construction along the northern property line.

Construction activities will fall below the 80 dBA Leq(8h) FTA guideline for daytime residential receptors per the FTA Transit Noise and Vibration Impact Assessment Manual. The Project will be required to adhere to Section 9.22.050 of the City of Bakersfield Noise Ordinance, which allows construction between six a.m. and nine p.m. on weekdays, and between eight a.m. and nine p.m. on weekends. Therefore, the impact is less than significant.

b) Generate excessive ground-borne vibration or ground-borne noise levels?

As the Project would operate as a religious institution, there would be no substantive sources of long-term vibration.

Construction vibration will be significant if vibration exceeds levels that would result in structural damage to existing buildings. Construction activity could occur as close as 20 feet away from the nearest buildings, which are the residential buildings north of the project property line. At 20 feet away, a vibratory roller would yield a worst-case 0.268 PPV (in/sec) which is below the threshold of 0.5 PPV (in/sec) for newer residential structures. Thus, there is not any risk of building damage. Construction activity is not expected to fall within the limits of structural damage, and therefore, the impact is less than significant.

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?

The project site is located over 7 miles from the nearest airport, Bakersfield Municipal Airport. Therefore, no substantial noise exposure from airport noise would occur and it would have no impact.

10.0 References

County of Riverside

General Plan Chapter 7-Noise Element
Code of Ordinances Chapter 9.52-Noise Regulations

California Department of Transportation (Caltrans)

2013 Transportation and Construction Induced Vibration Guidance Manual.
2018 Technical Noise Supplement to the Traffic Noise Analysis Protocol. Sept.

Federal Highway Administration (FHWA)

2006 Construction Noise Handbook

Federal Transit Administration (FTA)

2018 Transit Noise and Vibration Impact Assessment Manual

Fehr & Peers

2025 Bakersfield Special Use Site Traffic Impact Analysis (March)
2025 Bakersfield Special Use Site Traffic Impact Analysis (July)

Governor's Office of Planning and Research

1998 State of California General Plan Guidelines

SoundPLAN International, LLC

2019 SoundPLAN Essential 8.1 Manual.

Appendix A:
Field Measurement Data

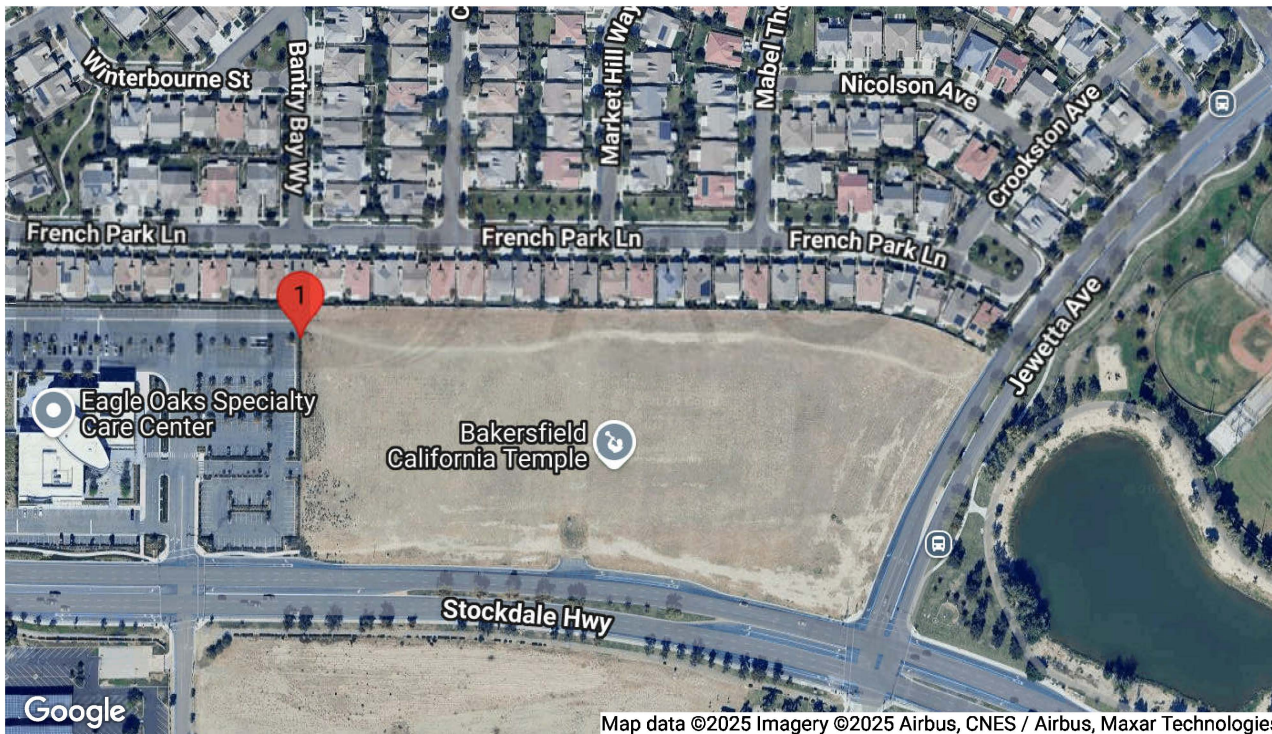
24-Hour Continuous Noise Measurement Datasheet - NM1

Project Name: Temple Bakersfield Noise
Project: #/Name: 1293-2025-012
Site Address/Location: 12310 Stockdale Highway
Date: 04/11/2025
Field Tech/Engineer: Jason Schuyler/ Claire Pincock

Site Observations:

Temps in the 80sF during the day. Winds 1-7MPH with mostly clear skies. The primary noise source is traffic on Stockdale Highway. Secondary noise sources include the children's hospital noise including parking lot noise.

Sound Meter: XL2, NTI **SN:** A2A-07095-E0
Settings: A-weighted, slow, 1-min, 24-hour duration
Site Id: NM1



24-Hour Continuous Noise Measurement Datasheet - Cont. - NM1

Project Name: Temple Bakersfield Noise
Site Address/Location: 12310 Stockdale Highway
Site Id: NM1

Calibrator: Larson Davis Cal 200
Cal Check: Pre-test: .05 **Post Test:** .06

Figure 1: NM1



Figure 2: NM1



Figure 3: NM1



24-Hour Continuous Noise Measurement Datasheet - Cont. - NM1

Project Name: Temple Bakersfield Noise

Site Topo: Buildings 1-2 stories **Day:** 1 of 1

Site Address/Location: 12310 Stockdale Highway

tall site **Noise Source(s) w/ Distance:**

Site Id: NM1

Meteorological Cond.: 70F Sunny Winds 0- 1Mph
road noise and residential noise

Ground Type: Sandy soil and clay

Table 1: Baseline Noise Measurement Summary

Date	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
4/11/2025	9:00 AM	10:00 AM	49.3	68.4	37.7	55.7	52.3	49.2	47.1	45.1
4/11/2025	10:00 AM	11:00 AM	46.6	63.1	37.8	51.5	49.7	46.9	45.6	43.5
4/11/2025	11:00 AM	12:00 PM	49.7	70.8	39.4	54.7	51.7	49.1	47.5	45
4/11/2025	12:00 PM	1:00 PM	48.5	66	41.6	52.3	50.5	48.1	47.1	45
4/11/2025	1:00 PM	2:00 PM	47.5	65.2	39.2	52.6	50.9	48.3	46.2	43.5
4/11/2025	2:00 PM	3:00 PM	49	71.9	37.4	54.4	48.2	46.8	45	42.7
4/11/2025	3:00 PM	4:00 PM	46.7	64.4	38	52.6	49.1	47	45.7	43.7
4/11/2025	4:00 PM	5:00 PM	46.6	60.1	37.3	50.3	49.2	47.6	45.8	42.8
4/11/2025	5:00 PM	6:00 PM	48.8	67.8	38.5	52.3	50.9	48.9	47.8	46.2
4/11/2025	6:00 PM	7:00 PM	49.6	68.8	39.9	56.1	51.5	50	48.2	46.6
4/11/2025	7:00 PM	8:00 PM	55	81.7	40.9	58.1	54.7	51.9	50.2	48.2
4/11/2025	8:00 PM	9:00 PM	52.9	75	43.9	58.7	55.9	52.1	50.6	49
4/11/2025	9:00 PM	10:00 PM	53	62.5	43	55.3	54.8	53.9	52.8	50.4
4/11/2025	10:00 PM	11:00 PM	51.1	69.2	43.1	54	53.5	51.8	50.1	48.6
4/11/2025	11:00 PM	12:00 AM	52.6	76.6	41.8	57.6	54.1	51.4	49.3	46.9
4/12/2025	12:00 AM	1:00 AM	48.6	59.8	36	52.4	51.4	50	48.4	43.2
4/12/2025	1:00 AM	2:00 AM	45.2	58.3	33.9	50.9	47.7	45.7	44.3	40.7
4/12/2025	2:00 AM	3:00 AM	43	55.9	32.7	47.9	46.2	43.9	42	38.9
4/12/2025	3:00 AM	4:00 AM	45.9	60.2	33.5	51.1	48.8	46.7	45.1	39.8
4/12/2025	4:00 AM	5:00 AM	49.2	64.6	36	53.9	51.7	50.2	49	44.5
4/12/2025	5:00 AM	6:00 AM	50	62.5	40.2	53.3	52.4	50.9	49.7	46.6
4/12/2025	6:00 AM	7:00 AM	52.7	62	44.9	57.1	54.5	53.1	52	50.3
4/12/2025	7:00 AM	8:00 AM	50.6	63.5	40.8	54.3	52.9	51.4	50.4	46.8
4/12/2025	8:00 AM	9:00 AM	48	63.5	39.5	52.6	50	48.5	47.2	45.1

