APPENDIX D

Cathedral City General Plan Update

Noise and Vibration Impact Analysis

Cathedral City

April 23, 2019

Prepared for

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Cathedral City General Plan Update

NOISE AND VIBRATION IMPACT ANALYSIS

CATHEDRAL CITY

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
I-10	Interstate 10
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Cathedral City General Plan Update
RC ALUCP	Riverside County Airport Land Use Compatibility Plan
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
UPRR	Union Pacific Railroad
VdB	Vibration Decibels

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EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this program-level Noise and Vibration Impact Analysis to evaluate the proposed Cathedral City General Plan Update ("Project"). Cathedral City ("City") is located in the Coachella Valley portion of Riverside County, between Palm Springs and Rancho Mirage. The City encompasses approximately 22.5 square miles and is traversed east-west by Interstate 10 (I-10) in the northern part of the City, and State Highway 111 (East Palm Canyon Drive) in the southern part of the City. The proposed Project is the preparation of the Cathedral City General Plan Update and Noise Element, encompassing approximately 14,425 acres. Cathedral City is bordered by unincorporated Riverside County to the north and east; City of Palm Springs to the south and west; Desert Hot Springs to the northwest; and City of Rancho Mirage to the south and east. This study has been prepared to satisfy applicable Cathedral City noise standards and significance criteria based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA). (1)

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the proposed Project will influence the traffic noise levels at existing and future land uses adjacent to study area roadway segments throughout Cathedral City. To quantify the traffic noise level increases at adjacent existing and future land uses, the changes in traffic noise levels on 39 roadway segments in the Project study area were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in the *Cathedral City General Plan Update Transportation Analysis*. (2) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing (2017/2018), Adopted General Plan Buildout (2040), and Proposed General Plan Buildout (2040) traffic conditions. A comparison of the Adopted General Plan Buildout to the Proposed General Plan Buildout conditions indicates that the Project-related traffic noise level increases will be *less than significant*.

OFF-SITE AIRCRAFT NOISE

Cathedral City is partially located within the mapped noise level contour boundaries of Palm Springs International Airport. Future (2025) conditions provided by the *Riverside County Airport Land Use Compatibility Plan (RCALUCP) Policy Document* indicate that the 60 dBA CNEL noise level contour boundary of Palm Springs International Airport will shift to partially overlap with Cathedral City boundaries east of San Joaquin Drive and north of Mission Drive. As a result, noise levels due to aircraft flyover events associated with Palm Springs International Airport under Future (2025) conditions are anticipated to be equal to or less than those identified under Existing (2002) conditions by the RCALUCP. (3)

Per the Palm Springs International Airport-specific policies, *dwellings may require incorporation of special noise level reduction measures into their design to ensure that the interior noise limit of 45 dB CNEL*. These features would be incorporated into new residential construction as part of the building permit process, and based on the exterior noise levels approaching and around

60 dBA CNEL, are anticipated to reduce aircraft flyover noise to below the 45 dBA CNEL interior noise level standard for residential uses with standard building construction. Additionally, mitigation measure NOI-2 would ensure that new residential development satisfies the 45 dBA CNEL interior noise level standard prior to building permit approval. Therefore, while aircraft flyovers will likely be heard, they will not significantly impact noise-sensitive uses in Cathedral City from a noise standpoint.

ON-SITE TRANSPORTATION NOISE ANALYSIS

An exterior noise impact analysis has been completed to determine the existing and future transportation-related noise levels and to identify potential necessary mitigation measures for future uses within the Cathedral City General Plan Update. Future traffic noise modeling of the proposed effect of the 2040 Cathedral City General Plan Update indicates that the primary source of noise impacts to Project land uses will be traffic-related noise from I-10, other study area roadways, and rail-related noise from Union Pacific Railroad (UPRR) lines. Other background noise sources, such as aircraft flyover events previously discussed, will contribute to the future noise environment, but do not represent the primary transportation noise source impacting Project land uses.

EXTERIOR NOISE LEVELS

The results of the future transportation noise analysis show that the future noise-sensitive uses within the General Plan Update may experience future unmitigated exterior noise levels greater than the *normally acceptable* exterior noise level compatibility criteria identified in the Cathedral City General Plan Noise Element. (4)

Based on the results of this analysis and the proximity of future noise-sensitive land uses to I-10, study area roadways, and the UPRR lines, the on-site transportation-related noise impacts at future noise-sensitive uses are expected to potentially exceed the Cathedral City General Plan Noise Element land use compatibility guidelines, and therefore, impacts are *potentially significant*, and require noise mitigation.

With the noise mitigation measures identified in this report, the on-site transportation noise levels at future developments within Cathedral City are anticipated to be reduced to levels that range from *normally acceptable to normally unacceptable*. Future developments shall be conditioned to ensure that interior noise levels satisfy the 45 dBA CNEL interior noise level standard for noise-sensitive uses. Therefore, on-site traffic noise impacts are considered *less than significant* with mitigation for future development as a part of the Cathedral City General Plan Update.

INTERIOR NOISE LEVELS

With typical building construction and a windows-closed condition, a minimum 25 dBA CNEL reduction is achievable for dwelling units and other future noise-sensitive uses. (5; 6) However, since the exterior noise levels from I-10, the study area roadways, and the UPRR lines have the potential to exceed 70 dBA CNEL, the minimum 25 dBA CNEL interior noise reduction provided

by standard building construction may not be enough to reduce exterior noise levels to satisfy the interior noise level standard of 45 dBA CNEL. Therefore, detailed interior noise analysis based on site-specific architectural floor plans and elevations is required to satisfy the Cathedral City General Plan and Title 24, Part 2, of the California Building Code 45 dBA CNEL interior noise level standard for residential dwelling units. In addition, since future interior noise levels within residential dwelling units may exceed 45 dBA CNEL, the noise level impact will be *potentially significant*, requiring additional interior noise mitigation. However, with the detailed interior noise analysis mitigation measure identified below, on-site transportation noise impacts can be reduced to levels that will be *less than significant*.

ON-SITE RAIL VIBRATION ANALYSIS

Based on the methodology provided by the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment*, Union Pacific Railroad (UPRR) rail activities are anticipated to generate vibration levels of up to 84 VdB at 50 feet from trains traveling at 50 mph. At the typical speed of 70 mph of rail activities in Cathedral City, the reference vibration level is increased by 2.9 VdB, and results in estimated vibration impacts of 86.9 VdB at 50 feet from the railroad tracks.

The analysis shows that noise-sensitive and non-noise-sensitive uses within the Project may be located within 150 feet of the UPRR railroad tracks, and therefore, may experience vibration levels which would exceed the noise-sensitive 72 VdB and non-noise-sensitive 75 VdB criteria for frequent rail events identified by the FTA. Therefore, impacts due to on-site vibration levels are considered *potentially significant* and require mitigation, as identified below, to reduce potential impacts at future project-specific development to *less than significant* levels.

ON-SITE TRANSPORTATION NOISE AND VIBRATION MITIGATION

To reduce the on-site transportation noise and vibration levels for future land uses, a site-specific noise study may be required for future development located within the Cathedral City General Plan Update, as follows:

NOI-1 Prior to approval of development plans or the issuance of a building permit for new noise-sensitive development projects, the Project Applicant/Developer shall submit a draft and/or final acoustical report to the Cathedral City Planning Department, or designee, which shall identify all reasonable and feasible noise mitigation measures that shall be applied to the development to satisfy the exterior noise level compatibility criteria for its applicable land use(s), as defined by the Cathedral City General Plan.

NOI-2 Prior to approval of development plans or the issuance of a building permit for new noise-sensitive development projects, the Project Applicant/Developer shall submit a draft and/or final acoustical report to the Cathedral City Planning Department, or designee, that demonstrates that the interior noise levels in all habitable rooms will satisfy the 45 dBA CNEL interior noise level standard of the Cathedral City General Plan and Title 24, Part 2, of the California Building Code.

NOI-3 Prior to approval of development plans or the issuance of a building permit for new development projects within 150 feet of UPRR railroad tracks, the Project Applicant/Developer

shall submit a draft and/or final vibration study to the Cathedral City Planning Department, or designee, which shall identify all reasonable and feasible mitigation measures to satisfy the 72 VdB noise-sensitive and 75 VdB non-noise-sensitive vibration level standards, as defined by the FTA for frequent rail events. Said measures shall be incorporated in site and building plans approved by the City prior to the issuance of building permits.

OPERATIONAL NOISE ANALYSIS

Project-related stationary-source (operational) noise would be generated by the operation of potential recreation, commercial, and industrial/business park uses included in buildout of the General Plan. At the time this Noise and Vibration Impact Analysis was prepared, the specific users and/or tenants of future recreation, commercial, and industrial/business park uses were unknown. Therefore, the on-site Project-related noise sources for potential future uses are expected to include, but are not limited to: air conditioning units, loading dock activities, outdoor restaurant dining activities, outdoor park activities, and parking lot vehicle movements. These expected development-related noise sources are consistent with existing noise sources observed in the Project study area. Further, the proposed residential land uses are considered noise-sensitive receiving land uses and are not expected to include any specific type of operational noise levels beyond the typical noise sources associated with existing residential land use in the Project study area.

Moreover, the noise levels due to buildout and use of City lands will vary depending on the specific tenant and use, and therefore, the impacts due to Project operational noise levels from potential non-residential uses is determined to be *potentially significant*. Special noise generators such as sound amplification devices, industrial ventilation equipment associated with specific uses (e.g., cultivation or other industrial uses), and other tenant-specific noise sources shall require a site-specific noise analysis prior to project approval or building permit approval. With the mitigation measures identified below, operational noise impacts associated with buildout and operation land uses authorized under the General Plan will be *less than significant*.

OPERATIONAL NOISE MITIGATION MEASURES

The following mitigation measures are identified to reduce the operational noise levels associated with the Project:

NOI-4 Prior to project approval and the issuance of a building permit and/or certificate of occupancy for non-residential development projects, as appropriate, the Project Applicant/Developer shall submit a draft and/or final acoustical report to the Cathedral City Planning Department, or designee, that demonstrates:

1. Exterior noise levels at adjacent property lines will satisfy the Cathedral City Municipal Code Section 11.96.030(6) exterior noise level limits, and satisfy any conditions of approval. The site-specific noise study shall identify the necessary noise mitigation measures, if any, required to reduce exterior noise levels to below the Cathedral City Municipal Code Section 11.96.030(6);

2. Acoustical isolation between units has been included in the project design for residential dwelling units above non-residential uses. (7)

OPERATIONAL VIBRATION LEVELS

The buildout of the General Plan is not expected to include any specific type of operational vibration sources, and therefore, the potential operational vibration impacts for the Cathedral City General Plan Update noise-sensitive land uses are considered *less than significant*.

CONSTRUCTION NOISE ANALYSIS

Construction-related noise impacts are expected to create temporary and intermittent high-level noise conditions at nearby sensitive receiver locations. Using sample reference noise levels to represent the construction activities of the Cathedral City General Plan Update, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations (i.e., residential, school, library, and health care facilities, etc.). To evaluate whether General Plan buildout will generate potentially significant temporary construction noise levels at off-site sensitive receiver locations, a construction-related noise level threshold is identified in this report based on Federal Transit Administration (FTA) construction noise level limits of 80 dBA L_{eq} (8-hour) at residential uses and 85 dBA L_{eq} (8-hour) at commercial uses. The highest reference construction noise level of 79.6 dBA L_{eq} at 50 feet is expected to satisfy the FTA 80 dBA L_{eq} residential and 85 dBA L_{eq} commercial 8-hour construction noise level thresholds at distances greater than 50 feet. However, at distances of 50 feet or less, Project construction noise levels may exceed the FTA thresholds at nearby receiver locations. Therefore, Project-related construction noise levels at receiver locations within 50 feet of construction activities in the Project study area, are considered *potentially significant* noise impacts. Therefore, mitigation measures are identified in this report to reduce construction noise levels during future development as part of the Cathedral City General Plan Update.

With application of the noise mitigation measures identified in this study, it is anticipated the future construction noise levels at nearby receiver locations resulting from General Plan buildout would be reduced to satisfy the FTA construction noise level thresholds. Therefore, Project construction-source noise impacts are considered *less than significant* with mitigation.

CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures, and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Since neither the City's General Plan or Municipal Code identify specific vibration level standards, the County of Riverside General Plan Noise Element, Policy N 16.3, root-mean-square (RMS) vibration perception threshold of 0.01 in/sec RMS is used in this analysis. (8)

Based on the reference vibration levels provided by the Federal Transit Administration (FTA), a large bulldozer represents the highest source of typical construction-related vibration with a

reference velocity of 0.089 in/sec PPV at 25 feet. At distances ranging from 25 to 125 feet from construction activities, typical construction vibration velocity levels are expected to range from 0.008 to 0.089 in/sec PPV, which equates to perceived vibration levels ranging from 0.006 to 0.063 in/sec RMS. Compared with the County of Riverside vibration standard of 0.01 in/sec RMS, the proposed Project construction activities will exceed the vibration standard at receiver locations within 50 feet of loaded trucks, large bulldozers, and jackhammers if used during Project construction. Therefore, loaded trucks, large bulldozers, and jackhammers within 50 feet of nearby sensitive land uses (e.g. residential, school, etc.) shall be minimized, or alternative equipment or methods shall be used, unless the vibration levels are shown to be less than the County of Riverside threshold of 0.01 in/sec RMS. With the recommended mitigation measures in this study, the Project-related vibration impacts at the nearby sensitive receiver locations represents a *less than significant* impact during worst-case construction activities.

The construction vibration levels at the site of the closest sensitive receivers are unlikely to be sustained during the entire construction period; but rather will occur only during the times that heavy construction equipment is operating adjacent to a development site perimeter. Further, construction at the Project site will be restricted to Municipal Code daytime construction hours, unless otherwise permitted by the City, thereby reducing potential vibration impacts during the sensitive nighttime hours.

CONSTRUCTION NOISE AND VIBRATION MITIGATION MEASURES

Though construction noise and vibration are temporary, being intermittent and of short duration, and to assure that such noise and vibration will not present any long-term impacts, the following mitigation measures are recommended to reduce noise and vibration levels produced by construction equipment to nearby noise-sensitive uses.

NOI-5 Prior to project approval or the issuance of a building permit for new development, when sensitive receiver locations are within 50 feet of proposed construction activities, the Project Applicant/Developer shall submit a final acoustical report to the Cathedral City Planning Department, or designee, that demonstrates:

- Exterior construction noise levels at the closest sensitive receiver locations will satisfy the FTA 80 dBA L_{eq} residential and 85 dBA L_{eq} commercial 8-hour construction noise level standards and the County of Riverside 0.01 in/sec RMS vibration standard for sensitive uses. The site-specific study shall identify the necessary noise and/or vibration mitigation measures, if any, required to reduce exterior noise and vibration levels to below FTA noise and County of Riverside vibration thresholds; and
- Measures to reduce construction noise and vibration levels, such as those provided below, shall be incorporated in the final noise study, if necessary:
    - Install temporary construction noise barriers at the Project site boundary which break the line of sight for occupied sensitive uses for the duration of construction activities. The noise control barrier(s) must provide a solid face from top to bottom and shall:

- Provide a minimum transmission loss of 20 dBA and be constructed with an acoustical blanket (e.g. vinyl acoustic curtains or quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts;
- Properly maintained with any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired.

▪ Install sound dampening mats or blankets to the engine compartments of heavy mobile equipment (e.g. graders, dozers, heavy trucks). The dampening materials must be capable of a 5 dBA minimum noise reduction, must be installed prior to the use of heavy mobile construction equipment, and must remain installed for the duration of the equipment use.

▪ Construction activities requiring loaded trucks, large bulldozers, and jackhammers within 50 feet of nearby sensitive land uses (e.g. residential, school, etc.) shall be minimized, or alternative equipment or methods shall be used, unless the vibration levels are shown to be less than the County of Riverside threshold of 0.01 in/sec RMS.

NOI-6 Construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards, and all stationary construction equipment shall be placed so that emitted noise is directed away from the noise-sensitive use nearest the construction activity.

NOI-7 The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receiver nearest to the construction activity.

NOI-8 The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment by Section 11.96.070 of the Cathedral City Municipal Code. The contractor shall design delivery routes to minimize the exposure of sensitive land uses to delivery truck noise.

SUMMARY OF SIGNIFICANCE FINDINGS

The results of this Cathedral City General Plan Update Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise and/or vibration impact before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF SIGNIFICANCE FINDINGS

Analysis	Condition(s)	Report Section	Significance Findings	
			Unmitigated	Mitigated
Off-Site Traffic Noise	Long-Term Exterior Noise Level Increases	7	*Less Than Significant*	-
On-Site Transportation	Future Exterior Noise Levels	8	*Potentially Significant*	*Less Than Significant*
	Future Interior Noise Levels			*Less Than Significant*
	Future Vibration Levels		*Potentially Significant*	*Less Than Significant*
Operational	Long-Term Exterior Noise Levels	9	*Potentially Significant*	*Less Than Significant*
	Long-Term Vibration Levels		*Less Than Significant*	-
Construction	Temporary Noise Levels	10	*Potentially Significant*	*Less Than Significant*
	Temporary Vibration Levels			*Less Than Significant*

1 INTRODUCTION

This program-level Noise and Vibration Impact Analysis has been completed to determine the noise impacts due to development associated with the Cathedral City General Plan Update ("Project"). This Noise and Vibration Impact Analysis briefly describes typical compliance conditions for the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term operational and short-term construction noise impacts.

1.1 PROJECT LOCATION

Cathedral City ("City") is located in the Coachella Valley portion of Riverside County, between Palm Springs and Rancho Mirage. The City encompasses approximately 22.5 square miles and is traversed east-west by I-10 in the northern part of the City, and State Highway 111 (Palm Canyon Drive) in the southern part of the City. The City's location is shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The proposed Project is the preparation of the Cathedral City General Plan Update and Noise Element, encompassing approximately 14,425 acres. Approximately 53% of the land within the current city boundaries is currently planned for residential land uses, of which 54% is vacant. Commercial and industrial land uses are also planned to expand, as approximately 69% of commercial and 85% of industrial / business park land is vacant. The remaining land (30%) is occupied by educational, public use, utilities, golf courses, and local parks and recreation land uses. In 2018, Cathedral City had approximately 21,219 households and 54,791 people.

Residential housing in the City includes apartments, senior facilities, active adult communities, tract/master plan developments, and low density single-family homes. Mixed use areas include residential over commercial. The City is traversed east-west by I-10, with lands north of I-10 being governed by Specific Plans. Exhibits 1-B and 1-C show the currently adopted General Plan land use and proposed General Plan land use, respectively, provided in the *Transportation Analysis*. (2)

Project-related stationary-source (operational) noise may be produced by the future uses on the adjacent land uses within development of the Project. To assess the future exterior noise conditions, reference noise sources are identified to describe the potential non-residential noise sources associated with General Plan buildout. Development specific on-site Project-related noise sources representing potential future uses are expected to include, but are not limited to: air conditioning units, loading dock activities, outdoor restaurant dining activities, outdoor park activities, and parking lot vehicle movements. These expected Project-related noise sources are consistent with existing noise sources observed in the Project study area. Since residential is considered a noise-sensitive receiving land use, it is not expected to include

any meaningful operational source noise consistent with the existing residential land use in the Project study area.

