APPENDIX I

Noise Technical Report

Noise Technical Report
for the Palomar Heights Project
Escondido, California

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AIA	Airport Influence Area
ALUCP	Airport Land Use Compatibility Plan
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Escondido
City Planner	City of Escondido Planning Division
CNEL	Community Noise Equivalent Level
CNMP	construction noise management plan
CNMP	Construction Noise Management Plan
dB	decibel
dBA	A-weighted decibel
EQR	Environmental Quality Regulations
FTA	Federal Transit Administration
Hz	Hertz
ips	inches per second
L_{dn}	day–night average noise level
L_{eq}	equivalent noise level over a given period
L_{max}	sound energy level averaged over a specified time period
L_n	statistical sound level
MM	Mitigation Measure
PPV	peak particle velocity
proposed project	The Farm in Poway Project
RCNM	Roadway Construction Noise Model
RMS	root-mean square
SPL	sound pressure level
ST	short-term noise measurement locations
VdB	vibration velocity decibel

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1 Introduction and Background

This assessment was conducted to address potential noise impacts from the proposed Palomar Heights Project (proposed Project) in the City of Escondido (City). This assessment utilizes the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). The assessment includes examination of noise generation from project construction and project-related traffic, and also evaluates future potential noise exposure levels at sample locations of proposed future residences. Construction activity vibration is also evaluated as part of this assessment.

Project Description

The proposed Project consists of redevelopment of the Palomar Health Downtown Campus into a mixed-use development. The Project would include 510 multi-family dwelling units and up to 10,000 square feet of commercial space. In addition, the Project would include supporting open space and recreational amenities, landscaping, parking, and infrastructure improvements. The infrastructure improvements include utility connections to lines within the adjacent roadways as well as roadway frontage improvements.

Noise Characteristics

Sound is mechanical energy transmitted by pressure waves in a compressible medium, such as air. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired. The sound pressure level (SPL) has become the most common descriptor used to characterize the loudness of an ambient sound level. The unit of measurement of sound pressure is a decibel (dB). Under controlled conditions in an acoustics laboratory, the trained, healthy human ear is able to discern changes in sound levels of 1 dB when exposed to steady, single-frequency signals in the mid-frequency range. Outside such controlled conditions, the trained ear can detect changes of 2 dB in normal environmental noise. It is widely accepted that the average healthy ear, however, can barely perceive noise level changes of 3 dB. A change of 5 dB is readily perceptible, and a change of 10 dB is perceived as twice or half as loud (Caltrans 2013a). 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 number of daily trips along a given road) would result in a barely perceptible change in sound level.

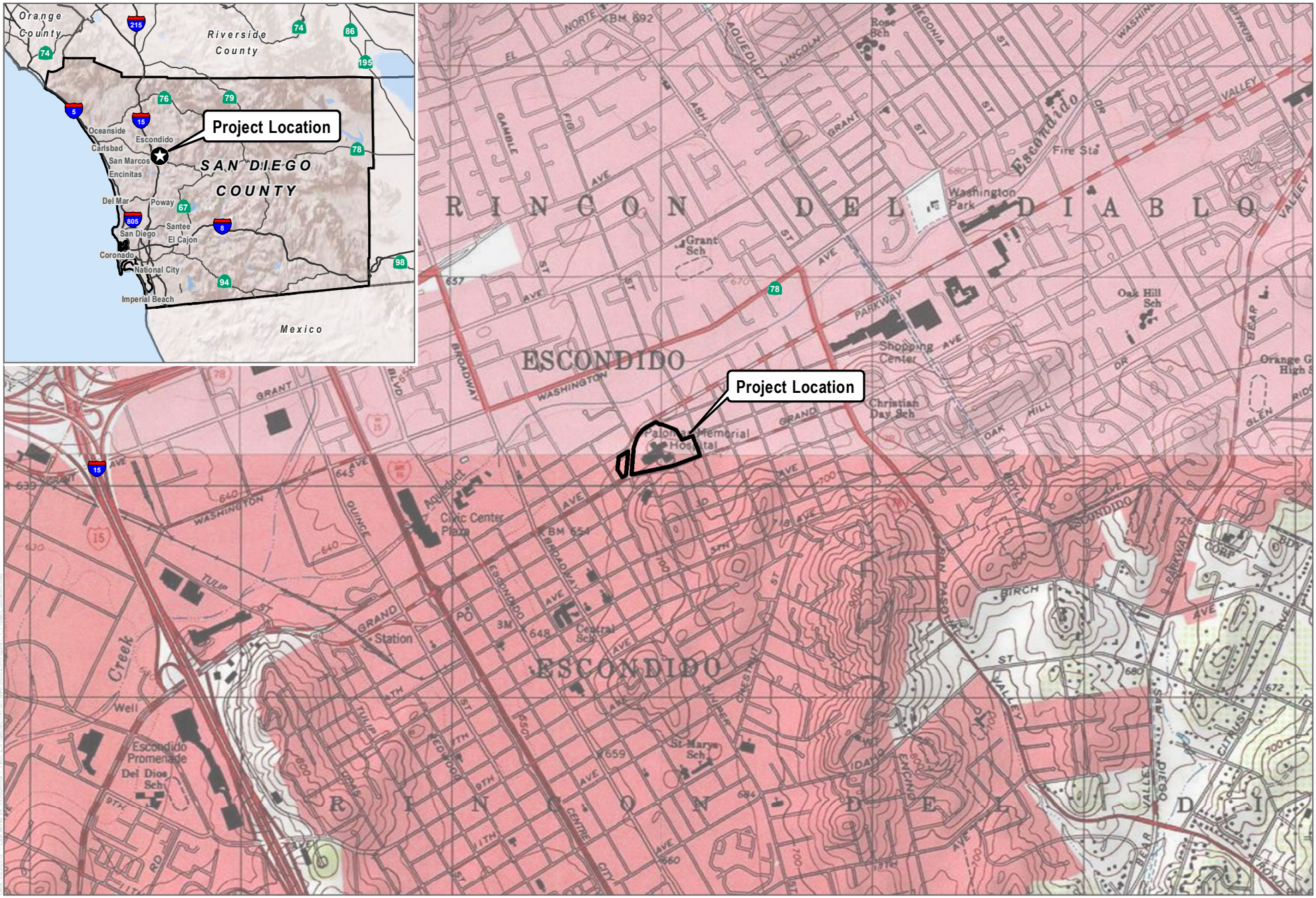
Sound may be described in terms of level or amplitude (measured in decibels), frequency or pitch (measured in hertz [Hz], or cycles per second), and duration (measured in seconds or minutes). Because the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale is used to relate noise to human sensitivity. The A-weighted decibel (dBA) scale performs this compensation by discriminating against low and very high frequencies in a manner approximating the sensitivity of the human ear.

Several descriptors of noise (noise metrics) exist to help predict average community reactions to the adverse effects of environmental noise, including traffic-generated noise. These descriptors include the equivalent noise level over a given period (L_{eq}), the statistical sound level (L_n), the day–night average noise level (L_{dn}), and the Community Noise Equivalent Level (CNEL). Each of these descriptors uses units of dBA.

L_{eq} is a sound level energy-averaged over a specified time period, represented by a single constant value equivalent to the variable sound energy received at a location. For example, a 1-hour L_{eq} measurement would represent the average amount of energy contained in all the noise that occurred in that hour. L_{eq} is an effective noise descriptor because it allows convenient comparison of time-varying sound levels at different locations. L_{max} is the greatest sound level measured during a designated time interval or event.

Unlike the L_{eq} metrics, L_{dn} and CNEL metrics always represent 24-hour periods. L_{dn} and CNEL also differ from L_{eq} because they apply a time-weighted factor designed to emphasize noise events that occur during the evening and nighttime hours (when speech and sleep disturbance is of more concern). "Time weighted" refers to the fact that L_{dn} and CNEL penalize noise that occurs during certain sensitive periods. In the case of CNEL, noise occurring during the daytime (7:00 a.m. to 7:00 p.m.) receives no penalty. Noise during the evening hours (7:00 p.m. to 10:00 p.m.) is penalized by adding 5 dB to the measured or predicted L_{eq} values, and nighttime (10:00 p.m. to 7:00 a.m.) noise is penalized by adding 10 dB. L_{dn} differs from CNEL in that the daytime period is defined as 7:00 a.m. to 10:00 p.m., thus eliminating the evening period. L_{dn} and CNEL are the predominant criteria used to measure roadway noise affecting residential receptors. These two metrics generally differ from one another by no more than 0.5–1 dB, and are thus often considered comparable or even equivalent and interchangeable by many jurisdictions.

Vibration is the oscillatory movement of solid mass. Like sound, it is described in terms of frequency and amplitude, which can be expressed as displacement, velocity, or acceleration. For purposes of this analysis and consistent with environmental assessment, vibration is presented and discussed herein as units of velocity (inches per second [ips]) and their decibel equivalents as appropriate. Vibration impacts to buildings are generally discussed in terms of peak particle velocity (PPV), while human annoyance or disturbance is often discussed with root-mean-square (RMS) vibration velocity levels that are converted to decibels (VdB). But for purposes of this analysis, PPV will be used to describe all vibration for ease of reading and comparison. Vibration can impact people, structures, and sensitive equipment or processes (Caltrans 2013b). Common sources of vibration within communities include construction activities and railroad operations. Groundborne vibration generated by construction projects exhibits highest amplitudes during pile driving, rock blasting, soil compacting, jack hammering, and demolition-related activities that involve sudden impacts or other transient impulses of energy delivered to soil and rock strata. Vibration can also be more regularly occurring or even continuous in nature, such as the steady operation of mechanical equipment featuring reciprocating or rotating components that are slightly imbalanced. The maximum vibration level standard used by the California Department of Transportation (Caltrans) for the prevention of structural damage to typical residential buildings is 0.3 ips PPV (Caltrans 2013b).



SOURCE: USGS 7.5-Minute Series Valley Center and Escondido Quadrangles

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Palomar Heights

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SOURCE: Summa, 2019

FIGURE 2

Project Site Plan

Palomar Heights

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2 Regulatory Setting

Regulatory Setting

Federal

Federal Transit Administration

In its Transit Noise and Vibration Impact Assessment guidance manual, the Federal Transit Administration (FTA) recommends a daytime construction noise level threshold of 80 dBA L_{eq} over an 8-hour period (FTA 2006) when "detailed" construction noise assessments are performed to evaluate potential impacts to community residences surrounding a project. Although this FTA guidance is not a regulation, it can serve as a quantified standard in the absence of such limits at the State and local jurisdictional levels.

State

California Code of Regulations, Title 24

Title 24 of the California Code of Regulations sets standards which new development in California must meet. According to Title 24, interior noise levels are not to exceed 45 dB CNEL for new multifamily residences, hotels, and other attached residences.

Title 24 also requires that an interior acoustical study demonstrating that interior noise levels due to exterior sources will be less than or equal to 45 CNEL be performed for affected multifamily structures and hotels that are exposed to exterior noise levels in excess of 60 CNEL.

California Department of Health Services Guidelines

The State Department of Health Services has developed guidelines of community noise acceptability for use by local agencies (OPR 2003). Selected relevant levels are listed here:

- Below 60 dBA CNEL: normally acceptable for low-density residential use
- 50 to 70 dBA: conditionally acceptable for low-density residential use
- Below 65 dBA CNEL: normally acceptable for high-density residential use and transient lodging
- 60 to 70 dBA CNEL: conditionally acceptable for high-density residential, transient lodging, churches, educational, and medical facilities.

The normally acceptable exterior noise level for transient lodging use is up to 65 dBA CNEL. Conditional acceptable exterior noise levels range up to 70 dBA CNEL for transient lodging.

California Department of Transportation

In its Transportation and Construction Vibration Guidance Manual, Caltrans recommends a vibration velocity threshold of 0.2 ips PPV (Caltrans 2013b) for assessing "annoying" vibration impacts to occupants of residential structures. Although this Caltrans guidance is not a regulation, it can serve as a quantified standard in the absence of such limits at the local jurisdictional level. Similarly, thresholds to assess building damage risk due to construction vibration vary with the type of structure and its fragility, but tend to range between 0.3 ips and 0.4 ips PPV for typical residential structures (Caltrans 2013b).

Local

Airport Land Use Compatibility Plans

Airport Land Use Compatibility Plans (ALUCPs) are plans that guide property owners and local jurisdictions in determining what types of proposed new land uses are appropriate around airports. They are intended to protect the safety of people, property and aircraft on the ground and in the air in the vicinity of an airport. ALUCPs are based on a defined area around an airport known as the Airport Influence Area (AIA). ALUCPs include policies that address noise compatibility issues associated with airports and their respective AIAs. The San Diego County Regional Airport Authority adopted an amended ALUCP for the Ramona Airport in 2008, and the McClellan-Palomar Airport in 2010.

City of Escondido Community Protection Element

The existing General Plan Community Protection Element establishes noise and land use compatibility standards and outlines goals and policies to achieve these standards. New projects in the City are required to meet the Noise Compatibility Guidelines reproduced in Table 1, Existing City of Escondido Noise Compatibility Guidelines, to determine the compatibility of land uses when evaluating proposed development projects (Noise Policy 5.1). A land use located in an area identified as "normally acceptable" indicates that standard construction methods would attenuate exterior noise to an acceptable indoor noise level and that people can conduct outdoor activities with minimal noise interference. Land uses that fall into the "conditionally acceptable" noise environment should prepare an acoustical study that considers the type of noise source, the sensitivity of the noise receptor, and the degree to which the noise source has the potential to interfere with sleep, speech, or other activities characteristic of the land use. For land uses where the exterior noise level falls within the "normally unacceptable" range, new construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made with noise insulation features included in the design. For land uses where the exterior noise levels fall within the "clearly unacceptable" range, new construction generally should not be undertaken.

Table 1. Existing City of Escondido Noise Compatibility Guidelines

Noise Level (CNEL)							
	0–55	*56–60*	*61–65*	*66–70*	*71–75*	*75–80*	*81–85*
Residential-Single family, Duplex, Mobile Home							
Residential-Multi-Family, Residential Mixed Use							
Transient Lodging, Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							

Table 1. Existing City of Escondido Noise Compatibility Guidelines

Noise Level (CNEL)							
	0–55	*56–60*	*61–65*	*66–70*	*71–75*	*75–80*	*81–85*
Auditoriums, Concert Halls, Amphitheaters							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial, Professional							
Industrial, Manufacturing, Utilities, Agriculture							

Normally Acceptable. Specified land use is satisfactory, based on the assumption that any buildings involved are of normal, conventional construction, without any special noise insulation requirements.

Conditionally Acceptable. New construction or development should be undertaken only after an analysis of the noise reduction requirements is made and needed insulation features have been included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable. If new construction or development proceeds, an analysis of the noise reduction requirements should be made and needed noise insulation features included in the design.

Clearly Unacceptable. New construction or development should generally not be undertaken, unless it can be demonstrated that an interior level of 45 dBA can be achieved.

When preparing acoustical studies, noise measurements in residential areas should generally be applied at 10 feet from the backyard property line., as discussed in Noise Policy 5.2. However, in certain cases, such as on estate lots where backyards are typically very large, the 60 dBA CNEL goal could be applied to a location that is approximately one half of the distance between the back of the main residential structure and the rear property line. The outdoor standard should not normally be applied to balconies or patios associated with residential uses. Figure VI-13, (City of Escondido 2012) in the Community Protection Element states that noise impacts of proposed projects on existing land uses should be evaluated in terms of potential for adverse community response based on a significant increase in existing noise levels. For example, if an area is currently below the maximum normally acceptable noise level, an increase in noise up to the maximum allowable level should not necessarily be allowed. Projects increasing noise levels by 5 dB or greater should be considered as generating a significant impact and would require mitigation to reduce noise levels.

City of Escondido Municipal Code Chapter 17, Article 12, Noise Abatement and Control (Noise Ordinance)

The City Noise Ordinance establishes prohibitions for disturbing, excessive or offensive noise; and, provides sound level limits for the purpose of securing and promoting the public health, comfort, safety, peace, and quiet for its citizens. Table 2, City of Escondido Exterior Sound Limit Levels, shows the allowable noise levels at any point on or beyond the boundaries of the property on which the sound is produced, and corresponding times of day for each zoning designation. The noise standards apply to each property or portion of property substantially used for a particular type of land use reasonably similar to the land use types shown in Table 2. Where two or more dissimilar land uses occur on a single property, the more restrictive noise limits apply. Environmental noise is measured by the L_{eq} for the hours as specified in Table 2. If the noise is continuous, the L_{eq} for any hour will be represented by any lesser time period within that hour. If the noise is intermittent, the L_{eq} for any hour may be represented by a time period typical of the operating cycle, but the measurement period must be 15 minutes or longer. If the measured ambient level exceeds the permissible noise level, the allowable noise exposure standard is the ambient noise level.

Table 2. City of Escondido Exterior Sound Limit Levels

Zone or Land Use Designation	Allowable Time	Applicable Limit One-Hour Average Sound Level (A – weighted Decibels)
Residential zones	7:00 a.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
Multi-residential zones	7:00 a.m. to 10:00 p.m.	55
	10:00 p.m. to 7:00 a.m.	50
Commercial zones	7:00 a.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	55
Light industrial/Industrial park zones	Anytime	70
General Industrial zones	Anytime	75

Source: City of Escondido Municipal Code Section 17-229, Sound Level Limits

Section 17-229 (c) of the Noise Ordinance, includes the following regulations:

a) If the noise is continuous, the L_{eq} for any hour will be represented by any lesser time period within that hour. Noise measurements of a few minutes only will thus suffice to define the noise level.

b) If the noise is intermittent, the L_{eq} for any hour may be represented by a time period typical of the operating cycle. Measurement should be made of a representative number of noisy/quiet periods. A measurement period of not less than 15 minutes is, however, strongly recommended when dealing with intermittent noise.

c) In the event the alleged offensive noise, as judged by the enforcement officer, contains a steady, audible sound such as a whine, screech or hum, or contains a repetitive impulsive noise such as hammering or riveting, the standard limits set forth in Table 2, City of Escondido Exterior Sound Limit Levels, shall be reduced by 10 dB or to the ambient noise level when such noises are not occurring.

d) If the measured ambient level exceeds that permissible in Table 2, City of Escondido Exterior Sound Limit Levels, the allowable noise exposure standard shall be the ambient noise level. The ambient level shall be measured when the alleged noise violations source is not operating.

e) The sound level limit at a location on a boundary between two land use classifications is the limit applicable to the receiving land use; provided, however, that the one-hour average sound level limit applicable to extractive industries including, but not limited to, borrow pits and mines, shall be 75 dB at the property line regardless of the zone where the extractive industry is actually located.

Noise restrictions are listed in Sections 17-230 through 17-241 of the Noise Ordinance, such as specific regulations pertaining to motor vehicles and burglar alarms. Additional sections of the Noise Ordinance applicable to this analysis are listed below.

Section 17-234 (Construction Equipment)

Except for emergency work, the following applies to all construction equipment operating in the City:

a. It shall be unlawful for any person, including the City of Escondido, to operate construction equipment at any construction site, except on Monday through Friday during a week between the hours of 7:00 a.m. and 6:00 p.m. and on Saturdays between the hours of 9:00 a.m. and 5:00 p.m., and provided that the operation of such construction equipment complies with the requirements of subsection (c) of this section.

b. It shall be unlawful for any person, including the City of Escondido, to operate construction equipment at any construction site on Sundays and on days designated by the President, Governor or City Council as public holidays.

c. No construction equipment or combination of equipment, regardless of age or date of acquisition, shall be operated so as to cause noise in excess of a one-hour average sound level limit of 75 dB at any time, unless a variance has been obtained in advance from the City Manager.

Section 17-237 (Landscape Equipment)

It shall be unlawful for any person, including the City of Escondido, to use any motorized landscape equipment, including but not limited to power blowers and vacuums, which causes a disturbing, excessive or offensive noise as defined under Section 17-227(k) of the Noise Ordinance. Disturbing, excessive or offensive noise refers to any sound or noise exceeding the noise standards established in the Noise Ordinance.

Section 17-238 (Grading)

a. It shall be unlawful for any person, including the City of Escondido, to do any authorized grading at any construction site, except on Mondays through Fridays during a week between the hours of 7:00 a.m. and 6:00 p.m. and, provided a variance has been obtained in advance from the City Manager, on Saturdays from 10:00 a.m. to 5:00 p.m.

b. For the purpose of this section, "grading" shall include, but not be limited to, compacting, drilling, rock crushing or splitting, bulldozing, clearing, dredging, digging, filling and blasting.

c. In addition, any equipment used for grading shall not be operated so as to cause noise in excess of a one-hour sound level limit of 75 dB at any time when measured at or within the property lines of any property which is developed and used in whole or in part for residential purposes, unless a variance has been obtained in advance from the City Manager.

Section 17-240 (General Noise Regulations)

Section 17-240 includes additional general noise regulations. This section states that it is unlawful for any person to make, continue or cause to be made or continued, any disturbing, excessive or offensive noise which causes discomfort or annoyance to reasonable persons of normal sensitivity. Noises declared to be disturbing, excessive and offensive include stereo equipment, animal noise, and loading and unloading of vehicles that disturbs neighboring receptors. This section also establishes the following requirements for pile driving activities: No person shall operate between the hours of 6:00 p.m. and 7:00 a.m. on weekdays, or on Saturdays, Sundays or any legal holidays, any pile driver, pneumatic hammer, derrick, or other similar appliance, the use of which is attended by loud or unusual noise, unless a variance has been obtained in advance from the City Manager.

City of Escondido Municipal Code Chapter 33, Article 47, Environmental Quality Regulations

The Environmental Quality Regulations (EQRs) implement CEQA and the CEQA Guidelines by applying the provisions and procedures contained in CEQA to development projects proposed within the City of Escondido. Section (a)(2) pertains to noise impacts, specifically noise impacts related to the widening of Mobility and Infrastructure Element streets. According to this section, the following incremental noise increases are generally not considered significant:

a. Short or long-term increases, regardless of the extent, that do not result in noise increases in excess of General Plan standards.
b. Short or long-term increases that result in a 3 dBA or less incremental increase in noise beyond the General Plan's noise standards.

3 Existing Conditions

Noise measurements were conducted on and near the project site on June 17, 2019, to quantify and help characterize the existing pre-project outdoor sound environment. Table 3 provides the locations, date, and times these noise measurements were performed. The noise measurements were taken using a Rion NL-52 sound level meter equipped with a 0.5-inch, pre-polarized condenser microphone with pre-amplifier. The sound level meter meets the current American National Standards Institute standard for a Type 1 (Precision Grade) sound level meter. The accuracy of the sound level meter was verified using a field calibrator before and after the measurements, and the measurements were conducted with the microphone positioned approximately 5 feet above the ground.

Table 3. Measured Community Outdoor Noise Levels

Receptor	Location/Address	Date (mm/dd/yy)	Time (hh:mm)	L_{eq}(dBA)	L_{max} (dBA)
ST1	201 North Fig Street Escondido, CA 92025	06/17/19	11:45–11:55 a.m.	47.2	54.3
ST2	Northwest boundary of Villa Escondido Apartments	06/17/19	11:00–11:10 a.m.	65.4	77.3
ST3	South of Southern Ca Presbyterian Homes	06/17/19	11:30–11:40 a.m.	70	75.6
ST4	Lawn, south of existing onsite parking structure	06/17/19	11:16–11:26 a.m.	65.5	76.4

Source: Appendix A.
Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); L_{max} = maximum sound level during the measurement interval; dBA = A-weighted decibels; ST = short-term noise measurement locations.