DNL

56.3

24-Hour Continuous Noise Measurement Datasheet - Cont. - NM1

Project Name: Temple Bakersfield Noise

Site Topo:

Buildings 1-2 stories **Day:** 1 of 1

Site Address/Location: 12310 Stockdale Highway

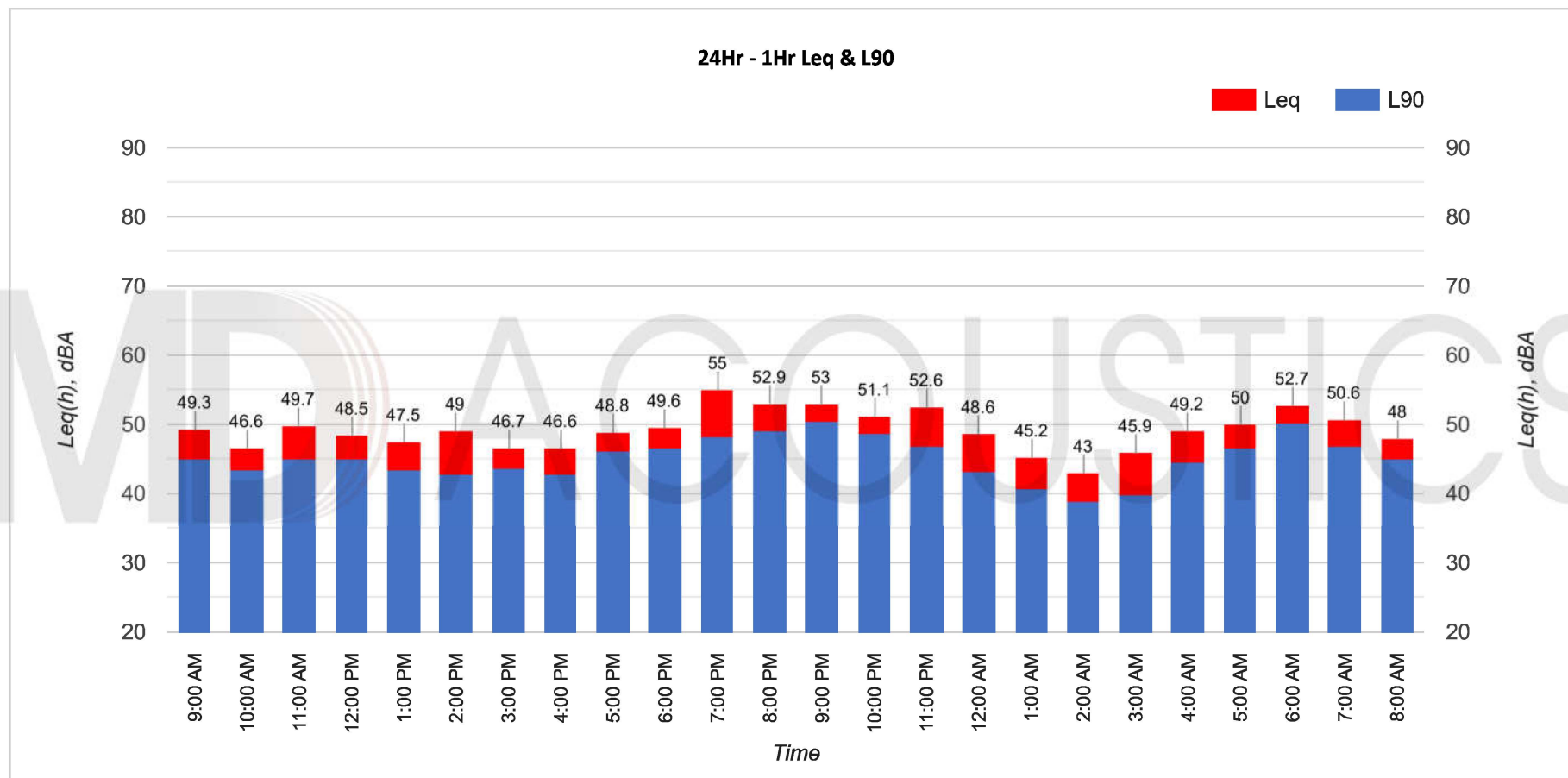
tall site

Noise Source(s) w/ Distance:

Site Id: NM1

Meteorological Cond.: 70F Sunny Winds 0-1Mph

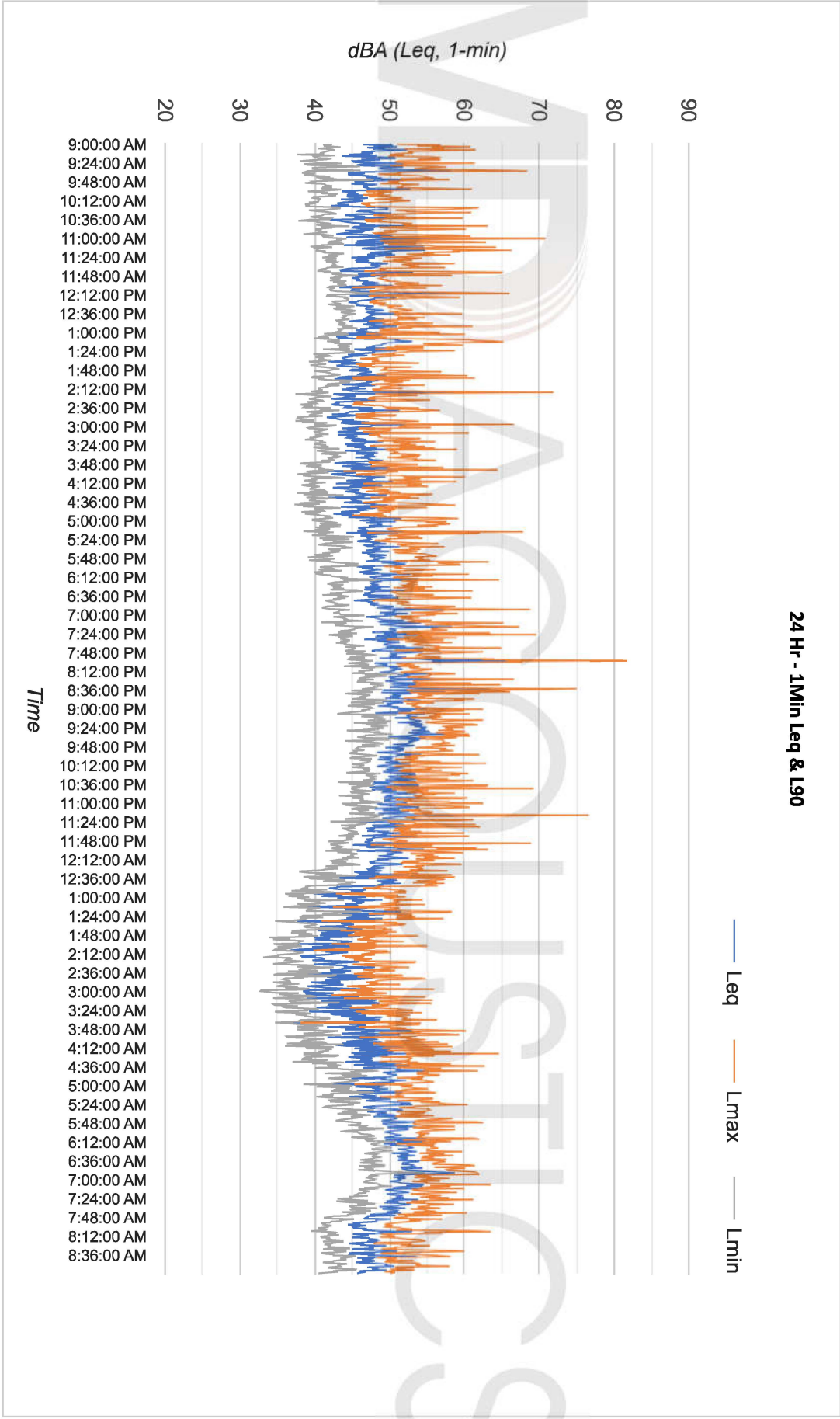
Ground Type: Sandy soil and clay



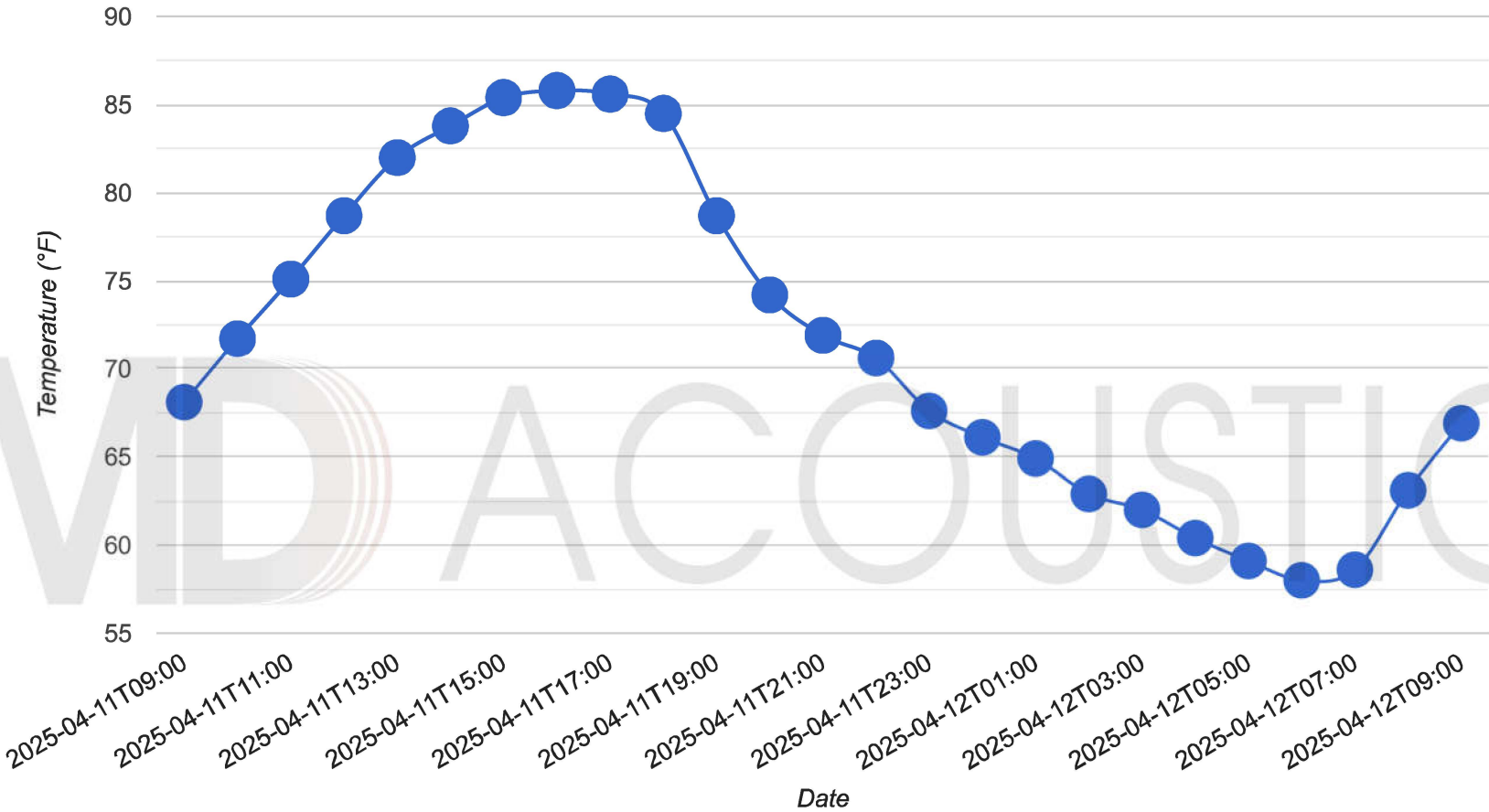
24-Hour Continuous Noise Measurement Datasheet - Cont. - NM1

Project Name: Temple Bakersfield Noise
Site Address/Location: 12310 Stockdale Highway
Site Id: NM1

Site Topo: Buildings 1-2 stories
Noise Source(s) w/ Distance: tall site
Meteorological Cond.: 70F Sunny Winds 0- 1Mph
Ground Type: Sandy soil and clay



Weather forecast for 2025-04-11 to 2025-04-12



Appendix B:
SoundPLAN Input/Outputs

Temple Bakersfield Noise Contribution spectra - Outdoor SP

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Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz	
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Receiver	Receiver	FI G	Lr,lim	dB(A)	Leq,d	40.0	dB(A)																							
Meetinghouse Parking	Leq,d	34.7					19.4			28.2			19.4			24.8			27.8			29.7			23.8				6.9	
Temple Parking	Leq,d	33.2					18.0			26.8			18.1			23.3			26.3			28.1			22.6				5.9	
HVAC	Leq,d	27.3	-27.2	-21.1	-17.1	-4.0	1.0	-4.9	3.2	5.4	4.5	6.8	7.2	9.7	11.5	13.3	17.2	20.2	16.0	17.9	18.9	16.8	17.0	12.8	11.9	7.2	2.9	-8.4	-22.5	
HVAC	Leq,d	23.7	-25.0	-19.0	-15.0	-2.1	2.8	-3.2	4.7	6.5	5.3	5.7	5.5	7.2	7.9	8.6	12.1	13.4	9.4	14.4	16.1	13.6	15.0	10.4	9.3	4.3	-0.1	-11.4	-25.4	
HVAC	Leq,d	28.2	-26.1	-20.1	-16.0	-3.0	2.0	-4.0	4.2	6.2	5.3	7.0	7.3	9.4	10.8	12.2	16.8	20.1	17.4	19.5	20.5	18.1	18.4	14.4	13.6	9.0	5.1	-5.6	-18.9	
HVAC	Leq,d	27.2	-24.3	-18.3	-14.3	-1.3	3.6	-2.4	5.7	7.5	6.4	6.9	6.8	8.6	9.4	10.2	13.8	17.8	16.5	18.4	20.2	17.6	17.5	14.0	13.0	8.1	4.0	-6.8	-20.1	
HVAC	Leq,d	28.7	-25.9	-19.8	-15.8	-2.8	2.2	-3.7	4.5	6.5	5.6	7.4	7.7	9.7	11.2	12.7	17.4	20.8	17.7	19.8	20.9	18.4	18.8	14.7	14.1	9.6	5.8	-4.7	-17.7	
HVAC	Leq,d	27.6	-27.0	-20.9	-16.9	-3.8	1.2	-4.7	3.5	5.6	4.7	7.0	7.5	10.1	12.0	13.5	17.4	20.4	16.2	18.1	19.1	17.0	17.2	13.0	12.2	7.5	3.3	-7.8	-21.8	
HVAC	Leq,d	27.7	-26.9	-20.8	-16.8	-3.7	1.4	-4.5	3.6	5.8	4.9	7.3	7.7	10.4	12.3	13.7	17.6	20.5	16.4	18.2	19.2	16.8	17.1	13.0	12.3	7.7	3.7	-7.4	-21.2	
HVAC	Leq,d	22.5	-25.8	-19.8	-15.8	-2.8	2.1	-3.9	3.9	5.8	4.7	5.2	5.2	7.0	7.9	8.7	12.5	14.2	9.8	11.4	13.3	10.5	13.5	9.1	8.0	2.9	0.5	-11.5	-26.5	
HVAC	Leq,d	27.0	-27.5	-21.4	-17.4	-4.4	0.7	-5.2	2.9	5.0	4.1	6.4	6.7	9.2	10.9	13.0	16.9	19.9	15.7	17.5	18.5	16.5	16.7	12.4	11.5	6.6	2.2	-9.3	-23.8	
HVAC	Leq,d	27.2	-27.4	-21.3	-17.3	-4.2	0.8	-5.1	3.1	5.2	4.3	6.6	7.0	9.5	11.2	13.2	17.1	20.0	15.9	17.7	18.7	16.6	16.8	12.6	11.7	6.9	2.5	-8.8	-23.1	
Receiver	Receiver	FI G	Lr,lim	dB(A)	Leq,d	43.3	dB(A)																							
Meetinghouse Parking	Leq,d	41.3					24.2			34.0			25.9			32.1			35.3			35.7			31.4				20.1	
Temple Parking	Leq,d	28.0					14.3			22.1			13.3			18.4			21.3			22.7			15.0				-10.0	
HVAC	Leq,d	22.4	-31.5	-25.5	-21.4	-8.4	-3.4	-9.3	-1.6	0.5	-0.4	1.8	2.2	4.7	6.4	8.4	12.3	15.3	11.0	13.9	14.6	11.7	11.4	6.2	4.4	-2.6	-10.2	-26.3	-47.3	
HVAC	Leq,d	30.6	-20.3	-14.3	-10.4	2.6	7.4	1.3	10.3	12.0	10.8	11.5	11.3	12.9	16.5	17.2	20.8	21.9	17.8	19.3	22.7	19.9	21.2	17.1	16.7	12.8	10.1	1.4	-8.6	
HVAC	Leq,d	34.3	-21.0	-14.9	-10.9	2.2	7.2	1.3	10.0	12.1	11.3	13.1	13.6	15.6	18.0	19.9	23.9	26.7	22.8	24.7	25.8	23.6	24.3	20.7	20.8	17.4	15.3	7.3	-2.3	
HVAC	Leq,d	27.1	-22.8	-16.8	-12.9	-0.1	4.7	-1.5	6.9	8.5	7.1	7.5	7.1	8.6	9.0	9.4	12.7	18.4	14.5	18.0	19.8	17.0	18.3	14.1	13.4	9.0	5.6	-4.1	-15.8	
HVAC	Leq,d	32.9	-22.3	-16.2	-12.2	0.9	5.9	0.0	8.6	10.7	9.9	11.7	12.0	14.0	16.3	18.5	22.4	25.4	21.5	23.4	24.5	22.2	22.9	19.2	19.2	15.5	13.1	4.6	-5.6	
HVAC	Leq,d	22.5	-31.5	-25.4	-21.4	-8.3	-3.3	-9.2	-1.5	0.6	-0.3	1.9	2.3	4.8	6.6	8.5	12.4	15.4	11.1	14.0	14.7	11.8	11.5	6.3	4.6	-2.4	-9.9	-25.9	-46.8	
HVAC	Leq,d	22.6	-31.4	-25.4	-21.3	-8.3	-3.2	-9.2	-1.4	0.6	-0.2	2.0	2.4	4.9	6.7	8.6	12.4	15.4	11.2	14.0	14.8	11.9	11.6	6.4	4.4	-2.5	-9.9	-25.7	-46.4	
HVAC	Leq,d	21.9	-26.9	-20.9	-16.9	-4.0	1.0	-5.0	2.6	4.5	3.4	3.9	3.9	5.8	6.7	7.6	11.4	13.2	8.9	11.5	13.4	10.6	13.3	8.7	7.4	1.6	-3.1	-16.3	-32.8	
HVAC	Leq,d	22.2	-31.7	-25.6	-21.6	-8.5	-3.5	-9.4	-1.8	0.3	-0.6	1.6	2.0	4.4	6.1	8.2	12.2	15.1	10.9	13.6	14.5	11.6	11.2	6.0	3.7	-3.4	-11.0	-27.2	-48.4	
HVAC	Leq,d	22.3	-31.6	-25.5	-21.5	-8.5	-3.4	-9.3	-1.7	0.4	-0.5	1.7	2.1	4.5	6.2	8.4	12.2	15.2	11.0	13.7	14.6	11.7	11.3	6.1	3.8	-3.2	-10.7	-26.8	-47.9	
Receiver	Receiver	FI G	Lr,lim	dB(A)	Leq,d	42.8	dB(A)																							
Meetinghouse Parking	Leq,d	34.3					19.7			29.0			20.7			25.3			27.5			28.0			22.1				4.6	
Temple Parking	Leq,d	38.7					24.5			34.1			25.5			30.4			31.1			31.5			26.0				12.2	
HVAC	Leq,d	29.5	-24.4	-18.4	-14.4	1.0	6.0	0.0	8.0	9.9	8.8	10.8	10.9	12.8	13.8	15.9	19.8	22.0	17.9	19.7	20.8	18.4	18.8	14.9	14.6	10.5	7.4	-2.3	-14.2	
HVAC	Leq,d	22.1	-26.5	-20.7	-16.9	-4.2	0.5	-5.9	1.5	3.0	3.9	3.9	3.3	4.6	4.8	5.0	12.9	14.1	10.7	11.8	14.3	12.2	11.8	6.8	5.1	-0.7	-6.1	-18.7	-34.3	
HVAC	Leq,d	24.8	-26.5	-20.5	-16.5	-3.5	1.4	-4.6	3.4	5.3	4.2	5.8	5.8	7.8	8.7	9.7	13.6	15.9	13.8	15.6	16.6	14.1	15.5	11.3	10.5	5.8	1.6	-9.6	-23.7	
HVAC	Leq,d	24.3	-24.9	-19.0	-15.2	-2.3	2.5	-3.8	6.6	8.2	6.8	7.0	6.5	11.0	11.5	11.9	15.3	16.3	12.8	13.9	15.4	12.2	12.1	7.2	5.8	0.4	-4.2	-15.7	-29.7	
HVAC	Leq,d	27.3	-26.1	-20.0	-16.0	-3.1	1.9	-4.1	4.0	5.9	7.3	9.0	9.0	10.9	11.9	12.9	16.7	19.0	16.1	17.9	18.9	16.5	17.6	13.5	12.8	8.3	4.4	-6.4	-19.8	
HVAC	Leq,d	29.8	-24.4	-18.4	-14.4	1.0	6.0	0.0	8.0	9.9	8.9	10.8	10.9	12.8	13.8	15.9	19.8	22.0	17.9	19.7	21.5	19.1	19.6	15.8	15.5	11.5	8.4	-1.1	-13.1	