EXHIBIT 1-A: LOCATION MAP

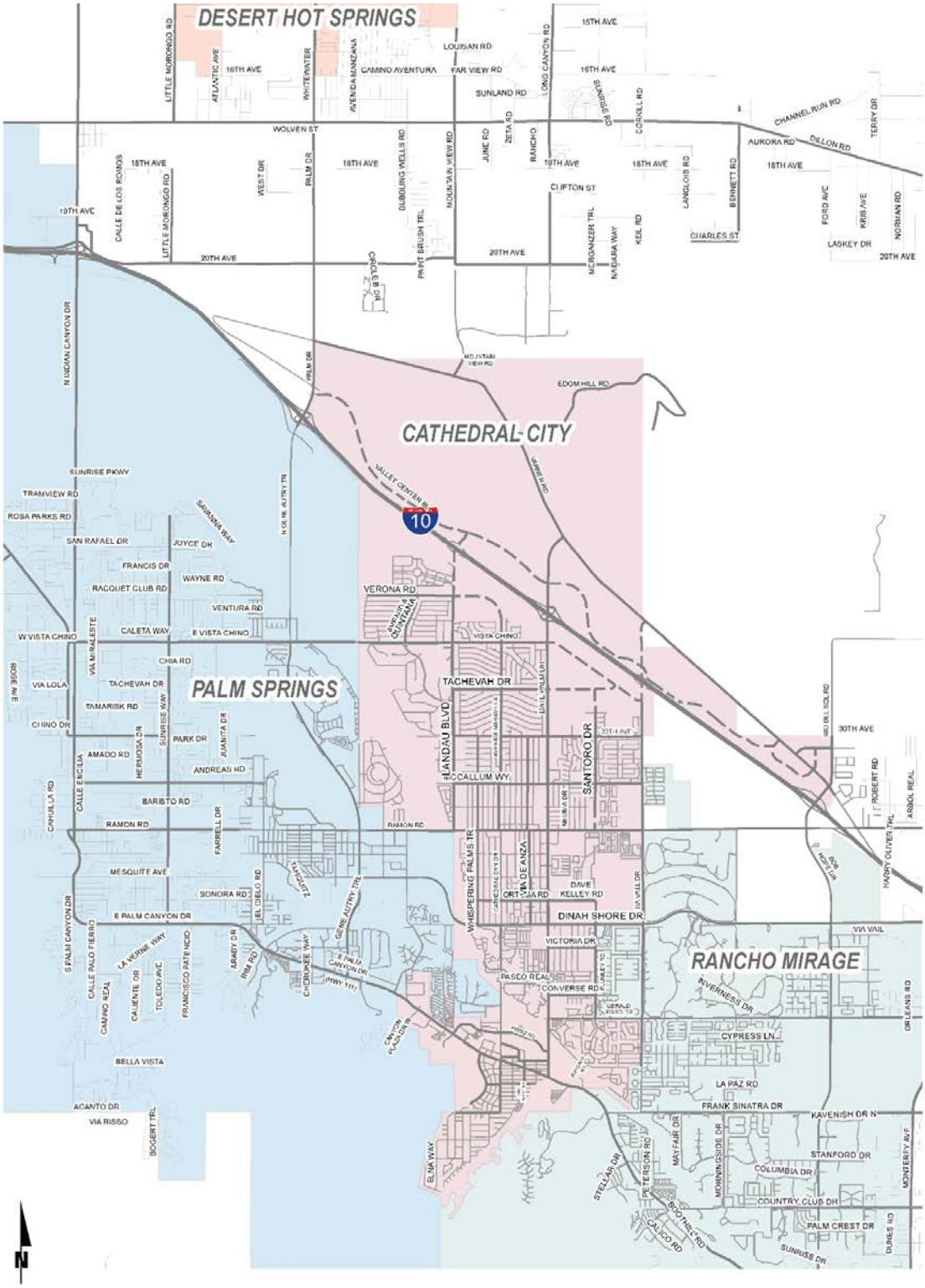


EXHIBIT 1-B: CURRENTLY ADOPTED GENERAL PLAN LAND USE MAP

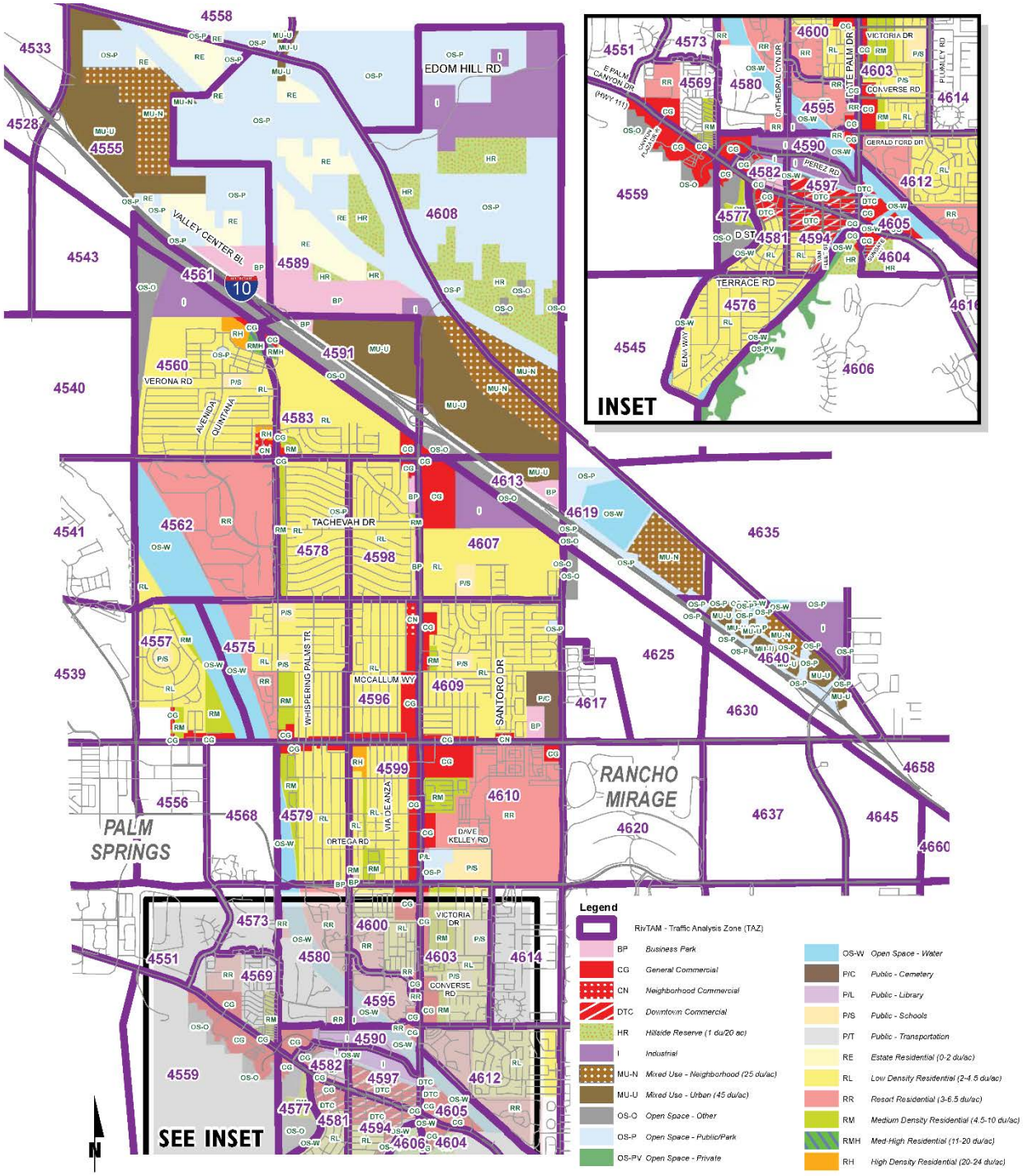
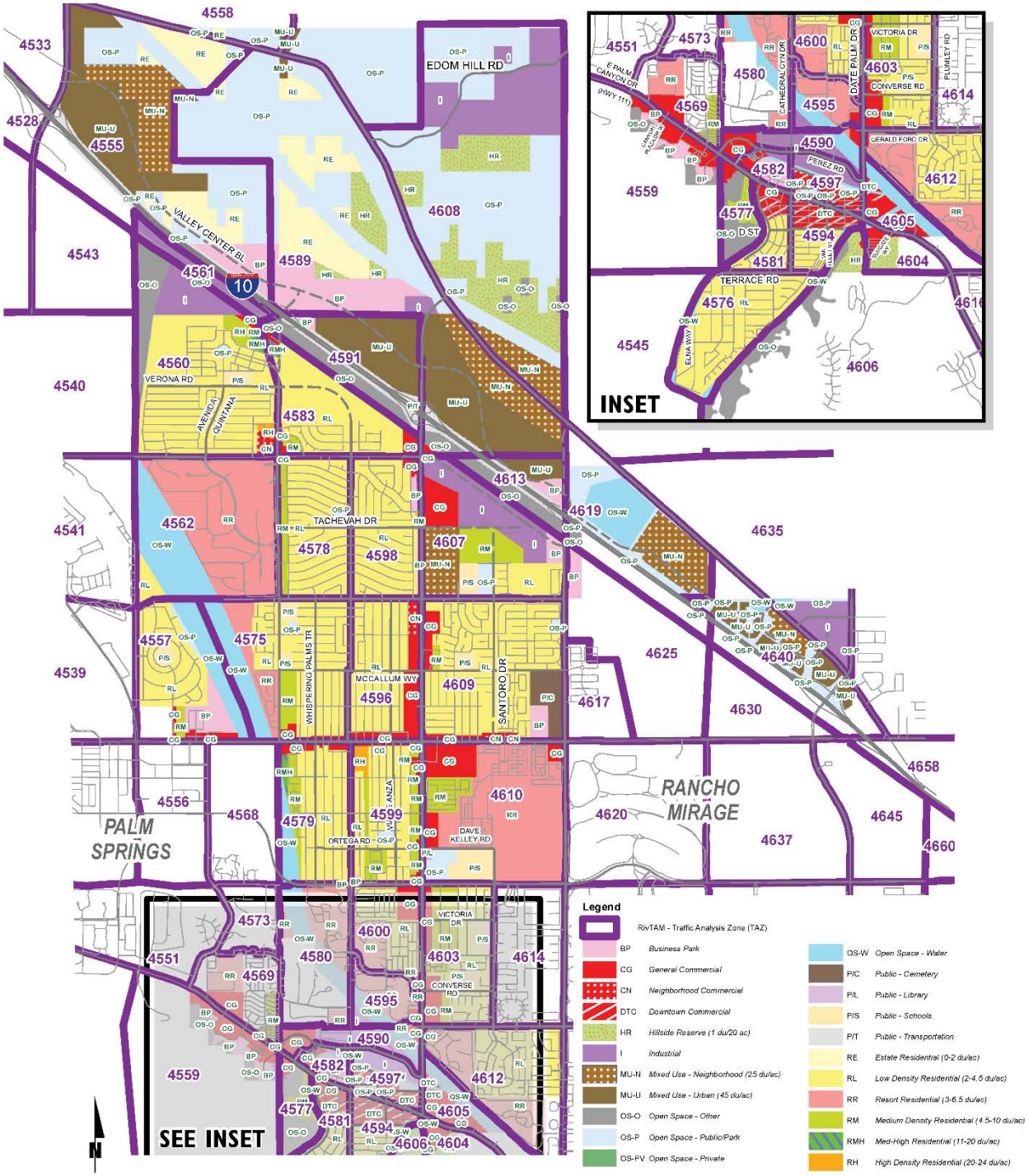


EXHIBIT 1-C: PROPOSED GENERAL PLAN LAND USE MAP



2 FUNDAMENTALS

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		SLEEP DISTURBANCE
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004) March 1974.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (9) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises

equate to 110 dBA at approximately 100 feet, which can cause serious discomfort. (10) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise-sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. Cathedral City relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

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

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (9)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receptor is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also

been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receptor such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (5)

2.3.3 ATMOSPHERIC EFFECTS

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (9)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an “out of sight, out of mind” effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby resident. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (5)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receptor by controlling the noise source, transmission path, receptor, or all three. This concept is known as the source-path-receptor concept. In general, noise control measures can be applied to these three elements.

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receptor. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (5)

2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (11) The Cathedral City General Plan identifies compatibility criteria consistent with the Office of Planning and Research and FHWA guidance to address transportation (e.g., traffic, rail, and aircraft) noise level compatibility for future land uses.

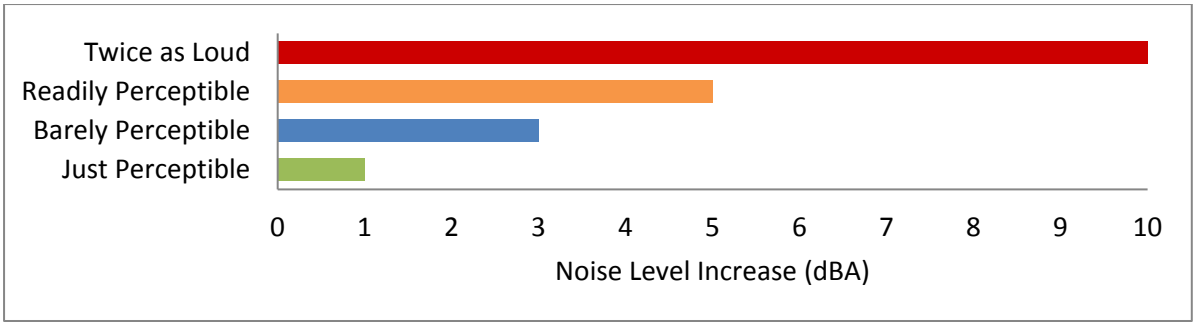
2.7 COMMUNITY RESPONSE TO NOISE

Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

- Fear associated with noise producing activities;
- Socio-economic status and educational level;
- Perception that those affected are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Belief that the noise source can be controlled.

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (12) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (12) Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. An increase or decrease of 1 dBA cannot be perceived except in carefully controlled laboratory experiments, a change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (5)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.8 EXPOSURE TO HIGH NOISE LEVELS

The Occupational Safety and Health Administration (OSHA) sets legal limits on noise exposure in the workplace. The permissible exposure limit (PEL) for a worker over an eight-hour day is 90 dBA. The OSHA standard uses a 5 dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half. The National Institute for Occupational Safety and Health (NIOSH) has recommended that all worker exposures to noise should be controlled below a level equivalent to 85 dBA for eight hours to minimize occupational noise induced hearing loss. NIOSH also recommends a 3 dBA exchange rate so that every increase by 3 dBA doubles the amount of the noise and halves the recommended amount of exposure time. (13)

OSHA has implemented requirements to protect all workers in general industry (e.g. the manufacturing and the service sectors) for employers to implement a Hearing Conservation Program where workers are exposed to a time weighted average noise level of 85 dBA or higher over an eight-hour work shift. Hearing Conservation Programs require employers to measure noise levels, provide free annual hearing exams and free hearing protection, provide training, and conduct evaluations of the adequacy of the hearing protectors in use unless changes to tools, equipment and schedules are made so that they are less noisy and worker exposure to noise is less than the 85 dBA. This report does not evaluate the noise exposure of workers within a project or construction site based on CEQA requirements, and instead, evaluates Project-related operational and construction noise levels at the nearby sensitive receiver locations in the Project study area. Further, periodic exposure to high noise levels in short duration, such as Project construction, is typically considered an annoyance and not impactful to human health. It would take several years of exposure to high noise levels to result in hearing impairment. (14)

2.9 VIBRATION

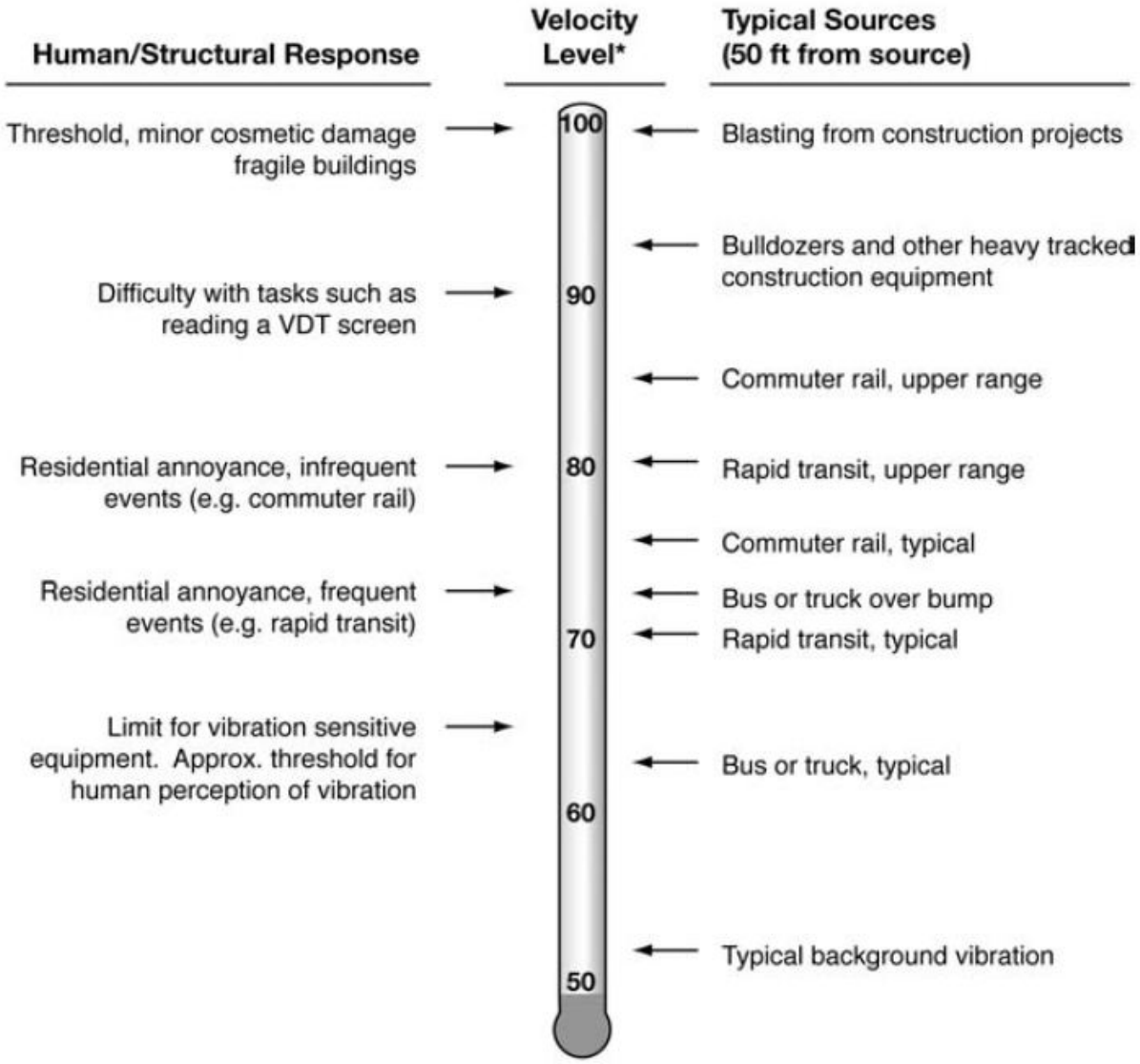
Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (15), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction

equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment.

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



Source: Federal Transit Administration (FTA) Transit Noise Impact and Vibration Assessment.

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3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research. (16) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 STATE OF CALIFORNIA BUILDING STANDARDS

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, and the California Building Code. These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are developed near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans for noise-sensitive land uses must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

The 2016 State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (17) These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other areas where noise contours are not readily available. If the development falls within an airport or freeway 65 dBA CNEL noise contour, the combined sound transmission class (STC)

rating of the wall and roof-ceiling assemblies must be at least 50. For those developments in areas where noise contours are not readily available, and the noise level exceeds 65 dBA L_{eq} for any hour of operation, a wall and roof-ceiling combined STC rating of 45, and exterior windows with a minimum STC rating of 40 are required (Section 5.507.4.1). Alternatively, if the interior noise levels of non-residential buildings satisfy the performance criteria of 50 dBA L_{eq} (1 hour), then the performance method as defined by the California's Green Building Standards Code can be used.

3.3 CATHEDRAL CITY ADOPTED GENERAL PLAN NOISE ELEMENT

Cathedral City previously adopted a Noise Element of the General Plan (Chapter V, Environmental Hazards), *to coordinate the community's land uses with the existing and future noise environment, and to design measures intended to minimize or avoid community exposure to excessive noise levels*. (4) The Noise Element identifies a goal and multiple polices related to noise as follows:

Goal: *A noise environment that complements the City's low density residential character and its various land uses.*

Policies:

1: Protect noise sensitive land uses, including residential neighborhoods, schools, hospitals, libraries, churches, resorts, and community open space, as well as land uses proposed in the vicinity of the railway, Interstate 10, the Mid-Valley Parkway, and Da Vall Drive from high noise levels generated by existing and future noise sources.

2: The relationship between land use designations in the Land Use Element and changes in the circulation patter of the City, as well as individual developments shall be monitored and mitigated.

3: Private sector project proposals shall include measures that assure that noise exposure levels comply with State of California noise insulation standards as defined in Title 25 (California Noise Insulation Standards).

4: Maintain a circulation map which maintains low levels of traffic within neighborhoods, and assigns truck routes to major roadways only.

5: Maintain an ongoing contact with the Palm Springs Airport to ensure that flight paths and airport improvements do not impact or extend noise contours into the City.

6: Coordinate with adjoining municipalities to assure noise-compatible land uses across jurisdictional boundaries.

7: The City shall restrict grading and construction activities that may impact residential neighborhoods to specified days of the week and times of day.

3.3.1 LAND USE COMPATIBILITY

The noise criteria identified in the Cathedral City General Plan Noise Element, Table V-2, are guidelines to evaluate the land use compatibility of transportation-related noise. The compatibility criteria, shown on Exhibit 3-A, provide Cathedral City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise environment.