The four short-term (ST) noise measurement locations were selected to represent sample existing noise-sensitive receivers on and near the project site. These locations are depicted as receivers ST1–ST4 on Figure 3, Noise Measurement Locations, and are summarized as follows:

- **ST1** – This location is near the western terminus of the parking area for the Palomar Vista Healthcare Center, an assisted-living facility.
- **ST2** – This location abuts the northern façade of the Villa Escondido residential development, located at the split of S. Hickory Street from E. Grand Avenue; hence, the survey location intends to represent the traffic noise level for E. Grand Avenue and this occupied noise-sensitive receptor.
- **ST3** – This location adjoins the southern façade of the Westmont Town Court Assisted Living building, and could be considered representative of Valley Parkway traffic noise level prior to its conversion west into Valley Boulevard.
- **ST4** – This location is on the eastern sidewalk of Valley Boulevard and adjoins the proposed project boundary; thus, it represents the traffic noise level of Valley Boulevard.

The measured energy-averaged (L_{eq}) and maximum (L_{max}) noise levels at these field survey locations are provided in Table 3. The primary noise sources at the sites identified in Table 3 consisted of dominant traffic sounds along adjacent roadways; and, the sounds of rustling leaves, aircraft overflights, distant conversation, and birdsong. As shown in Table 3, the measured sound levels ranged from approximately 47.2 dBA L_{eq} at ST1 to 70 dBA L_{eq} at ST3. More details of the collected noise measurement data can be found in Appendix A, Noise Measurement Field Data.

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SOURCE: ESRI 2018

DUDEK

0 100 200 Feet

FIGURE 3

Noise Measurement Locations

Palomar Heights Project

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4 Thresholds of Significance

The following significance criteria are based on Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and will be used to determine the significance of potential noise impacts. Impacts to noise would be significant if the proposed project would result in:

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
b. Generation of excessive groundborne vibration or groundborne noise levels.
c. Expose people residing or working in the project area to excessive noise levels (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 2 miles of a public airport or public use airport).

In light of these above significance criteria, this analysis uses the following standards to evaluate potential noise and vibration impacts.

- **Construction noise** – Consistent with Section 17-234(d) and 17-238(c) of the City's Noise Ordinance, construction activity noise emission at or beyond the property line of the source would result in a significant impact if it exceeds 75 dBA hourly L_{eq} for any allowable construction hour.
- **Off-site project-attributed transportation noise** – For purposes for this analysis, a direct roadway noise impact would be considered significant if increases in roadway traffic noise levels attributed to the proposed project were (consistent with Figure VI-14 from the City's General Plan Community Protection Element) greater than the FTA-based increment limit at an existing noise-sensitive land use. For example, at noise-sensitive locations where the existing outdoor ambient sound level is 65 to 70 dBA L_{dn}, up to 1 dB increase would be allowable. Where existing outdoor sound level is only 50 dBA L_{dn}, up to 5 dB increase would be considered allowable and not a significant impact per Figure VI-13 of the City's General Plan Community Protection Element.
- **Off-site project-attributed stationary noise** – For purposes for this analysis, a noise impact would be considered significant if noise from typical operation of HVAC and other electro-mechanical systems associated with the proposed project exceeded 55 dBA hourly L_{eq} at the property line from 7:00 a.m. to 10:00 p.m., and 50 dBA hourly L_{eq} from 10:00 p.m. to 7:00 a.m. Note that these are the City's thresholds for multi-family residential land use designation that characterizes the existing nearest neighbors to the east of the proposed project. The hourly noise limits for single-family homes to the south of the proposed project, while more distant than the Palomar Vista Healthcare Center facility, would be more stringent by 5 dBA for both the daytime and nighttime periods.
- **Construction vibration** – Guidance from Caltrans indicates that a vibration velocity level of 0.2 ips PPV received at a structure would be considered annoying by occupants within (Caltrans 2013b). As for the receiving structure itself, aforementioned Caltrans guidance from Section 2 recommends that a vibration level of 0.3 ips PPV would represent the threshold for building damage risk.

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5 Impact Discussion

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

Temporary Noise Impacts

Short-Term Construction

Less-Than-Significant with Mitigation. Construction noise and vibration are temporary phenomena. Construction noise and vibration levels vary from hour to hour and day to day, depending on the equipment in use, the operations performed, and the distance between the source and receptor.

Equipment that would be in use during construction would include, in part, graders, backhoes, rubber-tired dozers, loaders, cranes, forklifts, pavers, rollers, and air compressors. The typical maximum noise levels for various pieces of construction equipment at a distance of 50 feet are presented in Table 4. However, construction equipment usually operates in alternating cycles of full power and low power, producing time-averaged noise levels that are thus less than the maximum noise level emitted during instances of full-power operation. The average sound level of construction activity also depends on the amount of time that the equipment operates onsite and the intensity of construction activities during that time.

Table 4. Typical Construction Equipment Maximum Noise Levels

Equipment Type	Typical Equipment (L_{max}, dBA at 50 Feet)
All Other Equipment > 5 HP	85
Backhoe	78
Compressor (air)	78
Concrete Saw	90
Crane	81
Dozer	82
Excavator	81
Front End Loader	79
Generator	72
Grader	85
Man Lift	75
Paver	77
Roller	80
Scraper	84
Welder / Torch	73

Source: FHWA 2006.
Notes: dBA = A-weighted decibels; L_{max} = maximum sound level.

Per Table 4, the maximum noise level for an individual piece of construction equipment anticipated for this development project would be 90 dBA at 50 feet.

Proposed project construction would take place both near and far from adjacent, existing noise-sensitive uses. For example, some construction activity phases near the eastern project site boundary would take place as close

as 25 feet to existing inhabited structures (e.g., the Palomar Vista Healthcare Center). But during other construction phases, the same noise-sensitive receptors would be further away from operating equipment and processes. For these reasons and for purposes of this assessment, construction noise is predicted for two different conditions as follows:

- Conservatively, construction noise is predicted at the noise-sensitive receptor when the distance between it and one or more pieces of equipment or processes for each phase is expected to be shortest. For instance, during the demolition phase, removal of existing pavement could occur as close as the proposed project boundary; but during building erection, the shortest distance would likely be to the nearest new building façade. Since construction equipment is usually mobile, and because equipment cannot be "stacked" at the same nearest position to a receptor at the same time, the anticipated quantity of equipment will be less than the total for the entire phase, and their duration of activity at this nearest distance will be a fraction of a given hour.
- In a manner similar to the "general assessment" construction noise prediction method described by FTA guidance (FTA 2006), one can assume that—on average—all construction activities associated with a particular phase would be represented geographically by an acoustic centroid, which would be approximately 235 feet from the closest existing noise-sensitive land use. This acoustic centroid represents the average position of mobile construction equipment and ongoing processes across the entire proposed project site.

An Excel-based noise prediction model emulating and using reference data from the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) (FHWA 2008) was used to estimate construction noise levels at the nearest noise-sensitive land use. (Although the RCNM was funded and promulgated by the FHWA, it is often used for non-roadway projects, because the same types of construction equipment used for roadway projects are often used for other types of construction.) Input variables for the predictive modeling consist of the equipment type and number of each (e.g., two graders, a loader, a tractor), the duty cycle for each piece of equipment (e.g., percentage of time within a specific time period, such as an hour, when the equipment is expected to operate at full power or capacity and thus make noise at a level comparable to what is presented in Table 4), and the distance from the noise-sensitive receiver. No topographical or structural shielding was assumed in the modeling. The RCNM has default duty-cycle values for the various pieces of equipment, which were derived from an extensive study of typical construction activity patterns. Those default duty-cycle values were used for this noise analysis.

Estimated noise levels from the seven listed major construction phases were predicted for the nearest noise-sensitive land use, as presented in Table 5. The details of these calculations with respect to the shortest phase-to-receptor and acoustic centroid to receptor distance inputs are provided in Appendix B, Construction Noise Modeling Input and Output.

Table 5. Construction Noise Modeling Summary Results

Construction Phase	Distance to Nearest Receptor (feet)*	Estimated Hourly L_{eq} at Nearest Receptor (dBA)	Estimated Hourly L_{eq} at 235 feet (to Acoustical Centroid) (dBA)
Demolition (dozer, excavator, concrete saw)	25	88	73
Site Preparation (dozer, backhoe, loader)	25	84	71
Grading (excavator, grader, dozer, loader, backhoe, scraper)	25	89	74
Building Construction (crane, forklift, generator, backhoe, loader, welder/torch)	50	77	68
Internal Road Construction (paver, roller, other equipment)	60	78	73
Architectural Coating (air compressor)	50	74	61
Paved Areas (paver, roller, other equipment)	60	77	73

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); dBA = A-weighted decibel.
* the distance at which no more than one piece of listed equipment per type for the indicated phase operates for more than half of a given hour during allowable daytime work hours (per Section 17-234 and 17-238 of the City of Escondido Noise Ordinance).

As presented in Table 5, the values in the right-most column suggest that predicted construction noise levels using the acoustical centroid evaluation technique would be compliant with the City's 75 dBA hourly L_{eq} threshold. However, when the predictive analysis focuses on the estimated construction noise levels for the shortest expected equipment-to-receptor distances by phase, estimated noise levels are predicted to be higher. For example, Table 5 shows that such predicted noise levels are as high as 89 dBA hourly L_{eq} at the nearest existing residences (as close as 25 feet away) when grading activities take place near the eastern project boundary. Note that these estimated noise levels at a source-to-receiver distance of 25 feet would only occur when a single noted piece of heavy equipment is operating along the eastern project boundary for up to 50% of the time per hour. By way of example, the grader may make one or multiple passes onsite that are this close to the receiver; however, for the remaining time during the hour, the grader is sufficiently farther away—performing work at a more distant location or simply not operating. For these instances when operation of construction equipment and processes are sufficiently proximate to cause activity noise levels to exceed 75 dBA hourly L_{eq}, which would thus exceed the City of Escondido's hourly threshold for construction noise exposure and consequently create a significant noise impact, mitigation **M-N-1** shall be implemented as indicated site conditions may warrant.

The 14 dB difference between 89 dBA hourly L_{eq} and the City-set limit of 75 dBA hourly L_{eq} may seem like an ambitious goal, but the nearest noise-sensitive receptor needing it (the Palomar Vista Healthcare Center) is geographically positioned in such a way that helps proper application of temporary noise barriers or comparable sound abatement (i.e., arising as a result of **M-N-1** implementation) to realize this quantified level of noise reduction. In this situation, the elevation of the receptor is lower than the grade of the proposed project site by at least an apparent 10 feet. Therefore, a temporary frame-suspended noise blanket or site-erected plywood barrier installed on the portion of the proposed project eastern boundary in the vicinity of this receptor will have its effective height and sound occluding performance enhanced. As a result, application of the temporary construction noise barrier per M-N-1 and taking advantage of this existing terrain feature

should yield compliance with the City's noise ordinance and render this potential impact less than significant. This predictive construction noise analysis expects that such a temporary barrier would be installed as part of implementation of M-N-1 to help protect Palomar Vista Healthcare Center from undue construction noise exposure, with details including height, horizontal extent, and geographic positioning to be finalized as part this mitigation implementation process.

Although nearby off-site residences in the community surrounding the proposed project would be exposed to elevated construction noise levels, the increased noise levels would typically be relatively short term. It is anticipated that construction activities associated with the proposed project would take place primarily within the allowable hours of the City of Escondido (7:00 a.m. and 6:00 p.m. Monday through Friday). In the event that construction is required to extend beyond these times, extended hours permits would be required and would be obtained by the applicant.

If work were to occur outside of the allowable hours, annoyance or sleep disturbance could result from construction noise; also, due to the relatively limited distance to existing adjacent residences, construction noise annoyance could result even during daytime hours.

In summary, typical construction noise during allowable daytime hours would exceed the City's 75 dBA L_{eq} threshold and would be higher than existing ambient daytime noise levels when construction takes place near the eastern boundary (as shown in Table 5). Thus, temporary construction-related noise impacts would be considered potentially significant unless mitigated. With implementation of **M-N-1**, impacts would be reduced to **less than significant**.

Long-Term Operational

Off-Site Traffic Noise

Less Than Significant Impact. The proposed project would result in the creation of additional vehicle trips on local arterial roadways (i.e., E. Valley Parkway, E. Grand Avenue), which could result in increased traffic noise levels at adjacent noise-sensitive land uses. Appendix C, Traffic Noise Modeling Input and Output, contains a spreadsheet with traffic volume data (average daily traffic) for roadways surrounding the proposed project as well as additional modeling details showing an addendum to the modeled noise levels that reflects the updated traffic volumes received by LLG in January 2020. In summary, these updated traffic volumes resulted in no more than a +/-0.5 dB change to the predicted traffic noise level due to acoustical principles: all other factors being unchanged, noise level sensitivity attributed to a change in ADT is per the following expression: $10*LOG(V_2/V_1)$, where V_2 is the new ADT value and V_1 is a previous ADT value. In particular, the proposed project would create additional traffic along E. Valley Parkway and E. Grand Avenue, which according to the Traffic Impact Assessment (TIA) prepared for the proposed project would add 2,144 total average daily trips to adjacent to the project site.

The City's Community Protection Element contains noise policies including a policy for exterior sensitive areas to be protected from high noise levels. The Noise Element sets 65 dBA CNEL for the outdoor areas and interior noise levels of less than 45 dBA CNEL as the "normally acceptable" level. However, existing levels from traffic already exceed this threshold. For the purposes of this noise analysis, such impacts are considered significant when they cause an increase of existing noise levels that exceed FTA-based guidance as indicated in Figure VI-14 of the City's General Plan Community Protection Element. An The allowable decibel increase or decrease in is dependent on the value of the existing outdoor ambient noise level, ranging from zero to an upper limit of 5 dB consistent with Figure VI-13 of the City's General Plan Community Protection Element. The receivers

were modeled to be 5 feet above the local ground elevation. The noise model results are summarized in Table 6, which includes the allowable outdoor noise level increments attributed to Project influence on predicted traffic noise.

Potential noise effects from vehicular traffic were assessed using the Federal Highway Administration's Traffic Noise Model version 2.5 (FHWA 2004). Information used in the model included the roadway geometry, existing (year 2019), existing (year 2018) plus project, near-term (opening day), near-term (opening day) plus project, horizon year (2035) without project, and horizon year (2035) plus project traffic volumes and posted traffic speeds. Noise levels were modeled at representative noise-sensitive receivers ST1 through ST4, as shown in Figure 3. The receivers were modeled to be 5 feet above the local ground elevation. The noise model results are summarized in Table 6. Based on results of the model, implementation of the proposed project would not result in readily perceptible increases in traffic noise

Table 6 shows that at all four listed representative receivers, the addition of proposed project traffic to the roadway network would result in an increase in CNEL of less than what would be considered allowable per the City's General Plan standards. Thus, a **less-than-significant impact** is expected for proposed project-related off-site traffic noise increases affecting existing residences in the vicinity.

Interior Noise Impact

Less-Than-Significant Impact. While current CEQA noise-related guidelines do not require an assessment of exterior-to-interior noise intrusion or noise exposure to occupants of newly-created residences or non-residential uses attributed to the development of the proposed project, the City and the State require that interior noise levels not exceed a CNEL of 45 dB within residences. Typically, with the windows open, building shells provide approximately 15 dB (i.e., an average of 12-18 dB [OPR 2017]) of noise reduction; while with windows closed residential construction generally provides a minimum of 25 dB attenuation (FHWA 2011). Therefore, rooms exposed to an exterior CNEL not greater than 60 dB would result in an interior background CNEL of 45 dB or less, even with open fenestration. The state Building Code recognizes this relationship and, therefore, requires interior noise studies when the exterior noise level is projected to exceed 60 dBA L_{dn}.

Table 6. Traffic Noise Modeling Results

Modeled Receiver No.	Existing (2018) Noise Level without Project Noise Level (dBA CNEL)	Existing (2018) Noise Level with Project Noise Level (dBA CNEL)	Near-Term (Opening Day) without Project Noise Level (dBA CNEL)	Near-Term (Opening Day) with Project Noise Level (dBA CNEL)	Horizon year (2035) without Project Noise Level (dBA CNEL)	Horizon year (2035) with Project Noise Level (dBA CNEL)	Maximum Project-Related Noise Level Increase (dB)	Maximum Allowable Noise Level Increase (dB)	Significant Impact?*
ST1	51.4	51.4	51.5	51.5	52.4	52.5	0	5	no
ST2	59.4	59.6	59.6	59.7	62.1	62.1	0.2	2	no
ST3	68.1	67.2	68.2	68.3	70.3	70.4	0.1	1	no
ST4	64.5	64.1	64.6	64.8	65.7	65.8	0.2	1	no

Notes: dBA = A-weighted decibel; CNEL = Community Noise Equivalent Level; dB = decibel. .*is the maximum project-related noise level increase in excess of the allowable increase per Figure VI-14 of the City's General Plan Community Protection Element?

The data shown in Table 6 above indicates that the future noise levels would range up to 70 dBA L_{dn} at the facades of the proposed residences fronting on E. Valley Parkway. The unmitigated interior noise levels within the habitable rooms of these dwelling units could therefore exceed the 45 dBA L_{dn} noise criterion. A subsequent interior noise analysis will be required for these units and units along E. Grand Avenue. With the implementation of project design feature **PDF-1**, the resultant noise level would meet the state and City interior noise standard of 45 dBA L_{dn}.

PDF-1 An interior noise analysis shall be conducted by the project applicant for the proposed dwelling units along E. Valley Parkway and E. Grand Avenue prior to issuance of building permits. Installation of mechanical ventilation systems or air conditioning systems and sound-rated windows shall be required if the interior noise analysis shows that impacts are above the state and City's 45 dBA L_{dn} interior standard. The interior noise analysis shall substantiate that the resulting interior noise levels will be less than the noise standard.

Stationary Noise Sources

Less-Than-Significant Impact. The incorporation of new homes across the larger eastern portion of the proposed project area (i.e., east of Valley Boulevard) and the mix of commercial and senior living uses on the western portion attributed to development of the proposed project will add a variety of noise-producing mechanical equipment that include those presented and discussed in the following paragraphs. Most of these noise-producing equipment or sound sources would be considered stationary, or limited in mobility to a defined area.

Residential HVAC Operation Noise

For purposes of this analysis, each of the new occupied residential units would be expected to feature a split-system type air-conditioning unit, with a refrigeration condenser unit mounted on the roof. Assuming each condenser unit has a sound emission source level of 74 dBA at 3 feet [Johnson Controls 2010]), the proposed project architectural rendering views (as of this writing) suggest that such rooftop air-cooled condenser units could be installed near the building perimeter but behind a parapet wall. Therefore, the closest existing noise-sensitive residential receptor (Palomar Vista Healthcare Center) to the east of the proposed project's eastern-most Villas-type building façade would be as close as 50 horizontal feet to as many as four (4) condenser units. But due to the roof height of these nearest Villas buildings and the presence of the sight-occluding parapet wall, in addition to the anticipated advantageous terrain effects previously discussed under construction noise, the predicted sound emission level from the combination of four condenser units at this single-story receptor would only be 44 dBA L_{eq} and thus compliant with the City's nighttime threshold of 50 dBA hourly L_{eq} for multi-family type residences. Under such conditions, the operation of residential air-conditioning units would result in potential noise impacts considered less than significant.

Commercial HVAC Operation Noise

Commercial HVAC systems associated with the planned retail portion of the proposed project would involve noise-producing equipment similar to the aforementioned air-cooled condensers expected for the residential land uses. But the nearest existing noise-sensitive receptor to this commercial equipment would appear to be at least 500 feet away. Hence, noise emission from operation of this equipment to help provide interior comfort for retail customers and the senior living building occupants is anticipated to be a **less than significant** noise impact.

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Construction activities may expose persons to excessive groundborne vibration or groundborne noise, causing a potentially significant impact. Caltrans has collected groundborne vibration information related to construction activities (Caltrans 2013b). Information from Caltrans indicates that continuous vibrations with a PPV of approximately 0.2 ips is considered "annoying." For context, heavier pieces of construction equipment, such as a bulldozer that may be expected on the project site, have peak particle velocities of approximately 0.089 ips or less at a reference distance of 25 feet (FTA 2006). A vibratory roller, anticipated for the paving phase of construction, exhibits 0.21 ips at 25 feet per the same FTA guidance.

Groundborne vibration attenuates rapidly—even over short distances. And when groundborne vibration encounters a building foundation, a coupling loss occurs depending on its mass and design. For typical single-story structures, like those associated with Palomar Vista Healthcare Center near the proposed project, this coupling loss is usually 5 to 7 vibration velocity decibels (VdB) according to FTA guidance (FTA 2006). (Unlike peak particle velocity, vibration velocity decibels are an expression of the root mean square vibration velocity magnitude with respect to a reference value.) The attenuation of groundborne vibration as it propagates from source to receptor through intervening soils and rock strata can be estimated with expressions found in FTA and Caltrans guidance. By way of example, and without consideration of potential foundation coupling loss, for a bulldozer operating on site and as close as the eastern project boundary (i.e., 25 feet from the nearest receiving sensitive land use) the estimated vibration velocity level would be approximately 0.09 ips and thus no greater than the annoyance threshold recommended by Caltrans. Foundation coupling loss would only reduce this vibration velocity amplitude. Since the vibratory roller associated with paving activities is expected to be the greatest source of vibration, its anticipated PPV at a distance of 25 feet would just barely exceed the Caltrans annoyance standard of 0.2 ips; however, foundation coupling loss of 5 VdB at the receiving structure would reduce the apparent PPV to a level of less than 0.12 ips, and thus below this annoyance standard. Therefore, vibration-induced annoyance to occupants of nearby existing homes would be **less than significant**.

Construction vibration, at sufficiently high levels, can also present a building damage risk. However, anticipated construction vibration associated with this proposed project would not yield levels that surpass this risk. Per Caltrans, the recommended PPV threshold for newer residential structures is 0.5 ips and 0.3 ips for older residential structures—both of which are less stringent that the aforementioned threshold to annoy occupants of such structures; thus vibration damage risk to nearby structures is considered **less than significant.**

Once operational, the proposed project would not be expected to feature major producers of groundborne vibration. Anticipated mechanical systems like heating, ventilation, and air-conditioning units are designed and manufactured to feature rotating (fans, motors) and reciprocating (compressors) components that are well-balanced with isolated vibration within or external to the equipment casings. On this basis, vibration due to proposed project operation should be **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?

Less-Than-Significant Impact. There are no private airstrips within the vicinity of the project site. The closest airport to the proposed project site is the Ramona Municipal Airport, approximately 10.5 miles southeast of the site and would therefore not expose people residing or working in the project area to excessive noise levels. Impacts would be **less than significant**.

6 Mitigation Measures

The following mitigation measure M-N-1, introduced in Section 5, would apply during construction activities.