MD Acoustics LLC 4960 S Gilbert Rd Chandler AZ 85249 USA

Temple Bakersfield Noise Contribution spectra - Outdoor SP

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Source		Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz	
			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
	HVAC	Leq,d	29.8	-24.4	-18.4	-14.4	1.0	6.0	0.0	8.0	9.9	8.9	10.8	10.9	12.8	13.8	15.9	19.8	22.0	17.9	19.7	21.5	19.2	19.6	15.8	15.5	11.5	8.5	-1.1	-13.1	
	HVAC	Leq,d	34.8	-16.8	-10.8	-6.8	8.4	13.3	7.2	16.3	18.1	16.9	17.6	17.4	19.1	19.8	20.5	24.1	25.3	20.7	22.2	24.4	24.5	26.8	23.1	22.8	19.2	16.9	8.8	-0.3	
	HVAC	Leq,d	29.4	-24.5	-18.4	-14.4	1.0	5.9	-0.1	7.9	9.9	8.8	10.8	10.8	12.8	13.7	14.7	19.8	22.0	17.8	19.7	20.7	18.3	18.8	14.9	14.5	10.5	7.3	-2.5	-14.3	
	HVAC	Leq,d	29.4	-24.4	-18.4	-14.4	1.0	5.9	-0.1	8.0	9.9	8.8	10.8	10.8	12.8	13.7	14.7	19.8	22.0	17.9	19.7	20.8	18.4	18.8	14.9	14.6	10.5	7.3	-2.4	-14.3	
Receiver Receiver FI G Lr,lim dB(A) Leq,d 38.9 dB(A)																															
Meetinghouse Parking Temple Parking	Leq,d	26.8					15.0				22.6					13.9			18.0				19.0				10.5			-16.7	
	Leq,d	35.4					22.3				31.4					23.1			27.0				27.0				20.6			5.6	
	HVAC	Leq,d	27.8	-24.0	-18.0	-14.0	1.4	6.3	0.3	8.3	10.2	9.1	11.0	11.0	12.8	13.7	14.6	18.4	20.4	16.1	17.8	18.7	16.2	16.4	12.4	11.9	7.8	4.6	-5.0	-16.7	
	HVAC	Leq,d	13.0	-30.6	-24.8	-21.1	-8.4	-3.8	-10.2	-3.7	-2.3	-4.0	-3.8	-4.4	-3.2	-3.1	-3.0	4.5	5.7	0.7	1.6	4.9	1.3	1.8	-4.1	-7.0	-14.6	-22.5	-39.3	-61.1	
	HVAC	Leq,d	17.9	-30.2	-24.2	-20.2	-7.2	-2.3	-8.3	-1.3	0.6	-0.6	0.9	0.9	2.8	3.6	4.5	8.3	11.0	6.7	8.2	8.9	5.9	5.6	0.4	-1.9	-8.8	-13.6	-29.4	-49.9	
	HVAC	Leq,d	15.7	-29.4	-23.6	-19.7	-7.0	-2.2	-8.5	-1.7	-0.1	-1.7	-1.4	-2.0	2.3	2.7	3.0	6.1	7.2	2.2	3.1	4.5	6.8	6.4	0.8	-1.8	-8.9	-16.4	-32.2	-52.5	
	HVAC	Leq,d	18.2	-29.9	-23.8	-19.9	-6.9	-1.9	-8.0	-0.9	1.0	-0.1	1.3	1.3	3.2	4.0	4.9	8.7	11.4	7.0	8.6	9.3	6.3	6.0	0.9	-1.3	-8.0	-12.4	-27.7	-47.6	
	HVAC	Leq,d	27.6	-24.2	-18.2	-14.2	1.2	6.1	0.1	8.1	10.0	8.9	10.8	10.8	12.6	13.5	14.4	18.1	20.2	15.9	17.6	18.4	15.9	16.2	12.1	11.7	7.5	4.2	-5.5	-17.3	
	HVAC	Leq,d	27.5	-24.4	-18.4	-14.4	1.0	5.9	-0.1	7.9	9.8	8.7	10.6	10.6	12.5	13.3	14.2	18.0	20.0	15.7	17.5	18.4	15.9	16.1	12.0	11.5	7.2	3.9	-5.9	-17.9	
	HVAC	Leq,d	19.0	-25.7	-19.7	-15.8	-2.9	1.9	-4.3	3.5	5.2	3.8	4.0	3.7	5.2	5.7	6.2	9.5	10.6	5.8	7.0	8.4	8.3	7.9	3.0	2.2	-1.1	-5.7	-18.0	-33.1	
HVAC	Leq,d	29.7	-23.6	-17.6	-13.6	1.8	6.7	0.7	8.7	10.6	9.5	11.4	12.7	14.5	15.4	16.3	20.1	22.3	18.1	19.8	20.8	18.3	18.6	14.7	14.3	10.3	7.3	-2.1	-13.5		
HVAC	Leq,d	29.6	-23.8	-17.8	-13.8	1.6	6.5	0.5	8.5	10.4	9.3	11.2	12.5	14.4	15.2	16.1	20.0	22.2	17.9	19.6	20.6	18.1	18.5	14.5	14.1	10.0	7.0	-2.5	-14.0		

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Temple Bakersfield Noise Assessed contribution level - Outdoor SP

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Source	Source type	Leq,d dB(A)	
Receiver Receiver FI G Lr,lim dB(A) Leq,d 40.0 dB(A)			
Meetinghouse Parking	PLot	34.7	
Temple Parking	PLot	33.2	
HVAC	Point	28.7	
HVAC	Point	28.2	
HVAC	Point	27.7	
HVAC	Point	27.6	
HVAC	Point	27.3	
HVAC	Point	27.2	
HVAC	Point	27.2	
HVAC	Point	27.0	
HVAC	Point	23.7	
HVAC	Point	22.5	
Receiver Receiver FI G Lr,lim dB(A) Leq,d 43.3 dB(A)			
Meetinghouse Parking	PLot	41.3	
HVAC	Point	34.3	
HVAC	Point	32.9	
HVAC	Point	30.6	
Temple Parking	PLot	28.0	
HVAC	Point	27.1	
HVAC	Point	22.6	
HVAC	Point	22.5	
HVAC	Point	22.4	
HVAC	Point	22.3	
HVAC	Point	22.2	
HVAC	Point	21.9	
Receiver Receiver FI G Lr,lim dB(A) Leq,d 42.8 dB(A)			
Temple Parking	PLot	38.7	
HVAC	Point	34.8	
Meetinghouse Parking	PLot	34.3	
HVAC	Point	29.8	
HVAC	Point	29.8	
HVAC	Point	29.5	
HVAC	Point	29.4	
HVAC	Point	29.4	
HVAC	Point	27.3	
HVAC	Point	24.8	
HVAC	Point	24.3	
HVAC	Point	22.1	
Receiver Receiver FI G Lr,lim dB(A) Leq,d 38.9 dB(A)			
Temple Parking	PLot	35.4	
HVAC	Point	29.7	
HVAC	Point	29.6	
HVAC	Point	27.8	