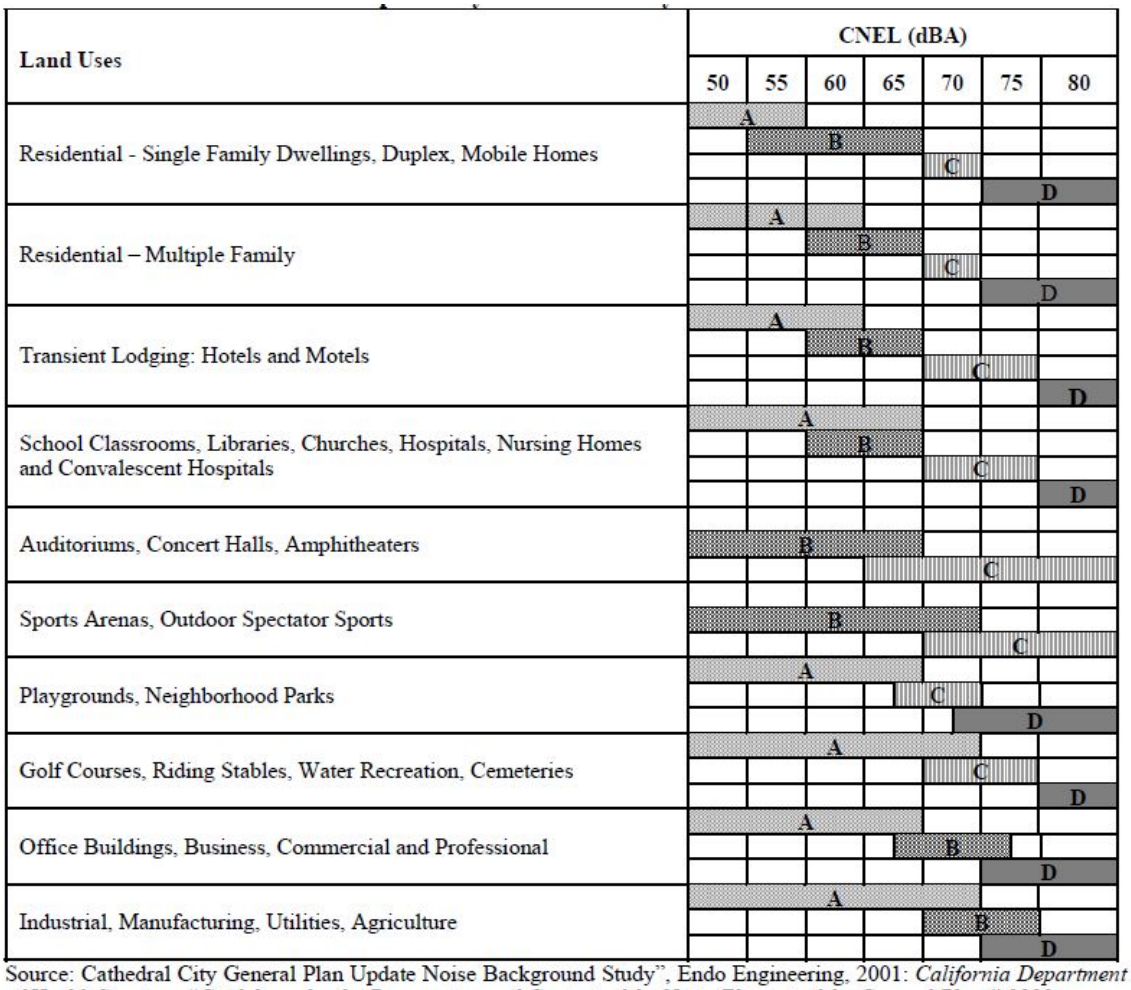
Single-family residential uses are considered *normally acceptable* with exterior noise levels of up to 60 CNEL and *conditionally acceptable* up to 70 CNEL. Multi-family residential land use is considered *normally acceptable* in exterior noise environments up to 65 CNEL and *conditionally acceptable* up to 70 CNEL. Schools, libraries, and churches are considered *normally acceptable* up to 70 CNEL, as are office buildings and business, commercial and professional uses. Golf courses are considered *normally acceptable* with exterior noise levels of up to 75 CNEL and *normally unacceptable* from 70 to 80 CNEL. (4)

A *conditionally acceptable* designation indicates that *new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are incorporated in the design*. By comparison, a *normally acceptable* designation indicates that standard construction can occur with no special noise reduction requirements.

3.3.2 TRANSPORTATION NOISE STANDARDS

To control transportation-related noise sources such as arterial roads, freeways, airports, and railroads, Cathedral City has established the land use compatibility guidelines for exterior noise levels as previously described, and shown on Exhibit 3-A. For noise-sensitive uses, the Noise Element identifies the exterior noise level of 65 dBA CNEL for *conditionally acceptable* use. In addition, an interior noise level standard of 45 dBA CNEL for noise-sensitive interior uses is utilized in this Noise and Vibration Impact Analysis consistent with California Code of Regulations, Title 24, Building Standards for residential use.

EXHIBIT 3-A: LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS



Source: Cathedral City General Plan Update Noise Background Study", Endo Engineering, 2001: *California Department of Health Services, "Guidelines for the Preparation and Content of the Noise Element of the General Plan," 1990*

Explanatory Notes

A **Normally Acceptable**: With no special noise reduction requirements assuming standard construction.

B **Conditionally Acceptable**: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design

C **Normally Unacceptable**: New construction is discouraged. If new construction does not proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

D **Clearly Unacceptable**: New construction or development should generally not be undertaken.

3.4 CATHEDRAL CITY MUNICIPAL CODE

To analyze noise impacts originating from a designated fixed location or private property, stationary-source (operational) noise is typically evaluated against standards established under a City's Municipal Code.

For noise-sensitive residential properties, the Municipal Code identifies operational noise level limits for the daytime (7:00 a.m. to 10:00 p.m.) hours of 65 dBA L_{eq} and 50 dBA L_{eq} during the nighttime (10:00 p.m. to 7:00 a.m.) hours. (18) For non-noise-sensitive commercial and industrial properties, the Municipal Code identifies operational noise level limits for the daytime (7:00 a.m. to 10:00 p.m.) hours of 85 dBA L_{eq} and 55 dBA L_{eq} during the nighttime (10:00 p.m. to 7:00 a.m.) hours. The Cathedral City Municipal Code noise standards are shown on Table 3-1 and included in Appendix 3.1.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Land Use	Time Period	Exterior Noise Level Standards (dBA)[1]
Residential	Daytime	65
	Nighttime	50
Commercial/ Industrial	Daytime	85
	Nighttime	55

[1] Source: Cathedral City Municipal Code, Section 11.96.030(6) (Appendix 3.1).
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

3.5 CONSTRUCTION NOISE STANDARDS

To analyze noise impacts originating from the construction of the Cathedral City General Plan Update, noise from construction activities are typically evaluated against standards established under a City's Municipal Code. To control noise impacts associated with the construction of the proposed Project, Cathedral City has established limits to the hours of operation in Section 11.96.070 of the Municipal Code. However, the City's General Plan and Municipal Code do not establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes as the generation of noise levels in excess of standards or as a substantial temporary or periodic noise increase. Therefore, this report identifies a construction noise level threshold to evaluate these potential impacts.

The Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment* identifies detailed assessment criteria including an eight-hour construction noise level threshold of 80 dBA L_{eq} during daytime at residential (noise-sensitive) uses, and 85 dBA L_{eq} during daytime hours at commercial uses. (15) Therefore, this report relies on the FTA thresholds for land uses adjacent to future development as part of Project construction.

3.6 VIBRATION STANDARDS

The following vibration standards are used in this report to assess the potential vibration impacts of future UPRR operations to the future uses within the Project, and the potential operational and construction vibration levels generated by Project uses at adjacent land uses.

3.6.1 ON-SITE RAIL VIBRATION

The Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment,* Table 6-3, identifies ground borne vibration levels for land use categories based on the frequency of rail events. For the UPRR rail lines, the *frequent event* (more than 70 events per day) vibration criteria for noise-sensitive (e.g., residential) uses is 72 VdB, and for institutional land uses with primarily daytime-only uses the vibration criteria is 75 VdB. Since the FTA does not identify vibration standards for non-noise-sensitive uses, such as commercial and industrial, this analysis uses the more conservative institutional land use criteria to evaluate potential vibration impacts at non-noise-sensitive uses. (15)

3.6.2 OPERATIONAL AND CONSTRUCTION VIBRATION

Since neither the City's General Plan or Municipal Code identify specific vibration level standards, the County of Riverside General Plan Policy N 16.3 is used in this analysis which identifies a velocity perception threshold for vibration due to passing trains of 0.01 inches per second (in/sec) RMS over the range of one to 100 Hz. (19) For the purposes of this analysis, the perception threshold of 0.01 in/sec RMS shall be used to assess the potential impacts due to Project construction at nearby sensitive receiver locations, since the Project land uses are not expected to include any specific type of operational vibration sources. This threshold is also equivalent to the 80 VdB threshold for construction identified in the FTA *Transit Noise and Vibration Impact Assessment*. (15)

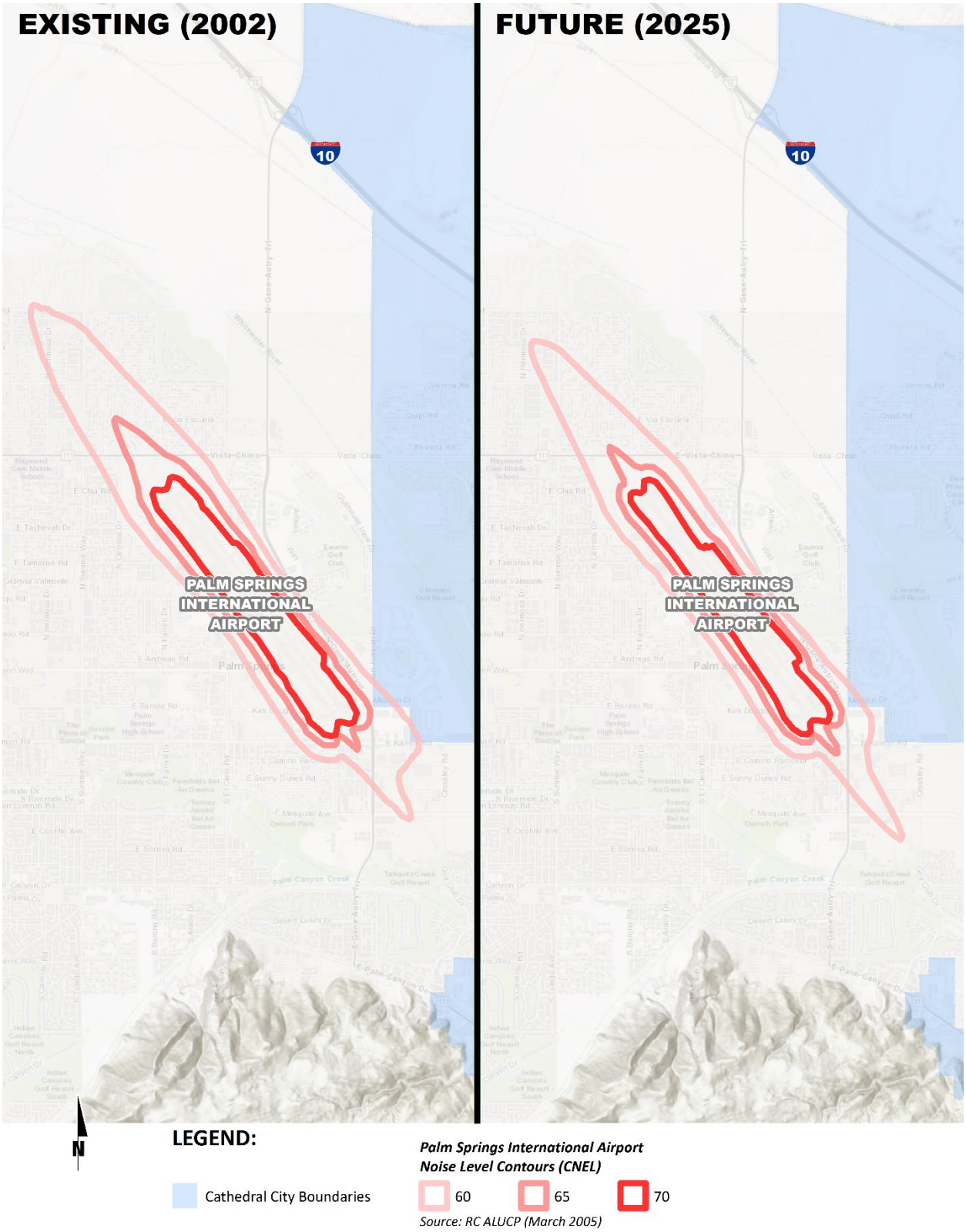
3.7 RIVERSIDE COUNTY AIRPORT LAND USE COMPATIBILITY STANDARDS

Cathedral City is partially located within the mapped noise level contour boundaries of Palm Springs International Airport. Chapter 3 of the *Riverside County Airport Land Use Compatibility Plan (RCALUCP) Policy Document* identifies those policies specific to Palm Springs International Airport. Policy 2.1 indicates that *the limit of 60 dB CNEL set by Countywide Policy 4.1.4 as the maximum noise exposure considered normally acceptable for new residential land uses shall not be applied to the environs of Palm Springs International Airport*. Instead, the criteria applied for Palm Springs International Airport is identified as 62 dB CNEL. Moreover, Cathedral City residential uses are shown to be within Compatibility Zone D. Per the RCALUCP guidelines, only highly noise-sensitive outdoor non-residential uses, such as amphitheaters or drive-in theaters, are prohibited in Compatibility Zone D. (3)

As shown on Exhibit 3-B, the 60 dBA CNEL boundary of Palm Springs International Airport under Existing (2002) conditions partially overlaps with the Cathedral City boundaries east of San Joaquin Drive and north of Ramon Road. Future (2025) conditions provided by the RCALUCP, also shown on Exhibit 3-B, indicate that the 60 dBA CNEL noise level contour boundary will shift to partially overlap with Cathedral City boundaries east of San Joaquin Drive and north of Mission Drive. As a result, noise levels due to aircraft flyover events associated with Palm Springs International Airport under Future (2025) conditions are anticipated to be equal to or less than those identified under Existing (2002) conditions. (3)

Per the Palm Springs International Airport-specific policies, *dwellings may require incorporation of special noise level reduction measures into their design to ensure that the interior noise limit of 45 dB CNEL*. These features would be incorporated into new residential construction as part of the building permit process, and based on the exterior noise levels approaching and around 60 dBA CNEL, are anticipated to reduce aircraft flyover noise to below the 45 dBA CNEL interior noise level standard for residential uses with standard building construction. Additionally, mitigation measure NOI-2 would ensure that new residential development satisfies the 45 dBA CNEL interior noise level standard prior to building permit approval. Therefore, while aircraft flyovers will likely be heard, they will not significantly impact noise-sensitive uses in Cathedral City from a noise standpoint.

EXHIBIT 3-B: PALM SPRINGS INTERNATIONAL AIRPORT NOISE CONTOURS



4 SIGNIFICANCE CRITERIA

The following thresholds are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA). (20) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

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 ground-borne vibration or ground-borne noise levels?

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

While the Cathedral City General Plan land use compatibility guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts, they do not define the levels at which increases are considered substantial for use under Threshold A. CEQA Appendix G Threshold C applies to nearby public and private airports, if any, and the Project's land use compatibility.

4.1 CEQA THRESHOLDS NOT FURTHER ANALYZED

Consistent with the discussion provided in Section 3.7 regarding aircraft noise levels from Palm Springs International Airport, no impact related to the exposure of people residing or working in the Project area to excessive airport related noise levels is anticipated, and no further analysis is required.

4.2 NOISE-SENSITIVE RECEIVERS

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Thresholds described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (21)

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise (FICON) (22) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in other environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this report recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (21) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, FICON identifies a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. Per the FICON, in areas where the without-project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without-project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. Table 4-1 below provides a summary of the potential noise impact significance criteria, based on guidance from FICON.

TABLE 4-1: SIGNIFICANCE OF NOISE IMPACTS AT NOISE-SENSITIVE RECEIVERS

Without Project Noise Level	Potential Significant Impact
< 60 dBA	5 dBA or more
60 - 65 dBA	3 dBA or more
> 65 dBA	1.5 dBA or more

Federal Interagency Committee on Noise (FICON), 1992.

4.3 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix.

OFF-SITE TRAFFIC NOISE

- When the noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.):
  - are less than 60 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project-related noise level increase; or
  - range from 60 to 65 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project-related noise level increase; or
  - already exceed 65 dBA CNEL, and the Project creates a community noise level impact of greater than 1.5 dBA CNEL (FICON, 1992).

ON-SITE TRANSPORTATION NOISE

- If the on-site exterior noise levels exceed 65 dBA CNEL at the outdoor environments of future noise-sensitive uses within the City. Interior noise levels shall not exceed 45 dBA CNEL for interior noise-sensitive dwelling units (Cathedral City General Plan Noise Element Table V-2, and the California Code of Regulations, Title 24, Building Standards).

ON-SITE RAIL VIBRATION

- If the on-site exterior vibration levels exceed:
  - 72 VdB at future noise-sensitive uses; or
  - 75 VdB at future non-noise-sensitive uses (FTA, *Transit Noise and Vibration Impact Assessment,* Table 6-3).

OPERATIONAL NOISE

- If Project-related operational (stationary-source) noise levels exceed:
  - the exterior 65 dBA L_{eq} daytime or 50 dBA L_{eq} nighttime noise level standards at nearby sensitive receiver locations; or
  - the exterior 85 dBA L_{eq} daytime or 55 dBA L_{eq} nighttime noise level standards at nearby commercial or industrial receiver locations (Cathedral City Municipal Code, Section 11.96.030(6)).

OPERATIONAL VIBRATION

- If Project-related activities generate vibration levels which exceed the vibration level threshold of 0.01 in/sec RMS (County of Riverside General Plan Policy N 16.3).

CONSTRUCTION NOISE

- If Project-related construction activities create noise levels which exceed the FTA 80 dBA L_{eq} (8-hour) residential or 85 dBA L_{eq} (8-hour) construction noise level limits at adjacent commercial land uses (FTA, *Transit Noise and Vibration Impact Assessment*, Table 7-3).

CONSTRUCTION VIBRATION

- If Project-related activities generate vibration levels which exceed the vibration level threshold of 0.01 in/sec RMS (County of Riverside General Plan Policy N 16.3).

TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
Off-Site	Noise-Sensitive[1]	if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
On-Site[2]	Noise-Sensitive	Exterior Noise Level Standard	65 dBA CNEL	
		Interior Noise Level Standard	45 dBA CNEL	
		On-Site Vibration Level Threshold[3]	72 VdB	
	Non-Noise-Sensitive		75 VdB	
Operational	Residential	Exterior Noise Level Standard[4]	65 dBA L_{eq}	50 dBA L_{eq}
	Commercial/Industrial		85 dBA L_{eq}	55 dBA L_{eq}
	Noise-Sensitive	Vibration Level Threshold[5]	0.01 in/sec RMS	
Construction	Noise-Sensitive	Residential Noise Level Threshold[3]	80 dBA L_{eq} (8-Hour)	
		Commercial Noise Level Threshold[3]	85 dBA L_{eq} (8-Hour)	
		Vibration Level Threshold[5]	0.01 in/sec RMS	

[1] Source: FICON, 1992.
[2] Sources: Cathedral City General Plan Noise Element Table V-2, and the California Code of Regulations, Title 24, Building Standards.
[3] Source: FTA, Transit Noise and Vibration Impact Assessment.
[4] Source: Cathedral City Municipal Code, Section 11.96.030(6) (Appendix 3.1).
[5] Source: County of Riverside General Plan Policy N 16.3.

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, noise level measurements were taken at receiver locations in the Project study area. The measurement locations were selected based on existing and planned future land uses and major transportation corridors, to better describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations.

To describe the existing noise conditions noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, April 18th, 2018 for a 24-hour period. Further, to better describe the ambient noise environment at specific land use types and describe the reference noise level for existing stationary sources in the Project study area, short-term noise level measurements were collected over 10-minute durations on Tuesday, April 17th, 2018. Appendix 5.1 includes study area photos for all measurement locations.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the long-term noise levels were measured during typical weekday conditions. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All short-term noise level measurements were collected using a Larson Davis LxT Type 1 precision sound level meter. The Larson Davis LxT sound level meter was calibrated before the measurements using a Larson-Davis calibrator, Model CAL 200.

All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (23)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels in the Project study area. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent any part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (9) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended*

approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community. (15)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (15) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 LONG-TERM NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Table 5-1 summarizes the noise levels at existing and future Project land uses described below, and Table 5-2 compares the existing noise levels to the 24-hour CNEL land use compatibility criteria of the Cathedral City General Plan Noise Element, previously described in Section 3.3. Appendix 5.2 provides a summary of the existing hourly ambient noise levels described below:

- Location L1 represents the noise levels near Palm Drive, north of I-10, and existing commercial and residential uses in a vacant lot. The noise level measurements collected show an overall 24-hour exterior noise level of 66.0 dBA CNEL. Based on the Cathedral City General Plan land use compatibility criteria, the 24-hour noise level represents *conditionally acceptable* residential use and *normally acceptable* commercial use. The energy (logarithmic) average daytime noise level was calculated at 58.7 dBA L_{eq} with an average nighttime noise level of 59.2 dBA L_{eq} at this location.
- Location L2 represents the noise levels near existing residential homes and Rio Vista Elementary School, south of I-10 and the UPRR lines, west of Landau Boulevard. The noise level measurements collected show an overall 24-hour exterior noise level of 64.6 dBA CNEL. Based on the Cathedral City General Plan land use compatibility criteria, the 24-hour noise level represents *conditionally acceptable* residential and school uses. The energy (logarithmic) average daytime noise level was calculated at 54.9 dBA L_{eq} with an average nighttime noise level of 58.4 dBA L_{eq} at this location.
- Location L3 represents the noise levels within north of I-10 on Date Palm Drive near existing vacant land designated as future Mixed-Use Urban land use. The noise level measurements collected show an overall 24-hour exterior noise level of 73.3 dBA CNEL. Based on the Cathedral City General Plan land use compatibility criteria, the 24-hour noise level represents *normally unacceptable* residential use, and *conditionally acceptable* commercial use. The energy (logarithmic) average daytime noise level was calculated at 67.2 dBA L_{eq} with an average nighttime noise level of 66.3 dBA L_{eq} at this location.