M-N-1 Prior to the issuance of a Construction Permit, the Applicant/Owner or Construction Contractor shall prepare and submit to the City of Escondido Planning Division (City Planner) for its review and approval a Construction Noise Management Plan (CNMP). Prior to the issuance of a Construction Permit, Construction Plans shall also include a note indicating compliance with the CNMP is required. The CNMP shall be prepared or reviewed by a Qualified Acoustician (retained at the Applicant/Owner or Construction Contractor's expense) and feature the following:

a. A detailed construction schedule, at daily (or weekly, if activities during each day of the week are typical) resolution and correlating to areas or zones of onsite project construction activity(ies) and the anticipated equipment types and quantities involved. Information will include expected hours of actual operation per day for each type of equipment per phase; and, indication of anticipated concurrent construction activities onsite.

b. Suggested locations of a set of noise level monitors, attended by a Qualified Acoustician or another party under its supervision or direction, at which sample outdoor ambient noise levels will be measured and collected over a sufficient sample period and subsequently analyzed (i.e., compared with applicable time-dependent dBA thresholds) to ascertain compliance with the City hourly threshold of 75 dBA L_{eq} during allowable construction hours per the City's Noise Ordinance or as permitted by City-approved variance. Sampling shall be performed, at a minimum, on the first (or otherwise considered typical construction operations) day of each distinct construction phase (e.g., each of the seven listed phases in Table 5).

c. If sample collected noise level data indicates that the hourly noise threshold has or will be exceeded, construction work shall be suspended (for the activity or phase of concern) and the Applicant/Owner or Construction Contractor shall implement one or more of the following measures as detailed or specified in the CNMP:

    i. Administrative controls (e.g., reduce operating time of equipment and/or prohibit usage of equipment type[s] within certain distances).

    ii. Engineering controls (upgrade noise controls, such as install better engine exhaust mufflers).

    iii. Install noise abatement on the site boundary fencing (or within, as practical and appropriate) in the form of sound blankets or comparable temporary barriers to occlude construction noise emission between the site (or specific equipment operation as the situation may define) and the noise-sensitive receptor(s) of concern.

    The implemented measure(s) will be reviewed or otherwise inspected and approved by the Qualified Acoustician (or another party under its supervision or direction) prior to resumption of the construction activity or process that caused the measured noise concern or need for noise mitigation. Noise levels shall be re-measured, after installation of said measures, to ascertain post-mitigation compliance with the noise threshold. As needed, this process shall be repeated and refined until noise level compliance is demonstrated and documented. A report of this implemented mitigation and its documented success will be provided to the City Planner.

d. The Applicant/Owner or Construction Contractor shall make available a telephone hot-line so that concerned neighbors in the community may call to report noise complaints. The CNMP shall include a process to investigate these complaints and, if determined to be valid, detail efforts to provide a timely resolution and response to the complainant—with copy of resolution provided to the City Planner.

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7 Summary of Findings

This noise report was conducted for the proposed project. The results indicate that potential impacts during construction would **be less than significant with mitigation**. Noise impacts due to operation of the proposed project (including traffic noise) would be **less than significant**. No further mitigation beyond what has been described herein is anticipated at this time.

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Appendix A

Noise Measurement Field Data

DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Field Noise Measurement Data

Record: 1157	
Project Name	*Palomar Heights*
Observer(s)	*Connor Burke*
Date	*2019-06-17*

Meteorological Conditions	
Temp (F)	*69*
Humidity % (R.H.)	*72*
Wind	*Calm*
Wind Speed (MPH)	*3*
Wind Direction	*South West*
Sky	*Overcast*

Instrument and Calibrator Information	
Instrument Name List	*(ENC) Rion NL-52*
Instrument Name	*(ENC) Rion NL-52*
Instrument Name Lookup Key	*(ENC) Rion NL-52*
Manufacturer	*Rion*
Model	*NL-52*
Serial Number	*553896*
Calibrator Name	*(ENC) LD CAL150*
Calibrator Name	*(ENC) LD CAL150*
Calibrator Name Lookup Key	*(ENC) LD CAL150*
Calibrator Manufacturer	*Larson Davis*
Calibrator Model	*LD CAL150*
Calibrator Serial #	*5152*
Pre-Test (dBA SPL)	*94*
Post-Test (dBA SPL)	*94*
Windscreen	*Yes*
Weighting?	*A-WTD*
Slow/Fast?	*Slow*
ANSI?	*Yes*

Monitoring	
Record #	*1*
Site ID	*ST2*
Site Location Lat/Long	*33.123972, -117.075457*
Begin (Time)	*11:00:00*
End (Time)	*11:10:00*
Leq	*65.4*
Lmax	*77.3*
Lmin	*48*
Other Lx?	*L90, L50, L10*
L90	*50.2*
L50	*62.3*
L10	*69*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Distant Industrial, Distant Traffic*
Other Noise Sources Additional Description	*Hvac*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Source Info and Traffic Counts	
Number of Lanes	3
Lane Width (feet)	10
Roadway Width (feet)	30
Roadway Width (m)	9.2
Distance to Roadway (feet)	40
Distance to Roadway (m)	12.2
Distance Measured to Centerline or Edge of Pavement?	Edge of Pavement
Estimated Vehicle Speed (MPH)	30
Posted Speed Limit Sign (MPH)	30

Traffic Counts	
Vehicle Count Summary	A 134, MT 1, HT 1, B 1, MC 0
Select Method for Recording Count Duration	Enter Manually
Counting Both Directions?	Yes
Count Duration (minutes)	10
Vehicle Count Tally	
Select Method for Vehicle Counts	Enter Manually
Number of Vehicles - Autos	134
Number of Vehicles - Medium Trucks	1
Number of Vehicles - Heavy Trucks	1
Number of Vehicles - Buses	1
Number of Vehicles - Motorcyles	0

Description / Photos

Site Photos

Photo

Comments / Description	Facing north

Monitoring	
Record #	2
Site ID	ST4
Site Location Lat/Long	33.124934, -117.076627
Begin (Time)	11:16:00
End (Time)	11:26:00
Leq	65.5
Lmax	76.4
Lmin	49.6
Other Lx?	L90, L50, L10
L90	54
L50	63
L10	69.3
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Birds, Distant Traffic, Rustling Leaves
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Source Info and Traffic Counts	
Number of Lanes	5
Lane Width (feet)	10
Roadway Width (feet)	50
Roadway Width (m)	15.3
Distance to Roadway (feet)	40
Distance to Roadway (m)	12.2
Distance Measured to Centerline or Edge of Pavement?	Edge of Pavement
Estimated Vehicle Speed (MPH)	30
Posted Speed Limit Sign (MPH)	30

Traffic Counts	
Vehicle Count Summary	A 300, MT 2, HT 0, B 0, MC 3
Select Method for Recording Count Duration	Enter Manually
Counting Both Directions?	Yes
Count Duration (minutes)	10
Vehicle Count Tally	
Select Method for Vehicle Counts	Enter Manually
Number of Vehicles - Autos	300
Number of Vehicles - Medium Trucks	2
Number of Vehicles - Heavy Trucks	0
Number of Vehicles - Buses	0
Number of Vehicles - Motorcyles	3

Description / Photos

Site Photos

Photo	
Comments / Description	*Facing west*

Monitoring

Record #	*3*
Site ID	*ST3*
Site Location Lat/Long	*33.126485, -117.076007*
Begin (Time)	*11:30:00*
End (Time)	*11:40:00*
Leq	*70*
Lmax	*75.6*
Lmin	*49.7*
Other Lx?	*L90, L50, L10*
L90	*55.4*
L50	*68.8*
L10	*73.6*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Traffic*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Source Info and Traffic Counts

Number of Lanes	*5*
Lane Width (feet)	*10*
Roadway Width (feet)	*50*
Roadway Width (m)	*15.3*
Distance to Roadway (feet)	*15*
Distance to Roadway (m)	*4.6*
Distance Measured to Centerline or Edge of Pavement?	*Edge of Pavement*
Estimated Vehicle Speed (MPH)	*35*
Posted Speed Limit Sign (MPH)	*35*

Traffic Counts

Vehicle Count Summary	*A 296, MT 4, HT 0, B 0, MC 0*
Select Method for Recording Count Duration	*Enter Manually*
Counting Both Directions?	*Yes*
Count Duration (minutes)	*10*
Vehicle Count Tally	
Select Method for Vehicle Counts	*Enter Manually*
Number of Vehicles - Autos	*296*
Number of Vehicles - Medium Trucks	*4*
Number of Vehicles - Heavy Trucks	*0*
Number of Vehicles - Buses	*0*
Number of Vehicles - Motorcyles	*0*

Description / Photos

Site Photos

Photo	
Comments / Description	*Facing east.*

DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Monitoring

Record #	*4*
Site ID	*ST1*
Site Location Lat/Long	*33.125812, -117.073772*
Begin (Time)	*11:45:00*
End (Time)	*11:55:00*
Leq	*47.2*
Lmax	*54.3*
Lmin	*43.2*
Other Lx?	*L90, L50, L10*
L90	*44.4*
L50	*46.1*
L10	*49.9*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Distant traffic. Hvac on hospital*
Other Noise Sources (Background)	*Birds, Distant Conversations / Yelling, Distant Industrial, Distant Traffic, Rustling Leaves*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Description / Photos

Site Photos

Photo	
Comments / Description	*Facing south*

DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Field Noise Measurement Data

Record: 1157	
Project Name	*Palomar Heights*
Observer(s)	*Connor Burke*
Date	*2019-06-17*

Meteorological Conditions	
Temp (F)	*69*
Humidity % (R.H.)	*72*
Wind	*Calm*
Wind Speed (MPH)	*3*
Wind Direction	*South West*
Sky	*Overcast*

Instrument and Calibrator Information	
Instrument Name List	*(ENC) Rion NL-52*
Instrument Name	*(ENC) Rion NL-52*
Instrument Name Lookup Key	*(ENC) Rion NL-52*
Manufacturer	*Rion*
Model	*NL-52*
Serial Number	*553896*
Calibrator Name	*(ENC) LD CAL150*
Calibrator Name	*(ENC) LD CAL150*
Calibrator Name Lookup Key	*(ENC) LD CAL150*
Calibrator Manufacturer	*Larson Davis*
Calibrator Model	*LD CAL150*
Calibrator Serial #	*5152*
Pre-Test (dBA SPL)	*94*
Post-Test (dBA SPL)	*94*
Windscreen	*Yes*
Weighting?	*A-WTD*
Slow/Fast?	*Slow*
ANSI?	*Yes*

Monitoring	
Record #	*1*
Site ID	*ST2*
Site Location Lat/Long	*33.123972, -117.075457*
Begin (Time)	*11:00:00*
End (Time)	*11:10:00*
Leq	*65.4*
Lmax	*77.3*
Lmin	*48*
Other Lx?	*L90, L50, L10*
L90	*50.2*
L50	*62.3*
L10	*69*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Distant Industrial, Distant Traffic*
Other Noise Sources Additional Description	*Hvac*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Source Info and Traffic Counts	
Number of Lanes	3
Lane Width (feet)	10
Roadway Width (feet)	30
Roadway Width (m)	9.2
Distance to Roadway (feet)	40
Distance to Roadway (m)	12.2
Distance Measured to Centerline or Edge of Pavement?	Edge of Pavement
Estimated Vehicle Speed (MPH)	30
Posted Speed Limit Sign (MPH)	30

Traffic Counts	
Vehicle Count Summary	A 134, MT 1, HT 1, B 1, MC 0
Select Method for Recording Count Duration	Enter Manually
Counting Both Directions?	Yes
Count Duration (minutes)	10
Vehicle Count Tally	
Select Method for Vehicle Counts	Enter Manually
Number of Vehicles - Autos	134
Number of Vehicles - Medium Trucks	1
Number of Vehicles - Heavy Trucks	1
Number of Vehicles - Buses	1
Number of Vehicles - Motorcyles	0

Description / Photos

Site Photos

Photo

Comments / Description	Facing north

Monitoring	
Record #	2
Site ID	ST4
Site Location Lat/Long	33.124934, -117.076627
Begin (Time)	11:16:00
End (Time)	11:26:00
Leq	65.5
Lmax	76.4
Lmin	49.6
Other Lx?	L90, L50, L10
L90	54
L50	63
L10	69.3
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Birds, Distant Traffic, Rustling Leaves
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Source Info and Traffic Counts	
Number of Lanes	5
Lane Width (feet)	10
Roadway Width (feet)	50
Roadway Width (m)	15.3
Distance to Roadway (feet)	40
Distance to Roadway (m)	12.2
Distance Measured to Centerline or Edge of Pavement?	Edge of Pavement
Estimated Vehicle Speed (MPH)	30
Posted Speed Limit Sign (MPH)	30

Traffic Counts	
Vehicle Count Summary	A 300, MT 2, HT 0, B 0, MC 3
Select Method for Recording Count Duration	Enter Manually
Counting Both Directions?	Yes
Count Duration (minutes)	10
Vehicle Count Tally	
Select Method for Vehicle Counts	Enter Manually
Number of Vehicles - Autos	300
Number of Vehicles - Medium Trucks	2
Number of Vehicles - Heavy Trucks	0
Number of Vehicles - Buses	0
Number of Vehicles - Motorcyles	3

Description / Photos

Site Photos

Photo	
Comments / Description	*Facing west*

Monitoring

Record #	*3*
Site ID	*ST3*
Site Location Lat/Long	*33.126485, -117.076007*
Begin (Time)	*11:30:00*
End (Time)	*11:40:00*
Leq	*70*
Lmax	*75.6*
Lmin	*49.7*
Other Lx?	*L90, L50, L10*
L90	*55.4*
L50	*68.8*
L10	*73.6*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Traffic*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Source Info and Traffic Counts

Number of Lanes	*5*
Lane Width (feet)	*10*
Roadway Width (feet)	*50*
Roadway Width (m)	*15.3*
Distance to Roadway (feet)	*15*
Distance to Roadway (m)	*4.6*
Distance Measured to Centerline or Edge of Pavement?	*Edge of Pavement*
Estimated Vehicle Speed (MPH)	*35*
Posted Speed Limit Sign (MPH)	*35*

Traffic Counts

Vehicle Count Summary	*A 296, MT 4, HT 0, B 0, MC 0*
Select Method for Recording Count Duration	*Enter Manually*
Counting Both Directions?	*Yes*
Count Duration (minutes)	*10*
Vehicle Count Tally	
Select Method for Vehicle Counts	*Enter Manually*
Number of Vehicles - Autos	*296*
Number of Vehicles - Medium Trucks	*4*
Number of Vehicles - Heavy Trucks	*0*
Number of Vehicles - Buses	*0*
Number of Vehicles - Motorcyles	*0*

Description / Photos

Site Photos

Photo	
Comments / Description	*Facing east.*

DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Monitoring

Record #	*4*
Site ID	*ST1*
Site Location Lat/Long	*33.125812, -117.073772*
Begin (Time)	*11:45:00*
End (Time)	*11:55:00*
Leq	*47.2*
Lmax	*54.3*
Lmin	*43.2*
Other Lx?	*L90, L50, L10*
L90	*44.4*
L50	*46.1*
L10	*49.9*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Distant traffic. Hvac on hospital*
Other Noise Sources (Background)	*Birds, Distant Conversations / Yelling, Distant Industrial, Distant Traffic, Rustling Leaves*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Description / Photos

Site Photos

Photo	
Comments / Description	*Facing south*

Appendix B

Construction Noise Modeling Input and Output

To User: bordered cells are inputs, unbordered cells have formulae

noise level limit for construction phase, per County = 75

allowable hours over which Leq is to be averaged (example: 1 for City of Escondido, or 8 for FTA guidance) = 1

Construction Phase	FHWA RCNM Equipment Type	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Name, Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 1-hour Leq
Demolition	Dozer	1	40	82		25	88.0	0.5	30	81
	Excavator	1	40	81		25	87.0	0.5	30	80
	Concrete Saw	1	20	90		25	96.0	0.5	30	86
										88.0
Site Preparation	Dozer	1	40	82		25	88.0	0.5	30	81
	Backhoe	1	40	78		25	84.0	0.5	30	77
	Front End Loader	1	40	79		25	85.0	0.5	30	78
							Total for Site Preparation Phase:			83.8
Grading	Excavator	1	40	81		25	87.0	0.5	30	80
	Grader	1	40	85		25	91.0	0.5	30	84
	Dozer	1	40	82		25	88.0	0.5	30	81
	Front End Loader	1	40	79		25	85.0	0.5	30	78
	Backhoe	1	40	78		25	84.0	0.5	30	77
	Scraper	1	40	84		25	90.0	0.5	30	83
							Total for Grading Phase:			89.0
Building Construction	Crane	1	16	81		50	81.0	0.5	30	70
	Man Lift	1	20	75		50	75.0	0.5	30	65
	Generator	1	50	72		50	72.0	0.5	30	66
	Backhoe	1	40	78		50	78.0	0.5	30	71
	Front End Loader	1	40	79		50	79.0	0.5	30	72
	Welder / Torch	1	40	73		50	73.0	0.5	30	66
							Total for Building Construction Phase:			77.0
Paving 1 - Internal Road Construction	Paver	1	50	77		60	75.4	0.5	30	69
	Roller	1	20	80		60	78.4	0.5	30	68
	All Other Equipment > 5 HP	1	50	85		60	83.4	0.5	30	77
							Total for Paving 1 - Internal Road Construction Phase:			78.5
Architectural Coating	Compressor (air)	1	40	78		50	78.0	1	60	74
							Total for Architectural Coating Phase:			**74.0**
Paving 2 - Paved Areas	Paver	1	50	77		60	75.4	0.5	30	69
	Roller	1	20	80		60	78.4	0.5	30	68
	All Other Equipment > 5 HP	1	50	85		60	83.4	0.5	30	77
							Total for Phase:			77.4

To User: bordered cells are inputs, unbordered cells have formulae

noise level limit for construction phase, per County = 75

allowable hours over which Leq is to be averaged (example: 1 for City of Escondido, or 8 for FTA guidance) = 1

Construction Phase	FHWA RCNM Equipment Type	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 1-hour Leq
Demolition	Dozer	2	40	82		235	68.6	1	60	68
	Excavator	3	40	81		235	67.6	1	60	68
	Concrete Saw	1	20	90		235	76.6	1	60	70
							Total for Demolition Phase:			**73.4**
Site Preparation	Dozer	3	40	82		235	68.6	1	60	69
	Backhoe	2	40	78		235	64.6	1	60	64
	Front End Loader	2	40	79		235	65.6	1	60	65
							Total for Site Preparation Phase:			**71.4**
Grading	Excavator	2	40	81		235	67.6	1	60	67
	Grader	1	40	85		235	71.6	1	60	68
	Dozer	1	40	82		235	68.6	1	60	65
	Front End Loader	1	40	79		235	65.6	1	60	62
	Backhoe	1	40	78		235	64.6	1	60	61
	Scraper	2	40	84		235	70.6	1	60	70
							Total for Grading Phase:			**74.0**
Building Construction	Crane	1	16	81		235	67.6	1	60	60
	Man Lift	3	20	75		235	61.6	1	60	59
	Generator	1	50	72		235	58.6	1	60	56
	Backhoe	2	40	78		235	64.6	1	60	64
	Front End Loader	1	40	79		235	65.6	1	60	62
	Welder / Torch	1	40	73		235	59.6	1	60	56
							Total for Building Construction Phase:			**67.9**
Paving 1 - Internal Road Construction	Paver	2	50	77		235	63.6	1	60	64
	Roller	2	20	80		235	66.6	1	60	63
	All Other Equipment > 5 HP	2	50	85		235	71.6	1	60	72
							Total for Paving 1 - Internal Road Construction Phase:			**72.6**
Architectural Coating	Compressor (air)	1	40	78		235	64.6	1	60	61
							Total for Architectural Coating Phase:			**60.6**
Paving 2 - Paved Areas	Paver	2	50	77		235	63.6	1	60	64
	Roller	2	20	80		235	66.6	1	60	63
	All Other Equipment > 5 HP	2	50	85		235	71.6	1	60	72
							Total for Phase:			**72.6**

Appendix C

Traffic Noise Modeling Input and Output

ADT Noise level Addendum

Segment	Existing (2018) Noise Level change without Project Noise Level (dBA)	Existing (2018) Noise Level change with Project Noise Level (dBA)	Near-Term (Opening Day) Noise Level change without Project Noise Level (dBA)	Near-Term (Opening Day) Noise Level change with Project Noise Level (dBA)	Horizon year (2035) Noise Level Change without Project Noise Level (dBA)	Horizon year (2035) Noise Level Change with Project Noise Level (dBA)
N. Hickory St						
E. Washington Ave to Valley Pkwy	0.6	0.7	0.6	0.7	0.0	0.1
N. Fig Street						
Valley Pkwy to Grand Ave	0.0	0.0	0.0	0.0	0.0	0.0
Valley Boulevard						
Valley Pkwy to Grand Ave	0.0	-0.5	0.0	0.0	0.0	0.0
Valley Parkway						
Juniper St to Ivy St	0.0	0.4	0.0	0.1	0.0	0.1
Ivy St to Hickory St	0.0	0.4	0.0	0.0	0.0	0.0
Hickory St to Fig St	0.0	0.0	0.0	0.0	0.0	0.0
Grand Avenue						
Juniper St to Ivy St	0.0	-0.8	0.0	-0.3	0.0	-0.1
Valley Blvd to Grape St	0.0	-0.6	0.0	0.0	0.0	0.0
Grape St to Fig St	0.0	0.0	0.0	0.0	0.0	0.0
2nd Avenue						
Juniper St to Ivy St	0.0	0.0	0.0	0.0	0.0	0.0
Ivy St to Grand Ave	0.0	0.1	0.0	0.1	-0.4	-0.3

*noise levels attributed to a change in ADT is per the following expression: $10*LOG(V_2/V_1)$, where V_2 is the new ADT value and V_1 is a previous ADT value

ADT Noise level Addendum

Segment	Existing (2018) Noise Level change without Project Noise Level (dBA)	Existing (2018) Noise Level change with Project Noise Level (dBA)	Near-Term (Opening Day) Noise Level change without Project Noise Level (dBA)	Near-Term (Opening Day) Noise Level change with Project Noise Level (dBA)	Horizon year (2035) Noise Level Change without Project Noise Level (dBA)	Horizon year (2035) Noise Level Change with Project Noise Level (dBA)
N. Hickory St						
E. Washington Ave to Valley Pkwy	0.6	0.7	0.6	0.7	0.0	0.1
N. Fig Street						
Valley Pkwy to Grand Ave	0.0	0.0	0.0	0.0	0.0	0.0
Valley Boulevard						
Valley Pkwy to Grand Ave	0.0	-0.5	0.0	0.0	0.0	0.0
Valley Parkway						
Juniper St to Ivy St	0.0	0.4	0.0	0.1	0.0	0.1
Ivy St to Hickory St	0.0	0.4	0.0	0.0	0.0	0.0
Hickory St to Fig St	0.0	0.0	0.0	0.0	0.0	0.0
Grand Avenue						
Juniper St to Ivy St	0.0	-0.8	0.0	-0.3	0.0	-0.1
Valley Blvd to Grape St	0.0	-0.6	0.0	0.0	0.0	0.0
Grape St to Fig St	0.0	0.0	0.0	0.0	0.0	0.0
2nd Avenue						
Juniper St to Ivy St	0.0	0.0	0.0	0.0	0.0	0.0
Ivy St to Grand Ave	0.0	0.1	0.0	0.1	-0.4	-0.3

*noise levels attributed to a change in ADT is per the following expression: $10*LOG(V_2/V_1)$, where V_2 is the new ADT value and V_1 is a previous ADT value

Dudek
CB

25 June 2019
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Palomar Heights
RUN: Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
ST4	1	1	65.5	64.5	66	-1.0	10	----	64.5	0.0	8	-8.0
ST2	2	1	65.4	59.4	66	-6.0	10	----	59.4	0.0	8	-8.0
ST1	3	1	47.2	51.4	66	4.2	10	----	51.4	0.0	8	-8.0
ST3	4	1	70.0	68.1	66	-1.9	10	Snd Lvl	68.1	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	4	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Dudek 25 June 2019
CB TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: Palomar Heights
RUN: Existing