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Temple Bakersfield Noise
Assessed contribution level - Outdoor SP

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Source	Source type	Leq,d dB(A)	
	HVAC Point	27.6	
	HVAC Point	27.5	
Meetinghouse Parking	PLot	26.8	
	HVAC Point	19.0	
	HVAC Point	18.2	
	HVAC Point	17.9	
	HVAC Point	15.7	
	HVAC Point	13.0	

Temple Bakersfield Noise Octave spectra of the sources in dB(A) - Outdoor SP

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Name	Source type	I or A m,m²	Li dB(A)	Rw dB	L'w dB(A)	Lw dB(A)	Kl dB	KT dB	DO-Wall dB	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	16kHz dB(A)	
Meetinghouse Parking	PLot	4267.14			57.3	93.6	0.0	0.0	0	Typical spectrum	76.9	88.5	81.0	85.5	85.6	86.0	83.3	77.1	64.3	
Temple Parking	PLot	5059.18			56.4	93.4	0.0	0.0	0	Typical spectrum	76.8	88.4	80.9	85.4	85.5	85.9	83.2	77.0	64.2	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	

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Temple Bakersfield Noise Assessed contribution level - Nighttime Outdoor SP

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Source	Source type	Leq,d dB(A)	
Receiver Receiver FI G Lr,lim dB(A) Leq,d 37.0 dB(A)			
	HVAC Point	28.7	
	HVAC Point	28.2	
	HVAC Point	27.7	
	HVAC Point	27.6	
	HVAC Point	27.3	
	HVAC Point	27.2	
	HVAC Point	27.2	
	HVAC Point	27.0	
	HVAC Point	23.7	
	HVAC Point	22.5	
Receiver Receiver FI G Lr,lim dB(A) Leq,d 38.7 dB(A)			
	HVAC Point	34.3	
	HVAC Point	32.9	
	HVAC Point	30.6	
	HVAC Point	27.1	
	HVAC Point	22.6	
	HVAC Point	22.5	
	HVAC Point	22.4	
	HVAC Point	22.3	
	HVAC Point	22.2	
	HVAC Point	21.9	
Receiver Receiver FI G Lr,lim dB(A) Leq,d 39.5 dB(A)			
	HVAC Point	34.8	
	HVAC Point	29.8	
	HVAC Point	29.8	
	HVAC Point	29.5	
	HVAC Point	29.4	
	HVAC Point	29.4	
	HVAC Point	27.3	
	HVAC Point	24.8	
	HVAC Point	24.3	
	HVAC Point	22.1	
Receiver Receiver FI G Lr,lim dB(A) Leq,d 35.9 dB(A)			
	HVAC Point	29.7	
	HVAC Point	29.6	
	HVAC Point	27.8	
	HVAC Point	27.6	
	HVAC Point	27.5	
	HVAC Point	19.0	
	HVAC Point	18.2	
	HVAC Point	17.9	
	HVAC Point	15.7	
	HVAC Point	13.0	

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Temple Bakersfield Noise Octave spectra of the sources in dB(A) - Nighttime Outdoor SP

3

Name	Source type	I or A m,m²	Li dB(A)	Rw dB	L'w dB(A)	Lw dB(A)	Kl dB	KT dB	DO-Wall dB	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	16kHz dB(A)	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	
HVAC	Point				83.0	83.0	0.0	0.0	0	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	59.3	68.1	70.9	75.7	77.4	77.2	74.2	69.8	58.1	

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Temple Bakersfield Noise Contribution spectra - Nighttime Outdoor SP

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Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz	12.5kHz	16kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Receiver Receiver FI G Lr,lim dB(A) Leq,d 37.0 dB(A)																															
HVAC	Leq,d	27.3	-27.2	-21.1	-17.1	-4.0	1.0	-4.9	3.2	5.4	4.5	6.8	7.2	9.7	11.5	13.3	17.2	20.2	16.0	17.9	18.9	16.8	17.0	12.8	11.9	7.2	2.9	-8.4	-22.5	-37.2	-58.2
HVAC	Leq,d	23.7	-25.0	-19.0	-15.0	-2.1	2.8	-3.2	4.7	6.5	5.3	5.7	5.5	7.2	7.9	8.6	12.1	13.4	9.4	14.4	16.1	13.6	15.0	10.4	9.3	4.3	-0.1	-11.4	-25.4	-39.8	-60.2
HVAC	Leq,d	28.2	-26.1	-20.1	-16.0	-3.0	2.0	-4.0	4.2	6.2	5.3	7.0	7.3	9.4	10.8	12.2	16.8	20.1	17.4	19.5	20.5	18.1	18.4	14.4	13.6	9.0	5.1	-5.6	-18.9	-32.4	-51.8
HVAC	Leq,d	27.2	-24.3	-18.3	-14.3	-1.3	3.6	-2.4	5.7	7.5	6.4	6.9	6.8	8.6	9.4	10.2	13.8	17.8	16.5	18.4	20.2	17.6	17.5	14.0	13.0	8.1	4.0	-6.8	-20.1	-33.5	-52.4
HVAC	Leq,d	28.7	-25.9	-19.8	-15.8	-2.8	2.2	-3.7	4.5	6.5	5.6	7.4	7.7	9.7	11.2	12.7	17.4	20.8	17.7	19.8	20.9	18.4	18.8	14.7	14.1	9.6	5.8	-4.7	-17.7	-30.8	-49.5
HVAC	Leq,d	27.6	-27.0	-20.9	-16.9	-3.8	1.2	-4.7	3.5	5.6	4.7	7.0	7.5	10.1	12.0	13.5	17.4	20.4	16.2	18.1	19.1	17.0	17.2	13.0	12.2	7.5	3.3	-7.8	-21.8	-36.2	-56.9
HVAC	Leq,d	27.7	-26.9	-20.8	-16.8	-3.7	1.4	-4.5	3.6	5.8	4.9	7.3	7.7	10.4	12.3	13.7	17.6	20.5	16.4	18.2	19.2	16.8	17.1	13.0	12.3	7.7	3.7	-7.4	-21.2	-35.5	-55.8
HVAC	Leq,d	22.5	-25.8	-19.8	-15.8	-2.8	2.1	-3.9	3.9	5.8	4.7	5.2	5.2	7.0	7.9	8.7	12.5	14.2	9.8	11.4	13.3	10.5	13.5	9.1	8.0	2.9	0.5	-11.5	-26.5	-42.8	-65.6
HVAC	Leq,d	27.0	-27.5	-21.4	-17.4	-4.4	0.7	-5.2	2.9	5.0	4.1	6.4	6.7	9.2	10.9	13.0	16.9	19.9	15.7	17.5	18.5	16.5	16.7	12.4	11.5	6.6	2.2	-9.3	-23.8	-38.9	-60.5
HVAC	Leq,d	27.2	-27.4	-21.3	-17.3	-4.2	0.8	-5.1	3.1	5.2	4.3	6.6	7.0	9.5	11.2	13.2	17.1	20.0	15.9	17.7	18.7	16.6	16.8	12.6	11.7	6.9	2.5	-8.8	-23.1	-38.1	-59.4
Receiver Receiver FI G Lr,lim dB(A) Leq,d 38.7 dB(A)																															
HVAC	Leq,d	22.4	-31.5	-25.5	-21.4	-8.4	-3.4	-9.3	-1.6	0.5	-0.4	1.8	2.2	4.7	6.4	8.4	12.3	15.3	11.0	13.9	14.6	11.7	11.4	6.2	4.4	-2.6	-10.2	-26.3	-47.3	-71.6	
HVAC	Leq,d	30.6	-20.3	-14.3	-10.4	2.6	7.4	1.3	10.3	12.0	10.8	11.5	11.3	12.9	16.5	17.2	20.8	21.9	17.8	19.3	22.7	19.9	21.2	17.1	16.7	12.8	10.1	1.4	-8.6	-17.3	-30.0
HVAC	Leq,d	34.3	-21.0	-14.9	-10.9	2.2	7.2	1.3	10.0	12.1	11.3	13.1	13.6	15.6	18.0	19.9	23.9	26.7	22.8	24.7	25.8	23.6	24.3	20.7	20.8	17.4	15.3	7.3	-2.3	-10.5	-22.8
HVAC	Leq,d	27.1	-22.8	-16.8	-12.9	-0.1	4.7	-1.5	6.9	8.5	7.1	7.5	7.1	8.6	9.0	9.4	12.7	18.4	14.5	18.0	19.8	17.0	18.3	14.1	13.4	9.0	5.6	-4.1	-15.8	-26.9	-42.7
HVAC	Leq,d	32.9	-22.3	-16.2	-12.2	0.9	5.9	0.0	8.6	10.7	9.9	11.7	12.0	14.0	16.3	18.5	22.4	25.4	21.5	23.4	24.5	22.2	22.9	19.2	19.2	15.5	13.1	4.6	-5.6	-14.9	-28.5
HVAC	Leq,d	22.5	-31.5	-25.4	-21.4	-8.3	-3.3	-9.2	-1.5	0.6	-0.3	1.9	2.3	4.8	6.6	8.5	12.4	15.4	11.1	14.0	14.7	11.8	11.5	6.3	4.6	-2.4	-9.9	-25.9	-46.8	-70.8	
HVAC	Leq,d	22.6	-31.4	-25.4	-21.3	-8.3	-3.2	-9.2	-1.4	0.6	-0.2	2.0	2.4	4.9	6.7	8.6	12.4	15.4	11.2	14.0	14.8	11.9	11.6	6.4	4.4	-2.5	-9.9	-25.7	-46.4	-70.2	
HVAC	Leq,d	21.9	-26.9	-20.9	-16.9	-4.0	1.0	-5.0	2.6	4.5	3.4	3.9	3.9	5.8	6.7	7.6	11.4	13.2	8.9	11.5	13.4	10.6	13.3	8.7	7.4	1.6	-3.1	-16.3	-32.8	-51.1	-76.4
HVAC	Leq,d	22.2	-31.7	-25.6	-21.6	-8.5	-3.5	-9.4	-1.8	0.3	-0.6	1.6	2.0	4.4	6.1	8.2	12.2	15.1	10.9	13.6	14.5	11.6	11.2	6.0	3.7	-3.4	-11.0	-27.2	-48.4	-72.9	
HVAC	Leq,d	22.3	-31.6	-25.5	-21.5	-8.5	-3.4	-9.3	-1.7	0.4	-0.5	1.7	2.1	4.5	6.2	8.4	12.2	15.2	11.0	13.7	14.6	11.7	11.3	6.1	3.8	-3.2	-10.7	-26.8	-47.9	-72.3	
Receiver Receiver FI G Lr,lim dB(A) Leq,d 39.5 dB(A)																															
HVAC	Leq,d	29.5	-24.4	-18.4	-14.4	1.0	6.0	0.0	8.0	9.9	8.8	10.8	10.9	12.8	13.8	15.9	19.8	22.0	17.9	19.7	20.8	18.4	18.8	14.9	14.6	10.5	7.4	-2.3	-14.2	-25.7	-42.3
HVAC	Leq,d	22.1	-26.5	-20.7	-16.9	-4.2	0.5	-5.9	1.5	3.0	3.9	3.9	3.3	4.6	4.8	5.0	12.9	14.1	10.7	11.8	14.3	12.2	11.8	6.8	5.1	-0.7	-6.1	-18.7	-34.3	-50.8	-73.7
HVAC	Leq,d	24.8	-26.5	-20.5	-16.5	-3.5	1.4	-4.6	3.4	5.3	4.2	5.8	5.8	7.8	8.7	9.7	13.6	15.9	13.8	15.6	16.6	14.1	15.5	11.3	10.5	5.8	1.6	-9.6	-23.7	-38.3	-59.1
HVAC	Leq,d	24.3	-24.9	-19.0	-15.2	-2.3	2.5	-3.8	6.6	8.2	6.8	7.0	6.5	11.0	11.5	11.9	15.3	16.3	12.8	13.9	15.4	12.2	12.1	7.2	5.8	0.4	-4.2	-15.7	-29.7	-43.9	-63.9
HVAC	Leq,d	27.3	-26.1	-20.0	-16.0	-3.1	1.9	-4.1	4.0	5.9	7.3	9.0	9.0	10.9	11.9	12.9	16.7	19.0	16.1	17.9	18.9	16.5	17.6	13.5	12.8	8.3	4.4	-6.4	-19.8	-33.6	-53.1
HVAC	Leq,d	29.8	-24.4	-18.4	-14.4	1.0	6.0	0.0	8.0	9.9	8.9	10.8	10.9	12.8	13.8	15.9	19.8	22.0	17.9	19.7	21.5	19.1	19.6	15.8	15.5	11.5	8.4	-1.1	-13.1	-24.8	-41.7
HVAC	Leq,d	29.8	-24.4	-18.4	-14.4	1.0	6.0	0.0	8.0	9.9	8.9	10.8	10.9	12.8	13.8	15.9	19.8	22.0	17.9	19.7	21.5	19.2	19.6	15.8	15.5	11.5	8.5	-1.1	-13.1	-24.8	-41.7
HVAC	Leq,d	34.8	-16.8	-10.8	-6.8	8.4	13.3	7.2	16.3	18.1	16.9	17.6	17.4	19.1	19.8	20.5	24.1	25.3	20.7	22.2	24.4	24.5	26.8	23.1	22.8	19.2	16.9	8.8	-0.3	-7.7	-18.6
HVAC	Leq,d	29.4	-24.5	-18.4	-14.4	1.0	5.9	-0.1	7.9	9.9	8.8	10.8	10.8	12.8	13.7	14.7	19.8	22.0	17.8	19.7	20.7	18.3	18.8	14.9	14.5	10.5	7.3	-2.5	-14.3	-25.9	-42.6
HVAC	Leq,d	29.4	-24.4	-18.4	-14.4	1.0	5.9	-0.1	8.0	9.9	8.8	10.8	10.8	12.8	13.7	14.7	19.8	22.0	17.9	19.7	20.8	18.4	18.8	14.9	14.6	10.5	7.3	-2.4	-14.3	-25.8	-42.4
Receiver Receiver FI G Lr,lim dB(A) Leq,d 35.9 dB(A)																															
HVAC	Leq,d	27.8	-24.0	-18.0	-14.0	1.4	6.3	0.3	8.3	10.2	9.1	11.0	11.0	12.8	13.7	14.6	18.4	20.4	16.1	17.8	18.7	16.2	16.4	12.4	11.9	7.8	4.6	-5.0	-16.7	-27.8	-44.0