- Location L4 represents the noise levels near existing residential homes and Landau Elementary School on Landau Boulevard. The noise level measurements collected show an overall 24-hour exterior noise level of 68.7 dBA CNEL. Based on the Cathedral City General Plan land use compatibility criteria, the 24-hour noise level represents *conditionally acceptable* residential and school uses, and *normally acceptable* recreation use (e.g., golf course). The energy (logarithmic) average daytime noise level was calculated at 66.2 dBA L_{eq} with an average nighttime noise level of 60.4 dBA L_{eq} at this location.
- Location L5 represents the noise levels on Santoro Drive near existing residential homes and James Workman Middle School. The noise level measurements collected show an overall 24-hour exterior noise level of 60.3 dBA CNEL. Based on the Cathedral City General Plan land use compatibility criteria, the 24-hour noise level represents *conditionally acceptable* residential and school uses. The energy (logarithmic) average daytime noise level was calculated at 53.6 dBA L_{eq} with an average nighttime noise level of 53.4 dBA L_{eq} at this location.
- Location L6 represents the noise levels south of Ramon Road near existing commercial uses, southeast of Palm Springs International Airport. The noise level measurements collected show an overall 24-hour exterior noise level of 63.4 dBA CNEL. Based on the Cathedral City General Plan land use compatibility criteria, the 24-hour noise level represents *normally acceptable* commercial land use. The energy (logarithmic) average daytime noise level was calculated at 59.3 dBA L_{eq} with an average nighttime noise level of 56.1 dBA L_{eq} at this location.
- Location L7 represents the noise levels west of Date Palm Drive near existing commercial and residential uses north of Ramon Road. The noise level measurements collected show an overall 24-hour exterior noise level of 59.3 dBA CNEL. Based on the Cathedral City General Plan land use compatibility criteria, the 24-hour noise level represents *normally acceptable* residential and commercial land uses. The energy (logarithmic) average daytime noise level was calculated at 55.8 dBA L_{eq} with an average nighttime noise level of 51.5 dBA L_{eq} at this location.
- Location L8 represents the noise levels south of Dina Shore Drive, east of Date Palm Drive, near existing commercial and residential uses. The noise level measurements collected show an overall 24-hour exterior noise level of 61.9 dBA CNEL. Based on the Cathedral City General Plan land use compatibility criteria, the 24-hour noise level represents *conditionally acceptable* residential and *normally acceptable* commercial uses. The energy (logarithmic) average daytime noise level was calculated at 58.8 dBA L_{eq} with an average nighttime noise level of 54.2 dBA L_{eq} at this location.
- Location L9 represents the noise levels near Highway 111 and Perez Road, adjacent to existing commercial and automobile dealership uses. The noise level measurements collected show an overall 24-hour exterior noise level of 63.9 dBA CNEL. Based on the Cathedral City General Plan land use compatibility criteria, the 24-hour noise level represents *normally acceptable* commercial use. The energy (logarithmic) average daytime noise level was calculated at 61.3 dBA L_{eq} with an average nighttime noise level of 55.5 dBA L_{eq} at this location.
- Location L10 represents the noise levels on Cathedral Canyon Drive near an existing recreational vehicle resort and commercial uses. The noise level measurements collected show an overall 24-hour exterior noise level of 74.2 dBA CNEL. Based on the Cathedral City General Plan land use compatibility criteria, the 24-hour noise level represents *conditionally acceptable* commercial and recreation uses. The energy (logarithmic) average daytime noise level was calculated at 72.2 dBA L_{eq} with an average nighttime noise level of 65.5 dBA L_{eq} at this location.

- Location L11 represents the noise levels near existing residential homes west of Da Vall Drive and south of Sunny Lane. The noise level measurements collected show an overall 24-hour exterior noise level of 59.2 dBA CNEL. Based on the Cathedral City General Plan land use compatibility criteria, the 24-hour noise level represents *normally acceptable* residential use. The energy (logarithmic) average daytime noise level was calculated at 57.2 dBA L_{eq} with an average nighttime noise level of 50.6 dBA L_{eq} at this location.
- Location L12 represents the noise levels north of I-10 near Varner Road and existing vacant land designated as future Mixed-Use Urban land use. The noise level measurements collected show an overall 24-hour exterior noise level of 69.7 dBA CNEL. Based on the Cathedral City General Plan land use compatibility criteria, the 24-hour noise level represents *conditionally acceptable* residential use, and *normally acceptable* commercial use. The energy (logarithmic) average daytime noise level was calculated at 62.8 dBA L_{eq} with an average nighttime noise level of 63.1 dBA L_{eq} at this location.

Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods. The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with I-10, the arterial roadway network, Palm Springs International Airport, and the UPRR lines.

Higher nighttime noise levels were measured in the Project study area near I-10 which are likely due to temperature inversions at greater distances from existing noise sources (e.g., freeways, roadways, etc.). Under typical conditions, air is warmer at ground level and temperature decreases as elevation increases. This temperature gradient results in sound waves which refract upward, away from the warmer ground, and results in noise levels which are lower at a given receiver location. During the evening and nighttime hours, however, this temperature gradient can reverse and result in colder temperatures at ground level. This change in temperature is known as a temperature inversion, which can cause the noise levels to bend downward toward the ground and results in higher noise levels at a given receiver location. (9)

5.4 SHORT-TERM NOISE MEASUREMENT RESULTS

Table 5-3 identifies the short-term noise levels at each noise level measurement location. Appendix 5.3 provides the noise level measurement worksheets for each of the existing ambient and reference noise level measurements described below:

- Location S1 represents the existing ambient noise level at existing commercial uses, including a fast-food restaurant (Jack in the Box) with drive-through activities. The 10-minute noise level measured at location S1 approached 57.2 dBA L_{eq}.
- Location S2 represents ambient noise levels near existing residential homes and Rio Vista Elementary School, south of I-10. The 10-minute noise level measured at location S2 approached 48.9 dBA L_{eq}.
- Location S3 represents ambient noise levels on Ramon Road near existing commercial, residential, and recreation uses. Noise sources included in the 10-minute measurement included traffic, parking lot vehicle movements, gas station activities, and background golf course activities. The 10-minute noise level measured at location S3 approached 62.2 dBA L_{eq}.
- Location S4 represents ambient noise levels south of Ramon Road and west of Da Vall Drive near existing medical, commercial, and institutional uses. The 10-minute noise level measured at location S4 approached 65.9 dBA L_{eq}.
- Location S5 represents ambient noise levels adjacent to an existing commercial parking lot on Date Palm Drive near Converse Road. Noise sources included in the 10-minute measurement included traffic, parking lot vehicle movements, and background self-storage activities. The 10-minute noise level measured at this location approached 67.4 dBA L_{eq}.
- Location S6 represents the ambient noise levels north of Highway 111 and west of Date Palm Drive. The 10-minute noise level measurement approached 59.7 dBA L_{eq}.
- To describe aircraft fly-over events from existing Palm Springs International Airport operations, two reference noise level measurements were taken southeast of Palm Springs International Airport, east of San Luis Rey Drive and south of Sunny Dunes Road.
    - Measurement S7 represents ambient noise levels at this location without aircraft activity, which was measured at 60.9 dBA L_{eq} and includes background commercial use activities, such as loading docks and parking lot vehicle movements.
    - Measurement S8 represents ambient noise levels at this location with an airplane fly-over event, which was measured at 68.9 dBA L_{eq}.

AIRCRAFT FLY-OVER EVENTS

Based on the short-term noise level measurements at locations S7 and S8, aircraft fly-overs associated with Palm Springs International Airport are anticipated to result in perceptible noise level increases at receiver locations within proximity of the airport. As previously discussed in Section 3.7, mitigation measure NOI-2 would ensure that new residential development satisfies the 45 dBA CNEL interior noise level standard prior to building permit approval. Therefore, while aircraft flyovers will likely be heard and represent noticeable short-term noise events, they will not significantly impact noise-sensitive uses in Cathedral City from a noise standpoint.

TABLE 5-1: 24-HOUR (LONG-TERM) AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Land Use	Description	Energy-Average Noise Level (dBA L_{eq})[2]		CNEL
			Daytime	Nighttime	
L1	Commercial & Residential	Located near Palm Drive, north of I-10, and existing commercial and residential uses in a vacant lot.	58.7	59.2	66.0
L2	Residential & School	Located near existing residential homes and Rio Vista Elementary School, south of I-10 and the UPRR lines, west of Landau Boulevard.	54.9	58.4	64.6
L3	Vacant	Located north of I-10 on Date Palm Drive near existing vacant land.	67.2	66.3	73.3
L4	Residential, Recreation, & School	Located near existing residential homes and Landau Elementary School on Landau Boulevard.	66.2	60.4	68.7
L5	Residential & School	Located on Santoro Drive near existing residential homes and James Workman Middle School.	53.6	53.4	60.3
L6	Commercial	Located south of Ramon Road near existing commercial uses, southeast of Palm Springs International Airport.	59.3	56.1	63.4
L7	Commercial & Residential	Located west of Date Palm Drive near existing commercial and residential uses north of Ramon Road.	55.8	51.5	59.3
L8	Commercial & Residential	Located south of Dina Shore Drive, east of Date Palm Drive, near existing commercial and residential uses.	58.8	54.2	61.9
L9	Commercial	Located near Highway 111 and Perez Road, adjacent to existing commercial and automobile dealership uses.	61.3	55.5	63.9
L10	Commercial & Recreation	Located on Cathedral Canyon Drive near an existing recreational vehicle resort and commercial uses.	72.2	65.5	74.2
L11	Residential	Located near existing residential homes west of Da Vall Drive and south of Sunny Lane.	57.2	50.6	59.2
L12	Vacant	Located north of I-10 near Varner Road and existing vacant land.	62.8	63.1	69.7

[1] See Exhibit 5-A for the noise level measurement locations.[2] Energy (logarithmic) average hourly levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2."Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 5-2: EXISTING LAND USE NOISE LEVEL COMPATIBILITY

Location[1]	Adjacent Existing Land Use(s)	CNEL	Land Use Compatibility[3]
L1	Commercial & Residential	66.0	*Conditionally acceptable residential & normally acceptable commercial use*
L2	Residential & School	64.6	*Conditionally acceptable*
L3	Vacant	73.3	*Normally unacceptable residential use & conditionally acceptable commercial use (designated)*
L4	Residential, Recreation, & School	68.7	*Conditionally acceptable residential/school & normally acceptable recreation use*
L5	Residential & School	60.3	*Conditionally acceptable*
L6	Commercial	63.4	*Normally acceptable*
L7	Commercial & Residential	59.3	*Normally acceptable*
L8	Commercial & Residential	61.9	*Conditionally acceptable residential & normally acceptable commercial uses*
L9	Commercial	63.9	*Normally acceptable*
L10	Commercial & Recreation	74.2	*Conditionally acceptable*
L11	Residential	59.2	*Normally acceptable*
L12	Vacant	69.7	*Conditionally acceptable residential use & normally acceptable commercial use (designated)*

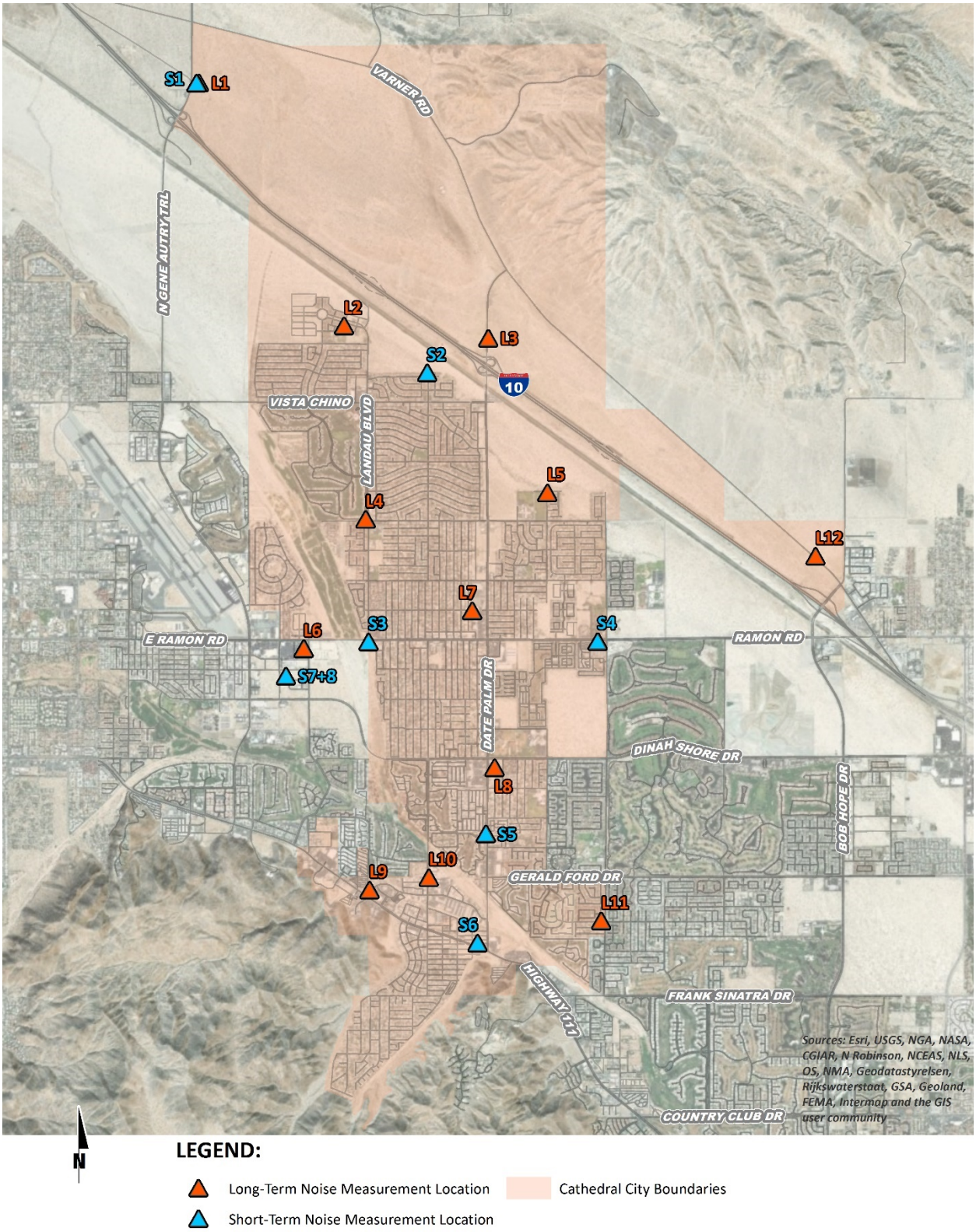
[1] See Exhibit 5-A for the noise level measurement locations.
[2] Based on the General Plan Noise Element compatibility criteria described in Section 3.3.

TABLE 5-3: SHORT-TERM NOISE LEVEL MEASUREMENTS

Location[1]	Adjacent Existing Land Use(s)	Description	Duration (mm:ss)	Noise Level (dBA L_{eq})[2]
S1	Commercial	Existing commercial uses, including a fast-food restaurant (Jack in the Box) with drive-through activities.	10:00	57.2
S2	Residential & School	Ambient noise levels near existing residential homes and Rio Vista Elementary School, south of I-10.	10:00	48.9
S3	Commercial, Residential, & Recreation	Ambient noise levels on Ramon Road near existing commercial, residential, and recreation uses.	10:00	62.2
S4	Commercial & Institutional	Ambient noise levels south of Ramon Road and west of Da Vall Drive near existing medical, commercial, and institutional uses.	10:00	65.9
S5	Commercial	Ambient noise levels adjacent to an existing commercial parking lot on Date Palm Drive near Converse Road.	10:00	67.4
S6	Commercial & Vacant	Ambient noise levels north of Highway 111 and west of Date Palm Drive.	10:00	59.7
S7	Commercial (Without Aircraft)	Ambient noise levels southeast of Palm Springs International Airport, without aircraft activity, east of San Luis Rey Drive and south of Sunny Dunes Road.	3:31	60.9
S8	Commercial (With Aircraft)	Ambient noise levels southeast of Palm Springs International Airport, with an aircraft flyover event, east of San Luis Rey Drive and south of Sunny Dunes Road.	1:00	68.9

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average levels. The short-term measurement worksheets are included in Appendix 5.3.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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6 METHODS AND PROCEDURES

The following section outlines the methods and procedures used to model and analyze the future traffic noise environment.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise impacts from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (24) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (25) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

This methodology is consistent with the County of Riverside Office of Industrial Hygiene *Requirements for Determining and Mitigating Traffic Noise Impacts to Residential Structures*, which specifically requires the FHWA RD-77-108 model be used in traffic noise analysis. (26) In addition, the model has been updated to reflect the Calveno emission levels to reflect the latest Caltrans reference data for traffic noise modeling in the State of California.

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the 39 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the Cathedral City General Plan. For this analysis, soft site conditions are used to analyze the traffic noise impacts within the Project study area. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Caltrans' research has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (27) The Existing (2017/2018) and General Plan Buildout (2040) average daily traffic volumes used in this analysis are shown on Table 6-2 based on the *Cathedral City General Plan Update Transportation Analysis*. (2)

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Adjacent Land Use[1]	Distance From Centerline To Nearest Adjacent Land Use (Feet)[2]	Speed (mph)[3]
1	Palm Dr.	n/o I-10 WB Ramps	Mixed-Use (Urban)	63'	55
2	Gene Autry Tr.	s/o I-10 EB Ramps	Vacant	63'	55
3	Mountain View Rd.	n/o Varner Rd.	Open Space (Public)	63'	55
4	Landau Bl.	n/o Ramon Rd.	Residential	56'	45
5	Cathedral Cyn Dr.	n/o Dinah Shore Dr.	Residential	44'	45
6	Cathedral Cyn Dr.	s/o Dinah Shore Dr.	Business Park/Residential	44'	45
7	Date Palm Dr.	s/o Varner Rd.	Mixed-Use (Urban)	63'	50
8	Date Palm Dr.	s/o I-10 EB Ramps	Commercial	63'	50
9	Date Palm Dr.	n/o 30th Av.	Mixed-Use/Business Park	63'	50
10	Date Palm Dr.	n/o Ramon Rd.	Commercial/Residential	63'	50
11	Date Palm Dr.	n/o Dinah Shore Dr.	Commercial/Residential	63'	45
12	Date Palm Dr.	n/o Gerald Ford Dr.	Commercial	63'	40
13	Date Palm Dr.	n/o Hwy. 111	Commercial	63'	40
14	Da Vall Dr.	n/o Ramon Rd.	Public/Residential	56'	45
15	Da Vall Dr.	s/o Ramon Rd.	Commercial/Residential	56'	50
16	Bob Hope Dr.	n/o I-10 WB Ramps	Mixed-Use (Urban)	63'	55
17	Bob Hope Dr.	s/o I-10 EB Ramps	Mixed-Use (Urban)	63'	55
18	Varner Rd.	e/o Palm Dr.	Mixed-Use (Urban)	56'	55
19	Varner Rd.	w/o Date Palm Dr.	Open Space (Public)	63'	55
20	Varner Rd.	e/o Date Palm Dr.	Mixed-Use (Neighborhood)	56'	55
21	Valley Center Bl.	e/o Palm Dr.	Mixed-Use (Urban)	56'	55
22	Valley Center Bl.	e/o Date Palm Dr.	Mixed-Use (Urban)	56'	55
23	Valley Center Bl.	e/o Da Vall Dr.	Open Space (Public)	56'	55
24	Vista Chino	w/o Landau Bl.	Commercial/Residential	63'	50
25	Vista Chino	w/o Date Palm Dr.	Commercial/Residential	63'	50
26	30th Av.	w/o Date Palm Dr.	Commercial/Residential	44'	35
27	30th Av.	e/o Date Palm Dr.	Mixed-Use (N)/Residential	44'	40
28	Ramon Rd.	w/o Landau Bl.	Open Space (Water)	63'	40
29	Ramon Rd.	e/o Landau Bl.	Commercial/Residential	63'	40
30	Ramon Rd.	w/o Da Vall Dr.	Commercial/Residential	63'	40
31	Dinah Shore Dr.	w/o Cathedral Cyn. Dr.	Business Park/Residential	63'	40
32	Dinah Shore Dr.	e/o Date Palm Dr.	Business Park/Residential	63'	45
33	Gerald Ford Dr.	e/o Date Palm Dr.	Open Space (P)/Residential	56'	45
34	Perez Rd.	w/o Cathedral Cyn. Dr.	Industrial	56'	40
35	Perez Rd.	e/o Cathedral Cyn. Dr.	Industrial	56'	40
36	Hwy. 111	w/o Canyon Plaza Dr. W.	Commercial/Public	63'	50
37	Hwy. 111	w/o Cathedral Cyn. Dr.	Commercial	63'	40
38	Hwy. 111	w/o Date Palm Dr.	Commercial	63'	40
39	Hwy. 111	e/o Sungate Wy.	Commercial	63'	40