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

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
N Fig St S2	15.0	point1	1	2,540.9	1,955.2	0.00				Average	
		point2	2	2,419.2	2,172.7	0.00				Average	
		point3	3	2,349.1	2,298.7	0.00				Average	
		point4	4	2,261.8	2,448.9	0.00				Average	
		point5	5	2,186.0	2,560.6	0.00				Average	
		point6	6	2,133.0	2,637.8	0.00				Average	
		point7	7	2,085.8	2,708.0	0.00					
S Fig St S2	15.0	point8	8	2,513.7	1,956.6	0.00				Average	
		point9	9	2,449.3	2,074.0	0.00				Average	
		point10	10	2,376.3	2,221.4	0.00				Average	
		point11	11	2,294.8	2,361.6	0.00				Average	
		point12	12	2,177.4	2,549.1	0.00				Average	
		point13	13	2,067.2	2,693.6	0.00					
N Fig St S6	18.0	point14	14	2,864.3	1,100.8	0.00				Average	
		point15	15	2,789.9	1,306.9	0.00				Average	
		point16	16	2,699.7	1,553.1	0.00				Average	
		point17	17	2,605.3	1,806.4	0.00				Average	
		point18	18	2,570.9	1,903.7	0.00					
S Fig St S6	18.0	point19	19	2,841.4	1,103.7	0.00				Average	
		point20	20	2,792.7	1,236.8	0.00				Average	
		point21	21	2,741.2	1,389.9	0.00				Average	
		point22	22	2,684.0	1,550.2	0.00				Average	
		point23	23	2,603.8	1,772.0	0.00				Average	
		point24	24	2,558.1	1,889.4	0.00					
East Grand Ave W15	25.0	point25	25	2,430.7	901.9	0.00				Average	

		point26	26	2,855.7	1,055.0	0.00					
West Grand Ave W15	25.0	point27	27	2,426.4	927.7	0.00				Average	
		point28	28	2,844.3	1,076.5	0.00					
West Grand Ave W10	25.0	point29	29	2,399.2	920.5	0.00				Average	
		point30	30	2,343.4	906.2	0.00				Average	
		point31	31	2,253.2	884.7	0.00				Average	
		point32	32	2,090.1	859.0	0.00				Average	
		point33	33	1,916.9	824.6	0.00				Average	
		point34	34	1,750.9	798.9	0.00					
East Grand Ave W10	25.0	point35	35	2,409.2	893.3	0.00				Average	
		point36	36	2,326.2	879.0	0.00				Average	
		point37	37	2,221.8	863.3	0.00				Average	
		point38	38	2,058.6	827.5	0.00				Average	
		point39	39	1,758.1	761.6	0.00					
E 2nd Ave	40.0	point40	40	1,679.4	371.0	0.00				Average	
		point41	41	1,715.1	438.2	0.00				Average	
		point42	42	1,743.8	498.3	0.00				Average	
		point43	43	1,758.1	547.0	0.00				Average	
		point44	44	1,763.8	585.6	0.00				Average	
		point45	45	1,755.2	655.7	0.00				Average	
		point46	46	1,736.6	740.2	0.00				Average	
		point47	47	1,736.6	745.9	0.00					
E 2nd Ave W13	25.0	point48	48	1,289.2	67.3	0.00				Average	
		point49	49	1,395.1	128.8	0.00				Average	
		point50	50	1,519.7	200.4	0.00				Average	
		point51	51	1,621.3	253.3	0.00				Average	
		point52	52	1,672.8	323.4	0.00					
W 2nd Ave W13	25.0	point53	53	1,284.9	85.9	0.00				Average	
		point54	54	1,392.3	146.0	0.00				Average	
		point55	55	1,528.2	221.8	0.00				Average	
		point56	56	1,609.8	269.1	0.00				Average	
		point57	57	1,649.9	319.1	0.00					
N Juniper St N12	25.0	point58	58	1,276.3	105.9	0.00				Average	
		point59	59	1,117.5	372.1	0.00					
S Juniper St N12	25.0	point60	60	1,259.2	98.8	0.00				Average	
		point61	61	1,101.8	356.3	0.00					
East Grand Ave W8	30.0	point62	62	1,107.5	389.3	0.00				Average	
		point63	63	1,506.8	632.5	0.00				Average	
		point64	64	1,702.8	742.7	0.00				Average	

		point65	65	1,721.4	749.9	0.00					
West Grand Ave W8	30.0	point66	66	1,091.8	426.5	0.00				Average	
		point67	67	1,345.0	575.3	0.00				Average	
		point68	68	1,498.2	666.9	0.00				Average	
		point69	69	1,638.4	744.2	0.00				Average	
		point70	70	1,711.4	781.4	0.00					
N Juniper St N7	25.0	point71	71	1,073.1	445.1	0.00				Average	
		point72	72	908.6	712.7	0.00					
S Juniper St N17	25.0	point73	73	1,051.7	439.3	0.00				Average	
		point74	74	894.3	701.2	0.00					
W Valley Pkwy W3	40.0	point75	75	902.9	748.5	0.00				Average	
		point76	76	1,272.1	961.7	0.00					
West Vally Blvd E4	40.0	point77	77	1,307.8	981.7	0.00				Average	
		point78	78	1,536.8	1,123.4	0.00				Average	
		point79	79	1,614.1	1,177.8	0.00				Average	
		point80	80	1,669.9	1,230.7	0.00				Average	
		point81	81	1,714.3	1,289.4	0.00				Average	
		point82	82	1,751.5	1,351.0	0.00				Average	
		point83	83	1,781.5	1,395.3	0.00					
N Vally Blvd N9	25.0	point84	84	1,731.5	818.6	0.00				Average	
		point85	85	1,724.3	860.1	0.00				Average	
		point86	86	1,737.2	976.0	0.00				Average	
		point87	87	1,750.1	1,109.1	0.00				Average	
		point88	88	1,764.4	1,189.2	0.00				Average	
		point89	89	1,780.1	1,266.5	0.00				Average	
		point90	90	1,814.5	1,349.5	0.00				Average	
		point91	91	1,825.9	1,379.6	0.00					
S Vally Blvd N9	25.0	point92	92	1,705.7	811.5	0.00				Average	
		point93	93	1,705.7	874.4	0.00				Average	
		point94	94	1,712.9	948.8	0.00				Average	
		point95	95	1,721.4	1,087.6	0.00				Average	
		point96	96	1,737.2	1,192.1	0.00				Average	
		point97	97	1,764.4	1,335.2	0.00				Average	
		point98	98	1,795.9	1,391.0	0.00					
N Hickory St N5	20.0	point99	99	1,780.1	1,444.0	0.00				Average	
		point100	100	1,737.2	1,482.6	0.00				Average	
		point101	101	1,710.0	1,509.8	0.00				Average	
		point102	102	1,694.3	1,525.6	0.00				Average	
		point103	103	1,592.7	1,711.6	0.00				Average	

		point104	104	1,516.8	1,847.5	0.00				Average	
		point105	105	1,443.8	1,977.8	0.00				Average	
		point106	106	1,252.0	2,321.3	0.00				Average	
		point107	107	1,222.0	2,388.5	0.00					
S Hickory St N5	20.0	point108	108	1,754.4	1,436.8	0.00				Average	
		point109	109	1,690.0	1,502.7	0.00				Average	
		point110	110	1,661.3	1,549.9	0.00				Average	
		point111	111	1,599.8	1,654.4	0.00				Average	
		point112	112	1,519.7	1,811.8	0.00				Average	
		point113	113	1,416.6	1,990.6	0.00				Average	
		point114	114	1,336.5	2,140.9	0.00				Average	
		point115	115	1,276.3	2,251.1	0.00				Average	
		point116	116	1,246.3	2,305.5	0.00				Average	
		point117	117	1,207.7	2,379.9	0.00					
E Vally Pkwy N5	25.0	point118	118	1,844.5	1,415.4	0.00				Average	
		point119	119	1,924.6	1,522.7	0.00				Average	
		point120	120	1,971.9	1,572.8	0.00				Average	
		point121	121	2,056.3	1,644.3	0.00				Average	
		point122	122	2,135.0	1,690.1	0.00				Average	
		point123	123	2,268.1	1,758.8	0.00				Average	
		point124	124	2,475.6	1,870.4	0.00				Average	
		point125	125	2,531.4	1,900.5	0.00					
W Vally Pkwy N5	25.0	point126	126	1,810.2	1,445.4	0.00				Average	
		point127	127	1,866.0	1,521.3	0.00				Average	
		point128	128	1,911.8	1,564.2	0.00				Average	
		point129	129	1,966.1	1,622.9	0.00				Average	
		point130	130	2,007.6	1,651.5	0.00				Average	
		point131	131	2,097.8	1,690.1	0.00				Average	
		point132	132	2,258.1	1,773.1	0.00				Average	
		point133	133	2,487.1	1,903.4	0.00				Average	
		point134	134	2,511.4	1,914.8	0.00					

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CB TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: Palomar Heights
RUN: Existing

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
N Fig St S2	point1	1	0	0	0	0	0	0	0	0	0	0
	point2	2	0	0	0	0	0	0	0	0	0	0
	point3	3	0	0	0	0	0	0	0	0	0	0
	point4	4	0	0	0	0	0	0	0	0	0	0
	point5	5	0	0	0	0	0	0	0	0	0	0
	point6	6	0	0	0	0	0	0	0	0	0	0
	point7	7										
S Fig St S2	point8	8	0	0	0	0	0	0	0	0	0	0
	point9	9	0	0	0	0	0	0	0	0	0	0
	point10	10	0	0	0	0	0	0	0	0	0	0
	point11	11	0	0	0	0	0	0	0	0	0	0
	point12	12	0	0	0	0	0	0	0	0	0	0
	point13	13										
N Fig St S6	point14	14	275	25	6	25	3	25	0	0	0	0
	point15	15	275	25	6	25	3	25	0	0	0	0
	point16	16	275	25	6	25	3	25	0	0	0	0
	point17	17	275	25	6	25	3	25	0	0	0	0
	point18	18										
S Fig St S6	point19	19	275	25	6	25	3	25	0	0	0	0
	point20	20	275	25	6	25	3	25	0	0	0	0
	point21	21	275	25	6	25	3	25	0	0	0	0
	point22	22	275	25	6	25	3	25	0	0	0	0
	point23	23	275	25	6	25	3	25	0	0	0	0

	point24	24										
East Grand Ave W15	point25	25	734	30	15	30	8	30	0	0	0	0
	point26	26										
West Grand Ave W15	point27	27	734	30	15	30	8	30	0	0	0	0
	point28	28										
West Grand Ave W10	point29	29	458	30	9	30	5	30	0	0	0	0
	point30	30	458	30	9	30	5	30	0	0	0	0
	point31	31	458	30	9	30	5	30	0	0	0	0
	point32	32	458	30	9	30	5	30	0	0	0	0
	point33	33	458	30	9	30	5	30	0	0	0	0
	point34	34										
East Grand Ave W10	point35	35	458	30	9	30	5	30	0	0	0	0
	point36	36	458	30	9	30	5	30	0	0	0	0
	point37	37	458	30	9	30	5	30	0	0	0	0
	point38	38	458	30	9	30	5	30	0	0	0	0
	point39	39										
E 2nd Ave	point40	40	1268	30	26	30	13	30	0	0	0	0
	point41	41	1268	30	26	30	13	30	0	0	0	0
	point42	42	1268	30	26	30	13	30	0	0	0	0
	point43	43	1268	30	26	30	13	30	0	0	0	0
	point44	44	1268	30	26	30	13	30	0	0	0	0
	point45	45	1268	30	26	30	13	30	0	0	0	0
	point46	46	1268	30	26	30	13	30	0	0	0	0
	point47	47										
E 2nd Ave W13	point48	48	0	0	0	0	0	0	0	0	0	0
	point49	49	0	0	0	0	0	0	0	0	0	0
	point50	50	0	0	0	0	0	0	0	0	0	0
	point51	51	0	0	0	0	0	0	0	0	0	0
	point52	52										
W 2nd Ave W13	point53	53	0	0	0	0	0	0	0	0	0	0
	point54	54	0	0	0	0	0	0	0	0	0	0
	point55	55	0	0	0	0	0	0	0	0	0	0
	point56	56	0	0	0	0	0	0	0	0	0	0
	point57	57										
N Juniper St N12	point58	58	0	0	0	0	0	0	0	0	0	0
	point59	59										

S Juniper St N12	point60	60	0	0	0	0	0	0	0	0	0	0
	point61	61										
East Grand Ave W8	point62	62	463	30	10	30	5	30	0	0	0	0
	point63	63	463	30	10	30	5	30	0	0	0	0
	point64	64	463	30	10	30	5	30	0	0	0	0
	point65	65										
West Grand Ave W8	point66	66	463	30	10	30	5	30	0	0	0	0
	point67	67	463	30	10	30	5	30	0	0	0	0
	point68	68	463	30	10	30	5	30	0	0	0	0
	point69	69	463	30	10	30	5	30	0	0	0	0
	point70	70										
N Juniper St N7	point71	71	0	0	0	0	0	0	0	0	0	0
	point72	72										
S Juniper St N17	point73	73	0	0	0	0	0	0	0	0	0	0
	point74	74										
W Valley Pkwy W3	point75	75	1435	35	30	35	15	35	0	0	0	0
	point76	76										
West Vally Blvd E4	point77	77	1320	35	27	35	14	35	0	0	0	0
	point78	78	1320	35	27	35	14	35	0	0	0	0
	point79	79	1320	35	27	35	14	35	0	0	0	0
	point80	80	1320	35	27	35	14	35	0	0	0	0
	point81	81	1320	35	27	35	14	35	0	0	0	0
	point82	82	1320	35	27	35	14	35	0	0	0	0
	point83	83										
N Vally Blvd N9	point84	84	484	30	10	30	5	30	0	0	0	0
	point85	85	484	30	10	30	5	30	0	0	0	0
	point86	86	484	30	10	30	5	30	0	0	0	0
	point87	87	484	30	10	30	5	30	0	0	0	0
	point88	88	484	30	10	30	5	30	0	0	0	0
	point89	89	484	30	10	30	5	30	0	0	0	0
	point90	90	484	30	10	30	5	30	0	0	0	0
	point91	91										
S Vally Blvd N9	point92	92	484	30	10	30	5	30	0	0	0	0
	point93	93	484	30	10	30	5	30	0	0	0	0
	point94	94	484	30	10	30	5	30	0	0	0	0
	point95	95	484	30	10	30	5	30	0	0	0	0

	point96	96	484	30	10	30	5	30	0	0	0	0
	point97	97	484	30	10	30	5	30	0	0	0	0
	point98	98										
N Hickory St N5	point99	99	204	30	4	30	2	30	0	0	0	0
	point100	100	204	30	4	30	2	30	0	0	0	0
	point101	101	204	30	4	30	2	30	0	0	0	0
	point102	102	204	30	4	30	2	30	0	0	0	0
	point103	103	204	30	4	30	2	30	0	0	0	0
	point104	104	204	30	4	30	2	30	0	0	0	0
	point105	105	204	30	4	30	2	30	0	0	0	0
	point106	106	204	30	4	30	2	30	0	0	0	0
	point107	107										
S Hickory St N5	point108	108	204	30	4	30	2	30	0	0	0	0
	point109	109	204	30	4	30	2	30	0	0	0	0
	point110	110	204	30	4	30	2	30	0	0	0	0
	point111	111	204	30	4	30	2	30	0	0	0	0
	point112	112	204	30	4	30	2	30	0	0	0	0
	point113	113	204	30	4	30	2	30	0	0	0	0
	point114	114	204	30	4	30	2	30	0	0	0	0
	point115	115	204	30	4	30	2	30	0	0	0	0
	point116	116	204	30	4	30	2	30	0	0	0	0
	point117	117										
E Vally Pkwy N5	point118	118	1148	35	24	35	12	35	0	0	0	0
	point119	119	1148	35	24	35	12	35	0	0	0	0
	point120	120	1148	35	24	35	12	35	0	0	0	0
	point121	121	1148	35	24	35	12	35	0	0	0	0
	point122	122	1148	35	24	35	12	35	0	0	0	0
	point123	123	1148	35	24	35	12	35	0	0	0	0
	point124	124	1148	35	24	35	12	35	0	0	0	0
	point125	125										
W Vally Pkwy N5	point126	126	1148	35	24	35	12	35	0	0	0	0
	point127	127	1148	35	24	35	12	35	0	0	0	0
	point128	128	1148	35	24	35	12	35	0	0	0	0
	point129	129	1148	35	24	35	12	35	0	0	0	0
	point130	130	1148	35	24	35	12	35	0	0	0	0
	point131	131	1148	35	24	35	12	35	0	0	0	0

	point132	132	1148	35	24	35	12	35	0	0	0	0
	point133	133	1148	35	24	35	12	35	0	0	0	0
	point134	134										

Dudek 25 June 2019
CB TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: Palomar Heights
RUN: Existing

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST4	1	1	1,783.8	1,095.8	0.00	4.92	65.50	66	10.0	8.0	Y
ST2	2	1	2,097.2	748.0	0.00	4.92	65.40	66	10.0	8.0	Y
ST1	3	1	2,558.1	1,396.3	0.00	4.92	47.20	66	10.0	8.0	Y
ST3	4	1	1,926.3	1,630.8	0.00	4.92	70.00	66	10.0	8.0	Y

Dudek					**25 June 2019**	
CB					**TNM 2.5**	
INPUT: BUILDING ROWS						
PROJECT/CONTRACT:	**Palomar Heights**					
RUN:	**Existing**					
Building Row			**Points**			
Name	**Average**	**Building**	**No.**	**Coordinates (ground)**		
	Height	**Percent**		**X**	**Y**	**Z**
	ft	%		ft	ft	ft
Building1	30.00	60	1	1,596.2	1,778.2	0.00
			2	1,726.5	1,551.8	0.00
			3	1,906.4	1,640.2	0.00
			4	1,869.9	1,705.3	0.00
			5	1,757.5	1,647.2	0.00
			6	1,675.3	1,766.6	0.00
			7	1,760.6	1,810.0	0.00
			8	1,731.9	1,863.5	0.00
			9	1,593.1	1,781.4	0.00
Building2	20.00	60	10	2,630.2	1,583.5	0.00
			11	2,681.9	1,458.4	0.00
			12	2,681.9	1,450.6	0.00
			13	2,653.6	1,440.8	0.00
			14	2,638.0	1,478.0	0.00
			15	2,625.3	1,473.1	0.00
			16	2,637.0	1,439.8	0.00
			17	2,599.9	1,426.2	0.00
			18	2,582.3	1,458.4	0.00
			19	2,562.7	1,451.6	0.00
			20	2,574.5	1,426.2	0.00
			21	2,536.4	1,416.4	0.00
			22	2,523.7	1,443.8	0.00
			23	2,514.9	1,439.8	0.00
			24	2,519.8	1,433.0	0.00

			25	2,492.4	1,421.3	0.00
			26	2,454.3	1,519.9	0.00

Dudek
CB

25 June 2019
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Palomar Heights
RUN: Existing + Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
ST4	1	1	65.5	64.6	66	-0.9	10	----	64.6	0.0	8	-8.0
ST2	2	1	65.4	59.6	66	-5.8	10	----	59.6	0.0	8	-8.0
ST1	3	1	47.2	51.4	66	4.2	10	----	51.4	0.0	8	-8.0
ST3	4	1	70.0	68.2	66	-1.8	10	Snd Lvl	68.2	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	4	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Dudek					**25 June 2019**						
CB					**TNM 2.5**						
INPUT: ROADWAYS							**Average pavement type shall be used unless**				
PROJECT/CONTRACT:	**Palomar Heights**						**a State highway agency substantiates the use**				
RUN:	**Existing + Project**						**of a different type with the approval of FHWA**				
Roadway		**Points**									
Name	**Width**	**Name**	**No.**	**Coordinates (pavement)**			**Flow Control**			**Segment**	
				X	**Y**	**Z**	**Control Device**	**Speed Constraint**	**Percent Vehicles Affected**	**Pvmt Type**	**On Struct?**
	ft			ft	ft	ft		mph	%		
N Fig St S2	15.0	point1	1	2,540.9	1,955.2	0.00				Average	
		point2	2	2,419.2	2,172.7	0.00				Average	
		point3	3	2,349.1	2,298.7	0.00				Average	
		point4	4	2,261.8	2,448.9	0.00				Average	
		point5	5	2,186.0	2,560.6	0.00				Average	
		point6	6	2,133.0	2,637.8	0.00				Average	
		point7	7	2,085.8	2,708.0	0.00					
S Fig St S2	15.0	point8	8	2,513.7	1,956.6	0.00				Average	
		point9	9	2,449.3	2,074.0	0.00				Average	
		point10	10	2,376.3	2,221.4	0.00				Average	
		point11	11	2,294.8	2,361.6	0.00				Average	
		point12	12	2,177.4	2,549.1	0.00				Average	
		point13	13	2,067.2	2,693.6	0.00					
N Fig St S6	18.0	point14	14	2,864.3	1,100.8	0.00				Average	
		point15	15	2,789.9	1,306.9	0.00				Average	
		point16	16	2,699.7	1,553.1	0.00				Average	
		point17	17	2,605.3	1,806.4	0.00				Average	
		point18	18	2,570.9	1,903.7	0.00					
S Fig St S6	18.0	point19	19	2,841.4	1,103.7	0.00				Average	
		point20	20	2,792.7	1,236.8	0.00				Average	
		point21	21	2,741.2	1,389.9	0.00				Average	
		point22	22	2,684.0	1,550.2	0.00				Average	
		point23	23	2,603.8	1,772.0	0.00				Average	
		point24	24	2,558.1	1,889.4	0.00					
East Grand Ave W15	25.0	point25	25	2,430.7	901.9	0.00				Average	

		point26	26	2,855.7	1,055.0	0.00					
West Grand Ave W15	25.0	point27	27	2,426.4	927.7	0.00				Average	
		point28	28	2,844.3	1,076.5	0.00					
West Grand Ave W10	25.0	point29	29	2,399.2	920.5	0.00				Average	
		point30	30	2,343.4	906.2	0.00				Average	
		point31	31	2,253.2	884.7	0.00				Average	
		point32	32	2,090.1	859.0	0.00				Average	
		point33	33	1,916.9	824.6	0.00				Average	
		point34	34	1,750.9	798.9	0.00					
East Grand Ave W10	25.0	point35	35	2,409.2	893.3	0.00				Average	
		point36	36	2,326.2	879.0	0.00				Average	
		point37	37	2,221.8	863.3	0.00				Average	
		point38	38	2,058.6	827.5	0.00				Average	
		point39	39	1,758.1	761.6	0.00					
E 2nd Ave	40.0	point40	40	1,679.4	371.0	0.00				Average	
		point41	41	1,715.1	438.2	0.00				Average	
		point42	42	1,743.8	498.3	0.00				Average	
		point43	43	1,758.1	547.0	0.00				Average	
		point44	44	1,763.8	585.6	0.00				Average	
		point45	45	1,755.2	655.7	0.00				Average	
		point46	46	1,736.6	740.2	0.00				Average	
		point47	47	1,736.6	745.9	0.00					
E 2nd Ave W13	25.0	point48	48	1,289.2	67.3	0.00				Average	
		point49	49	1,395.1	128.8	0.00				Average	
		point50	50	1,519.7	200.4	0.00				Average	
		point51	51	1,621.3	253.3	0.00				Average	
		point52	52	1,672.8	323.4	0.00					
W 2nd Ave W13	25.0	point53	53	1,284.9	85.9	0.00				Average	
		point54	54	1,392.3	146.0	0.00				Average	
		point55	55	1,528.2	221.8	0.00				Average	
		point56	56	1,609.8	269.1	0.00				Average	
		point57	57	1,649.9	319.1	0.00					
N Juniper St N12	25.0	point58	58	1,276.3	105.9	0.00				Average	
		point59	59	1,117.5	372.1	0.00					
S Juniper St N12	25.0	point60	60	1,259.2	98.8	0.00				Average	
		point61	61	1,101.8	356.3	0.00					
East Grand Ave W8	30.0	point62	62	1,107.5	389.3	0.00				Average	
		point63	63	1,506.8	632.5	0.00				Average	
		point64	64	1,702.8	742.7	0.00				Average	