MD Acoustics LLC 4960 S Gilbert Rd Chandler AZ 85249 USA

Temple Bakersfield Noise
Contribution spectra - Nighttime Outdoor SP

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Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz	12.5kHz	16kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
HVAC	Leq,d	13.0	-30.6	-24.8	-21.1	-8.4	-3.8	-10.2	-3.7	-2.3	-4.0	-3.8	-4.4	-3.2	-3.1	-3.0	4.5	5.7	0.7	1.6	4.9	1.3	1.8	-4.1	-7.0	-14.6	-22.5	-39.3	-61.1	-86.2	
HVAC	Leq,d	17.9	-30.2	-24.2	-20.2	-7.2	-2.3	-8.3	-1.3	0.6	-0.6	0.9	0.9	2.8	3.6	4.5	8.3	11.0	6.7	8.2	8.9	5.9	5.6	0.4	-1.9	-8.8	-13.6	-29.4	-49.9	-73.6	
HVAC	Leq,d	15.7	-29.4	-23.6	-19.7	-7.0	-2.2	-8.5	-1.7	-0.1	-1.7	-1.4	-2.0	2.3	2.7	3.0	6.1	7.2	2.2	3.1	4.5	6.8	6.4	0.8	-1.8	-8.9	-16.4	-32.2	-52.5	-75.5	
HVAC	Leq,d	18.2	-29.9	-23.8	-19.9	-6.9	-1.9	-8.0	-0.9	1.0	-0.1	1.3	1.3	3.2	4.0	4.9	8.7	11.4	7.0	8.6	9.3	6.3	6.0	0.9	-1.3	-8.0	-12.4	-27.7	-47.6	-70.4	
HVAC	Leq,d	27.6	-24.2	-18.2	-14.2	1.2	6.1	0.1	8.1	10.0	8.9	10.8	10.8	12.6	13.5	14.4	18.1	20.2	15.9	17.6	18.4	15.9	16.2	12.1	11.7	7.5	4.2	-5.5	-17.3	-28.7	-45.1
HVAC	Leq,d	27.5	-24.4	-18.4	-14.4	1.0	5.9	-0.1	7.9	9.8	8.7	10.6	10.6	12.5	13.3	14.2	18.0	20.0	15.7	17.5	18.4	15.9	16.1	12.0	11.5	7.2	3.9	-5.9	-17.9	-29.4	-46.1
HVAC	Leq,d	19.0	-25.7	-19.7	-15.8	-2.9	1.9	-4.3	3.5	5.2	3.8	4.0	3.7	5.2	5.7	6.2	9.5	10.6	5.8	7.0	8.4	8.3	7.9	3.0	2.2	-1.1	-5.7	-18.0	-33.1	-48.9	-70.9
HVAC	Leq,d	29.7	-23.6	-17.6	-13.6	1.8	6.7	0.7	8.7	10.6	9.5	11.4	12.7	14.5	15.4	16.3	20.1	22.3	18.1	19.8	20.8	18.3	18.6	14.7	14.3	10.3	7.3	-2.1	-13.5	-24.3	-40.0
HVAC	Leq,d	29.6	-23.8	-17.8	-13.8	1.6	6.5	0.5	8.5	10.4	9.3	11.2	12.5	14.4	15.2	16.1	20.0	22.2	17.9	19.6	20.6	18.1	18.5	14.5	14.1	10.0	7.0	-2.5	-14.0	-25.0	-40.9

Appendix C:
Traffic Information and Noise Modeling Worksheets

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT: **BAKERSFIELD TEMPLE**
 ROADWAY: **ALLEN ROAD**
 LOCATION: **NORTH OF STOCKDALE HIGHWAY - RECEIVER AT NORTH RESIDENTIAL PROPERTIES**

JOB #: **1293-25-12**
 DATE: **11-Feb-26**
 ENGINEER: **S. Ostergaard**

EXISTING**ROADWAY CONDITIONS**

ADT = **26,500**
 SPEED = **50**
 PK HR % = **10**
 NEAR LANE/FAR LANE DIS = **55**
 ROAD ELEVATION = **0.0**
 GRADE = **1.0** %
 PK HR VOL = **2,650**

RECEIVER INPUT DATA

RECEIVER DISTANCE = **910**
 DIST C/L TO WALL = **900**
 RECEIVER HEIGHT = **5.0**
 WALL DISTANCE FROM RECEIVER = **10**
 PAD ELEVATION = **0.5**
 ROADWAY VIEW: LF ANGLE= **-90**
 RT ANGLE= **90**
 DF ANGLE= **180**

SITE CONDITIONS

AUTOMOBILES = **15**
 MEDIUM TRUCKS = **15** (10 = HARD SITE, 15 = SOFT SITE)
 HEAVY TRUCKS = **15**

WALL INFORMATION

HTH WALL= **6.5**
 AMBIENT= **0.0**
 BARRIER = **0** (0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9742
MEDIUM TRUCK	0.848	0.049	0.103	0.0184
HEAVY TRUCKS	0.865	0.027	0.108	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	909.71	--
MEDIUM TRUCKS	4.0	909.70	--
HEAVY TRUCKS	8.0	909.69	0.00