[1] Source: Proposed General Plan Land Use Map.
[2] Distance to adjacent land use is based upon the right-of-way distances for each functional roadway classification provided in the General Plan Classifications.
[3] Source: Cathedral City General Plan Transportation Analysis, Urban Crossroads, Inc.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic (1,000's)[1]		
			Existing	Adopted General Plan Buildout	Proposed General Plan Buildout
1	Palm Dr.	n/o I-10 WB Ramps	29.9	35.6	35.6
2	Gene Autry Tr.	s/o I-10 EB Ramps	31.8	35.0	35.0
3	Mountain View Rd.	n/o Varner Rd.	11.2	37.5	37.5
4	Landau Bl.	n/o Ramon Rd.	19.1	35.1	36.2
5	Cathedral Cyn Dr.	n/o Dinah Shore Dr.	16.1	17.8	17.9
6	Cathedral Cyn Dr.	s/o Dinah Shore Dr.	19.5	20.0	19.0
7	Date Palm Dr.	s/o Varner Rd.	8.4	30.3	30.3
8	Date Palm Dr.	s/o I-10 EB Ramps	32.8	46.6	47.3
9	Date Palm Dr.	n/o 30th Av.	27.3	32.8	34.0
10	Date Palm Dr.	n/o Ramon Rd.	27.3	30.0	31.6
11	Date Palm Dr.	n/o Dinah Shore Dr.	28.4	31.2	33.0
12	Date Palm Dr.	n/o Gerald Ford Dr.	25.5	34.8	35.7
13	Date Palm Dr.	n/o Hwy. 111	17.2	28.9	31.7
14	Da Vall Dr.	n/o Ramon Rd.	8.7	27.3	29.0
15	Da Vall Dr.	s/o Ramon Rd.	8.0	20.4	21.5
16	Bob Hope Dr.	n/o I-10 WB Ramps	13.0	51.7	51.7
17	Bob Hope Dr.	s/o I-10 EB Ramps	22.0	34.7	34.7
18	Varner Rd.	e/o Palm Dr.	1.9	5.0	5.0
19	Varner Rd.	w/o Date Palm Dr.	16.2	39.7	39.7
20	Varner Rd.	e/o Date Palm Dr.	4.8	22.8	22.8
21	Valley Center Bl.	e/o Palm Dr.	n/a	15.1	15.1
22	Valley Center Bl.	e/o Date Palm Dr.	n/a	9.1	9.1
23	Valley Center Bl.	e/o Da Vall Dr.	n/a	6.0	6.0
24	Vista Chino	w/o Landau Bl.	26.1	33.1	35.5
25	Vista Chino	w/o Date Palm Dr.	24.4	30.4	32.0
26	30th Av.	w/o Date Palm Dr.	7.7	15.6	16.9
27	30th Av.	e/o Date Palm Dr.	9.4	16.1	18.4
28	Ramon Rd.	w/o Landau Bl.	40.9	57.2	54.3
29	Ramon Rd.	e/o Landau Bl.	38.7	42.6	41.1
30	Ramon Rd.	w/o Da Vall Dr.	31.1	39.4	39.6
31	Dinah Shore Dr.	w/o Cathedral Cyn. Dr.	18.0	37.0	33.2
32	Dinah Shore Dr.	e/o Date Palm Dr.	22.5	35.9	34.4
33	Gerald Ford Dr.	e/o Date Palm Dr.	13.5	26.2	26.6
34	Perez Rd.	w/o Cathedral Cyn. Dr.	10.6	21.5	21.5
35	Perez Rd.	e/o Cathedral Cyn. Dr.	11.6	23.3	23.3
36	Hwy. 111	w/o Canyon Plaza Dr. W.	45.6	50.1	46.3
37	Hwy. 111	w/o Cathedral Cyn. Dr.	36.8	44.0	44.5
38	Hwy. 111	w/o Date Palm Dr.	42.7	47.4	46.2
39	Hwy. 111	e/o Sungate Wy.	47.0	58.3	57.4

[1] Source: Cathedral City General Plan Transportation Analysis, Urban Crossroads, Inc.
"n/a" = Roadway segment does not exist under the given scenario.

Table 6-3 presents the time of day vehicle splits and Table 6-4 presents the traffic flow distributions (vehicle mix) used for this analysis. The vehicle mix on I-10 is based on traffic volumes provided by the *2016 Annual Average Daily Truck Traffic (AADT) on the California Highway System*, prepared by the Caltrans Traffic Data Branch. (28) The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA noise prediction model.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Time Period	Vehicle Type		
	Autos	Medium Trucks	Heavy Trucks
Daytime (7:00 a.m. - 7:00 p.m.)	78.2%	85.9%	89.4%
Evening (7:00 p.m. - 10:00 p.m.)	12.4%	5.5%	5.6%
Nighttime (10:00 p.m. - 7:00 a.m.)	9.5%	8.6%	5.0%
Total:	100.0%	100.0%	100.0%

Based on an existing vehicle count taken Highway 111 and Date Palm Drive on April 25, 2018. Vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-4: DISTRIBUTION OF TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)

Roadway	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
I-10[1]	73.80%	6.89%	19.31%	100.00%
All Roadways[2]	93.68%	3.63%	2.69%	100.00%

[1] Source: Caltrans Data Branch Annual Average Daily Truck Traffic on the California Highways System, 2016.
[2] Based on an existing vehicle count taken Highway 111 and Date Palm Drive on April 25, 2018. Vehicle mix percentage values rounded to the nearest one-hundredth.

Table 6-5 shows the future traffic conditions on I-10 which are based on the Level of Service (LOS) D "design capacity" identified in the *Transportation Analysis*. (2) Future volumes based on the LOS D "design capacity" equate to approximately double the existing volumes on I-10. The Table 6-5 traffic noise model input data for I-10 are used to calculate the noise level contour boundaries and assess future land use compatibility in the City. Appendix 6.1 includes the FHWA traffic noise prediction model inputs and resulting noise levels for input into the CadnaA noise prediction model, discussed later in this section.

TABLE 6-5: FREEWAY TRAFFIC NOISE MODEL INPUTS

Roadway	Lanes	Existing	Future	Speed Limit (mph)[2]	Site Conditions
I-10	8	86,000	161,000	70	Soft

[1] Future volumes based on LOS D "design capacity" as indicated in the Cathedral City General Plan Transportation Analysis, Urban Crossroads, Inc..
[2] Posted speed limit.

6.3 RAIL NOISE AND VIBRATION METHODS

The following describes the rail noise prediction model inputs used in this analysis, in addition to the FTA criteria for on-site vibration assessment.

6.3.1 RAIL NOISE MODEL PREDICTION INPUTS

This report uses the Federal Transit Administration (FTA) Noise Impact Assessment methodology for railroad-related noise modeling. (29) Table 6-6 shows the existing and future railroad volumes and speed used in this analysis consistent with U.S. Department of Transportation Crossing Inventory Form data. The existing rail volume is doubled to present a conservative approach for future railroad noise analysis. Appendix 6.1 includes the FTA rail noise prediction model inputs and resulting noise levels for input into the CadnaA noise prediction model.

TABLE 6-6: RAIL NOISE MODEL INPUTS

Rail[1]	Existing[1]	Future[2]	Average Speed (mph)[2]
UPRR	40	80	70

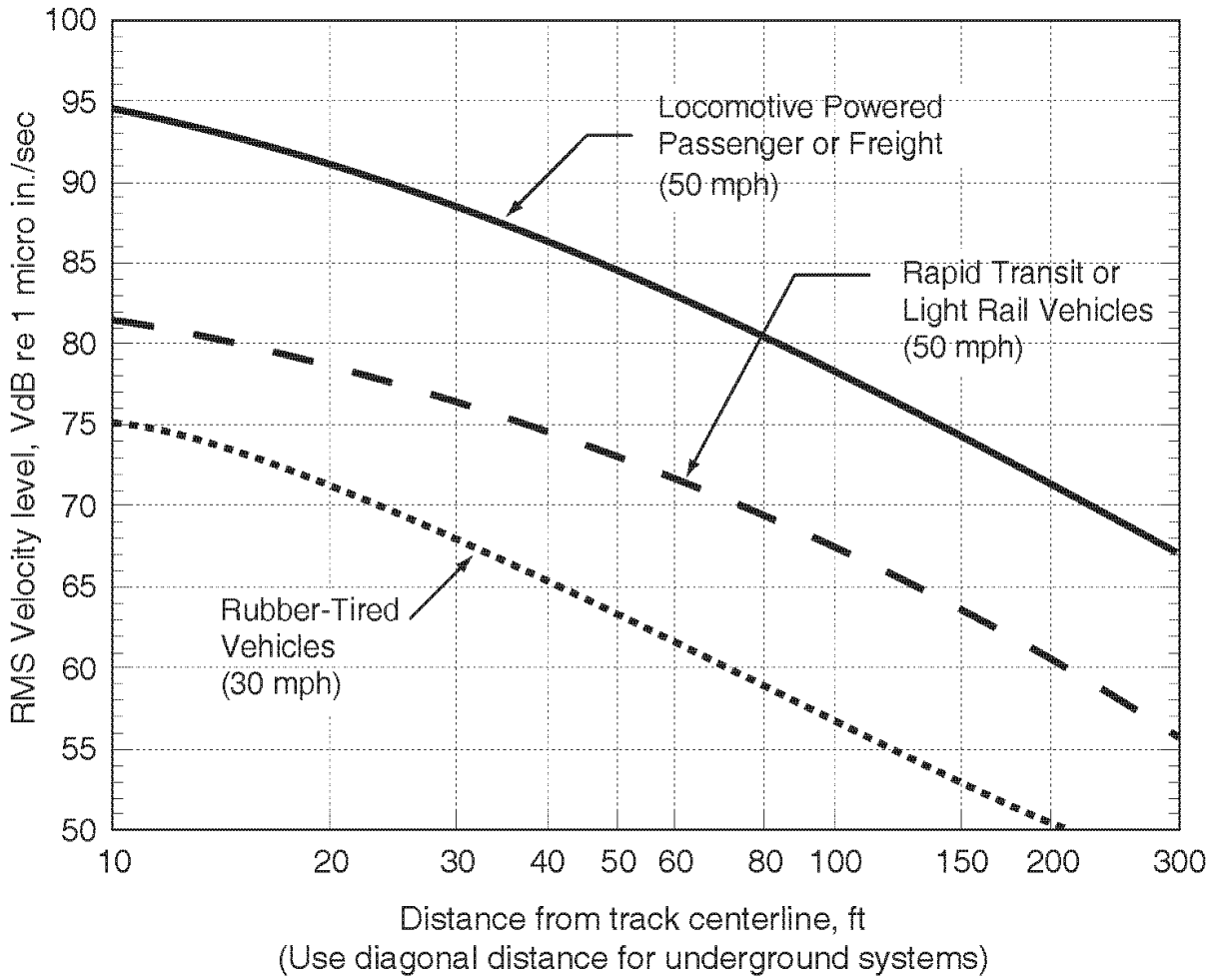
[1] Source: Cathedral City General Plan Noise Element, Page V-39.
[2] Future volume is based on a conservative doubling of the existing volume.
[3] Source: U.S. Department of Transportation Crossing Inventory Form, 760702S.
"UPRR" = Union Pacific Railroad

6.3.2 RAIL VIBRATION

This analysis focuses on the potential ground-borne vibration associated with rail transportation activities. Railroad vibration impacts from the UPRR lines are estimated using the FTA *Transit Noise and Vibration Impact Assessment* General Vibration Assessment methodology. The FTA General Vibration Assessment calculates the predicted vibration level based on generalized ground surface vibration curves which were developed using actual measurements of representative North American transit systems. (15) Figure 10-1 of the FTA *Transit Noise and Vibration Impact Assessment* shows the generalized ground surface vibration curves for three types of transit sources, as shown on Exhibit 6-A of this report. The generalized reference curves are used to identify the appropriate reference vibration level,

before any adjustments, for the Project based on the type of train, speed, and distance to receiver locations. The FTA reference curves are provided in VdB to describe the human response to vibration levels.

EXHIBIT 6-A: FTA REFERENCE GROUND SURFACE VIBRATION CURVES



Source: FTA Transit Noise and Vibration Impact Assessment, Figure 10-1.

Based on the reference curve for a locomotive powered passenger or freight rail system, such as the UPRR lines, the reference vibration level at 50 feet from a rapid-transit train traveling at 50 miles per hour (mph) is approximately 84 VdB. However, as previously shown on Table 6-6, the trains passing the Project site are expected to travel at an average speed of 70 mph. Therefore, to describe the actual vibration conditions, the FTA provides vibration source and propagation adjustments to the reference vibration curve levels based on the characteristics of the trains and rail lines in the study area. Using the adjustments provided by the FTA, the vibration levels at the future uses within the Project are estimated in Section 8.5 to evaluate potential on-site vibration levels.

6.4 CADNAA NOISE PREDICTION MODEL

To calculate the existing and future transportation noise level contour boundaries due to existing and future traffic and rail volumes in the Project study area, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze the noise level of multiple types of noise sources and calculates the noise levels at any location using the spatially accurate Project site plan. The program can analyze the noise propagation of multiple types of noise sources and calculate the attenuation and reflection from topography, buildings, and multiple barriers.

Using flown aerial imagery from Google Earth and roadway and rail line centerline data, a CadnaA noise prediction model of the Project study area was developed. The noise model provides a spatially accurate three-dimensional representation of the Project study area using the following key data inputs:

- Ground absorption;
- Study area roadway centerline data;
- I-10 freeway centerline data;
- UPRR data;
- Calculated sound power levels based on:
    - Off-site traffic noise levels (CNEL) presented in Section 7 for each roadway segment;
    - I-10 and UPRR noise levels (CNEL);
- Multiple line source locations and heights.

Based on these data inputs, the CadnaA noise prediction model is used to calculate the noise level contour boundaries for use in this report. It is important to note that the transportation noise level contour boundaries calculated in the CadnaA noise model apply only to first-line receptors, as receptors set back further from the noise sources will benefit from the shielding provided by intervening land uses and structures. Further, the contours do not assume the presence of any existing or future sound walls, barriers, or intervening structures. Appendix 6.1 includes the CadnaA noise prediction model inputs.

6.5 CONSTRUCTION VIBRATION ASSESSMENT METHODOLOGY

This analysis focuses on the potential ground-borne vibration associated with construction activities. Construction activity has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-7. Based on the reference vibration levels provided by the Federal Transit Administration (FTA) for various construction equipment types, it is possible to estimate the potential building damage and human response (annoyance) using the following vibration assessment methods defined by the FTA and Caltrans. To describe the potential vibration impacts, the following equation is used: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 6-7: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.

7 OFF-SITE TRAFFIC NOISE IMPACTS

To assess the off-site traffic-related CNEL noise level impacts associated with development of the proposed Project (General Plan Buildout), noise contours were developed based on the *Cathedral City General Plan Update Transportation Analysis*, prepared by Urban Crossroads, Inc. (2) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. Noise contours were developed for the following traffic scenarios:

- Existing (2017/2018): This scenario refers to the existing present-day noise conditions.
- Adopted General Plan Buildout (2040):This scenario refers to the background noise conditions at future Year 2040 based on the Adopted General Plan.
- Proposed General Plan Buildout (2040):This scenario refers to the background noise conditions at future Year 2040 based on the Proposed General Plan.

7.1 TRAFFIC NOISE CONTOURS

The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 through 7-3 present a summary of the exterior traffic noise levels, without barrier attenuation, for the 39 study area roadway segments analyzed in each of the two timeframes: Existing and General Plan Buildout conditions (including Adopted General Plan and Proposed General Plan). Appendix 7.1 includes a summary of the traffic noise level contours for each of the three traffic scenarios.

TABLE 7-1: EXISTING CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	dBA CNEL			
				@ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	Palm Dr.	n/o I-10 WB Ramps	Mixed-Use (Urban)	74.8	131	283	610
2	Gene Autry Tr.	s/o I-10 EB Ramps	Vacant	75.1	137	295	636
3	Mountain View Rd.	n/o Varner Rd.	Open Space (Public)	70.5	68	147	317
4	Landau Bl.	n/o Ramon Rd.	Residential	71.2	67	144	310
5	Cathedral Cyn Dr.	n/o Dinah Shore Dr.	Residential	71.8	58	125	269
6	Cathedral Cyn Dr.	s/o Dinah Shore Dr.	Business Park/Residential	72.6	66	142	306
7	Date Palm Dr.	s/o Varner Rd.	Mixed-Use (Urban)	68.3	RW	105	226
8	Date Palm Dr.	s/o I-10 EB Ramps	Commercial	74.2	121	260	561
9	Date Palm Dr.	n/o 30th Av.	Mixed-Use/Business Park	73.4	107	230	496
10	Date Palm Dr.	n/o Ramon Rd.	Commercial/Residential	73.4	107	230	496
11	Date Palm Dr.	n/o Dinah Shore Dr.	Commercial/Residential	72.6	94	202	435
12	Date Palm Dr.	n/o Gerald Ford Dr.	Commercial	71.0	73	158	340
13	Date Palm Dr.	n/o Hwy. 111	Commercial	69.3	RW	121	261
14	Da Vall Dr.	n/o Ramon Rd.	Public/Residential	67.7	RW	85	184
15	Da Vall Dr.	s/o Ramon Rd.	Commercial/Residential	68.4	RW	94	204
16	Bob Hope Dr.	n/o I-10 WB Ramps	Mixed-Use (Urban)	71.2	75	162	350
17	Bob Hope Dr.	s/o I-10 EB Ramps	Mixed-Use (Urban)	73.5	107	231	497
18	Varner Rd.	e/o Palm Dr.	Mixed-Use (Urban)	63.1	RW	RW	90
19	Varner Rd.	w/o Date Palm Dr.	Open Space (Public)	72.1	87	188	405
20	Varner Rd.	e/o Date Palm Dr.	Mixed-Use (Neighborhood)	67.1	RW	78	168
21	Valley Center Bl.	e/o Palm Dr.	Mixed-Use (Urban)	n/a	n/a	n/a	n/a
22	Valley Center Bl.	e/o Date Palm Dr.	Mixed-Use (Urban)	n/a	n/a	n/a	n/a
23	Valley Center Bl.	e/o Da Vall Dr.	Open Space (Public)	n/a	n/a	n/a	n/a
24	Vista Chino	w/o Landau Bl.	Commercial/Residential	73.2	104	223	481
25	Vista Chino	w/o Date Palm Dr.	Commercial/Residential	73.0	99	214	460
26	30th Av.	w/o Date Palm Dr.	Commercial/Residential	66.2	RW	53	114
27	30th Av.	e/o Date Palm Dr.	Mixed-Use (N)/Residential	68.3	RW	73	158
28	Ramon Rd.	w/o Landau Bl.	Open Space (Water)	73.0	100	216	466
29	Ramon Rd.	e/o Landau Bl.	Commercial/Residential	72.8	97	208	449
30	Ramon Rd.	w/o Da Vall Dr.	Commercial/Residential	71.8	84	180	388
31	Dinah Shore Dr.	w/o Cathedral Cyn. Dr.	Business Park/Residential	69.5	RW	125	269
32	Dinah Shore Dr.	e/o Date Palm Dr.	Business Park/Residential	71.6	80	173	372
33	Gerald Ford Dr.	e/o Date Palm Dr.	Open Space (P)/Residential	69.6	RW	114	246
34	Perez Rd.	w/o Cathedral Cyn. Dr.	Industrial	67.5	RW	82	176
35	Perez Rd.	e/o Cathedral Cyn. Dr.	Industrial	67.9	RW	87	187
36	Hwy. 111	w/o Canyon Plaza Dr. W.	Commercial/Public	75.7	150	324	698
37	Hwy. 111	w/o Cathedral Cyn. Dr.	Commercial	72.6	93	201	434
38	Hwy. 111	w/o Date Palm Dr.	Commercial	73.2	103	222	479
39	Hwy. 111	e/o Sungate Wy.	Commercial	73.6	110	237	511

[1] Source: Proposed General Plan Land Use Map.
[2] "RW" = Location of the respective noise contour falls within the right-of-way of the road.
"n/a" = Roadway segment does not exist under the given scenario.