		point65	65	1,721.4	749.9	0.00					
West Grand Ave W8	30.0	point66	66	1,091.8	426.5	0.00				Average	
		point67	67	1,345.0	575.3	0.00				Average	
		point68	68	1,498.2	666.9	0.00				Average	
		point69	69	1,638.4	744.2	0.00				Average	
		point70	70	1,711.4	781.4	0.00					
N Juniper St N7	25.0	point71	71	1,073.1	445.1	0.00				Average	
		point72	72	908.6	712.7	0.00					
S Juniper St N17	25.0	point73	73	1,051.7	439.3	0.00				Average	
		point74	74	894.3	701.2	0.00					
W Valley Pkwy W3	40.0	point75	75	902.9	748.5	0.00				Average	
		point76	76	1,272.1	961.7	0.00					
West Vally Blvd E4	40.0	point77	77	1,307.8	981.7	0.00				Average	
		point78	78	1,536.8	1,123.4	0.00				Average	
		point79	79	1,614.1	1,177.8	0.00				Average	
		point80	80	1,669.9	1,230.7	0.00				Average	
		point81	81	1,714.3	1,289.4	0.00				Average	
		point82	82	1,751.5	1,351.0	0.00				Average	
		point83	83	1,781.5	1,395.3	0.00					
N Vally Blvd N9	25.0	point84	84	1,731.5	818.6	0.00				Average	
		point85	85	1,724.3	860.1	0.00				Average	
		point86	86	1,737.2	976.0	0.00				Average	
		point87	87	1,750.1	1,109.1	0.00				Average	
		point88	88	1,764.4	1,189.2	0.00				Average	
		point89	89	1,780.1	1,266.5	0.00				Average	
		point90	90	1,814.5	1,349.5	0.00				Average	
		point91	91	1,825.9	1,379.6	0.00					
S Vally Blvd N9	25.0	point92	92	1,705.7	811.5	0.00				Average	
		point93	93	1,705.7	874.4	0.00				Average	
		point94	94	1,712.9	948.8	0.00				Average	
		point95	95	1,721.4	1,087.6	0.00				Average	
		point96	96	1,737.2	1,192.1	0.00				Average	
		point97	97	1,764.4	1,335.2	0.00				Average	
		point98	98	1,795.9	1,391.0	0.00					
N Hickory St N5	20.0	point99	99	1,780.1	1,444.0	0.00				Average	
		point100	100	1,737.2	1,482.6	0.00				Average	
		point101	101	1,710.0	1,509.8	0.00				Average	
		point102	102	1,694.3	1,525.6	0.00				Average	
		point103	103	1,592.7	1,711.6	0.00				Average	

		point104	104	1,516.8	1,847.5	0.00				Average	
		point105	105	1,443.8	1,977.8	0.00				Average	
		point106	106	1,252.0	2,321.3	0.00				Average	
		point107	107	1,222.0	2,388.5	0.00					
S Hickory St N5	20.0	point108	108	1,754.4	1,436.8	0.00				Average	
		point109	109	1,690.0	1,502.7	0.00				Average	
		point110	110	1,661.3	1,549.9	0.00				Average	
		point111	111	1,599.8	1,654.4	0.00				Average	
		point112	112	1,519.7	1,811.8	0.00				Average	
		point113	113	1,416.6	1,990.6	0.00				Average	
		point114	114	1,336.5	2,140.9	0.00				Average	
		point115	115	1,276.3	2,251.1	0.00				Average	
		point116	116	1,246.3	2,305.5	0.00				Average	
		point117	117	1,207.7	2,379.9	0.00					
E Vally Pkwy N5	25.0	point118	118	1,844.5	1,415.4	0.00				Average	
		point119	119	1,924.6	1,522.7	0.00				Average	
		point120	120	1,971.9	1,572.8	0.00				Average	
		point121	121	2,056.3	1,644.3	0.00				Average	
		point122	122	2,135.0	1,690.1	0.00				Average	
		point123	123	2,268.1	1,758.8	0.00				Average	
		point124	124	2,475.6	1,870.4	0.00				Average	
		point125	125	2,531.4	1,900.5	0.00					
W Vally Pkwy N5	25.0	point126	126	1,810.2	1,445.4	0.00				Average	
		point127	127	1,866.0	1,521.3	0.00				Average	
		point128	128	1,911.8	1,564.2	0.00				Average	
		point129	129	1,966.1	1,622.9	0.00				Average	
		point130	130	2,007.6	1,651.5	0.00				Average	
		point131	131	2,097.8	1,690.1	0.00				Average	
		point132	132	2,258.1	1,773.1	0.00				Average	
		point133	133	2,487.1	1,903.4	0.00				Average	
		point134	134	2,511.4	1,914.8	0.00					

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25 June 2019
TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: Palomar Heights
RUN: Existing + Project

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
N Fig St S2	point1	1	0	0	0	0	0	0	0	0	0	0
	point2	2	0	0	0	0	0	0	0	0	0	0
	point3	3	0	0	0	0	0	0	0	0	0	0
	point4	4	0	0	0	0	0	0	0	0	0	0
	point5	5	0	0	0	0	0	0	0	0	0	0
	point6	6	0	0	0	0	0	0	0	0	0	0
	point7	7										
S Fig St S2	point8	8	0	0	0	0	0	0	0	0	0	0
	point9	9	0	0	0	0	0	0	0	0	0	0
	point10	10	0	0	0	0	0	0	0	0	0	0
	point11	11	0	0	0	0	0	0	0	0	0	0
	point12	12	0	0	0	0	0	0	0	0	0	0
	point13	13										
N Fig St S6	point14	14	277	25	6	25	3	25	0	0	0	0
	point15	15	277	25	6	25	3	25	0	0	0	0
	point16	16	277	25	6	25	3	25	0	0	0	0
	point17	17	277	25	6	25	3	25	0	0	0	0
	point18	18										
S Fig St S6	point19	19	277	25	6	25	3	25	0	0	0	0
	point20	20	277	25	6	25	3	25	0	0	0	0
	point21	21	277	25	6	25	3	25	0	0	0	0
	point22	22	277	25	6	25	3	25	0	0	0	0
	point23	23	277	25	6	25	3	25	0	0	0	0

	point24	24										
East Grand Ave W15	point25	25	743	30	15	30	8	30	0	0	0	0
	point26	26										
West Grand Ave W15	point27	27	743	30	15	30	8	30	0	0	0	0
	point28	28										
West Grand Ave W10	point29	29	477	30	10	30	5	30	0	0	0	0
	point30	30	477	30	10	30	5	30	0	0	0	0
	point31	31	477	30	10	30	5	30	0	0	0	0
	point32	32	477	30	10	30	5	30	0	0	0	0
	point33	33	477	30	10	30	5	30	0	0	0	0
	point34	34										
East Grand Ave W10	point35	35	477	30	10	30	5	30	0	0	0	0
	point36	36	477	30	10	30	5	30	0	0	0	0
	point37	37	477	30	10	30	5	30	0	0	0	0
	point38	38	477	30	10	30	5	30	0	0	0	0
	point39	39										
E 2nd Ave	point40	40	1288	30	27	30	13	30	0	0	0	0
	point41	41	1288	30	27	30	13	30	0	0	0	0
	point42	42	1288	30	27	30	13	30	0	0	0	0
	point43	43	1288	30	27	30	13	30	0	0	0	0
	point44	44	1288	30	27	30	13	30	0	0	0	0
	point45	45	1288	30	27	30	13	30	0	0	0	0
	point46	46	1288	30	27	30	13	30	0	0	0	0
	point47	47										
E 2nd Ave W13	point48	48	0	0	0	0	0	0	0	0	0	0
	point49	49	0	0	0	0	0	0	0	0	0	0
	point50	50	0	0	0	0	0	0	0	0	0	0
	point51	51	0	0	0	0	0	0	0	0	0	0
	point52	52										
W 2nd Ave W13	point53	53	0	0	0	0	0	0	0	0	0	0
	point54	54	0	0	0	0	0	0	0	0	0	0
	point55	55	0	0	0	0	0	0	0	0	0	0
	point56	56	0	0	0	0	0	0	0	0	0	0
	point57	57										
N Juniper St N12	point58	58	0	0	0	0	0	0	0	0	0	0
	point59	59										

S Juniper St N12	point60	60	0	0	0	0	0	0	0	0	0	0
	point61	61										
East Grand Ave W8	point62	62	512	30	11	30	5	30	0	0	0	0
	point63	63	512	30	11	30	5	30	0	0	0	0
	point64	64	512	30	11	30	5	30	0	0	0	0
	point65	65										
West Grand Ave W8	point66	66	512	30	11	30	5	30	0	0	0	0
	point67	67	512	30	11	30	5	30	0	0	0	0
	point68	68	512	30	11	30	5	30	0	0	0	0
	point69	69	512	30	11	30	5	30	0	0	0	0
	point70	70										
N Juniper St N7	point71	71	0	0	0	0	0	0	0	0	0	0
	point72	72										
S Juniper St N17	point73	73	0	0	0	0	0	0	0	0	0	0
	point74	74										
W Valley Pkwy W3	point75	75	1455	35	30	35	15	35	0	0	0	0
	point76	76										
West Vally Blvd E4	point77	77	1369	35	28	35	14	35	0	0	0	0
	point78	78	1320	35	27	35	14	35	0	0	0	0
	point79	79	1320	35	27	35	14	35	0	0	0	0
	point80	80	1320	35	27	35	14	35	0	0	0	0
	point81	81	1320	35	27	35	14	35	0	0	0	0
	point82	82	1320	35	27	35	14	35	0	0	0	0
	point83	83										
N Vally Blvd N9	point84	84	502	30	10	30	5	30	0	0	0	0
	point85	85	502	30	10	30	5	30	0	0	0	0
	point86	86	502	30	10	30	5	30	0	0	0	0
	point87	87	502	30	10	30	5	30	0	0	0	0
	point88	88	502	30	10	30	5	30	0	0	0	0
	point89	89	502	30	10	30	5	30	0	0	0	0
	point90	90	502	30	10	30	5	30	0	0	0	0
	point91	91										
S Vally Blvd N9	point92	92	502	30	10	30	5	30	0	0	0	0
	point93	93	502	30	10	30	5	30	0	0	0	0
	point94	94	502	30	10	30	5	30	0	0	0	0
	point95	95	502	30	10	30	5	30	0	0	0	0

	point96	96	502	30	10	30	5	30	0	0	0	0
	point97	97	502	30	10	30	5	30	0	0	0	0
	point98	98										
N Hickory St N5	point99	99	225	30	5	30	2	30	0	0	0	0
	point100	100	225	30	5	30	2	30	0	0	0	0
	point101	101	225	30	5	30	2	30	0	0	0	0
	point102	102	225	30	5	30	2	30	0	0	0	0
	point103	103	225	30	5	30	2	30	0	0	0	0
	point104	104	225	30	5	30	2	30	0	0	0	0
	point105	105	225	30	5	30	2	30	0	0	0	0
	point106	106	225	30	5	30	2	30	0	0	0	0
	point107	107										
S Hickory St N5	point108	108	225	30	5	30	2	30	0	0	0	0
	point109	109	225	30	5	30	2	30	0	0	0	0
	point110	110	225	30	5	30	2	30	0	0	0	0
	point111	111	225	30	5	30	2	30	0	0	0	0
	point112	112	225	30	5	30	2	30	0	0	0	0
	point113	113	225	30	5	30	2	30	0	0	0	0
	point114	114	225	30	5	30	2	30	0	0	0	0
	point115	115	225	30	5	30	2	30	0	0	0	0
	point116	116	225	30	5	30	2	30	0	0	0	0
	point117	117										
E Vally Pkwy N5	point118	118	1168	35	24	35	12	35	0	0	0	0
	point119	119	1168	35	24	35	12	35	0	0	0	0
	point120	120	1168	35	24	35	12	35	0	0	0	0
	point121	121	1168	35	24	35	12	35	0	0	0	0
	point122	122	1168	35	24	35	12	35	0	0	0	0
	point123	123	1168	35	24	35	12	35	0	0	0	0
	point124	124	1168	35	24	35	12	35	0	0	0	0
	point125	125										
W Vally Pkwy N5	point126	126	1168	35	24	35	12	35	0	0	0	0
	point127	127	1168	35	24	35	12	35	0	0	0	0
	point128	128	1168	35	24	35	12	35	0	0	0	0
	point129	129	1168	35	24	35	12	35	0	0	0	0
	point130	130	1168	35	24	35	12	35	0	0	0	0
	point131	131	1168	35	24	35	12	35	0	0	0	0

	point132	132	1168	35	24	35	12	35	0	0	0	0
	point133	133	1168	35	24	35	12	35	0	0	0	0
	point134	134										

Dudek						**25 June 2019**					
CB						**TNM 2.5**					
INPUT: RECEIVERS											
PROJECT/CONTRACT:	**Palomar Heights**										
RUN:	**Existing + Project**										
Receiver											
Name	**No.**	**#DUs**	**Coordinates (ground)**			**Height**	**Input Sound Levels and Criteria**				**Active**
			X	**Y**	**Z**	**above**	**Existing**	**Impact Criteria**		**NR**	**in**
						Ground	**LAeq1h**	**LAeq1h**	**Sub'l**	**Goal**	**Calc.**
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST4	1	1	1,783.8	1,095.8	0.00	4.92	65.50	66	10.0	8.0	Y
ST2	2	1	2,097.2	748.0	0.00	4.92	65.40	66	10.0	8.0	Y
ST1	3	1	2,558.1	1,396.3	0.00	4.92	47.20	66	10.0	8.0	Y
ST3	4	1	1,926.3	1,630.8	0.00	4.92	70.00	66	10.0	8.0	Y

Dudek					**25 June 2019**	
CB					**TNM 2.5**	
INPUT: BUILDING ROWS						
PROJECT/CONTRACT:	**Palomar Heights**					
RUN:	**Existing + Project**					
Building Row			**Points**			
Name	**Average**	**Building**	**No.**	**Coordinates (ground)**		
	Height	**Percent**		**X**	**Y**	**Z**
	ft	%		ft	ft	ft
Building1	30.00	60	1	1,596.2	1,778.2	0.00
			2	1,726.5	1,551.8	0.00
			3	1,906.4	1,640.2	0.00
			4	1,869.9	1,705.3	0.00
			5	1,757.5	1,647.2	0.00
			6	1,675.3	1,766.6	0.00
			7	1,760.6	1,810.0	0.00
			8	1,731.9	1,863.5	0.00
			9	1,593.1	1,781.4	0.00
Building2	20.00	60	10	2,630.2	1,583.5	0.00
			11	2,681.9	1,458.4	0.00
			12	2,681.9	1,450.6	0.00
			13	2,653.6	1,440.8	0.00
			14	2,638.0	1,478.0	0.00
			15	2,625.3	1,473.1	0.00
			16	2,637.0	1,439.8	0.00
			17	2,599.9	1,426.2	0.00
			18	2,582.3	1,458.4	0.00
			19	2,562.7	1,451.6	0.00
			20	2,574.5	1,426.2	0.00
			21	2,536.4	1,416.4	0.00
			22	2,523.7	1,443.8	0.00
			23	2,514.9	1,439.8	0.00
			24	2,519.8	1,433.0	0.00

			25	2,492.4	1,421.3	0.00
			26	2,454.3	1,519.9	0.00

Dudek
CB

25 June 2019
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Palomar Heights
RUN: Opening Year No Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
ST4	1	1	65.5	64.6	66	-0.9	10	----	64.6	0.0	8	-8.0
ST2	2	1	65.4	59.6	66	-5.8	10	----	59.6	0.0	8	-8.0
ST1	3	1	47.2	51.5	66	4.3	10	----	51.5	0.0	8	-8.0
ST3	4	1	70.0	68.2	66	-1.8	10	Snd Lvl	68.2	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	4	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Dudek 25 June 2019
CB TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: Palomar Heights
RUN: Opening Year No Project

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

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
N Fig St S2	15.0	point1	1	2,540.9	1,955.2	0.00				Average	
		point2	2	2,419.2	2,172.7	0.00				Average	
		point3	3	2,349.1	2,298.7	0.00				Average	
		point4	4	2,261.8	2,448.9	0.00				Average	
		point5	5	2,186.0	2,560.6	0.00				Average	
		point6	6	2,133.0	2,637.8	0.00				Average	
		point7	7	2,085.8	2,708.0	0.00					
S Fig St S2	15.0	point8	8	2,513.7	1,956.6	0.00				Average	
		point9	9	2,449.3	2,074.0	0.00				Average	
		point10	10	2,376.3	2,221.4	0.00				Average	
		point11	11	2,294.8	2,361.6	0.00				Average	
		point12	12	2,177.4	2,549.1	0.00				Average	
		point13	13	2,067.2	2,693.6	0.00					
N Fig St S6	18.0	point14	14	2,864.3	1,100.8	0.00				Average	
		point15	15	2,789.9	1,306.9	0.00				Average	
		point16	16	2,699.7	1,553.1	0.00				Average	
		point17	17	2,605.3	1,806.4	0.00				Average	
		point18	18	2,570.9	1,903.7	0.00					
S Fig St S6	18.0	point19	19	2,841.4	1,103.7	0.00				Average	
		point20	20	2,792.7	1,236.8	0.00				Average	
		point21	21	2,741.2	1,389.9	0.00				Average	
		point22	22	2,684.0	1,550.2	0.00				Average	
		point23	23	2,603.8	1,772.0	0.00				Average	
		point24	24	2,558.1	1,889.4	0.00					
East Grand Ave W15	25.0	point25	25	2,430.7	901.9	0.00				Average	

		point26	26	2,855.7	1,055.0	0.00					
West Grand Ave W15	25.0	point27	27	2,426.4	927.7	0.00				Average	
		point28	28	2,844.3	1,076.5	0.00					
West Grand Ave W10	25.0	point29	29	2,399.2	920.5	0.00				Average	
		point30	30	2,343.4	906.2	0.00				Average	
		point31	31	2,253.2	884.7	0.00				Average	
		point32	32	2,090.1	859.0	0.00				Average	
		point33	33	1,916.9	824.6	0.00				Average	
		point34	34	1,750.9	798.9	0.00					
East Grand Ave W10	25.0	point35	35	2,409.2	893.3	0.00				Average	
		point36	36	2,326.2	879.0	0.00				Average	
		point37	37	2,221.8	863.3	0.00				Average	
		point38	38	2,058.6	827.5	0.00				Average	
		point39	39	1,758.1	761.6	0.00					
E 2nd Ave	40.0	point40	40	1,679.4	371.0	0.00				Average	
		point41	41	1,715.1	438.2	0.00				Average	
		point42	42	1,743.8	498.3	0.00				Average	
		point43	43	1,758.1	547.0	0.00				Average	
		point44	44	1,763.8	585.6	0.00				Average	
		point45	45	1,755.2	655.7	0.00				Average	
		point46	46	1,736.6	740.2	0.00				Average	
		point47	47	1,736.6	745.9	0.00					
E 2nd Ave W13	25.0	point48	48	1,289.2	67.3	0.00				Average	
		point49	49	1,395.1	128.8	0.00				Average	
		point50	50	1,519.7	200.4	0.00				Average	
		point51	51	1,621.3	253.3	0.00				Average	
		point52	52	1,672.8	323.4	0.00					
W 2nd Ave W13	25.0	point53	53	1,284.9	85.9	0.00				Average	
		point54	54	1,392.3	146.0	0.00				Average	
		point55	55	1,528.2	221.8	0.00				Average	
		point56	56	1,609.8	269.1	0.00				Average	
		point57	57	1,649.9	319.1	0.00					
N Juniper St N12	25.0	point58	58	1,276.3	105.9	0.00				Average	
		point59	59	1,117.5	372.1	0.00					
S Juniper St N12	25.0	point60	60	1,259.2	98.8	0.00				Average	
		point61	61	1,101.8	356.3	0.00					
East Grand Ave W8	30.0	point62	62	1,107.5	389.3	0.00				Average	
		point63	63	1,506.8	632.5	0.00				Average	
		point64	64	1,702.8	742.7	0.00				Average	

		point65	65	1,721.4	749.9	0.00					
West Grand Ave W8	30.0	point66	66	1,091.8	426.5	0.00				Average	
		point67	67	1,345.0	575.3	0.00				Average	
		point68	68	1,498.2	666.9	0.00				Average	
		point69	69	1,638.4	744.2	0.00				Average	
		point70	70	1,711.4	781.4	0.00					
N Juniper St N7	25.0	point71	71	1,073.1	445.1	0.00				Average	
		point72	72	908.6	712.7	0.00					
S Juniper St N17	25.0	point73	73	1,051.7	439.3	0.00				Average	
		point74	74	894.3	701.2	0.00					
W Valley Pkwy W3	40.0	point75	75	902.9	748.5	0.00				Average	
		point76	76	1,272.1	961.7	0.00					
West Vally Blvd E4	40.0	point77	77	1,307.8	981.7	0.00				Average	
		point78	78	1,536.8	1,123.4	0.00				Average	
		point79	79	1,614.1	1,177.8	0.00				Average	
		point80	80	1,669.9	1,230.7	0.00				Average	
		point81	81	1,714.3	1,289.4	0.00				Average	
		point82	82	1,751.5	1,351.0	0.00				Average	
		point83	83	1,781.5	1,395.3	0.00					
N Vally Blvd N9	25.0	point84	84	1,731.5	818.6	0.00				Average	
		point85	85	1,724.3	860.1	0.00				Average	
		point86	86	1,737.2	976.0	0.00				Average	
		point87	87	1,750.1	1,109.1	0.00				Average	
		point88	88	1,764.4	1,189.2	0.00				Average	
		point89	89	1,780.1	1,266.5	0.00				Average	
		point90	90	1,814.5	1,349.5	0.00				Average	
		point91	91	1,825.9	1,379.6	0.00					
S Vally Blvd N9	25.0	point92	92	1,705.7	811.5	0.00				Average	
		point93	93	1,705.7	874.4	0.00				Average	
		point94	94	1,712.9	948.8	0.00				Average	
		point95	95	1,721.4	1,087.6	0.00				Average	
		point96	96	1,737.2	1,192.1	0.00				Average	
		point97	97	1,764.4	1,335.2	0.00				Average	
		point98	98	1,795.9	1,391.0	0.00					
N Hickory St N5	20.0	point99	99	1,780.1	1,444.0	0.00				Average	
		point100	100	1,737.2	1,482.6	0.00				Average	
		point101	101	1,710.0	1,509.8	0.00				Average	
		point102	102	1,694.3	1,525.6	0.00				Average	
		point103	103	1,592.7	1,711.6	0.00				Average	

		point104	104	1,516.8	1,847.5	0.00				Average	
		point105	105	1,443.8	1,977.8	0.00				Average	
		point106	106	1,252.0	2,321.3	0.00				Average	
		point107	107	1,222.0	2,388.5	0.00					
S Hickory St N5	20.0	point108	108	1,754.4	1,436.8	0.00				Average	
		point109	109	1,690.0	1,502.7	0.00				Average	
		point110	110	1,661.3	1,549.9	0.00				Average	
		point111	111	1,599.8	1,654.4	0.00				Average	
		point112	112	1,519.7	1,811.8	0.00				Average	
		point113	113	1,416.6	1,990.6	0.00				Average	
		point114	114	1,336.5	2,140.9	0.00				Average	
		point115	115	1,276.3	2,251.1	0.00				Average	
		point116	116	1,246.3	2,305.5	0.00				Average	
		point117	117	1,207.7	2,379.9	0.00					
E Vally Pkwy N5	25.0	point118	118	1,844.5	1,415.4	0.00				Average	
		point119	119	1,924.6	1,522.7	0.00				Average	
		point120	120	1,971.9	1,572.8	0.00				Average	
		point121	121	2,056.3	1,644.3	0.00				Average	
		point122	122	2,135.0	1,690.1	0.00				Average	
		point123	123	2,268.1	1,758.8	0.00				Average	
		point124	124	2,475.6	1,870.4	0.00				Average	
		point125	125	2,531.4	1,900.5	0.00					
W Vally Pkwy N5	25.0	point126	126	1,810.2	1,445.4	0.00				Average	
		point127	127	1,866.0	1,521.3	0.00				Average	
		point128	128	1,911.8	1,564.2	0.00				Average	
		point129	129	1,966.1	1,622.9	0.00				Average	
		point130	130	2,007.6	1,651.5	0.00				Average	
		point131	131	2,097.8	1,690.1	0.00				Average	
		point132	132	2,258.1	1,773.1	0.00				Average	
		point133	133	2,487.1	1,903.4	0.00				Average	
		point134	134	2,511.4	1,914.8	0.00					