NOISE OUTPUT DATA**NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)**

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	52.7	50.8	49.1	43.0	51.6	52.2
MEDIUM TRUCKS	43.2	41.7	35.3	33.8	42.2	42.5
HEAVY TRUCKS	43.4	42.0	33.0	34.2	42.6	42.7
NOISE LEVELS (dBA)	53.6	51.8	49.4	44.0	52.6	53.1

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	46.6	44.7	43.0	36.9	45.5	46.1
MEDIUM TRUCKS	37.1	35.6	29.2	27.7	36.1	36.4
HEAVY TRUCKS	37.4	36.0	27.0	28.2	36.6	36.7
NOISE LEVELS (dBA)	47.5	45.7	43.3	37.9	46.5	47.0

NOISE CONTOUR (FT)

NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	68	146	316	680
LDN	63	135	291	627

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT: **BAKERSFIELD TEMPLE**
 ROADWAY: **ALLEN ROAD**
 LOCATION: **NORTH OF STOCKDALE HIGHWAY - RECEIVER AT NORTH RESIDENTIAL PROPERTIES**

JOB #: **1293-25-12**
 DATE: **11-Feb-26**
 ENGINEER: **S. Ostergaard**

EXISTING + PROJECT**ROADWAY CONDITIONS**

ADT = **26,639**
 SPEED = **50**
 PK HR % = **10**
 NEAR LANE/FAR LANE DIS = **55**
 ROAD ELEVATION = **0.0**
 GRADE = **1.0** %
 PK HR VOL = **2,664**

RECEIVER INPUT DATA

RECEIVER DISTANCE = **910**
 DIST C/L TO WALL = **900**
 RECEIVER HEIGHT = **5.0**
 WALL DISTANCE FROM RECEIVER = **10**
 PAD ELEVATION = **0.5**
 ROADWAY VIEW: LF ANGLE= **-90**
 RT ANGLE= **90**
 DF ANGLE= **180**

SITE CONDITIONS

AUTOMOBILES = **15**
 MEDIUM TRUCKS = **15** (10 = HARD SITE, 15 = SOFT SITE)
 HEAVY TRUCKS = **15**

WALL INFORMATION

HTH WALL= **6.5**
 AMBIENT= **0.0**
 BARRIER = **0** (0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9742
MEDIUM TRUCK	0.848	0.049	0.103	0.0184
HEAVY TRUCKS	0.865	0.027	0.108	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	909.71	--
MEDIUM TRUCKS	4.0	909.70	--
HEAVY TRUCKS	8.0	909.69	0.00

NOISE OUTPUT DATA**NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)**

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	52.8	50.9	49.1	43.0	51.7	52.3
MEDIUM TRUCKS	43.2	41.7	35.3	33.8	42.2	42.5
HEAVY TRUCKS	43.5	42.0	33.0	34.3	42.6	42.7
NOISE LEVELS (dBA)	53.7	51.8	49.4	44.0	52.6	53.1

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	46.7	44.8	43.0	36.9	45.6	46.2
MEDIUM TRUCKS	37.1	35.6	29.2	27.7	36.1	36.4
HEAVY TRUCKS	37.5	36.0	27.0	28.3	36.6	36.7
NOISE LEVELS (dBA)	47.6	45.8	43.3	37.9	46.5	47.0

NOISE CONTOUR (FT)

NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	68	147	317	682
LDN	63	136	292	629

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT: BAKERSFIELD TEMPLE	JOB #: 1293-25-12
ROADWAY: STOCKDALE HIGHWAY	DATE: 11-Feb-26
LOCATION: EAST OF ALLEN ROAD - RECEIVER AT NORTH RESIDENTIAL PROPERTIES	ENGINEER: S. Ostergaard

EXISTING**ROADWAY CONDITIONS**

ADT = **13,800**
 SPEED = **50**
 PK HR % = **10**
 NEAR LANE/FAR LANE DIS = **60**
 ROAD ELEVATION = **0.0**
 GRADE = **1.0** %
 PK HR VOL = **1,380**

RECEIVER INPUT DATA

RECEIVER DISTANCE = **510**
 DIST C/L TO WALL = **500**
 RECEIVER HEIGHT = **5.0**
 WALL DISTANCE FROM RECEIVER = **10**
 PAD ELEVATION = **0.5**
 ROADWAY VIEW: LF ANGLE= **-90**
 RT ANGLE= **90**
 DF ANGLE= **180**

SITE CONDITIONS

AUTOMOBILES = **10**
 MEDIUM TRUCKS = **10** (10 = HARD SITE, 15 = SOFT SITE)
 HEAVY TRUCKS = **10**

WALL INFORMATION

HTH WALL= **6.5**
 AMBIENT= **0.0**
 BARRIER = **0** (0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9742
MEDIUM TRUCK	0.848	0.049	0.103	0.0184
HEAVY TRUCKS	0.865	0.027	0.108	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	509.24	--
MEDIUM TRUCKS	4.0	509.22	--
HEAVY TRUCKS	8.0	509.21	0.00

NOISE OUTPUT DATA**NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)**

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	60.0	58.1	56.3	50.2	58.9	59.5
MEDIUM TRUCKS	50.4	48.9	42.5	41.0	49.4	49.7
HEAVY TRUCKS	50.7	49.2	40.2	41.5	49.8	49.9
NOISE LEVELS (dBA)	60.9	59.0	56.6	51.2	59.8	60.3

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	53.8	51.9	50.1	44.1	52.7	53.3
MEDIUM TRUCKS	44.3	42.8	36.4	34.9	43.3	43.6
HEAVY TRUCKS	44.7	43.2	34.2	35.5	43.8	43.9
NOISE LEVELS (dBA)	54.7	52.9	50.4	45.1	53.7	54.2

NOISE CONTOUR (FT)

NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	55	174	549	1736
LDN	49	154	486	1538

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT: **BAKERSFIELD TEMPLE**
ROADWAY: **STOCKDALE HIGHWAY**
LOCATION: **EAST OF ALLEN ROAD - RECEIVER AT NORTH RESIDENTIAL PROPERTIES**

JOB #: **1293-25-12**
DATE: **11-Feb-26**
ENGINEER: **S. Ostergaard**

EXISTING + PROJECT

ROADWAY CONDITIONS

ADT = **13,939**
SPEED = **50**
PK HR % = **10**
NEAR LANE/FAR LANE DIS = **60**
ROAD ELEVATION = **0.0**
GRADE = **1.0** %
PK HR VOL = **1,394**

RECEIVER INPUT DATA

RECEIVER DISTANCE = **510**
DIST C/L TO WALL = **500**
RECEIVER HEIGHT = **5.0**
WALL DISTANCE FROM RECEIVER = **10**
PAD ELEVATION = **0.5**
ROADWAY VIEW: LF ANGLE= **-90**
RT ANGLE= **90**
DF ANGLE= **180**

SITE CONDITIONS

AUTOMOBILES = **10**
MEDIUM TRUCKS = **10** (10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS = **10**

WALL INFORMATION

HTH WALL= **6.5**
AMBIENT= **0.0**
BARRIER = **0** (0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9742
MEDIUM TRUCK	0.848	0.049	0.103	0.0184
HEAVY TRUCKS	0.865	0.027	0.108	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	509.24	--
MEDIUM TRUCKS	4.0	509.22	--
HEAVY TRUCKS	8.0	509.21	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	60.0	58.1	56.3	50.3	58.9	59.5
MEDIUM TRUCKS	50.4	48.9	42.6	41.0	49.5	49.7
HEAVY TRUCKS	50.7	49.3	40.3	41.5	49.9	50.0
NOISE LEVELS (dBA)	60.9	59.1	56.6	51.3	59.8	60.4

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	53.8	51.9	50.2	44.1	52.7	53.4
MEDIUM TRUCKS	44.3	42.8	36.5	34.9	43.4	43.6
HEAVY TRUCKS	44.7	43.3	34.3	35.5	43.9	44.0
NOISE LEVELS (dBA)	54.8	52.9	50.5	45.1	53.7	54.2

NOISE CONTOUR (FT)

NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	55	175	555	1754
LDN	49	155	491	1554

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT: BAKERSFIELD TEMPLE		JOB #: 1293-25-12	
ROADWAY: JEWETTA AVENUE		DATE: 11-Feb-26	
LOCATION: NORTH OF STOCKDALE HIGHWAY - RECEIVER AT NORTH RESIDENTIAL PROPERTIES		ENGINEER: S. Ostergaard	

EXISTING			
ROADWAY CONDITIONS		RECEIVER INPUT DATA	
ADT =	7,900	RECEIVER DISTANCE =	60
SPEED =	45	DIST C/L TO WALL =	50
PK HR % =	10	RECEIVER HEIGHT =	5.0
NEAR LANE/FAR LANE DIS	35	WALL DISTANCE FROM RECEIVER	10
ROAD ELEVATION =	0.0	PAD ELEVATION =	0.5
GRADE =	1.0 %	ROADWAY VIEW: LF ANGLE=	-90
PK HR VOL =	790	RT ANGLE=	90
		DF ANGLE=	180

SITE CONDITIONS		WALL INFORMATION	
AUTOMOBILES =	10	HTH WALL=	6.5
MEDIUM TRUCKS =	10	AMBIENT=	0.0
HEAVY TRUCKS =	10	BARRIER =	0 (0 = WALL, 1 = BERM)

VEHICLE MIX DATA					MISC. VEHICLE INFO																																				
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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT: **BAKERSFIELD TEMPLE**
ROADWAY: **JEWETTA AVENUE**
LOCATION: **NORTH OF STOCKDALE HIGHWAY - RECEIVER AT NORTH RESIDENTIAL PROPERTIES**