TABLE 7-2: ADOPTED GENERAL PLAN CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	dBA CNEL			
				@ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	Palm Dr.	n/o I-10 WB Ramps	Mixed-Use (Urban)	75.5	148	318	685
2	Gene Autry Tr.	s/o I-10 EB Ramps	Vacant	75.5	146	314	677
3	Mountain View Rd.	n/o Varner Rd.	Open Space (Public)	75.8	153	329	709
4	Landau Bl.	n/o Ramon Rd.	Residential	73.8	100	216	465
5	Cathedral Cyn Dr.	n/o Dinah Shore Dr.	Residential	72.2	62	134	288
6	Cathedral Cyn Dr.	s/o Dinah Shore Dr.	Business Park/Residential	72.7	67	144	311
7	Date Palm Dr.	s/o Varner Rd.	Mixed-Use (Urban)	73.9	115	247	532
8	Date Palm Dr.	s/o I-10 EB Ramps	Commercial	75.8	153	329	709
9	Date Palm Dr.	n/o 30th Av.	Mixed-Use/Business Park	74.2	121	260	561
10	Date Palm Dr.	n/o Ramon Rd.	Commercial/Residential	73.9	114	245	528
11	Date Palm Dr.	n/o Dinah Shore Dr.	Commercial/Residential	73.0	100	215	463
12	Date Palm Dr.	n/o Gerald Ford Dr.	Commercial	72.3	90	194	418
13	Date Palm Dr.	n/o Hwy. 111	Commercial	71.5	80	171	369
14	Da Vall Dr.	n/o Ramon Rd.	Public/Residential	72.7	85	183	394
15	Da Vall Dr.	s/o Ramon Rd.	Commercial/Residential	72.5	82	176	380
16	Bob Hope Dr.	n/o I-10 WB Ramps	Mixed-Use (Urban)	77.2	189	408	879
17	Bob Hope Dr.	s/o I-10 EB Ramps	Mixed-Use (Urban)	75.4	145	313	674
18	Varner Rd.	e/o Palm Dr.	Mixed-Use (Urban)	67.3	RW	80	172
19	Varner Rd.	w/o Date Palm Dr.	Open Space (Public)	76.0	159	342	737
20	Varner Rd.	e/o Date Palm Dr.	Mixed-Use (Neighborhood)	73.9	102	220	473
21	Valley Center Bl.	e/o Palm Dr.	Mixed-Use (Urban)	72.1	77	167	360
22	Valley Center Bl.	e/o Date Palm Dr.	Mixed-Use (Urban)	69.9	RW	119	257
23	Valley Center Bl.	e/o Da Vall Dr.	Open Space (Public)	68.1	RW	90	194
24	Vista Chino	w/o Landau Bl.	Commercial/Residential	74.3	122	262	564
25	Vista Chino	w/o Date Palm Dr.	Commercial/Residential	73.9	115	247	533
26	30th Av.	w/o Date Palm Dr.	Commercial/Residential	69.3	RW	85	183
27	30th Av.	e/o Date Palm Dr.	Mixed-Use (N)/Residential	70.7	49	105	226
28	Ramon Rd.	w/o Landau Bl.	Open Space (Water)	74.5	125	270	582
29	Ramon Rd.	e/o Landau Bl.	Commercial/Residential	73.2	103	222	478
30	Ramon Rd.	w/o Da Vall Dr.	Commercial/Residential	72.9	98	211	454
31	Dinah Shore Dr.	w/o Cathedral Cyn. Dr.	Business Park/Residential	72.6	94	202	435
32	Dinah Shore Dr.	e/o Date Palm Dr.	Business Park/Residential	73.6	109	236	508
33	Gerald Ford Dr.	e/o Date Palm Dr.	Open Space (P)/Residential	72.5	82	178	383
34	Perez Rd.	w/o Cathedral Cyn. Dr.	Industrial	70.5	61	131	282
35	Perez Rd.	e/o Cathedral Cyn. Dr.	Industrial	70.9	64	138	297
36	Hwy. 111	w/o Canyon Plaza Dr. W.	Commercial/Public	76.1	160	345	744
37	Hwy. 111	w/o Cathedral Cyn. Dr.	Commercial	73.3	105	227	489
38	Hwy. 111	w/o Date Palm Dr.	Commercial	73.7	111	238	514
39	Hwy. 111	e/o Sungate Wy.	Commercial	74.6	127	274	590

[1] Source: Proposed General Plan Land Use Map.
[2] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-3: PROPOSED GENERAL PLAN CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	dBA CNEL			
				@ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	Palm Dr.	n/o I-10 WB Ramps	Mixed-Use (Urban)	75.2	140	302	652
2	Gene Autry Tr.	s/o I-10 EB Ramps	Vacant	75.1	139	299	644
3	Mountain View Rd.	n/o Varner Rd.	Open Space (Public)	76.3	152	327	704
4	Landau Bl.	n/o Ramon Rd.	Residential	74.2	97	210	452
5	Cathedral Cyn Dr.	n/o Dinah Shore Dr.	Residential	72.2	62	133	287
6	Cathedral Cyn Dr.	s/o Dinah Shore Dr.	Business Park/Residential	72.5	64	139	299
7	Date Palm Dr.	s/o Varner Rd.	Mixed-Use (Urban)	73.6	109	235	506
8	Date Palm Dr.	s/o I-10 EB Ramps	Commercial	75.5	147	316	681
9	Date Palm Dr.	n/o 30th Av.	Mixed-Use/Business Park	74.1	118	253	546
10	Date Palm Dr.	n/o Ramon Rd.	Commercial/Residential	73.8	112	241	520
11	Date Palm Dr.	n/o Dinah Shore Dr.	Commercial/Residential	72.9	98	212	457
12	Date Palm Dr.	n/o Gerald Ford Dr.	Commercial	72.1	87	188	404
13	Date Palm Dr.	n/o Hwy. 111	Commercial	71.6	80	173	374
14	Da Vall Dr.	n/o Ramon Rd.	Public/Residential	72.7	84	181	391
15	Da Vall Dr.	s/o Ramon Rd.	Commercial/Residential	72.4	81	174	375
16	Bob Hope Dr.	n/o I-10 WB Ramps	Mixed-Use (Urban)	77.4	198	426	917
17	Bob Hope Dr.	s/o I-10 EB Ramps	Mixed-Use (Urban)	75.7	151	326	703
18	Varner Rd.	e/o Palm Dr.	Mixed-Use (Urban)	67.9	RW	79	171
19	Varner Rd.	w/o Date Palm Dr.	Open Space (Public)	76.5	158	339	731
20	Varner Rd.	e/o Date Palm Dr.	Mixed-Use (Neighborhood)	74.5	101	219	471
21	Valley Center Bl.	e/o Palm Dr.	Mixed-Use (Urban)	72.5	82	176	379
22	Valley Center Bl.	e/o Date Palm Dr.	Mixed-Use (Urban)	70.3	58	125	270
23	Valley Center Bl.	e/o Da Vall Dr.	Open Space (Public)	68.4	RW	95	205
24	Vista Chino	w/o Landau Bl.	Commercial/Residential	74.2	110	237	510
25	Vista Chino	w/o Date Palm Dr.	Commercial/Residential	73.7	103	221	476
26	30th Av.	w/o Date Palm Dr.	Commercial/Residential	68.9	RW	81	174
27	30th Av.	e/o Date Palm Dr.	Mixed-Use (N)/Residential	70.6	48	103	223
28	Ramon Rd.	w/o Landau Bl.	Open Space (Water)	74.8	120	259	558
29	Ramon Rd.	e/o Landau Bl.	Commercial/Residential	73.5	100	215	464
30	Ramon Rd.	w/o Da Vall Dr.	Commercial/Residential	73.4	97	210	452
31	Dinah Shore Dr.	w/o Cathedral Cyn. Dr.	Business Park/Residential	72.9	81	175	377
32	Dinah Shore Dr.	e/o Date Palm Dr.	Business Park/Residential	74.2	99	213	460
33	Gerald Ford Dr.	e/o Date Palm Dr.	Open Space (P)/Residential	72.6	80	173	373
34	Perez Rd.	w/o Cathedral Cyn. Dr.	Industrial	69.8	RW	113	244
35	Perez Rd.	e/o Cathedral Cyn. Dr.	Industrial	70.2	56	120	258
36	Hwy. 111	w/o Canyon Plaza Dr. W.	Commercial/Public	75.4	145	311	671
37	Hwy. 111	w/o Cathedral Cyn. Dr.	Commercial	73.1	101	217	468
38	Hwy. 111	w/o Date Palm Dr.	Commercial	73.2	103	223	480
39	Hwy. 111	e/o Sungate Wy.	Commercial	74.2	120	258	555

[1] Source: Proposed General Plan Land Use Map.
[2] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 EXISTING CONDITION TRAFFIC NOISE LEVELS

Table 7-1 presents the Existing condition CNEL noise levels. The exterior noise levels are expected to range from 63.1 to 75.7 dBA CNEL under Existing conditions, which do not account for any noise attenuation features such as noise barriers or topography.

7.3 GENERAL PLAN BUILDOUT TRAFFIC NOISE LEVELS

Table 7-2 shows that the Adopted (2009) General Plan Buildout exterior noise levels are expected to range from 67.3 to 77.2 dBA CNEL. Table 7-3 presents the Proposed General Plan Buildout noise level contours that are expected to range from 67.9 to 77.4 dBA CNEL. As shown on Table 7-4 the Proposed General Plan Buildout conditions will generate traffic noise level changes ranging from decreases of 0.7 to increases of 0.6 dBA CNEL on the study area roadway segments. These decreases and increases are based on the Year 2040 ADT volumes from the *Transportation Analysis*, which vary by roadway segment based on the changes in conditions between Adopted (2009) General Plan and Proposed General Plan conditions. Using on the significance criteria in Section 4, the Project-related increases represent a *less than significant* impact under Proposed General Plan conditions.

TABLE 7-4: PROPOSED GENERAL PLAN BUILDOUT TRAFFIC NOISE IMPACTS

ID	Road	Segment	CNEL at Adjacent Land Use (dBA)[1]			Threshold Exceeded?[2]
			No Project	With Project	Project Addition	
1	Palm Dr.	n/o I-10 WB Ramps	75.5	75.2	-0.3	No
2	Gene Autry Tr.	s/o I-10 EB Ramps	75.5	75.1	-0.4	No
3	Mountain View Rd.	n/o Varner Rd.	75.8	76.3	0.5	No
4	Landau Bl.	n/o Ramon Rd.	73.8	74.2	0.4	No
5	Cathedral Cyn Dr.	n/o Dinah Shore Dr.	72.2	72.2	0.0	No
6	Cathedral Cyn Dr.	s/o Dinah Shore Dr.	72.7	72.5	-0.2	No
7	Date Palm Dr.	s/o Varner Rd.	73.9	73.6	-0.3	No
8	Date Palm Dr.	s/o I-10 EB Ramps	75.8	75.5	-0.3	No
9	Date Palm Dr.	n/o 30th Av.	74.2	74.1	-0.1	No
10	Date Palm Dr.	n/o Ramon Rd.	73.9	73.8	-0.1	No
11	Date Palm Dr.	n/o Dinah Shore Dr.	73.0	72.9	-0.1	No
12	Date Palm Dr.	n/o Gerald Ford Dr.	72.3	72.1	-0.2	No
13	Date Palm Dr.	n/o Hwy. 111	71.5	71.6	0.1	No
14	Da Vall Dr.	n/o Ramon Rd.	72.7	72.7	0.0	No
15	Da Vall Dr.	s/o Ramon Rd.	72.5	72.4	-0.1	No
16	Bob Hope Dr.	n/o I-10 WB Ramps	77.2	77.4	0.2	No
17	Bob Hope Dr.	s/o I-10 EB Ramps	75.4	75.7	0.3	No
18	Varner Rd.	e/o Palm Dr.	67.3	67.9	0.6	No
19	Varner Rd.	w/o Date Palm Dr.	76.0	76.5	0.5	No
20	Varner Rd.	e/o Date Palm Dr.	73.9	74.5	0.6	No
21	Valley Center Bl.	e/o Palm Dr.	72.1	72.5	0.4	No
22	Valley Center Bl.	e/o Date Palm Dr.	69.9	70.3	0.4	No
23	Valley Center Bl.	e/o Da Vall Dr.	68.1	68.4	0.3	No
24	Vista Chino	w/o Landau Bl.	74.3	74.2	-0.1	No
25	Vista Chino	w/o Date Palm Dr.	73.9	73.7	-0.2	No
26	30th Av.	w/o Date Palm Dr.	69.3	68.9	-0.4	No
27	30th Av.	e/o Date Palm Dr.	70.7	70.6	-0.1	No
28	Ramon Rd.	w/o Landau Bl.	74.5	74.8	0.3	No
29	Ramon Rd.	e/o Landau Bl.	73.2	73.5	0.3	No
30	Ramon Rd.	w/o Da Vall Dr.	72.9	73.4	0.5	No
31	Dinah Shore Dr.	w/o Cathedral Cyn. Dr.	72.6	72.9	0.3	No
32	Dinah Shore Dr.	e/o Date Palm Dr.	73.6	74.2	0.6	No
33	Gerald Ford Dr.	e/o Date Palm Dr.	72.5	72.6	0.1	No
34	Perez Rd.	w/o Cathedral Cyn. Dr.	70.5	69.8	-0.7	No
35	Perez Rd.	e/o Cathedral Cyn. Dr.	70.9	70.2	-0.7	No
36	Hwy. 111	w/o Canyon Plaza Dr. W.	76.1	75.4	-0.7	No
37	Hwy. 111	w/o Cathedral Cyn. Dr.	73.3	73.1	-0.2	No
38	Hwy. 111	w/o Date Palm Dr.	73.7	73.2	-0.5	No
39	Hwy. 111	e/o Sungate Wy.	74.6	74.2	-0.4	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
[2] Significance Criteria (Section 4).

8 ON-SITE TRANSPORTATION IMPACTS

The following section describes the future on-site transportation-related noise and vibration impacts at lands and land uses adjacent to the modeled transportation corridors.

8.1 EXTERIOR NOISE ANALYSIS

An exterior noise impact analysis has been completed to determine the existing and future transportation-related noise levels and to identify potential necessary mitigation measures for future uses adjacent to transportation corridors within the Cathedral City General Plan Update. It is expected that the primary source of noise impacts to Project land uses will be traffic-related noise from I-10 and the study area roadways, and rail-related noise from the UPRR lines.

Using the FHWA and FTA noise prediction models and the parameters outlined in Tables 6-1 to 6-6, the existing and future (General Plan Buildout) exterior noise level contour boundaries were calculated. Exhibit 8-A shows the existing and Exhibit 8-B shows the future transportation noise level contour boundaries for the entire Cathedral City limits.

It is important to note that the transportation noise level contour boundaries shown on Exhibits 8-A and 8-B apply only to first-line receptors. Receptors set back further from the noise sources will benefit from the shielding provided by intervening land uses and structures. Further, the contours do not assume the presence of any existing or future sound walls, barriers, or intervening structures.

The results of the future transportation noise analysis show that the future noise-sensitive uses within the General Plan Update, may experience future unmitigated exterior noise levels greater than the *normally acceptable* exterior noise level compatibility criteria identified in the 2009 Cathedral City General Plan Noise Element. (4)

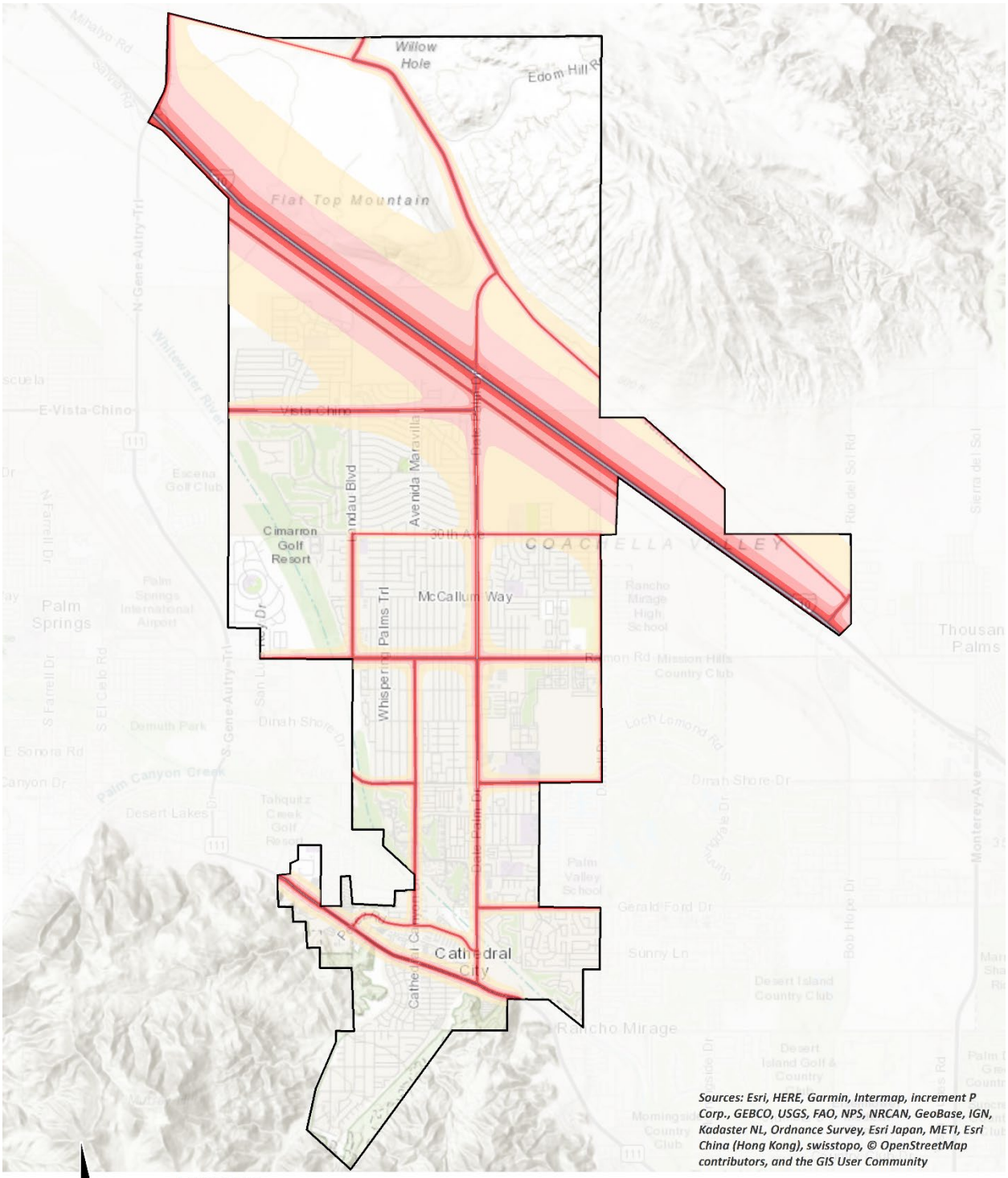
Based on the results of this analysis and the proximity of future noise-sensitive land uses to I-10, other study area roadways, and the UPRR lines, the on-site transportation-related noise impacts at future noise-sensitive uses are expected to potentially exceed the Cathedral City General Plan Noise Element land use compatibility guidelines. Therefore, impacts are *potentially significant* and require noise mitigation. With the noise mitigation measures identified in this report the on-site transportation noise levels at future developments within Cathedral City are anticipated to be reduced to range from *normally acceptable to normally unacceptable* levels, and shall be conditioned such that interior noise levels satisfy the 45 dBA CNEL interior noise level standard for noise-sensitive uses. Therefore, on-site traffic noise impacts are considered *less than significant* with mitigation for future development as a part of the Cathedral City General Plan Update.

8.2 ON-SITE EXTERIOR NOISE MITIGATION

To reduce the on-site transportation noise levels for future land uses, a site-specific noise study is required for all future development located within the Cathedral City General Plan Update, as follows:

NOI-1 Prior to approval of development plans or the issuance of a building permit for new noise-sensitive development projects, the Project Applicant/Developer shall submit a draft and/or final acoustical report to the Cathedral City Planning Department, or designee, which shall identify all reasonable and feasible noise mitigation measures that shall be applied to the development to satisfy the exterior noise level compatibility criteria for its applicable land use(s), as defined by the Cathedral City General Plan.