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INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: Palomar Heights
RUN: Opening Year No Project

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
N Fig St S2	point1	1	0	0	0	0	0	0	0	0	0	0
	point2	2	0	0	0	0	0	0	0	0	0	0
	point3	3	0	0	0	0	0	0	0	0	0	0
	point4	4	0	0	0	0	0	0	0	0	0	0
	point5	5	0	0	0	0	0	0	0	0	0	0
	point6	6	0	0	0	0	0	0	0	0	0	0
	point7	7										
S Fig St S2	point8	8	0	0	0	0	0	0	0	0	0	0
	point9	9	0	0	0	0	0	0	0	0	0	0
	point10	10	0	0	0	0	0	0	0	0	0	0
	point11	11	0	0	0	0	0	0	0	0	0	0
	point12	12	0	0	0	0	0	0	0	0	0	0
	point13	13										
N Fig St S6	point14	14	283	25	6	25	3	25	0	0	0	0
	point15	15	283	25	6	25	3	25	0	0	0	0
	point16	16	283	25	6	25	3	25	0	0	0	0
	point17	17	283	25	6	25	3	25	0	0	0	0
	point18	18										
S Fig St S6	point19	19	283	25	6	25	3	25	0	0	0	0
	point20	20	283	25	6	25	3	25	0	0	0	0
	point21	21	283	25	6	25	3	25	0	0	0	0
	point22	22	283	25	6	25	3	25	0	0	0	0
	point23	23	283	25	6	25	3	25	0	0	0	0

	point24	24										
East Grand Ave W15	point25	25	753	30	16	30	8	30	0	0	0	0
	point26	26										
West Grand Ave W15	point27	27	753	30	16	30	8	30	0	0	0	0
	point28	28										
West Grand Ave W10	point29	29	478	30	10	30	5	30	0	0	0	0
	point30	30	478	30	10	30	5	30	0	0	0	0
	point31	31	478	30	10	30	5	30	0	0	0	0
	point32	32	478	30	10	30	5	30	0	0	0	0
	point33	33	478	30	10	30	5	30	0	0	0	0
	point34	34										
East Grand Ave W10	point35	35	478	30	10	30	5	30	0	0	0	0
	point36	36	478	30	10	30	5	30	0	0	0	0
	point37	37	478	30	10	30	5	30	0	0	0	0
	point38	38	478	30	10	30	5	30	0	0	0	0
	point39	39										
E 2nd Ave	point40	40	1325	30	27	30	14	30	0	0	0	0
	point41	41	1325	30	27	30	14	30	0	0	0	0
	point42	42	1325	30	27	30	14	30	0	0	0	0
	point43	43	1325	30	27	30	14	30	0	0	0	0
	point44	44	1325	30	27	30	14	30	0	0	0	0
	point45	45	1325	30	27	30	14	30	0	0	0	0
	point46	46	1325	30	27	30	14	30	0	0	0	0
	point47	47										
E 2nd Ave W13	point48	48	0	0	0	0	0	0	0	0	0	0
	point49	49	0	0	0	0	0	0	0	0	0	0
	point50	50	0	0	0	0	0	0	0	0	0	0
	point51	51	0	0	0	0	0	0	0	0	0	0
	point52	52										
W 2nd Ave W13	point53	53	0	0	0	0	0	0	0	0	0	0
	point54	54	0	0	0	0	0	0	0	0	0	0
	point55	55	0	0	0	0	0	0	0	0	0	0
	point56	56	0	0	0	0	0	0	0	0	0	0
	point57	57										
N Juniper St N12	point58	58	0	0	0	0	0	0	0	0	0	0
	point59	59										

S Juniper St N12	point60	60	0	0	0	0	0	0	0	0	0	0
	point61	61										
East Grand Ave W8	point62	62	483	30	10	30	5	30	0	0	0	0
	point63	63	483	30	10	30	5	30	0	0	0	0
	point64	64	483	30	10	30	5	30	0	0	0	0
	point65	65										
West Grand Ave W8	point66	66	483	30	10	30	5	30	0	0	0	0
	point67	67	483	30	10	30	5	30	0	0	0	0
	point68	68	483	30	10	30	5	30	0	0	0	0
	point69	69	483	30	10	30	5	30	0	0	0	0
	point70	70										
N Juniper St N7	point71	71	0	0	0	0	0	0	0	0	0	0
	point72	72										
S Juniper St N17	point73	73	0	0	0	0	0	0	0	0	0	0
	point74	74										
W Valley Pkwy W3	point75	75	1500	35	31	35	15	35	0	0	0	0
	point76	76										
West Vally Blvd E4	point77	77	1386	35	29	35	14	35	0	0	0	0
	point78	78	1386	35	29	35	14	35	0	0	0	0
	point79	79	1386	35	29	35	14	35	0	0	0	0
	point80	80	1386	35	29	35	14	35	0	0	0	0
	point81	81	1386	35	29	35	14	35	0	0	0	0
	point82	82	1386	35	29	35	14	35	0	0	0	0
	point83	83										
N Vally Blvd N9	point84	84	499	30	10	30	5	30	0	0	0	0
	point85	85	499	30	10	30	5	30	0	0	0	0
	point86	86	499	30	10	30	5	30	0	0	0	0
	point87	87	499	30	10	30	5	30	0	0	0	0
	point88	88	499	30	10	30	5	30	0	0	0	0
	point89	89	499	30	10	30	5	30	0	0	0	0
	point90	90	499	30	10	30	5	30	0	0	0	0
	point91	91										
S Vally Blvd N9	point92	92	499	30	10	30	5	30	0	0	0	0
	point93	93	499	30	10	30	5	30	0	0	0	0
	point94	94	499	30	10	30	5	30	0	0	0	0
	point95	95	499	30	10	30	5	30	0	0	0	0

	point96	96	499	30	10	30	5	30	0	0	0	0
	point97	97	499	30	10	30	5	30	0	0	0	0
	point98	98										
N Hickory St N5	point99	99	210	30	4	30	2	30	0	0	0	0
	point100	100	210	30	4	30	2	30	0	0	0	0
	point101	101	210	30	4	30	2	30	0	0	0	0
	point102	102	210	30	4	30	2	30	0	0	0	0
	point103	103	210	30	4	30	2	30	0	0	0	0
	point104	104	210	30	4	30	2	30	0	0	0	0
	point105	105	210	30	4	30	2	30	0	0	0	0
	point106	106	210	30	4	30	2	30	0	0	0	0
	point107	107										
S Hickory St N5	point108	108	210	30	4	30	2	30	0	0	0	0
	point109	109	210	30	4	30	2	30	0	0	0	0
	point110	110	210	30	4	30	2	30	0	0	0	0
	point111	111	210	30	4	30	2	30	0	0	0	0
	point112	112	210	30	4	30	2	30	0	0	0	0
	point113	113	210	30	4	30	2	30	0	0	0	0
	point114	114	210	30	4	30	2	30	0	0	0	0
	point115	115	210	30	4	30	2	30	0	0	0	0
	point116	116	210	30	4	30	2	30	0	0	0	0
	point117	117										
E Vally Pkwy N5	point118	118	1181	35	24	35	12	35	0	0	0	0
	point119	119	1181	35	24	35	12	35	0	0	0	0
	point120	120	1181	35	24	35	12	35	0	0	0	0
	point121	121	1181	35	24	35	12	35	0	0	0	0
	point122	122	1181	35	24	35	12	35	0	0	0	0
	point123	123	1181	35	24	35	12	35	0	0	0	0
	point124	124	1181	35	24	35	12	35	0	0	0	0
	point125	125										
W Vally Pkwy N5	point126	126	1181	35	24	35	12	35	0	0	0	0
	point127	127	1181	35	24	35	12	35	0	0	0	0
	point128	128	1181	35	24	35	12	35	0	0	0	0
	point129	129	1181	35	24	35	12	35	0	0	0	0
	point130	130	1181	35	24	35	12	35	0	0	0	0
	point131	131	1181	35	24	35	12	35	0	0	0	0

	point132	132	1181	35	24	35	12	35	0	0	0	0
	point133	133	1181	35	24	35	12	35	0	0	0	0
	point134	134										

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INPUT: RECEIVERS
PROJECT/CONTRACT: Palomar Heights
RUN: Opening Year No Project

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST4	1	1	1,783.8	1,095.8	0.00	4.92	65.50	66	10.0	8.0	Y
ST2	2	1	2,097.2	748.0	0.00	4.92	65.40	66	10.0	8.0	Y
ST1	3	1	2,558.1	1,396.3	0.00	4.92	47.20	66	10.0	8.0	Y
ST3	4	1	1,926.3	1,630.8	0.00	4.92	70.00	66	10.0	8.0	Y

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INPUT: BUILDING ROWS
PROJECT/CONTRACT: Palomar Heights
RUN: Opening Year No Project

Building Row Name	Average Height	Building Percent	Points No.	Coordinates (ground) X	Y	Z
	ft	%		ft	ft	ft
Building1	30.00	60	1	1,596.2	1,778.2	0.00
			2	1,726.5	1,551.8	0.00
			3	1,906.4	1,640.2	0.00
			4	1,869.9	1,705.3	0.00
			5	1,757.5	1,647.2	0.00
			6	1,675.3	1,766.6	0.00
			7	1,760.6	1,810.0	0.00
			8	1,731.9	1,863.5	0.00
			9	1,593.1	1,781.4	0.00
Building2	20.00	60	10	2,630.2	1,583.5	0.00
			11	2,681.9	1,458.4	0.00
			12	2,681.9	1,450.6	0.00
			13	2,653.6	1,440.8	0.00
			14	2,638.0	1,478.0	0.00
			15	2,625.3	1,473.1	0.00
			16	2,637.0	1,439.8	0.00
			17	2,599.9	1,426.2	0.00
			18	2,582.3	1,458.4	0.00
			19	2,562.7	1,451.6	0.00
			20	2,574.5	1,426.2	0.00
			21	2,536.4	1,416.4	0.00
			22	2,523.7	1,443.8	0.00
			23	2,514.9	1,439.8	0.00
			24	2,519.8	1,433.0	0.00

			25	2,492.4	1,421.3	0.00
			26	2,454.3	1,519.9	0.00

Dudek
CB

25 June 2019
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Palomar Heights
RUN: Opening Year With Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
ST4	1	1	65.5	64.8	66	-0.7	10	----	64.8	0.0	8	-8.0
ST2	2	1	65.4	59.7	66	-5.7	10	----	59.7	0.0	8	-8.0
ST1	3	1	47.2	51.5	66	4.3	10	----	51.5	0.0	8	-8.0
ST3	4	1	70.0	68.3	66	-1.7	10	Snd Lvl	68.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	4	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Dudek	25 June 2019
CB	TNM 2.5

INPUT: ROADWAYS	Average pavement type shall be used unless
PROJECT/CONTRACT:	Palomar Heights a State highway agency substantiates the use
RUN:	Opening Year With Project of a different type with the approval of FHWA

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
N Fig St S2	15.0	point1	1	2,540.9	1,955.2	0.00				Average	
		point2	2	2,419.2	2,172.7	0.00				Average	
		point3	3	2,349.1	2,298.7	0.00				Average	
		point4	4	2,261.8	2,448.9	0.00				Average	
		point5	5	2,186.0	2,560.6	0.00				Average	
		point6	6	2,133.0	2,637.8	0.00				Average	
		point7	7	2,085.8	2,708.0	0.00					
S Fig St S2	15.0	point8	8	2,513.7	1,956.6	0.00				Average	
		point9	9	2,449.3	2,074.0	0.00				Average	
		point10	10	2,376.3	2,221.4	0.00				Average	
		point11	11	2,294.8	2,361.6	0.00				Average	
		point12	12	2,177.4	2,549.1	0.00				Average	
		point13	13	2,067.2	2,693.6	0.00					
N Fig St S6	18.0	point14	14	2,864.3	1,100.8	0.00				Average	
		point15	15	2,789.9	1,306.9	0.00				Average	
		point16	16	2,699.7	1,553.1	0.00				Average	
		point17	17	2,605.3	1,806.4	0.00				Average	
		point18	18	2,570.9	1,903.7	0.00					
S Fig St S6	18.0	point19	19	2,841.4	1,103.7	0.00				Average	
		point20	20	2,792.7	1,236.8	0.00				Average	
		point21	21	2,741.2	1,389.9	0.00				Average	
		point22	22	2,684.0	1,550.2	0.00				Average	
		point23	23	2,603.8	1,772.0	0.00				Average	
		point24	24	2,558.1	1,889.4	0.00					
East Grand Ave W15	25.0	point25	25	2,430.7	901.9	0.00				Average	

		point26	26	2,855.7	1,055.0	0.00					
West Grand Ave W15	25.0	point27	27	2,426.4	927.7	0.00				Average	
		point28	28	2,844.3	1,076.5	0.00					
West Grand Ave W10	25.0	point29	29	2,399.2	920.5	0.00				Average	
		point30	30	2,343.4	906.2	0.00				Average	
		point31	31	2,253.2	884.7	0.00				Average	
		point32	32	2,090.1	859.0	0.00				Average	
		point33	33	1,916.9	824.6	0.00				Average	
		point34	34	1,750.9	798.9	0.00					
East Grand Ave W10	25.0	point35	35	2,409.2	893.3	0.00				Average	
		point36	36	2,326.2	879.0	0.00				Average	
		point37	37	2,221.8	863.3	0.00				Average	
		point38	38	2,058.6	827.5	0.00				Average	
		point39	39	1,758.1	761.6	0.00					
E 2nd Ave	40.0	point40	40	1,679.4	371.0	0.00				Average	
		point41	41	1,715.1	438.2	0.00				Average	
		point42	42	1,743.8	498.3	0.00				Average	
		point43	43	1,758.1	547.0	0.00				Average	
		point44	44	1,763.8	585.6	0.00				Average	
		point45	45	1,755.2	655.7	0.00				Average	
		point46	46	1,736.6	740.2	0.00				Average	
		point47	47	1,736.6	745.9	0.00					
E 2nd Ave W13	25.0	point48	48	1,289.2	67.3	0.00				Average	
		point49	49	1,395.1	128.8	0.00				Average	
		point50	50	1,519.7	200.4	0.00				Average	
		point51	51	1,621.3	253.3	0.00				Average	
		point52	52	1,672.8	323.4	0.00					
W 2nd Ave W13	25.0	point53	53	1,284.9	85.9	0.00				Average	
		point54	54	1,392.3	146.0	0.00				Average	
		point55	55	1,528.2	221.8	0.00				Average	
		point56	56	1,609.8	269.1	0.00				Average	
		point57	57	1,649.9	319.1	0.00					
N Juniper St N12	25.0	point58	58	1,276.3	105.9	0.00				Average	
		point59	59	1,117.5	372.1	0.00					
S Juniper St N12	25.0	point60	60	1,259.2	98.8	0.00				Average	
		point61	61	1,101.8	356.3	0.00					
East Grand Ave W8	30.0	point62	62	1,107.5	389.3	0.00				Average	
		point63	63	1,506.8	632.5	0.00				Average	
		point64	64	1,702.8	742.7	0.00				Average	

		point65	65	1,721.4	749.9	0.00					
West Grand Ave W8	30.0	point66	66	1,091.8	426.5	0.00				Average	
		point67	67	1,345.0	575.3	0.00				Average	
		point68	68	1,498.2	666.9	0.00				Average	
		point69	69	1,638.4	744.2	0.00				Average	
		point70	70	1,711.4	781.4	0.00					
N Juniper St N7	25.0	point71	71	1,073.1	445.1	0.00				Average	
		point72	72	908.6	712.7	0.00					
S Juniper St N17	25.0	point73	73	1,051.7	439.3	0.00				Average	
		point74	74	894.3	701.2	0.00					
W Valley Pkwy W3	40.0	point75	75	902.9	748.5	0.00				Average	
		point76	76	1,272.1	961.7	0.00					
West Vally Blvd E4	40.0	point77	77	1,307.8	981.7	0.00				Average	
		point78	78	1,536.8	1,123.4	0.00				Average	
		point79	79	1,614.1	1,177.8	0.00				Average	
		point80	80	1,669.9	1,230.7	0.00				Average	
		point81	81	1,714.3	1,289.4	0.00				Average	
		point82	82	1,751.5	1,351.0	0.00				Average	
		point83	83	1,781.5	1,395.3	0.00					
N Vally Blvd N9	25.0	point84	84	1,731.5	818.6	0.00				Average	
		point85	85	1,724.3	860.1	0.00				Average	
		point86	86	1,737.2	976.0	0.00				Average	
		point87	87	1,750.1	1,109.1	0.00				Average	
		point88	88	1,764.4	1,189.2	0.00				Average	
		point89	89	1,780.1	1,266.5	0.00				Average	
		point90	90	1,814.5	1,349.5	0.00				Average	
		point91	91	1,825.9	1,379.6	0.00					
S Vally Blvd N9	25.0	point92	92	1,705.7	811.5	0.00				Average	
		point93	93	1,705.7	874.4	0.00				Average	
		point94	94	1,712.9	948.8	0.00				Average	
		point95	95	1,721.4	1,087.6	0.00				Average	
		point96	96	1,737.2	1,192.1	0.00				Average	
		point97	97	1,764.4	1,335.2	0.00				Average	
		point98	98	1,795.9	1,391.0	0.00					
N Hickory St N5	20.0	point99	99	1,780.1	1,444.0	0.00				Average	
		point100	100	1,737.2	1,482.6	0.00				Average	
		point101	101	1,710.0	1,509.8	0.00				Average	
		point102	102	1,694.3	1,525.6	0.00				Average	
		point103	103	1,592.7	1,711.6	0.00				Average	

		point104	104	1,516.8	1,847.5	0.00				Average	
		point105	105	1,443.8	1,977.8	0.00				Average	
		point106	106	1,252.0	2,321.3	0.00				Average	
		point107	107	1,222.0	2,388.5	0.00					
S Hickory St N5	20.0	point108	108	1,754.4	1,436.8	0.00				Average	
		point109	109	1,690.0	1,502.7	0.00				Average	
		point110	110	1,661.3	1,549.9	0.00				Average	
		point111	111	1,599.8	1,654.4	0.00				Average	
		point112	112	1,519.7	1,811.8	0.00				Average	
		point113	113	1,416.6	1,990.6	0.00				Average	
		point114	114	1,336.5	2,140.9	0.00				Average	
		point115	115	1,276.3	2,251.1	0.00				Average	
		point116	116	1,246.3	2,305.5	0.00				Average	
		point117	117	1,207.7	2,379.9	0.00					
E Vally Pkwy N5	25.0	point118	118	1,844.5	1,415.4	0.00				Average	
		point119	119	1,924.6	1,522.7	0.00				Average	
		point120	120	1,971.9	1,572.8	0.00				Average	
		point121	121	2,056.3	1,644.3	0.00				Average	
		point122	122	2,135.0	1,690.1	0.00				Average	
		point123	123	2,268.1	1,758.8	0.00				Average	
		point124	124	2,475.6	1,870.4	0.00				Average	
		point125	125	2,531.4	1,900.5	0.00					
W Vally Pkwy N5	25.0	point126	126	1,810.2	1,445.4	0.00				Average	
		point127	127	1,866.0	1,521.3	0.00				Average	
		point128	128	1,911.8	1,564.2	0.00				Average	
		point129	129	1,966.1	1,622.9	0.00				Average	
		point130	130	2,007.6	1,651.5	0.00				Average	
		point131	131	2,097.8	1,690.1	0.00				Average	
		point132	132	2,258.1	1,773.1	0.00				Average	
		point133	133	2,487.1	1,903.4	0.00				Average	
		point134	134	2,511.4	1,914.8	0.00					

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INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: Palomar Heights
RUN: Opening Year With Project

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
N Fig St S2	point1	1	0	0	0	0	0	0	0	0	0	0
	point2	2	0	0	0	0	0	0	0	0	0	0
	point3	3	0	0	0	0	0	0	0	0	0	0
	point4	4	0	0	0	0	0	0	0	0	0	0
	point5	5	0	0	0	0	0	0	0	0	0	0
	point6	6	0	0	0	0	0	0	0	0	0	0
	point7	7										
S Fig St S2	point8	8	0	0	0	0	0	0	0	0	0	0
	point9	9	0	0	0	0	0	0	0	0	0	0
	point10	10	0	0	0	0	0	0	0	0	0	0
	point11	11	0	0	0	0	0	0	0	0	0	0
	point12	12	0	0	0	0	0	0	0	0	0	0
	point13	13										
N Fig St S6	point14	14	285	25	6	25	3	25	0	0	0	0
	point15	15	285	25	6	25	3	25	0	0	0	0
	point16	16	285	25	6	25	3	25	0	0	0	0
	point17	17	285	25	6	25	3	25	0	0	0	0
	point18	18										
S Fig St S6	point19	19	285	25	6	25	3	25	0	0	0	0
	point20	20	285	25	6	25	3	25	0	0	0	0
	point21	21	285	25	6	25	3	25	0	0	0	0
	point22	22	285	25	6	25	3	25	0	0	0	0
	point23	23	285	25	6	25	3	25	0	0	0	0

	point24	24										
East Grand Ave W15	point25	25	762	30	16	30	8	30	0	0	0	0
	point26	26										
West Grand Ave W15	point27	27	762	30	16	30	8	30	0	0	0	0
	point28	28										
West Grand Ave W10	point29	29	497	30	10	30	5	30	0	0	0	0
	point30	30	497	30	10	30	5	30	0	0	0	0
	point31	31	497	30	10	30	5	30	0	0	0	0
	point32	32	497	30	10	30	5	30	0	0	0	0
	point33	33	497	30	10	30	5	30	0	0	0	0
	point34	34										
East Grand Ave W10	point35	35	497	30	10	30	5	30	0	0	0	0
	point36	36	497	30	10	30	5	30	0	0	0	0
	point37	37	497	30	10	30	5	30	0	0	0	0
	point38	38	497	30	10	30	5	30	0	0	0	0
	point39	39										
E 2nd Ave	point40	40	1346	30	28	30	14	30	0	0	0	0
	point41	41	1346	30	28	30	14	30	0	0	0	0
	point42	42	1346	30	28	30	14	30	0	0	0	0
	point43	43	1346	30	28	30	14	30	0	0	0	0
	point44	44	1346	30	28	30	14	30	0	0	0	0
	point45	45	1346	30	28	30	14	30	0	0	0	0
	point46	46	1346	30	28	30	14	30	0	0	0	0
	point47	47										
E 2nd Ave W13	point48	48	0	0	0	0	0	0	0	0	0	0
	point49	49	0	0	0	0	0	0	0	0	0	0
	point50	50	0	0	0	0	0	0	0	0	0	0
	point51	51	0	0	0	0	0	0	0	0	0	0
	point52	52										
W 2nd Ave W13	point53	53	0	0	0	0	0	0	0	0	0	0
	point54	54	0	0	0	0	0	0	0	0	0	0
	point55	55	0	0	0	0	0	0	0	0	0	0
	point56	56	0	0	0	0	0	0	0	0	0	0
	point57	57										
N Juniper St N12	point58	58	0	0	0	0	0	0	0	0	0	0
	point59	59										