JOB #: **1293-25-12**
DATE: **11-Feb-26**
ENGINEER: **S. Ostergaard**

EXISTING + PROJECT

ROADWAY CONDITIONS

ADT = **8,039**
SPEED = **45**
PK HR % = **10**
NEAR LANE/FAR LANE DIS = **35**
ROAD ELEVATION = **0.0**
GRADE = **1.0** %
PK HR VOL = **804**

RECEIVER INPUT DATA

RECEIVER DISTANCE = **60**
DIST C/L TO WALL = **50**
RECEIVER HEIGHT = **5.0**
WALL DISTANCE FROM RECEIVER = **10**
PAD ELEVATION = **0.5**
ROADWAY VIEW: LF ANGLE= **-90**
RT ANGLE= **90**
DF ANGLE= **180**

SITE CONDITIONS

AUTOMOBILES = **10**
MEDIUM TRUCKS = **10** (10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS = **10**

WALL INFORMATION

HTH WALL= **6.5**
AMBIENT= **0.0**
BARRIER = **0** (0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9742
MEDIUM TRUCK	0.848	0.049	0.103	0.0184
HEAVY TRUCKS	0.865	0.027	0.108	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	57.22	--
MEDIUM TRUCKS	4.0	57.05	--
HEAVY TRUCKS	8.0	56.96	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.8	63.9	62.1	56.1	64.7	65.3
MEDIUM TRUCKS	56.8	55.3	49.0	47.4	55.9	56.1
HEAVY TRUCKS	57.4	56.0	47.0	48.2	56.6	56.7
NOISE LEVELS (dBA)	66.8	65.0	62.5	57.2	65.8	66.3

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	58.7	56.8	55.0	49.0	57.6	58.2
MEDIUM TRUCKS	50.2	48.7	42.4	40.8	49.3	49.5
HEAVY TRUCKS	51.8	50.4	41.3	42.6	51.0	51.1
NOISE LEVELS (dBA)	60.0	58.2	55.6	50.4	58.9	59.4

NOISE CONTOUR (FT)

NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	26	81	256	809
LDN	23	72	227	719

Appendix D:
Construction Noise Modeling Output

Receptor - Residences to the North

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent ¹	Ground Factor ²	Usage Factor	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
SITE PREP									
Tractor	4	84	20	260	40	0.66	0.40	94.6	61.0
Dozer	3	82	20	260	40	0.66	0.40	92.6	59.0
							Log Sum	94.6	68.7
GRADE									
Excavator	2	81	20	260	40	0.66	0.40	91.6	58.0
Grader	1	85	20	260	40	0.66	0.40	95.6	62.0
Dozer	1	82	20	260	40	0.66	0.40	92.6	59.0
Scraper	2	84	20	260	40	0.66	0.40	94.6	61.0
Tractor	2	84	20	260	40	0.66	0.40	94.6	61.0
								95.6	69.4
BUILD									
Crane	1	81	20	260	16	0.66	0.16	91.6	54.0
Man lift	3	75	20	260	20	0.66	0.20	85.6	49.0
Generator	1	81	20	260	50	0.66	0.50	91.6	58.9
Tractor	3	84	20	260	40	0.66	0.40	94.6	61.0
Welder/Torch	1	74	20	260	40	0.66	0.40	84.6	51.0
								94.6	67.2
PAVE									
Paver	2	77	20	260	50	0.66	0.50	87.6	54.9
Pavement Scarifier	2	90	20	260	20	0.66	0.20	100.6	
Roller	2	80	20	260	20	0.66	0.20	90.6	54.0
								100.6	60.5
ARCH COAT									
Compressor (air)	1	78	20	260	40	0.66	0.40	88.6	55.0
								88.6	55.0

¹FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

²FTA Transit Noise and Vibration Impact Assessment Manual Section 7.1, 0.66 for soft ground and 0 for hard ground

Receptor - Church to the South

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent ¹	Ground Factor ²	Usage Factor	Receptor Item Lmax, dBA	Receptor. Item Leq, dBA
SITE PREP									
Tractor	4	84	450	650	40	0.66	0.40	58.6	50.4
Dozer	3	82	450	650	40	0.66	0.40	56.6	48.4
							Log Sum	58.6	58.1
GRADE									
Excavator	2	81	450	650	40	0.66	0.40	55.6	47.4
Grader	1	85	450	650	40	0.66	0.40	59.6	51.4
Dozer	1	82	450	650	40	0.66	0.40	56.6	48.4
Scraper	2	84	450	650	40	0.66	0.40	58.6	50.4
Tractor	2	84	450	650	40	0.66	0.40	58.6	50.4
								59.6	58.8
BUILD									
Crane	1	81	450	650	16	0.66	0.16	55.6	43.4
Man lift	3	75	450	650	20	0.66	0.20	49.6	38.4
Generator	1	81	450	650	50	0.66	0.50	55.6	48.4
Tractor	3	84	450	650	40	0.66	0.40	58.6	50.4
Welder/Torch	1	74	450	650	40	0.66	0.40	48.6	40.4
								58.6	56.5
PAVE									
Paver	2	77	450	650	50	0.66	0.50	51.6	44.4
Pavement Scarifier	2	90	450	650	20	0.66	0.20	64.6	53.4
Roller	2	80	450	650	20	0.66	0.20	54.6	43.4
								64.6	57.3
ARCH COAT									
Compressor (air)	1	78	450	650	40	0.66	0.40	52.6	44.4
								52.6	44.4

¹FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

²FTA Transit Noise and Vibration Impact Assessment Manual Section 7.1, 0.66 for soft ground and 0 for hard ground

Receptor - Care Center to the West

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent ¹	Ground Factor ²	Usage Factor	Receptor Item Lmax, dBA	Receptor. Item Leq, dBA
SITE PREP									
Tractor	4	84	275	830	40	0.66	0.40	64.3	47.6
Dozer	3	82	275	830	40	0.66	0.40	62.3	45.6
							Log Sum	64.3	55.3
GRADE									
Excavator	2	81	275	830	40	0.66	0.40	61.3	44.6
Grader	1	85	275	830	40	0.66	0.40	65.3	48.6
Dozer	1	82	275	830	40	0.66	0.40	62.3	45.6
Scraper	2	84	275	830	40	0.66	0.40	64.3	47.6
Tractor	2	84	275	830	40	0.66	0.40	64.3	47.6
								65.3	55.9
BUILD									
Crane	1	81	275	830	16	0.66	0.16	61.3	40.6
Man lift	3	75	275	830	20	0.66	0.20	55.3	35.6
Generator	1	81	275	830	50	0.66	0.50	61.3	45.5
Tractor	3	84	275	830	40	0.66	0.40	64.3	47.6
Welder/Torch	1	74	275	830	40	0.66	0.40	54.3	37.6
								64.3	53.7
PAVE									
Paver	2	77	275	830	50	0.66	0.50	57.3	41.5
Pavement Scarifier	2	90	275	830	20	0.66	0.20	70.3	50.6
Roller	2	80	275	830	20	0.66	0.20	60.3	40.6
								70.3	54.4
ARCH COAT									
Compressor (air)	1	78	275	830	40	0.66	0.40	58.3	41.6
								58.3	41.6

¹FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

²FTA Transit Noise and Vibration Impact Assessment Manual Section 7.1, 0.66 for soft ground and 0 for hard ground

Receptor - Residences to the North

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent ¹	Ground Factor ²	Usage Factor	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Receptor Item Leq, dBA w/Wall
GRADE										
Grader	1	85	20	43.8	40	0	0.40	93.0	82.2	
Scraper	1	84	20	43.8	40	0	0.40	92.0	81.2	
Compactor (ground)	0	83	20	43.8	20	0	0.20	91.0	77.2	
Dump Truck	0	76	20	43.8	40	0	0.40	84.0	73.2	
								93.0	84.7	79.2
FINE GRADE										
Dump Truck	0	76	20	43.8	40	0	0.40	84.0	73.2	
Scraper	1	84	20	43.8	40	0	0.40	92.0	81.2	
Grader	1	85	20	43.8	40	0	0.40	93.0	82.2	
Roller	0	80	20	43.8	20	0	0.20	88.0	74.2	
								93.0	84.7	79.2
PAVE										
Paver	1	77	20	43.8	50	0	0.50	85.0	75.1	
Dump Truck	0	76	20	43.8	40	0	0.40	84.0	73.2	
Roller	1	80	20	43.8	20	0	0.20	88.0	74.2	
								88.0	77.7	72.2
LANDSCAPE										
Gradall	1	83	20	43.8	40	0	0.40	91.0	80.2	
Excavator	1	81	20	43.8	40	0	0.40	89.0	78.2	
								89.0	78.2	72.7

¹FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

²FTA Transit Noise and Vibration Impact Assessment Manual Section 7.1, 0.66 for soft ground and 0 for hard ground

³ISO 9613-2 Barrier Insertion Loss

Appendix E:
Construction Vibration Modeling Output

VIBRATION LEVEL IMPACT

Project: Temple Bakersfield Date: 12/23/25
Source: Vibratory Roller
Scenario: Unmitigated
Location: North residential buildings
Address: 12310 Stockdale Highway, Bakersfield, CA
PPV = $PPV_{ref}(25/D)^n$ (in/sec)

DATA INPUT

Equipment = 1 Vibratory Roller INPUT SECTION IN BLUE
Type
PPVref = 0.21 Reference PPV (in/sec) at 25 ft.
D = 20.00 Distance from Equipment to Receiver (ft)
n = 1.10 Vibration attenuation rate through the ground

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.

DATA OUT RESULTS

PPV = 0.268 IN/SEC OUTPUT IN RED