EXHIBIT 8-A: EXISTING TRANSPORTATION NOISE LEVEL CONTOURS



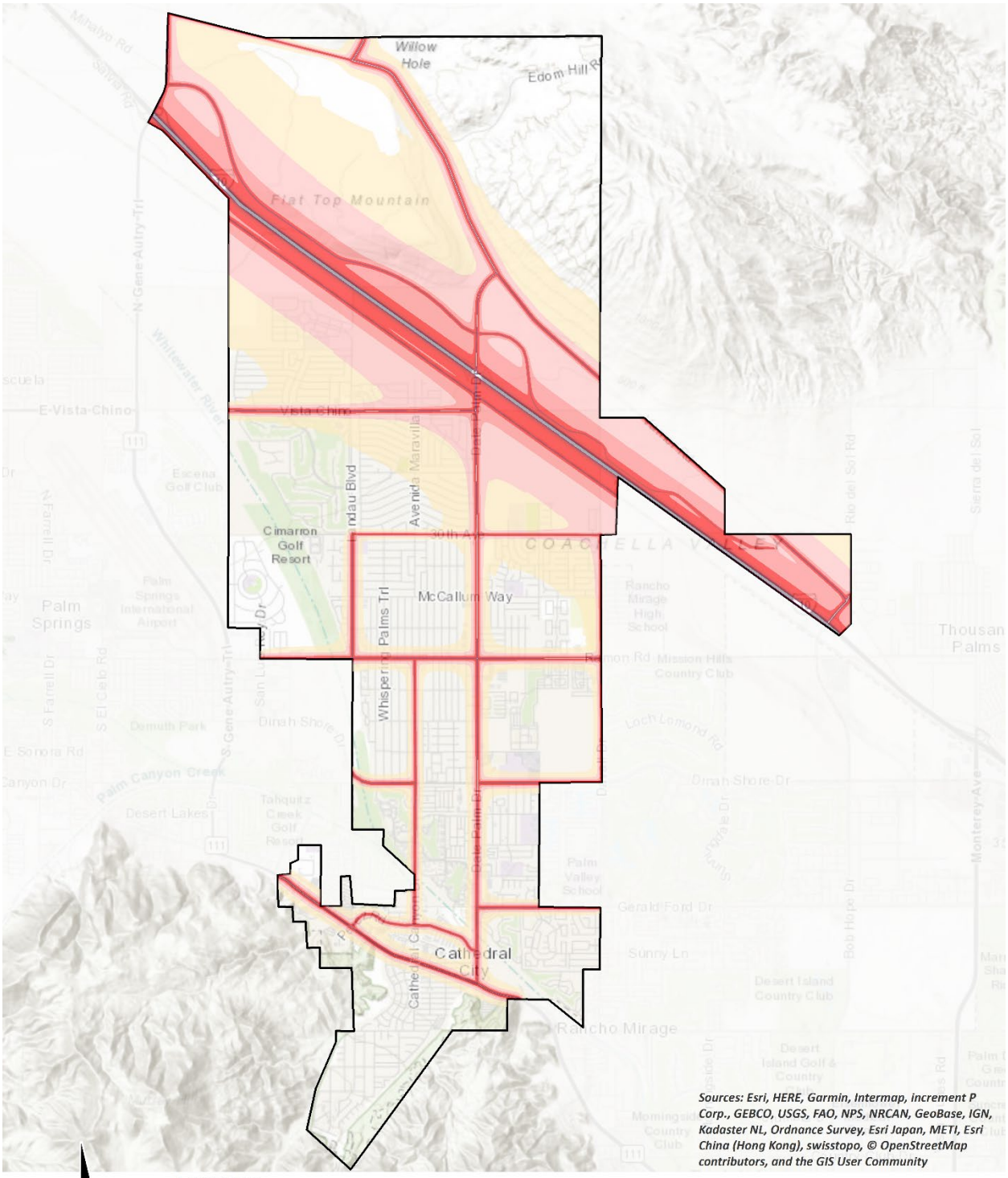
N

LEGEND:

Unmitigated Transportation Noise Level Contour Boundaries (dBA CNEL)

60 65 70 75 80 85 90

EXHIBIT 8-B: FUTURE TRANSPORTATION NOISE LEVEL CONTOURS



N

LEGEND:

Unmitigated Transportation Noise Level Contour Boundaries (dBA CNEL)

60 65 70 75 80 85 90

8.3 INTERIOR NOISE ANALYSIS

To ensure that the interior noise levels of future dwelling units comply with the Cathedral City interior noise level standards, future exterior noise levels discussed in Section 8.1 are used in this section to evaluate potential interior noise levels of the Project.

8.3.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building façade and the noise reduction (NR) of the structure. Typical building construction will provide a noise reduction of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." (5; 6) However, sound leaks, cracks and openings within the window assembly can greatly diminish its effectiveness in reducing noise. Several methods are used to improve interior noise reduction, including: (1) weather-stripped solid core exterior doors; (2) upgraded dual glazed windows; (3) mechanical ventilation/air conditioning; and (4) exterior wall/roof assembles free of cut outs or openings.

8.3.2 INTERIOR NOISE LEVEL ASSESSMENT

To provide the necessary interior noise level reduction, many buildings in the community are anticipated to require a windows-closed condition and a means of mechanical ventilation (e.g. air conditioning). With typical building construction and a windows-closed condition, a minimum 25 dBA CNEL reduction is achievable for potentially impacted dwelling units. (5; 6) However, since the exterior noise levels from I-10, the study area roadways, and the UPRR lines have the potential to exceed 70 dBA CNEL, the minimum 25 dBA CNEL with standard building construction may result in interior noise levels greater than 45 dBA CNEL. Therefore, detailed interior noise analysis based on site-specific architectural floor plans and elevations is required to satisfy the Cathedral City General Plan and Title 24, Part 2, of the California Building Code 45 dBA CNEL interior noise level standard for residential dwelling units. Therefore, since future interior noise levels of residential dwelling units may exceed 45 dBA CNEL, the noise level impact will be *potentially significant*, requiring interior noise mitigation. However with the detailed interior noise analysis mitigation measure identified below, on-site transportation noise impacts will be *less than significant*.

8.4 ON-SITE INTERIOR NOISE MITIGATION

To reduce the on-site interior noise levels for future dwelling units, a site-specific noise study is required for all future development located within the Cathedral City General Plan Update which will or may occur in identified high-noise environments, as follows:

NOI-2 Prior to approval of development plans or the issuance of a building permit for new noise-sensitive development projects, the Project Applicant/Developer shall submit a draft and/or final acoustical report to the Cathedral City Planning Department, or designee, that demonstrates that the interior noise levels in all habitable rooms will satisfy the 45 dBA CNEL interior noise level standard of the Cathedral City General Plan and Title 24, Part 2, of the California Building Code.

8.5 VIBRATION ANALYSIS

Based on the methodology provided by the FTA *Transit Noise and Vibration Impact Assessment* General Vibration Assessment, previously discussed in Section 6 of this report, rail activities are anticipated to generate vibration levels of up to 84 VdB at 50 feet from trains traveling at 50 mph. At the average speed of 70 mph, previously shown on Table 6-6, the reference vibration level is increased by 2.9 VdB, and results in estimated vibration impacts of 86.9 VdB at 50 feet from the railroad tracks. It is important to note that this rail vibration assessment likely overstates the vibration levels at the future Project uses since the FTA *Transit Noise and Vibration Impact Assessment* states that *although actual levels fluctuate widely, it is rare that ground-borne vibration will exceed the curves in Figure 10-1* (Exhibit 6-A of this report) *by more than one or two decibels unless there are extenuating circumstances, such as wheel or running-surface defects.* (15)

Table 8-1 shows the adjusted reference vibration levels at 50 feet and additional estimated vibration levels at screening distances of 100 and 150 feet. As shown on Table 8-1, vibration levels range from 79.9 VdB at 100 feet to 76.9 VdB at 150 feet. Note that these screening distances and associated vibration levels do not include any adjustments provided by the FTA for vehicle parameters, track conditions or treatments, or other factors affecting the vibration path. With the applicable development-specific adjustments to on-site vibration levels, as determined during the draft and/or final vibration study required by MM NOI-3, on-site vibration levels are anticipated to be less than or equal to those identified on Table 8-1 for screening purposes.

Should residential and non-residential uses within the Project be located within 50 to 150 feet of the UPRR railroad tracks, they may experience vibration levels which would exceed the noise-sensitive 72 VdB and non-noise-sensitive 75 VdB criteria for occasional rail events. Therefore, impacts due to on-site vibration levels are considered *potentially significant* and require mitigation, as identified below, to reduce potential impacts at future project-specific development to *less than significant* impacts.

TABLE 8-1: VIBRATION LEVELS AND SCREENING DISTANCES

FTA General Adjustment Factors[1]	Site-Specific Adjustments	Vibration Level/ Adjustment (VdB)[1]
Reference Noise Level	Locomotive @ 50 mph @ 50'	84
Speed Adjustment	70 mph	2.9
Resulting Reference Vibration Level (VdB) at 50 feet:		86.9
Screening Distances (Feet)		**Vibration Level (VdB)**
50'		86.9
100'		79.9
150'		76.9

[1] Source: FTA Transit Noise and Vibration Impact Assessment, Figure 10-1 and Table 10-1.

8.6 VIBRATION MITIGATION

To reduce the on-site rail vibration levels for future land uses, a site-specific noise study is required for all future development located within the Cathedral City General Plan Update, as follows:

NOI-3 Prior to approval of development plans or the issuance of a building permit for new development projects within 150 feet of UPRR railroad tracks, the Project Applicant/Developer shall submit a draft and/or final vibration study to the Cathedral City Planning Department, or designee, which shall identify all reasonable and feasible mitigation measures to satisfy the 72 VdB noise-sensitive and 75 VdB non-noise-sensitive vibration level standards, as defined by the FTA for frequent rail events. Said measures shall be incorporated in site and building plans approved by the City prior to the issuance of building permits.

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9 OPERATIONAL IMPACTS

This section discusses the potential noise and vibration impacts due to the operation of the various land uses associated with General Plan buildout.

9.1 OPERATIONAL NOISE LEVELS

Project-related stationary-source (operational) noise would be generated by the operation of potential non-residential uses, such as industrial and commercial uses, included in development associated with General Plan buildout. At the time this Noise and Vibration Impact Analysis was prepared, the specific users and/or tenants of future recreation, commercial, and industrial/business park uses were unknown. Therefore, the on-site Project-related noise sources for potential future uses are expected to include: air conditioning units, loading dock activities, outdoor restaurant dining activities, outdoor park activities, and parking lot vehicle movements. These expected Project-related noise sources are consistent with existing noise sources observed in the Project study area. Further, the proposed residential land uses are considered noise-sensitive receiving land uses and are not expected to include any specific type of operational noise levels beyond the typical noise sources associated with existing residential land use in the Project study area.

Moreover, the noise levels due to buildout and use of City lands will vary depending on the specific tenant and use, and therefore, the impacts due to Project operational noise levels from potential non-residential uses is determined to be *potentially significant*. Special noise generators such as sound amplification devices, industrial ventilation equipment associated with specific uses (e.g., cultivation or other industrial uses), and other tenant-specific noise sources shall require a site-specific noise analysis prior to project approval or building permit approval. With the mitigation measures identified below, operational noise impacts associated with buildout and operation land uses authorized under the General Plan will be *less than significant*.

9.2 OPERATIONAL NOISE MITIGATION

The following mitigation measures are identified to reduce the operational noise levels associated with the Project.

NOI-4 Prior to project approval and the issuance of a building permit and/or certificate of occupancy for non-residential development projects, as appropriate, the Project Applicant/Developer shall submit a draft and/or final acoustical report to the Cathedral City Planning Department, or designee, that demonstrates:

1. Exterior noise levels at adjacent property lines will satisfy the Cathedral City Municipal Code Section 11.96.030(6) exterior noise level limits, and satisfy any conditions of approval. The site-specific noise study shall identify the necessary noise mitigation measures, if any, required to reduce exterior noise levels to below the Cathedral City Municipal Code Section 11.96.030(6);

2. Acoustical isolation between units has been included in the project design for residential dwelling units above non-residential uses. (7)

9.3 OPERATIONAL VIBRATION LEVELS

The buildout of the General Plan is not expected to include any specific type of operational vibration sources, and therefore, the potential operational vibration impacts for the Cathedral City General Plan Update noise-sensitive land uses are considered *less than significant*.

10 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project.

10.1 CONSTRUCTION NOISE LEVELS

Noise generated by construction equipment will include a combination of mobile equipment, trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the highest construction activity noise levels during construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to in excess of 80 dBA when measured at 50 feet. "Hard site" conditions are used in the construction noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source (i.e. construction equipment). For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver and would be further reduced to 68 dBA at 200 feet from the source to the receiver. Under soft site conditions, these noise levels would attenuate at a greater rate of 7.5 dBA per doubling of distance.

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe anticipated construction noise levels associated with General Plan buildout, measurements were collected for similar activities at several construction sites. Table 10-1 provides a summary of construction reference noise level measurements. Since the reference noise levels were collected at varying distances, all construction noise level measurements presented on Table 10-1 have been adjusted to describe a common reference distance of 50 feet.

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

ID	Noise Source	Duration (h:mm:ss)	Reference Distance From Source (Feet)	Reference Noise Levels (dBA L_{eq})[7]	
				@ Ref. Dist.	@ 50'
1	Truck Pass-Bys & Background Dozer Activity[1]	0:01:15	30'	63.6	59.2
2	Dozer Activity[1]	0:01:00	30'	68.6	64.2
3	Construction Vehicle Maintenance Activities[2]	0:01:00	30'	71.9	67.5
4	Foundation Trenching[2]	0:01:01	30'	72.6	68.2
5	Rough Grading Activities[2]	0:05:00	30'	77.9	73.5
6	Framing[3]	0:02:00	30'	66.7	62.3
7	Water Truck Pass-By & Backup Alarm[4]	0:00:45	30'	76.3	71.9
8	Dozer Pass-By[4]	0:00:32	30'	84.0	79.6
9	Two Scrapers & Water Truck Pass-By[4]	0:00:32	30'	83.4	79.0
10	Two Scrapers Pass-By[4]	0:00:30	30'	83.7	79.3
11	Scraper, Water Truck, & Dozer Activity[4]	0:30:00	30'	79.7	75.3
12	Concrete Mixer Truck Movements[5]	0:01:00	50'	71.2	71.2
13	Concrete Paver Activities[5]	0:01:00	30'	70.0	65.6
14	Concrete Mixer Pour & Paving Activities[5]	0:01:00	30'	70.3	65.9
15	Concrete Mixer Backup Alarms & Air Brakes[5]	0:00:20	50'	71.6	71.6
16	Concrete Mixer Pour Activities[5]	1:00:00	50'	67.7	67.7
17	Forklift, Jackhammer, & Metal Truck Bed Loading	0:02:06	50'	67.9	67.9

[1] As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.
[2] As measured by Urban Crossroads, Inc. on 10/20/15 at a construction site located in Rancho Mission Viejo.
[3] As measured by Urban Crossroads, Inc. on 10/20/15 at a residential construction site located in Rancho Mission Viejo.
[4] As measured by Urban Crossroads, Inc. on 10/30/15 during grading operations within an industrial construction site located in the City of Ontario.
[5] Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.
[6] As measured by Urban Crossroads, Inc. on 9/9/16 during the demolition of an existing parking lot at 41 Corporate Park in Irvine.
[7] Reference noise levels are calculated at 50 feet using a drop off rate of 6 dBA per doubling of distance (point source).

10.3 CONSTRUCTION NOISE ANALYSIS

As previously shown on Table 10-1, the highest reference construction noise level is 79.6 dBA L_{eq} at 50 feet based on a reference noise level measurement of a dozer pass-by event. Mobile construction equipment, such as the reference dozer pass-by, typically generates the highest construction noise levels during construction activities. As such, the highest construction reference noise level of 79.6 dBA L_{eq} at 50 feet is used in this program-level analysis to determine potential impacts at sensitive receiver locations adjacent to development within the Cathedral City General Plan Update.

To evaluate whether a specific development facilitated by the Project will generate potentially significant temporary construction noise levels at off-site sensitive receiver locations, this analysis uses the FTA *Transit Noise and Vibration Impact Assessment* threshold of 80 dBA L_{eq} during daytime at residential (noise-sensitive) uses, and 85 dBA L_{eq} during daytime hours at commercial uses. (15) The highest reference construction noise level of 79.6 dBA L_{eq} at 50 feet is expected to satisfy the FTA 80 dBA L_{eq} residential and 85 dBA L_{eq} commercial 8-hour construction noise level thresholds at distances greater than 50 feet, as shown on Table 10-2. However, at distances of 50 feet or less, Project construction noise levels are anticipated to exceed the FTA thresholds at nearby receiver locations. Therefore, Project-related construction noise levels at receiver locations within 50 feet of construction activities, such as existing residential, commercial, and office uses in the Project study area, are considered *potentially significant* noise impacts. Therefore mitigation measures are identified in this report to reduce construction noise levels during future development as part of the Cathedral City General Plan Update.

With the application of the noise mitigation measures identified in this study, it is anticipated the Project construction noise levels at nearby receiver locations would be reduced to below the FTA construction noise level thresholds. Therefore, Project construction-source noise impacts are considered *less than significant* with mitigation.

TABLE 10-2: UNMITIGATED CONSTRUCTION NOISE LEVELS

Analysis Location	Highest Project Construction Noise Levels at Screening Distance[1]				Threshold[2]	Threshold Exceeded at Screening Distance?[3]			
	50'	100'	200'	400'		50'	100'	200'	400'
Noise-Sensitive Receiver Locations	79.6	73.6	67.6	61.6	80	No	No	No	No
Non-Noise-Sensitive Receiver Locations	79.6	73.6	67.6	61.6	85	No	No	No	No

[1] Highest unmitigated reference construction noise level, as shown on Table 10-1.
[2] Significance criteria (Table 4-1).
[3] Do the unmitigated construction noise levels exceed the threshold?

10.4 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Ground-borne vibration levels resulting from construction activities occurring within the Project were estimated by data published by the Federal Transit Administration (FTA). Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include mobile equipment activities, among others. Using the vibration source level of construction equipment provided on Table 6-7 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-3 presents the expected Project related vibration levels at distances ranging from 25 to 400 feet from construction activity.

Based on the reference vibration levels provided by the FTA, a large bulldozer represents the highest source of typical construction-related vibration with a reference velocity of 0.089 in/sec PPV at 25 feet. At distances ranging from 25 to 400 feet from the Project site, typical construction vibration velocity levels are expected to range from 0.001 to 0.089 in/sec PPV, as shown on Table 10-3, which equates to perceived vibration levels ranging from 0.003 to 0.063 in/sec RMS.

Compared with the County of Riverside construction vibration threshold of 0.01 in/sec RMS, the proposed Project typical construction activities will exceed the vibration standard at receiver locations within 50 feet of loaded trucks, large bulldozers, and jackhammers if used during construction. Therefore, the use of loaded trucks, large bulldozers, and jackhammers within 50 feet of nearby sensitive land uses (e.g. residential, school, etc.) shall be minimized unless the vibration levels are shown to be less than the County of Riverside root-mean-square velocity (RMS) threshold of 0.01 in/sec RMS. With the recommended mitigation measures in this study, the Project-related vibration impacts at the nearby sensitive receiver locations represents a *less than significant* impact during the worst-case construction activities at the Project site boundary.

The construction vibration levels at the site of the closest sensitive receivers are unlikely to be sustained during the entire construction period; but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter. Further, construction will be restricted to Municipal Code daytime construction hours, unless otherwise permitted by the City, thereby reducing potential vibration impacts during the sensitive nighttime hours.

TABLE 10-3: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Distance to Construction Activity (Feet)	Receiver PPV Levels (in/sec)[1]				Highest Vibration Level	RMS Vibration Level[2]	Threshold Exceeded?[3]
	Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer			
25'	0.003	0.035	0.076	0.089	0.089	0.063	Yes
50'	0.001	0.012	0.027	0.031	0.031	0.022	Yes
100'	0.000	0.004	0.010	0.011	0.011	0.008	No
200'	0.000	0.002	0.003	0.004	0.004	0.003	No
400'	0.000	0.001	0.001	0.001	0.001	0.001	No

[1] Based on the Vibration Source Levels of Construction Equipment included on Table 6-7.
[2] Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.
[3] Does the peak vibration exceed the vibration threshold of 0.01 in/sec RMS shown on Table 4-2?

10.5 CONSTRUCTION NOISE AND VIBRATION MITIGATION MEASURES

Though construction noise and vibration are temporary, intermittent and of short duration, and will not present any long-term impacts, the following mitigation measures would reduce noise and vibration levels produced by construction equipment to nearby noise-sensitive uses.

NOI-5 Prior to the issuance of a building permit for new development, when sensitive receiver locations are within 50 feet of proposed construction activities, the Project Applicant/Developer shall submit a final acoustical report to the Cathedral City Planning Department, or designee, that demonstrates:

- Exterior construction noise levels at the closest sensitive receiver locations will satisfy the FTA 80 dBA L_{eq} residential and 85 dBA L_{eq} commercial 8-hour construction noise level standards and the County of Riverside 0.01 in/sec RMS vibration standard for sensitive uses. The site-specific study shall identify the necessary noise and/or vibration mitigation measures, if any, required to reduce exterior noise and vibration levels to below FTA noise and County of Riverside vibration thresholds; and
- Measures to reduce construction noise and vibration levels, such as those provided below, shall be incorporated in the final noise study, if necessary:
  - Install temporary construction noise barriers at the Project site boundary which break the line of sight for occupied sensitive uses for the duration of construction activities. The noise control barrier(s) must provide a solid face from top to bottom and shall:
    - Provide a minimum transmission loss of 20 dBA and be constructed with an acoustical blanket (e.g. vinyl acoustic curtains or quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts;
    - Properly maintained with any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired.

- Install sound dampening mats or blankets to the engine compartments of heavy mobile equipment (e.g. graders, dozers, heavy trucks). The dampening materials must be capable of a 5 dBA minimum noise reduction, must be installed prior to the use of heavy mobile construction equipment, and must remain installed for the duration of the equipment use.
- Construction activities requiring loaded trucks, large bulldozers, and jackhammers within 50 feet of nearby sensitive land uses (e.g. residential, school, etc.) shall be minimized, or alternative equipment or methods shall be used, unless the vibration levels are shown to be less than the County of Riverside threshold of 0.01 in/sec RMS.

NOI-6 Construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards, and all stationary construction equipment shall be placed so that emitted noise is directed away from the noise-sensitive use nearest the construction activity.

NOI-7 The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receiver nearest to the construction activity.

NOI-8 The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment by Section 11.96.070 of the Cathedral City Municipal Code. The contractor shall design delivery routes to minimize the exposure of sensitive land uses to delivery truck noise.

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11 REFERENCES

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12 CERTIFICATION

The contents of this report represent an accurate depiction of the noise environment and impacts associated with the proposed Cathedral City General Plan Update Project. The information contained in this report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5979.