S Juniper St N12	point60	60	0	0	0	0	0	0	0	0	0	0
	point61	61										
East Grand Ave W8	point62	62	531	30	11	30	5	30	0	0	0	0
	point63	63	531	30	11	30	5	30	0	0	0	0
	point64	64	531	30	11	30	5	30	0	0	0	0
	point65	65										
West Grand Ave W8	point66	66	531	30	11	30	5	30	0	0	0	0
	point67	67	531	30	11	30	5	30	0	0	0	0
	point68	68	531	30	11	30	5	30	0	0	0	0
	point69	69	531	30	11	30	5	30	0	0	0	0
	point70	70										
N Juniper St N7	point71	71	0	0	0	0	0	0	0	0	0	0
	point72	72										
S Juniper St N17	point73	73	0	0	0	0	0	0	0	0	0	0
	point74	74										
W Valley Pkwy W3	point75	75	1521	35	31	35	16	35	0	0	0	0
	point76	76										
West Vally Blvd E4	point77	77	1435	35	30	35	15	35	0	0	0	0
	point78	78	1435	35	30	35	15	35	0	0	0	0
	point79	79	1435	35	30	35	15	35	0	0	0	0
	point80	80	1435	35	30	35	15	35	0	0	0	0
	point81	81	1435	35	30	35	15	35	0	0	0	0
	point82	82	1435	35	30	35	15	35	0	0	0	0
	point83	83										
N Vally Blvd N9	point84	84	517	30	11	30	5	30	0	0	0	0
	point85	85	517	30	11	30	5	30	0	0	0	0
	point86	86	517	30	11	30	5	30	0	0	0	0
	point87	87	517	30	11	30	5	30	0	0	0	0
	point88	88	517	30	11	30	5	30	0	0	0	0
	point89	89	517	30	11	30	5	30	0	0	0	0
	point90	90	517	30	11	30	5	30	0	0	0	0
	point91	91										
S Vally Blvd N9	point92	92	517	30	11	30	5	30	0	0	0	0
	point93	93	517	30	11	30	5	30	0	0	0	0
	point94	94	517	30	11	30	5	30	0	0	0	0
	point95	95	517	30	11	30	5	30	0	0	0	0

	point96	96	517	30	11	30	5	30	0	0	0	0
	point97	97	517	30	11	30	5	30	0	0	0	0
	point98	98										
N Hickory St N5	point99	99	231	30	5	30	2	30	0	0	0	0
	point100	100	231	30	5	30	2	30	0	0	0	0
	point101	101	231	30	5	30	2	30	0	0	0	0
	point102	102	231	30	5	30	2	30	0	0	0	0
	point103	103	231	30	5	30	2	30	0	0	0	0
	point104	104	231	30	5	30	2	30	0	0	0	0
	point105	105	231	30	5	30	2	30	0	0	0	0
	point106	106	231	30	5	30	2	30	0	0	0	0
	point107	107										
S Hickory St N5	point108	108	231	30	5	30	2	30	0	0	0	0
	point109	109	231	30	5	30	2	30	0	0	0	0
	point110	110	231	30	5	30	2	30	0	0	0	0
	point111	111	231	30	5	30	2	30	0	0	0	0
	point112	112	231	30	5	30	2	30	0	0	0	0
	point113	113	231	30	5	30	2	30	0	0	0	0
	point114	114	231	30	5	30	2	30	0	0	0	0
	point115	115	231	30	5	30	2	30	0	0	0	0
	point116	116	231	30	5	30	2	30	0	0	0	0
	point117	117										
E Vally Pkwy N5	point118	118	1201	35	25	35	12	35	0	0	0	0
	point119	119	1201	35	25	35	12	35	0	0	0	0
	point120	120	1201	35	25	35	12	35	0	0	0	0
	point121	121	1201	35	25	35	12	35	0	0	0	0
	point122	122	1201	35	25	35	12	35	0	0	0	0
	point123	123	1201	35	25	35	12	35	0	0	0	0
	point124	124	1201	35	25	35	12	35	0	0	0	0
	point125	125										
W Vally Pkwy N5	point126	126	1201	35	25	35	12	35	0	0	0	0
	point127	127	1201	35	25	35	12	35	0	0	0	0
	point128	128	1201	35	25	35	12	35	0	0	0	0
	point129	129	1201	35	25	35	12	35	0	0	0	0
	point130	130	1201	35	25	35	12	35	0	0	0	0
	point131	131	1201	35	25	35	12	35	0	0	0	0

	point132	132	1201	35	25	35	12	35	0	0	0	0
	point133	133	1201	35	25	35	12	35	0	0	0	0
	point134	134										

Dudek 25 June 2019
CB TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: Palomar Heights
RUN: Opening Year With Project

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST4	1	1	1,783.8	1,095.8	0.00	4.92	65.50	66	10.0	8.0	Y
ST2	2	1	2,097.2	748.0	0.00	4.92	65.40	66	10.0	8.0	Y
ST1	3	1	2,558.1	1,396.3	0.00	4.92	47.20	66	10.0	8.0	Y
ST3	4	1	1,926.3	1,630.8	0.00	4.92	70.00	66	10.0	8.0	Y

Dudek					**25 June 2019**	
CB					**TNM 2.5**	
INPUT: BUILDING ROWS						
PROJECT/CONTRACT:	**Palomar Heights**					
RUN:	**Opening Year With Project**					
Building Row			**Points**			
Name	**Average**	**Building**	**No.**	**Coordinates (ground)**		
	Height	**Percent**		**X**	**Y**	**Z**
	ft	%		ft	ft	ft
Building1	30.00	60	1	1,596.2	1,778.2	0.00
			2	1,726.5	1,551.8	0.00
			3	1,906.4	1,640.2	0.00
			4	1,869.9	1,705.3	0.00
			5	1,757.5	1,647.2	0.00
			6	1,675.3	1,766.6	0.00
			7	1,760.6	1,810.0	0.00
			8	1,731.9	1,863.5	0.00
			9	1,593.1	1,781.4	0.00
Building2	20.00	60	10	2,630.2	1,583.5	0.00
			11	2,681.9	1,458.4	0.00
			12	2,681.9	1,450.6	0.00
			13	2,653.6	1,440.8	0.00
			14	2,638.0	1,478.0	0.00
			15	2,625.3	1,473.1	0.00
			16	2,637.0	1,439.8	0.00
			17	2,599.9	1,426.2	0.00
			18	2,582.3	1,458.4	0.00
			19	2,562.7	1,451.6	0.00
			20	2,574.5	1,426.2	0.00
			21	2,536.4	1,416.4	0.00
			22	2,523.7	1,443.8	0.00
			23	2,514.9	1,439.8	0.00
			24	2,519.8	1,433.0	0.00

			25	2,492.4	1,421.3	0.00
			26	2,454.3	1,519.9	0.00

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25 June 2019
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Palomar Heights
RUN: Year 2035 no Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
ST4	1	1	65.5	65.7	66	0.2	10	----	65.7	0.0	8	-8.0
ST2	2	1	65.4	62.1	66	-3.3	10	----	62.1	0.0	8	-8.0
ST1	3	1	47.2	52.4	66	5.2	10	----	52.4	0.0	8	-8.0
ST3	4	1	70.0	70.3	66	0.3	10	Snd Lvl	70.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	4	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Dudek 25 June 2019
CB TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: Palomar Heights
RUN: Year 2035 no Project

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

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
N Fig St S2	15.0	point1	1	2,540.9	1,955.2	0.00				Average	
		point2	2	2,419.2	2,172.7	0.00				Average	
		point3	3	2,349.1	2,298.7	0.00				Average	
		point4	4	2,261.8	2,448.9	0.00				Average	
		point5	5	2,186.0	2,560.6	0.00				Average	
		point6	6	2,133.0	2,637.8	0.00				Average	
		point7	7	2,085.8	2,708.0	0.00					
S Fig St S2	15.0	point8	8	2,513.7	1,956.6	0.00				Average	
		point9	9	2,449.3	2,074.0	0.00				Average	
		point10	10	2,376.3	2,221.4	0.00				Average	
		point11	11	2,294.8	2,361.6	0.00				Average	
		point12	12	2,177.4	2,549.1	0.00				Average	
		point13	13	2,067.2	2,693.6	0.00					
N Fig St S6	18.0	point14	14	2,864.3	1,100.8	0.00				Average	
		point15	15	2,789.9	1,306.9	0.00				Average	
		point16	16	2,699.7	1,553.1	0.00				Average	
		point17	17	2,605.3	1,806.4	0.00				Average	
		point18	18	2,570.9	1,903.7	0.00					
S Fig St S6	18.0	point19	19	2,841.4	1,103.7	0.00				Average	
		point20	20	2,792.7	1,236.8	0.00				Average	
		point21	21	2,741.2	1,389.9	0.00				Average	
		point22	22	2,684.0	1,550.2	0.00				Average	
		point23	23	2,603.8	1,772.0	0.00				Average	
		point24	24	2,558.1	1,889.4	0.00					
East Grand Ave W15	25.0	point25	25	2,430.7	901.9	0.00				Average	

		point26	26	2,855.7	1,055.0	0.00					
West Grand Ave W15	25.0	point27	27	2,426.4	927.7	0.00				Average	
		point28	28	2,844.3	1,076.5	0.00					
West Grand Ave W10	25.0	point29	29	2,399.2	920.5	0.00				Average	
		point30	30	2,343.4	906.2	0.00				Average	
		point31	31	2,253.2	884.7	0.00				Average	
		point32	32	2,090.1	859.0	0.00				Average	
		point33	33	1,916.9	824.6	0.00				Average	
		point34	34	1,750.9	798.9	0.00					
East Grand Ave W10	25.0	point35	35	2,409.2	893.3	0.00				Average	
		point36	36	2,326.2	879.0	0.00				Average	
		point37	37	2,221.8	863.3	0.00				Average	
		point38	38	2,058.6	827.5	0.00				Average	
		point39	39	1,758.1	761.6	0.00					
E 2nd Ave	40.0	point40	40	1,679.4	371.0	0.00				Average	
		point41	41	1,715.1	438.2	0.00				Average	
		point42	42	1,743.8	498.3	0.00				Average	
		point43	43	1,758.1	547.0	0.00				Average	
		point44	44	1,763.8	585.6	0.00				Average	
		point45	45	1,755.2	655.7	0.00				Average	
		point46	46	1,736.6	740.2	0.00				Average	
		point47	47	1,736.6	745.9	0.00					
E 2nd Ave W13	25.0	point48	48	1,289.2	67.3	0.00				Average	
		point49	49	1,395.1	128.8	0.00				Average	
		point50	50	1,519.7	200.4	0.00				Average	
		point51	51	1,621.3	253.3	0.00				Average	
		point52	52	1,672.8	323.4	0.00					
W 2nd Ave W13	25.0	point53	53	1,284.9	85.9	0.00				Average	
		point54	54	1,392.3	146.0	0.00				Average	
		point55	55	1,528.2	221.8	0.00				Average	
		point56	56	1,609.8	269.1	0.00				Average	
		point57	57	1,649.9	319.1	0.00					
N Juniper St N12	25.0	point58	58	1,276.3	105.9	0.00				Average	
		point59	59	1,117.5	372.1	0.00					
S Juniper St N12	25.0	point60	60	1,259.2	98.8	0.00				Average	
		point61	61	1,101.8	356.3	0.00					
East Grand Ave W8	30.0	point62	62	1,107.5	389.3	0.00				Average	
		point63	63	1,506.8	632.5	0.00				Average	
		point64	64	1,702.8	742.7	0.00				Average	

		point65	65	1,721.4	749.9	0.00					
West Grand Ave W8	30.0	point66	66	1,091.8	426.5	0.00				Average	
		point67	67	1,345.0	575.3	0.00				Average	
		point68	68	1,498.2	666.9	0.00				Average	
		point69	69	1,638.4	744.2	0.00				Average	
		point70	70	1,711.4	781.4	0.00					
N Juniper St N7	25.0	point71	71	1,073.1	445.1	0.00				Average	
		point72	72	908.6	712.7	0.00					
S Juniper St N17	25.0	point73	73	1,051.7	439.3	0.00				Average	
		point74	74	894.3	701.2	0.00					
W Valley Pkwy W3	40.0	point75	75	902.9	748.5	0.00				Average	
		point76	76	1,272.1	961.7	0.00					
West Vally Blvd E4	40.0	point77	77	1,307.8	981.7	0.00				Average	
		point78	78	1,536.8	1,123.4	0.00				Average	
		point79	79	1,614.1	1,177.8	0.00				Average	
		point80	80	1,669.9	1,230.7	0.00				Average	
		point81	81	1,714.3	1,289.4	0.00				Average	
		point82	82	1,751.5	1,351.0	0.00				Average	
		point83	83	1,781.5	1,395.3	0.00					
N Vally Blvd N9	25.0	point84	84	1,731.5	818.6	0.00				Average	
		point85	85	1,724.3	860.1	0.00				Average	
		point86	86	1,737.2	976.0	0.00				Average	
		point87	87	1,750.1	1,109.1	0.00				Average	
		point88	88	1,764.4	1,189.2	0.00				Average	
		point89	89	1,780.1	1,266.5	0.00				Average	
		point90	90	1,814.5	1,349.5	0.00				Average	
		point91	91	1,825.9	1,379.6	0.00					
S Vally Blvd N9	25.0	point92	92	1,705.7	811.5	0.00				Average	
		point93	93	1,705.7	874.4	0.00				Average	
		point94	94	1,712.9	948.8	0.00				Average	
		point95	95	1,721.4	1,087.6	0.00				Average	
		point96	96	1,737.2	1,192.1	0.00				Average	
		point97	97	1,764.4	1,335.2	0.00				Average	
		point98	98	1,795.9	1,391.0	0.00					
N Hickory St N5	20.0	point99	99	1,780.1	1,444.0	0.00				Average	
		point100	100	1,737.2	1,482.6	0.00				Average	
		point101	101	1,710.0	1,509.8	0.00				Average	
		point102	102	1,694.3	1,525.6	0.00				Average	
		point103	103	1,592.7	1,711.6	0.00				Average	

		point104	104	1,516.8	1,847.5	0.00				Average	
		point105	105	1,443.8	1,977.8	0.00				Average	
		point106	106	1,252.0	2,321.3	0.00				Average	
		point107	107	1,222.0	2,388.5	0.00					
S Hickory St N5	20.0	point108	108	1,754.4	1,436.8	0.00				Average	
		point109	109	1,690.0	1,502.7	0.00				Average	
		point110	110	1,661.3	1,549.9	0.00				Average	
		point111	111	1,599.8	1,654.4	0.00				Average	
		point112	112	1,519.7	1,811.8	0.00				Average	
		point113	113	1,416.6	1,990.6	0.00				Average	
		point114	114	1,336.5	2,140.9	0.00				Average	
		point115	115	1,276.3	2,251.1	0.00				Average	
		point116	116	1,246.3	2,305.5	0.00				Average	
		point117	117	1,207.7	2,379.9	0.00					
E Vally Pkwy N5	25.0	point118	118	1,844.5	1,415.4	0.00				Average	
		point119	119	1,924.6	1,522.7	0.00				Average	
		point120	120	1,971.9	1,572.8	0.00				Average	
		point121	121	2,056.3	1,644.3	0.00				Average	
		point122	122	2,135.0	1,690.1	0.00				Average	
		point123	123	2,268.1	1,758.8	0.00				Average	
		point124	124	2,475.6	1,870.4	0.00				Average	
		point125	125	2,531.4	1,900.5	0.00					
W Vally Pkwy N5	25.0	point126	126	1,810.2	1,445.4	0.00				Average	
		point127	127	1,866.0	1,521.3	0.00				Average	
		point128	128	1,911.8	1,564.2	0.00				Average	
		point129	129	1,966.1	1,622.9	0.00				Average	
		point130	130	2,007.6	1,651.5	0.00				Average	
		point131	131	2,097.8	1,690.1	0.00				Average	
		point132	132	2,258.1	1,773.1	0.00				Average	
		point133	133	2,487.1	1,903.4	0.00				Average	
		point134	134	2,511.4	1,914.8	0.00					

Dudek **25 June 2019**
CB **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **Palomar Heights**
RUN: **Year 2035 no Project**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
N Fig St S2	point1	1	0	0	0	0	0	0	0	0	0	0
	point2	2	0	0	0	0	0	0	0	0	0	0
	point3	3	0	0	0	0	0	0	0	0	0	0
	point4	4	0	0	0	0	0	0	0	0	0	0
	point5	5	0	0	0	0	0	0	0	0	0	0
	point6	6	0	0	0	0	0	0	0	0	0	0
	point7	7										
S Fig St S2	point8	8	0	0	0	0	0	0	0	0	0	0
	point9	9	0	0	0	0	0	0	0	0	0	0
	point10	10	0	0	0	0	0	0	0	0	0	0
	point11	11	0	0	0	0	0	0	0	0	0	0
	point12	12	0	0	0	0	0	0	0	0	0	0
	point13	13										
N Fig St S6	point14	14	228	25	5	25	2	25	0	0	0	0
	point15	15	228	25	5	25	2	25	0	0	0	0
	point16	16	228	25	5	25	2	25	0	0	0	0
	point17	17	228	25	5	25	2	25	0	0	0	0
	point18	18										
S Fig St S6	point19	19	228	25	5	25	2	25	0	0	0	0
	point20	20	228	25	5	25	2	25	0	0	0	0
	point21	21	228	25	5	25	2	25	0	0	0	0
	point22	22	228	25	5	25	2	25	0	0	0	0
	point23	23	228	25	5	25	2	25	0	0	0	0

	point24	24										
East Grand Ave W15	point25	25	854	30	18	30	9	30	0	0	0	0
	point26	26										
West Grand Ave W15	point27	27	854	30	18	30	9	30	0	0	0	0
	point28	28										
West Grand Ave W10	point29	29	854	30	18	30	9	30	0	0	0	0
	point30	30	854	30	18	30	9	30	0	0	0	0
	point31	31	854	30	18	30	9	30	0	0	0	0
	point32	32	854	30	18	30	9	30	0	0	0	0
	point33	33	854	30	18	30	9	30	0	0	0	0
	point34	34										
East Grand Ave W10	point35	35	854	30	18	30	9	30	0	0	0	0
	point36	36	854	30	18	30	9	30	0	0	0	0
	point37	37	854	30	18	30	9	30	0	0	0	0
	point38	38	854	30	18	30	9	30	0	0	0	0
	point39	39										
E 2nd Ave	point40	40	2600	30	54	30	27	30	0	0	0	0
	point41	41	2600	30	54	30	27	30	0	0	0	0
	point42	42	2600	30	54	30	27	30	0	0	0	0
	point43	43	2600	30	54	30	27	30	0	0	0	0
	point44	44	2600	30	54	30	27	30	0	0	0	0
	point45	45	2600	30	54	30	27	30	0	0	0	0
	point46	46	2600	30	54	30	27	30	0	0	0	0
	point47	47										
E 2nd Ave W13	point48	48	0	0	0	0	0	0	0	0	0	0
	point49	49	0	0	0	0	0	0	0	0	0	0
	point50	50	0	0	0	0	0	0	0	0	0	0
	point51	51	0	0	0	0	0	0	0	0	0	0
	point52	52										
W 2nd Ave W13	point53	53	0	0	0	0	0	0	0	0	0	0
	point54	54	0	0	0	0	0	0	0	0	0	0
	point55	55	0	0	0	0	0	0	0	0	0	0
	point56	56	0	0	0	0	0	0	0	0	0	0
	point57	57										
N Juniper St N12	point58	58	0	0	0	0	0	0	0	0	0	0
	point59	59										

S Juniper St N12	point60	60	0	0	0	0	0	0	0	0	0	0
	point61	61										
East Grand Ave W8	point62	62	1208	30	25	30	12	30	0	0	0	0
	point63	63	1208	30	25	30	12	30	0	0	0	0
	point64	64	1208	30	25	30	12	30	0	0	0	0
	point65	65										
West Grand Ave W8	point66	66	1208	30	25	30	12	30	0	0	0	0
	point67	67	1208	30	25	30	12	30	0	0	0	0
	point68	68	1208	30	25	30	12	30	0	0	0	0
	point69	69	1208	30	25	30	12	30	0	0	0	0
	point70	70										
N Juniper St N7	point71	71	0	0	0	0	0	0	0	0	0	0
	point72	72										
S Juniper St N17	point73	73	0	0	0	0	0	0	0	0	0	0
	point74	74										
W Valley Pkwy W3	point75	75	2289	35	47	35	24	35	0	0	0	0
	point76	76										
West Vally Blvd E4	point77	77	2289	35	47	35	24	35	0	0	0	0
	point78	78	2289	35	47	35	24	35	0	0	0	0
	point79	79	2289	35	47	35	24	35	0	0	0	0
	point80	80	2289	35	47	35	24	35	0	0	0	0
	point81	81	2289	35	47	35	24	35	0	0	0	0
	point82	82	2289	35	47	35	24	35	0	0	0	0
	point83	83										
N Vally Blvd N9	point84	84	549	30	11	30	6	30	0	0	0	0
	point85	85	549	30	11	30	6	30	0	0	0	0
	point86	86	549	30	11	30	6	30	0	0	0	0
	point87	87	549	30	11	30	6	30	0	0	0	0
	point88	88	549	30	11	30	6	30	0	0	0	0
	point89	89	549	30	11	30	6	30	0	0	0	0
	point90	90	549	30	11	30	6	30	0	0	0	0
	point91	91										
S Vally Blvd N9	point92	92	549	30	11	30	6	30	0	0	0	0
	point93	93	549	30	11	30	6	30	0	0	0	0
	point94	94	549	30	11	30	6	30	0	0	0	0
	point95	95	549	30	11	30	6	30	0	0	0	0

	point96	96	549	30	11	30	6	30	0	0	0	0
	point97	97	549	30	11	30	6	30	0	0	0	0
	point98	98										
N Hickory St N5	point99	99	514	30	11	30	5	30	0	0	0	0
	point100	100	514	30	11	30	5	30	0	0	0	0
	point101	101	514	30	11	30	5	30	0	0	0	0
	point102	102	514	30	11	30	5	30	0	0	0	0
	point103	103	514	30	11	30	5	30	0	0	0	0
	point104	104	514	30	11	30	5	30	0	0	0	0
	point105	105	514	30	11	30	5	30	0	0	0	0
	point106	106	514	30	11	30	5	30	0	0	0	0
	point107	107										
S Hickory St N5	point108	108	514	30	11	30	5	30	0	0	0	0
	point109	109	514	30	11	30	5	30	0	0	0	0
	point110	110	514	30	11	30	5	30	0	0	0	0
	point111	111	514	30	11	30	5	30	0	0	0	0
	point112	112	514	30	11	30	5	30	0	0	0	0
	point113	113	514	30	11	30	5	30	0	0	0	0
	point114	114	514	30	11	30	5	30	0	0	0	0
	point115	115	514	30	11	30	5	30	0	0	0	0
	point116	116	514	30	11	30	5	30	0	0	0	0
	point117	117										
E Vally Pkwy N5	point118	118	1882	35	39	35	19	35	0	0	0	0
	point119	119	1882	35	39	35	19	35	0	0	0	0
	point120	120	1882	35	39	35	19	35	0	0	0	0
	point121	121	1882	35	39	35	19	35	0	0	0	0
	point122	122	1882	35	39	35	19	35	0	0	0	0
	point123	123	1882	35	39	35	19	35	0	0	0	0
	point124	124	1882	35	39	35	19	35	0	0	0	0
	point125	125										
W Vally Pkwy N5	point126	126	1882	35	39	35	19	35	0	0	0	0
	point127	127	1882	35	39	35	19	35	0	0	0	0
	point128	128	1882	35	39	35	19	35	0	0	0	0
	point129	129	1882	35	39	35	19	35	0	0	0	0
	point130	130	1882	35	39	35	19	35	0	0	0	0
	point131	131	1882	35	39	35	19	35	0	0	0	0

	point132	132	1882	35	39	35	19	35	0	0	0	0
	point133	133	1882	35	39	35	19	35	0	0	0	0
	point134	134										

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INPUT: RECEIVERS
PROJECT/CONTRACT: Palomar Heights
RUN: Year 2035 no Project

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST4	1	1	1,783.8	1,095.8	0.00	4.92	65.50	66	10.0	8.0	Y
ST2	2	1	2,097.2	748.0	0.00	4.92	65.40	66	10.0	8.0	Y
ST1	3	1	2,558.1	1,396.3	0.00	4.92	47.20	66	10.0	8.0	Y
ST3	4	1	1,926.3	1,630.8	0.00	4.92	70.00	66	10.0	8.0	Y

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INPUT: BUILDING ROWS
PROJECT/CONTRACT: Palomar Heights
RUN: Year 2035 no Project

Building Row Name	Average Height	Building Percent	Points No.	Coordinates (ground) X	Y	Z
	ft	%		ft	ft	ft
Building1	30.00	60	1	1,596.2	1,778.2	0.00
			2	1,726.5	1,551.8	0.00
			3	1,906.4	1,640.2	0.00
			4	1,869.9	1,705.3	0.00
			5	1,757.5	1,647.2	0.00
			6	1,675.3	1,766.6	0.00
			7	1,760.6	1,810.0	0.00
			8	1,731.9	1,863.5	0.00
			9	1,593.1	1,781.4	0.00
Building2	20.00	60	10	2,630.2	1,583.5	0.00
			11	2,681.9	1,458.4	0.00
			12	2,681.9	1,450.6	0.00
			13	2,653.6	1,440.8	0.00
			14	2,638.0	1,478.0	0.00
			15	2,625.3	1,473.1	0.00
			16	2,637.0	1,439.8	0.00
			17	2,599.9	1,426.2	0.00
			18	2,582.3	1,458.4	0.00
			19	2,562.7	1,451.6	0.00
			20	2,574.5	1,426.2	0.00
			21	2,536.4	1,416.4	0.00
			22	2,523.7	1,443.8	0.00
			23	2,514.9	1,439.8	0.00
			24	2,519.8	1,433.0	0.00

			25	2,492.4	1,421.3	0.00
			26	2,454.3	1,519.9	0.00

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CB

25 June 2019
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Palomar Heights
RUN: Year 2035 with Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
ST4	1	1	65.5	65.8	66	0.3	10	----	65.8	0.0	8	-8.0
ST2	2	1	65.4	62.1	66	-3.3	10	----	62.1	0.0	8	-8.0
ST1	3	1	47.2	52.5	66	5.3	10	----	52.5	0.0	8	-8.0
ST3	4	1	70.0	70.4	66	0.4	10	Snd Lvl	70.4	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	4	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

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INPUT: ROADWAYS
PROJECT/CONTRACT: Palomar Heights
RUN: Year 2035 with Project

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

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
N Fig St S2	15.0	point1	1	2,540.9	1,955.2	0.00				Average	
		point2	2	2,419.2	2,172.7	0.00				Average	
		point3	3	2,349.1	2,298.7	0.00				Average	
		point4	4	2,261.8	2,448.9	0.00				Average	
		point5	5	2,186.0	2,560.6	0.00				Average	
		point6	6	2,133.0	2,637.8	0.00				Average	
		point7	7	2,085.8	2,708.0	0.00					
S Fig St S2	15.0	point8	8	2,513.7	1,956.6	0.00				Average	
		point9	9	2,449.3	2,074.0	0.00				Average	
		point10	10	2,376.3	2,221.4	0.00				Average	
		point11	11	2,294.8	2,361.6	0.00				Average	
		point12	12	2,177.4	2,549.1	0.00				Average	
		point13	13	2,067.2	2,693.6	0.00					
N Fig St S6	18.0	point14	14	2,864.3	1,100.8	0.00				Average	
		point15	15	2,789.9	1,306.9	0.00				Average	
		point16	16	2,699.7	1,553.1	0.00				Average	
		point17	17	2,605.3	1,806.4	0.00				Average	
		point18	18	2,570.9	1,903.7	0.00					
S Fig St S6	18.0	point19	19	2,841.4	1,103.7	0.00				Average	
		point20	20	2,792.7	1,236.8	0.00				Average	
		point21	21	2,741.2	1,389.9	0.00				Average	
		point22	22	2,684.0	1,550.2	0.00				Average	
		point23	23	2,603.8	1,772.0	0.00				Average	
		point24	24	2,558.1	1,889.4	0.00					
East Grand Ave W15	25.0	point25	25	2,430.7	901.9	0.00				Average	

		point26	26	2,855.7	1,055.0	0.00					
West Grand Ave W15	25.0	point27	27	2,426.4	927.7	0.00				Average	
		point28	28	2,844.3	1,076.5	0.00					
West Grand Ave W10	25.0	point29	29	2,399.2	920.5	0.00				Average	
		point30	30	2,343.4	906.2	0.00				Average	
		point31	31	2,253.2	884.7	0.00				Average	
		point32	32	2,090.1	859.0	0.00				Average	
		point33	33	1,916.9	824.6	0.00				Average	
		point34	34	1,750.9	798.9	0.00					
East Grand Ave W10	25.0	point35	35	2,409.2	893.3	0.00				Average	
		point36	36	2,326.2	879.0	0.00				Average	
		point37	37	2,221.8	863.3	0.00				Average	
		point38	38	2,058.6	827.5	0.00				Average	
		point39	39	1,758.1	761.6	0.00					
E 2nd Ave	40.0	point40	40	1,679.4	371.0	0.00				Average	
		point41	41	1,715.1	438.2	0.00				Average	
		point42	42	1,743.8	498.3	0.00				Average	
		point43	43	1,758.1	547.0	0.00				Average	
		point44	44	1,763.8	585.6	0.00				Average	
		point45	45	1,755.2	655.7	0.00				Average	
		point46	46	1,736.6	740.2	0.00				Average	
		point47	47	1,736.6	745.9	0.00					
E 2nd Ave W13	25.0	point48	48	1,289.2	67.3	0.00				Average	
		point49	49	1,395.1	128.8	0.00				Average	
		point50	50	1,519.7	200.4	0.00				Average	
		point51	51	1,621.3	253.3	0.00				Average	
		point52	52	1,672.8	323.4	0.00					
W 2nd Ave W13	25.0	point53	53	1,284.9	85.9	0.00				Average	
		point54	54	1,392.3	146.0	0.00				Average	
		point55	55	1,528.2	221.8	0.00				Average	
		point56	56	1,609.8	269.1	0.00				Average	
		point57	57	1,649.9	319.1	0.00					
N Juniper St N12	25.0	point58	58	1,276.3	105.9	0.00				Average	
		point59	59	1,117.5	372.1	0.00					
S Juniper St N12	25.0	point60	60	1,259.2	98.8	0.00				Average	
		point61	61	1,101.8	356.3	0.00					
East Grand Ave W8	30.0	point62	62	1,107.5	389.3	0.00				Average	
		point63	63	1,506.8	632.5	0.00				Average	
		point64	64	1,702.8	742.7	0.00				Average	

		point65	65	1,721.4	749.9	0.00					
West Grand Ave W8	30.0	point66	66	1,091.8	426.5	0.00				Average	
		point67	67	1,345.0	575.3	0.00				Average	
		point68	68	1,498.2	666.9	0.00				Average	
		point69	69	1,638.4	744.2	0.00				Average	
		point70	70	1,711.4	781.4	0.00					
N Juniper St N7	25.0	point71	71	1,073.1	445.1	0.00				Average	
		point72	72	908.6	712.7	0.00					
S Juniper St N17	25.0	point73	73	1,051.7	439.3	0.00				Average	
		point74	74	894.3	701.2	0.00					
W Valley Pkwy W3	40.0	point75	75	902.9	748.5	0.00				Average	
		point76	76	1,272.1	961.7	0.00					
West Vally Blvd E4	40.0	point77	77	1,307.8	981.7	0.00				Average	
		point78	78	1,536.8	1,123.4	0.00				Average	
		point79	79	1,614.1	1,177.8	0.00				Average	
		point80	80	1,669.9	1,230.7	0.00				Average	
		point81	81	1,714.3	1,289.4	0.00				Average	
		point82	82	1,751.5	1,351.0	0.00				Average	
		point83	83	1,781.5	1,395.3	0.00					
N Vally Blvd N9	25.0	point84	84	1,731.5	818.6	0.00				Average	
		point85	85	1,724.3	860.1	0.00				Average	
		point86	86	1,737.2	976.0	0.00				Average	
		point87	87	1,750.1	1,109.1	0.00				Average	
		point88	88	1,764.4	1,189.2	0.00				Average	
		point89	89	1,780.1	1,266.5	0.00				Average	
		point90	90	1,814.5	1,349.5	0.00				Average	
		point91	91	1,825.9	1,379.6	0.00					
S Vally Blvd N9	25.0	point92	92	1,705.7	811.5	0.00				Average	
		point93	93	1,705.7	874.4	0.00				Average	
		point94	94	1,712.9	948.8	0.00				Average	
		point95	95	1,721.4	1,087.6	0.00				Average	
		point96	96	1,737.2	1,192.1	0.00				Average	
		point97	97	1,764.4	1,335.2	0.00				Average	
		point98	98	1,795.9	1,391.0	0.00					
N Hickory St N5	20.0	point99	99	1,780.1	1,444.0	0.00				Average	
		point100	100	1,737.2	1,482.6	0.00				Average	
		point101	101	1,710.0	1,509.8	0.00				Average	
		point102	102	1,694.3	1,525.6	0.00				Average	
		point103	103	1,592.7	1,711.6	0.00				Average	

		point104	104	1,516.8	1,847.5	0.00				Average	
		point105	105	1,443.8	1,977.8	0.00				Average	
		point106	106	1,252.0	2,321.3	0.00				Average	
		point107	107	1,222.0	2,388.5	0.00					
S Hickory St N5	20.0	point108	108	1,754.4	1,436.8	0.00				Average	
		point109	109	1,690.0	1,502.7	0.00				Average	
		point110	110	1,661.3	1,549.9	0.00				Average	
		point111	111	1,599.8	1,654.4	0.00				Average	
		point112	112	1,519.7	1,811.8	0.00				Average	
		point113	113	1,416.6	1,990.6	0.00				Average	
		point114	114	1,336.5	2,140.9	0.00				Average	
		point115	115	1,276.3	2,251.1	0.00				Average	
		point116	116	1,246.3	2,305.5	0.00				Average	
		point117	117	1,207.7	2,379.9	0.00					
E Vally Pkwy N5	25.0	point118	118	1,844.5	1,415.4	0.00				Average	
		point119	119	1,924.6	1,522.7	0.00				Average	
		point120	120	1,971.9	1,572.8	0.00				Average	
		point121	121	2,056.3	1,644.3	0.00				Average	
		point122	122	2,135.0	1,690.1	0.00				Average	
		point123	123	2,268.1	1,758.8	0.00				Average	
		point124	124	2,475.6	1,870.4	0.00				Average	
		point125	125	2,531.4	1,900.5	0.00					
W Vally Pkwy N5	25.0	point126	126	1,810.2	1,445.4	0.00				Average	
		point127	127	1,866.0	1,521.3	0.00				Average	
		point128	128	1,911.8	1,564.2	0.00				Average	
		point129	129	1,966.1	1,622.9	0.00				Average	
		point130	130	2,007.6	1,651.5	0.00				Average	
		point131	131	2,097.8	1,690.1	0.00				Average	
		point132	132	2,258.1	1,773.1	0.00				Average	
		point133	133	2,487.1	1,903.4	0.00				Average	
		point134	134	2,511.4	1,914.8	0.00					

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INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: Palomar Heights
RUN: Year 2035 with Project

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
N Fig St S2	point1	1	0	0	0	0	0	0	0	0	0	0
	point2	2	0	0	0	0	0	0	0	0	0	0
	point3	3	0	0	0	0	0	0	0	0	0	0
	point4	4	0	0	0	0	0	0	0	0	0	0
	point5	5	0	0	0	0	0	0	0	0	0	0
	point6	6	0	0	0	0	0	0	0	0	0	0
	point7	7										
S Fig St S2	point8	8	0	0	0	0	0	0	0	0	0	0
	point9	9	0	0	0	0	0	0	0	0	0	0
	point10	10	0	0	0	0	0	0	0	0	0	0
	point11	11	0	0	0	0	0	0	0	0	0	0
	point12	12	0	0	0	0	0	0	0	0	0	0
	point13	13										
N Fig St S6	point14	14	230	25	5	25	2	25	0	0	0	0
	point15	15	230	25	5	25	2	25	0	0	0	0
	point16	16	230	25	5	25	2	25	0	0	0	0
	point17	17	230	25	5	25	2	25	0	0	0	0
	point18	18										
S Fig St S6	point19	19	230	25	5	25	2	25	0	0	0	0
	point20	20	230	25	5	25	2	25	0	0	0	0
	point21	21	230	25	5	25	2	25	0	0	0	0
	point22	22	230	25	5	25	2	25	0	0	0	0
	point23	23	230	25	5	25	2	25	0	0	0	0

	point24	24										
East Grand Ave W15	point25	25	863	30	18	30	9	30	0	0	0	0
	point26	26										
West Grand Ave W15	point27	27	863	30	18	30	9	30	0	0	0	0
	point28	28										
West Grand Ave W10	point29	29	873	30	18	30	9	30	0	0	0	0
	point30	30	873	30	18	30	9	30	0	0	0	0
	point31	31	873	30	18	30	9	30	0	0	0	0
	point32	32	873	30	18	30	9	30	0	0	0	0
	point33	33	873	30	18	30	9	30	0	0	0	0
	point34	34										
East Grand Ave W10	point35	35	873	30	18	30	9	30	0	0	0	0
	point36	36	873	30	18	30	9	30	0	0	0	0
	point37	37	873	30	18	30	9	30	0	0	0	0
	point38	38	873	30	18	30	9	30	0	0	0	0
	point39	39										
E 2nd Ave	point40	40	2620	30	54	30	27	30	0	0	0	0
	point41	41	2620	30	54	30	27	30	0	0	0	0
	point42	42	2620	30	54	30	27	30	0	0	0	0
	point43	43	2620	30	54	30	27	30	0	0	0	0
	point44	44	2620	30	54	30	27	30	0	0	0	0
	point45	45	2620	30	54	30	27	30	0	0	0	0
	point46	46	2620	30	54	30	27	30	0	0	0	0
	point47	47										
E 2nd Ave W13	point48	48	0	0	0	0	0	0	0	0	0	0
	point49	49	0	0	0	0	0	0	0	0	0	0
	point50	50	0	0	0	0	0	0	0	0	0	0
	point51	51	0	0	0	0	0	0	0	0	0	0
	point52	52										
W 2nd Ave W13	point53	53	0	0	0	0	0	0	0	0	0	0
	point54	54	0	0	0	0	0	0	0	0	0	0
	point55	55	0	0	0	0	0	0	0	0	0	0
	point56	56	0	0	0	0	0	0	0	0	0	0
	point57	57										
N Juniper St N12	point58	58	0	0	0	0	0	0	0	0	0	0
	point59	59										

S Juniper St N12	point60	60	0	0	0	0	0	0	0	0	0	0
	point61	61										
East Grand Ave W8	point62	62	1256	30	26	30	13	30	0	0	0	0
	point63	63	1256	30	26	30	13	30	0	0	0	0
	point64	64	1256	30	26	30	13	30	0	0	0	0
	point65	65										
West Grand Ave W8	point66	66	1256	30	26	30	13	30	0	0	0	0
	point67	67	1256	30	26	30	13	30	0	0	0	0
	point68	68	1256	30	26	30	13	30	0	0	0	0
	point69	69	1256	30	26	30	13	30	0	0	0	0
	point70	70										
N Juniper St N7	point71	71	0	0	0	0	0	0	0	0	0	0
	point72	72										
S Juniper St N17	point73	73	0	0	0	0	0	0	0	0	0	0
	point74	74										
W Valley Pkwy W3	point75	75	2310	35	48	35	24	35	0	0	0	0
	point76	76										
West Vally Blvd E4	point77	77	2338	35	48	35	24	35	0	0	0	0
	point78	78	2338	35	48	35	24	35	0	0	0	0
	point79	79	2338	35	48	35	24	35	0	0	0	0
	point80	80	2338	35	48	35	24	35	0	0	0	0
	point81	81	2338	35	48	35	24	35	0	0	0	0
	point82	82	2338	35	48	35	24	35	0	0	0	0
	point83	83										
N Vally Blvd N9	point84	84	567	30	12	30	6	30	0	0	0	0
	point85	85	567	30	12	30	6	30	0	0	0	0
	point86	86	567	30	12	30	6	30	0	0	0	0
	point87	87	567	30	12	30	6	30	0	0	0	0
	point88	88	567	30	12	30	6	30	0	0	0	0
	point89	89	567	30	12	30	6	30	0	0	0	0
	point90	90	567	30	12	30	6	30	0	0	0	0
	point91	91										
S Vally Blvd N9	point92	92	567	30	12	30	6	30	0	0	0	0
	point93	93	567	30	12	30	6	30	0	0	0	0
	point94	94	567	30	12	30	6	30	0	0	0	0
	point95	95	567	30	12	30	6	30	0	0	0	0

	point96	96	567	30	12	30	6	30	0	0	0	0
	point97	97	567	30	12	30	6	30	0	0	0	0
	point98	98										
N Hickory St N5	point99	99	534	30	11	30	6	30	0	0	0	0
	point100	100	534	30	11	30	6	30	0	0	0	0
	point101	101	534	30	11	30	6	30	0	0	0	0
	point102	102	534	30	11	30	6	30	0	0	0	0
	point103	103	534	30	11	30	6	30	0	0	0	0
	point104	104	534	30	11	30	6	30	0	0	0	0
	point105	105	534	30	11	30	6	30	0	0	0	0
	point106	106	534	30	11	30	6	30	0	0	0	0
	point107	107										
S Hickory St N5	point108	108	534	30	11	30	6	30	0	0	0	0
	point109	109	534	30	11	30	6	30	0	0	0	0
	point110	110	534	30	11	30	6	30	0	0	0	0
	point111	111	534	30	11	30	6	30	0	0	0	0
	point112	112	534	30	11	30	6	30	0	0	0	0
	point113	113	534	30	11	30	6	30	0	0	0	0
	point114	114	534	30	11	30	6	30	0	0	0	0
	point115	115	534	30	11	30	6	30	0	0	0	0
	point116	116	534	30	11	30	6	30	0	0	0	0
	point117	117										
E Vally Pkwy N5	point118	118	1901	35	39	35	20	35	0	0	0	0
	point119	119	1901	35	39	35	20	35	0	0	0	0
	point120	120	1901	35	39	35	20	35	0	0	0	0
	point121	121	1901	35	39	35	20	35	0	0	0	0
	point122	122	1901	35	39	35	20	35	0	0	0	0
	point123	123	1901	35	39	35	20	35	0	0	0	0
	point124	124	1901	35	39	35	20	35	0	0	0	0
	point125	125										
W Vally Pkwy N5	point126	126	1901	35	39	35	20	35	0	0	0	0
	point127	127	1901	35	39	35	20	35	0	0	0	0
	point128	128	1901	35	39	35	20	35	0	0	0	0
	point129	129	1901	35	39	35	20	35	0	0	0	0
	point130	130	1901	35	39	35	20	35	0	0	0	0
	point131	131	1901	35	39	35	20	35	0	0	0	0

	point132	132	1901	35	39	35	20	35	0	0	0	0
	point133	133	1901	35	39	35	20	35	0	0	0	0
	point134	134										

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CB TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: Palomar Heights
RUN: Year 2035 with Project

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST4	1	1	1,783.8	1,095.8	0.00	4.92	65.50	66	10.0	8.0	Y
ST2	2	1	2,097.2	748.0	0.00	4.92	65.40	66	10.0	8.0	Y
ST1	3	1	2,558.1	1,396.3	0.00	4.92	47.20	66	10.0	8.0	Y
ST3	4	1	1,926.3	1,630.8	0.00	4.92	70.00	66	10.0	8.0	Y

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CB TNM 2.5

INPUT: BUILDING ROWS
PROJECT/CONTRACT: Palomar Heights
RUN: Year 2035 with Project

Building Row Name	Average Height	Building Percent	Points No.	Coordinates (ground) X	Y	Z
	ft	%		ft	ft	ft
Building1	30.00	60	1	1,596.2	1,778.2	0.00
			2	1,726.5	1,551.8	0.00
			3	1,906.4	1,640.2	0.00
			4	1,869.9	1,705.3	0.00
			5	1,757.5	1,647.2	0.00
			6	1,675.3	1,766.6	0.00
			7	1,760.6	1,810.0	0.00
			8	1,731.9	1,863.5	0.00
			9	1,593.1	1,781.4	0.00
Building2	20.00	60	10	2,630.2	1,583.5	0.00
			11	2,681.9	1,458.4	0.00
			12	2,681.9	1,450.6	0.00
			13	2,653.6	1,440.8	0.00
			14	2,638.0	1,478.0	0.00
			15	2,625.3	1,473.1	0.00
			16	2,637.0	1,439.8	0.00
			17	2,599.9	1,426.2	0.00
			18	2,582.3	1,458.4	0.00
			19	2,562.7	1,451.6	0.00
			20	2,574.5	1,426.2	0.00
			21	2,536.4	1,416.4	0.00
			22	2,523.7	1,443.8	0.00
			23	2,514.9	1,439.8	0.00
			24	2,519.8	1,433.0	0.00

			25	2,492.4	1,421.3	0.00
			26	2,454.3	1,519.9	0.00