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EDUCATION

Master of Science in Civil and Environmental Engineering
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning
California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012
PTP – Professional Transportation Planner • May, 2007 – May, 2013
INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CATHEDRAL CITY MUNICIPAL CODE

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Chapter 11.96 NOISE CONTROL

11.96.010 Purpose and intent.

A. It is the purpose of these regulations to implement the goals and objectives of the noise element of the city's general plan to establish community-wide noise standards and to serve as a reference for locating other city regulations relating to noise in the community. It is further the purpose of these regulations to recognize that the existence of excessive noise within the city is a condition which is detrimental to the health, safety, welfare and quality of life of the citizens and shall be regulated in the public interest.

B. In furtherance of the foregoing purpose, it is found and declared as follows:

1. The making, creation or maintenance of such loud, unnecessary, unnatural or unusual noises that are prolonged, unusual, annoying, disturbing and unnatural in their time, place and use are a detriment to public health, comfort, convenience, safety, general welfare and the peace and quiet of the city and its inhabitants; and

2. The public interest necessity for the provisions and prohibitions hereinafter contained and enacted is declared as a matter of legislative determination and public policy, and it is further declared that the provisions and prohibitions hereinafter contained and enacted are in pursuance of and for the purpose of securing and promoting the public health, comfort, convenience, safety, general welfare and property and the peace and quiet of the city and its inhabitants. (Ord. 635 § 2, 2007)

11.96.020 Definitions.

As used in this chapter, the following terms have the meanings given:

"Compliance officer" means a city code compliance officer or peace officer authorized to enforce the provisions and prohibitions of this chapter pursuant to Section 11.96.080.

"Construction equipment" means tools, machinery or equipment used in connection with construction operations, including all types of "special construction" equipment as defined in the pertinent sections of California Vehicle Code when used in the construction process on any construction site, home improvement site or property maintenance site, regardless of whether such site be located on-highway or off-highway.

"Plainly audible" means any sound that can be detected by a person using his or her unaided hearing faculties. As an example, if the sound source under investigation is a portable or personal vehicular sound amplification or reproduction device, the investigating compliance officer need not determine the title of a song, specific words, or the artist performing the song. The detection of the vibration from the rhythmic bass component of the music is sufficient to constitute a plainly audible sound.

"Public right-of-way" means any street, avenue, boulevard, highway, sidewalk, alley or similar place, owned or controlled by a government entity.

"Public space" means any real property or structures on real property, owned by a government entity and normally accessible to the public, including, but not limited to, parks and other recreation areas.

"Responsible person" means: (1) any person who owns, leases or is lawfully in charge of the property or motor vehicle where the noise violation takes place; or (2) any person who owns or controls the source of the noise or violation. If the responsible person is a minor, then the parent or guardian who has custody of the child at the time of the violation shall be the responsible person who is liable under this chapter. (Ord. 776 § 24, 2016; Ord. 635 § 2, 2007)

11.96.030 Prohibited acts.

A. It is unlawful for any person to engage in the following activities:

1. Sounding any horn or signal device on any automobile, motorcycle, bus or other motor vehicle in any other manner or circumstances or for any other purpose than required or permitted by the Vehicle Code or other California laws.

2. Racing the engine of any motor vehicle while the vehicle is not in motion, except when necessary to do so in the course of repairing, adjusting or testing the same.

3. Operating or permitting the use of any motor vehicle on any public right-of-way or public place or on private property within a residential zone for which the exhaust muffler, intake muffler or any other noise abatement device has been modified or changed in a manner such that the noise emitted by the motor vehicle is increased above that emitted by the vehicle as originally manufactured.

4. The intentional sounding or permitting the sounding outdoors of any fire, burglar, or civil defense alarm, siren, whistle, or any motor vehicle burglar alarm, except for emergency purposes or for testing, unless such alarm is terminated within fifteen minutes of activation.

5. Creating excessive noise adjacent to any school, church, court or library while the same is in use, or adjacent to any hospital or care facility, which unreasonably interferes with the workings of such institution, or which disturbs or unduly annoys patients in the hospital, provided conspicuous signs are displayed in such streets indicating the presence of a school, institution of learning, church, court or hospital.

6. To produce, suffer or allow to be produced noise or sounds that exceeds the dB(A) levels in the table below. Exterior noise shall be measured at the lot line of the lot where the noise or sounds are emanating. If the measurement location is on the boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply. Interior noise shall be measured at least four feet from the wall, floor, or ceiling nearest to the noise source and with all windows, doors and other openings to the exterior closed.

Noises caused by motor vehicles or trains are exempt from these standards.

In the event the ambient noise level exceeds these levels, no person shall produce, suffer or allow to be produced noise or sounds in excess of the ambient noise level.

Zone	Time	dB(A) Level
Residential – Exterior Noise	7 a.m. - 10 p.m.	65
	10 p.m. - 7 a.m.	50
Residential – Interior Noise	7 a.m. - 10 p.m.	50
	10 p.m. - 7 a.m.	40
Commercial/Industrial – Exterior Noise	7 a.m. - 10 p.m.	85
	10 p.m. - 7 a.m.	55

B. A violation of this section is an infraction and a public nuisance.

C. A violation of this section may result in the following.

1. Issuance of an infraction citation;

2. Issuance of a notice of public nuisance;

3. Imposition of criminal and civil penalties; and

4. Confiscation and impoundment as evidence, of the components that are amplifying or transmitting the prohibited noise.

D. An enforcement officer who encounters a violation of this section may issue a written notice to the responsible person demanding immediate abatement of the violation (written notice). The written notice shall inform the recipient that a second violation of the same provision within a seventy-two-hour period may result in the issuance of a criminal citation and/or notice of public nuisance, the imposition of criminal and civil penalties, and confiscation and impoundment as evidence, of the components that are amplifying or transmitting the prohibited noise.

E. Any peace officer who encounters a second violation of this section within a seventy-two-hour period following issuance of a written notice is empowered to confiscate and impound as evidence, any or all of the components amplifying or transmitting the sound.

F. Any person claiming legal ownership of the items confiscated and impounded under this section may request the return of the item by filing a written request with the police department within seven calendar days of the confiscation. Such requests shall be processed in accordance with the procedures adopted by the department.

G. This section shall not apply to any noise emanating from a city operated or sponsored special event, or other events held on public property where the operator of the event has obtained all necessary permits and approvals for the event. (Ord. 791 § 1, 2017; Ord. 635 § 2, 2007)

11.96.040 Excessive noise and vibration emanating from a motor vehicle.

A. No person shall operating or occupy a motor vehicle on any public right-of-way, public place or private property, while operating or permitting the use or operation of any radio, stereo receiver, musical instrument, television, computer, compact disc player, tape recorder, cassette player or any other device for the production or reproduction of sound from within the motor vehicle so that the sound is plainly audible at a distance of fifty feet from such vehicle, or in the case of a motor vehicle on private property, beyond the property line.

B. Pursuant to Section 11.96.130, a violation of this section is a misdemeanor offense and a public nuisance.

C. A violation of this section may result in the following:

1. Issuance of a misdemeanor citation;

2. Issuance of a notice of public nuisance;

3. Imposition of criminal and civil penalties; and

4. Immediate confiscation and impoundment as evidence, of the components that are amplifying or transmitting the prohibited noise or the immediate confiscation and impoundment of the motor vehicle to which the component is attached if the same may not be removed without causing harm to the vehicle or the component.

D. Any person claiming legal ownership of a motor vehicle confiscated and impounded under this section may request the return of the vehicle by filing a written request with the police department within seven calendar days of the confiscation. Such requests shall be processed in accordance with the procedures adopted by the department.

E. Any person claiming legal ownership of the items confiscated and impounded under this section, other than a motor vehicle, may request the return of the item by filing a written request with the police department, which shall be processed in accordance with the procedures adopted by the department. (Ord. 635 § 2, 2007)

11.96.050 Controlled hours of operation.

It is unlawful for any person to engage in the following activities other than between the hours of eight a.m. and eight p.m. in residential zones and other than between the hours of seven a.m. to eight p.m. in all other zones:

A. Operate or permit the use of powered model vehicles and planes;

B. Load or unload any vehicle, or operate or permit the use of dollies, carts, forklifts, or other wheeled equipment that causes any impulsive sound, raucous or unnecessary noise within one thousand feet of a residence;

C. Operate or permit the use of domestic power tools, or machinery or any other equipment or tool in any garage, workshop, house or any other structure;

D. Operate or permit the use of gasoline or electric powered leaf blowers, such as commonly used by gardeners and other persons for cleaning lawns, yards, driveways, gutters and other property;

E. Operate or permit the use of privately operated street/parking lot sweepers or vacuums, except that emergency work and/or work necessitated by unusual conditions may be performed with the written consent of the city manager;

F. Operate or permit the use of pile driver, steam or gasoline shovel, pneumatic hammer, steam or electric hoist or other similar devices;

G. Operate or permit the use of electrically operated compressor, fan, and other similar devices;

H. Perform ground maintenance on golf course grounds and tennis courts contiguous to golf courses that creates a noise disturbance across a residential or commercial property line;

I. Operate or permit the use of any motor vehicle with a gross vehicle weight rating in excess of ten thousand pounds, or of any auxiliary equipment attached to such a vehicle, including, but not limited to, refrigerated truck compressors, for a period longer than fifteen minutes in any hour while the vehicle is stationary and on a public right-of-way or public space except when movement of the vehicle is restricted by other traffic;

J. Repair, rebuild, reconstruct or dismantle any motor vehicle or other mechanical equipment or devices in a manner so as to be plainly audible across property lines. (Ord. 635 § 2, 2007)

11.96.060 Exemptions.

The following activities and noise sources shall be exempt from the provisions of this chapter:

A. Those noise events in the community (e.g., airport noise, arterial traffic noise, railroad noise) that are more accurately measured by application of the general plan noise element policy, utilizing the community noise equivalent level (CNEL) method;

B. Activities conducted on the grounds of any public or private school during regular hours of operation;

C. Outdoor gatherings, public dances, shows and sporting and entertainment events provided the events are authorized by the city;

D. Activities conducted at public spaces during regular hours of operation;

E. Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work;

F. All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions;

G. Mobile noise sounds associated with agricultural operations provided such operations do not take place between the hours of eight p.m. and seven a.m. on weekdays, including Saturdays, or at any time on Sunday or a state holiday;

H. Mobile noise sources associated with agricultural pest control through pesticide application;

I. Warning devices necessary for the protection of the public safety, including, but not limited to, police, fire and ambulance sirens and train horns and sounds for the purpose of alerting persons to the existence of an emergency;

J. Construction, repair or excavation necessary for the immediate preservation of life or property;

K. Construction, operation, maintenance and repairs of equipment, apparatus or facilities of park and recreation departments, public work projects or essential public services and facilities, including trash collection and those of public utilities subject to the regulatory jurisdiction of the California Public Utilities Commission;

L. Construction, repair or excavation work performed pursuant to a valid written agreement with the city or any of its political subdivisions which agreement provides for noise mitigation measures;

M. Any activity to the extent regulation thereof has been preempted by state or federal law; and

N. Any activity or noise source governed elsewhere in this code. Such activities include, but are not limited to:

1. Security alarm systems (see Chapter 8.28 of this code),

2. Animal noise (see Title 10 of this code),

3. Sound trucks and advertising by sound (see Chapter 5.68 of this code),

4. Performance standards for Class A and B business and industrial uses (see Chapter 9.86 of this code),

5. Noise making devices utilized by food vendors (see Section 12.28.100 of this code),

6. Noise requirements for peddlers (see Section 5.48.110 of this code);

O. Sounds generated in commercial and industrial zones that are necessary and incidental to the uses permitted therein;

P. Sounds generated from or incidental to emergency repairs to any public works function;

Q. Sounds generated in connection with speech or communication protected by the U.S. Constitution or the California Constitution, expect to the extent such sounds are subject to permissible time, manner and place restrictions.

(Ord. 635 § 2, 2007)

11.96.070 Disturbances from construction activity.

A. No person shall be engaged or employed, or cause any other person to be engaged or employed, in any work of construction, erection, alteration, repair, addition, movement, demolition, or improvement to any building or structure except within the hours provided for by subsection B of this section.

B. The permitted hours for such construction work are as follows:

1. October 1st through April 30th.

Monday—Friday:	7:00 a.m. to 5:30 p.m.
Saturday:	8:00 a.m. to 5:00 p.m.
Sunday:	No permissible hours
State holidays:	No permissible hours

2. May 1st through September 30th:

Monday—Friday:	6:00 a.m. to 7:00 p.m.
Saturday:	8:00 a.m. to 5:00 p.m.
Sunday:	No permissible hours
State holidays:	No permissible hours

C. For purposes of this section, the following definitions shall apply:

"Building" means any structure used or intended for supporting or sheltering any use or occupancy.

"Structure" means that which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.

D. For purposes of this section, the following exceptions shall apply:

1. Emergency repair of existing installations, equipment, or appliances; and

2. Such work that complies with the terms and conditions of a written early work permit issued by the city manager or designee upon a showing of a sufficient need and justification for the permit due to hot or inclement weather, the use of an unusually long process material, or other circumstances of an unusual and compelling nature. (Ord. 635 § 2, 2007)

11.96.080 Administration.

Except as otherwise provided, the provisions and prohibitions of this chapter shall be jointly administered by and the responsibility of the city's police and code compliance division. (Ord. 776 § 25, 2016; Ord. 635 § 2, 2007)

11.96.090 Cost recovery for second response.

A. whenever any enforcement officer issues a written warning to a responsible person to discontinue a noise violation, the responsible person shall be liable for the actual cost of each subsequent response required to abate the violation within seventy-two hours of the issuance of the written warning (response charge).

B. The bill for the response charge shall be served upon the responsible person within thirty days after the violation. If the responsible person has no last known business or residence address, the location of the violation shall be deemed to

be the proper address for service. The bill shall include a notice of the right of the person being charged to request a hearing to dispute the imposition of the response charge or the amount of the charge.

C. The response charge shall be deemed to be a civil debt to the city.

D. All responsible persons shall be jointly and severally liable for the response charge regardless of whether or not they received a written notice. (Ord. 635 § 2, 2007)

11.96.100 Public nuisance.

A violation of this chapter by any person responsible for committing, causing or maintaining such violation shall constitute a public nuisance which shall be subject to the provisions of Chapters 13.80 and 13.90. (Ord. 635 § 2, 2007)

11.96.110 Infraction violation.

A violation of Section 11.96.030, 11.96.050 or 11.96.070 of this chapter by any person responsible for committing, causing or maintaining such violation shall constitute an infraction violation and the violator shall be subject to the provisions set forth in Chapter 13.65, including, but not limited to, the imposition of any and all criminal penalties set forth therein. (Ord. 635 § 2, 2007)

11.96.120 Misdemeanor violation.

A violation of Section 11.96.040 of this chapter by any person responsible for committing, causing or maintaining such violation shall constitute a misdemeanor violation which shall be subject to the provisions set forth in Chapter 13.70, including, but not limited to, the imposition of any and all criminal penalties set forth therein. (Ord. 635 § 2, 2007)

11.96.130 Civil fines.

Any person convicted of an infraction or misdemeanor violation under this chapter shall, for each separate violation, be subject to: (a) a fine in an amount not to exceed two hundred fifty dollars for a first conviction of an offense; (b) a fine in an amount not to exceed five hundred dollars for a second conviction of the same offense within a twelve-month period from the date of the first offense; and (c) a fine in an amount not to exceed seven hundred fifty dollars for the third conviction of the same offense within a twelve-month period from the date of the first offense. The fine for a fourth and any subsequent convictions of the same offense within a twelve-month period from the date of the first offense shall be one thousand dollars. (Ord. 635 § 2, 2007)

11.96.140 Modification, suspension and/or revocation of validly issued city permit and/or city license.

A violation of this chapter by the holder of any city permit and/or city license validly issued pursuant to this or any other chapter shall constitute grounds for modification, suspension and/or revocation of the permit and/or license pursuant to the provisions set forth in Chapter 13.150. (Ord. 635 § 2, 2007)

11.96.150 Additional penalties.

Nothing in this chapter shall preclude the city from pursuing the remedies provided by Chapter 13.140 including, but not limited to, as applicable, denial or revocation of certificates of occupancy, issuance of stop work orders and injunctive relief. (Ord. 635 § 2, 2007)

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APPENDIX 5.1:

NOISE MEASUREMENT STUDY AREA PHOTOS

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JN:11475 Study Area Photos

L1 (1)
33, 53' 1.860000", 116, 30' 1.980000"

L1 (2)
33, 53' 1.870000", 116, 30' 1.950000"

L1 (3)
33, 53' 1.920000", 116, 30' 1.980000"

L1 (4)
33, 53' 1.900000", 116, 30' 1.980000"

L2 (1)
33, 51' 15.200000", 116, 28' 45.210000"

L2 (2)
33, 51' 15.180000", 116, 28' 45.210000"

L2 (3)
33, 51' 15.160000", 116, 28' 45.160000"

L2 (4)
33, 51' 15.140000", 116, 28' 45.210000"

L3 (1)
33, 51' 9.880000", 116, 27' 29.080000"

L3 (2)
33, 51' 9.850000", 116, 27' 29.100000"

L3 (3)
33, 51' 9.870000", 116, 27' 29.130000"

L3 (4)
33, 51' 9.870000", 116, 27' 29.100000"

JN:11475 Study Area Photos

L4 (1)
33, 49' 50.090000", 116, 28' 33.650000"

L4 (2)
33, 49' 50.080000", 116, 28' 33.620000"

L4 (3)
33, 49' 50.080000", 116, 28' 33.620000"

L5 (1)
33, 50' 1.990000", 116, 26' 57.760000"

L5 (2)
33, 50' 1.970000", 116, 26' 57.820000"

L5 (3)
33, 50' 1.970000", 116, 26' 57.820000"

JN:11475 Study Area Photos

L6 (1)
33, 48' 53.160000", 116, 29' 6.080000"

L6 (2)
33, 48' 53.200000", 116, 29' 6.220000"

L6 (3)
33, 48' 53.200000", 116, 29' 6.220000"

L6 (4)
33, 48' 53.200000", 116, 29' 6.220000"

L7 (1)
33, 49' 10.020000", 116, 27' 37.400000"

L7 (2)
33, 49' 9.980000", 116, 27' 37.340000"

JN:11475 Study Area Photos

L7 (3)
33, 49' 10.020000", 116, 27' 37.400000"

L8 (1)
33, 48' 1.050000", 116, 27' 25.340000"

L8 (2)
33, 48' 1.030000", 116, 27' 25.310000"

L8 (3)
33, 48' 1.050000", 116, 27' 25.340000"

L9 (1)
33, 47' 7.130000", 116, 28' 31.260000"

L9 (2)
33, 47' 7.130000", 116, 28' 31.180000"

JN:11475 Study Area Photos

L9 (3)
33, 47' 7.130000", 116, 28' 31.180000"

L9 (4)
33, 47' 7.130000", 116, 28' 31.180000"

L10 (1)
33, 47' 12.590000", 116, 27' 59.890000"

L10 (2)
33, 47' 12.580000", 116, 27' 59.920000"

L10 (3)
33, 47' 12.590000", 116, 27' 59.860000"

L10 (4)
33, 47' 12.590000", 116, 27' 59.920000"

L11 (1)
33, 46' 53.710000", 116, 26' 28.900000"

L11 (2)
33, 46' 53.740000", 116, 26' 28.900000"

L11 (3)
33, 46' 53.800000", 116, 26' 28.840000"

L12 (1)
33, 49' 34.330000", 116, 24' 36.320000"

L12 (2)
33, 49' 34.290000", 116, 24' 36.320000"

L12 (3)
33, 49' 34.330000", 116, 24' 36.340000"

JN:11475 Study Area Photos

L12 (4)
33, 49' 34.310000", 116, 24' 36.320000"

S1 (1)
33, 53' 1.810000", 116, 30' 3.300000"

S1 (2)
33, 53' 1.830000", 116, 30' 3.350000"

S1 (3)
33, 53' 1.820000", 116, 30' 3.380000"

S1 (4)
33, 53' 1.830000", 116, 30' 3.350000"

S1 (5)
33, 53' 1.820000", 116, 30' 3.320000"

JN:11475 Study Area Photos

S2 (1)
33, 50' 54.650000", 116, 28' 1.270000"

S3 (1)
33, 48' 56.250000", 116, 28' 31.860000"

S3 (2)
33, 48' 56.250000", 116, 28' 31.890000"

S3 (3)
33, 48' 56.290000", 116, 28' 31.890000"

S3 (4)
33, 48' 56.260000", 116, 28' 31.890000"

S3 (5)
33, 48' 56.250000", 116, 28' 31.860000"

JN:11475 Study Area Photos

S4 (1)
33, 48' 56.580000", 116, 26' 31.200000"

S4 (2)
33, 48' 56.520000", 116, 26' 31.230000"

S4 (3)
33, 48' 56.560000", 116, 26' 31.260000"

S4 (4)
33, 48' 56.550000", 116, 26' 31.230000"

S4 (5)
33, 48' 56.540000", 116, 26' 31.260000"

S5 (1)
33, 47' 31.890000", 116, 27' 29.930000"

JN:11475 Study Area Photos

S5 (2)
33, 47' 31.830000", 116, 27' 29.900000"

S5 (3)
33, 47' 31.830000", 116, 27' 29.900000"

S5 (4)
33, 47' 31.830000", 116, 27' 29.900000"

S5 (5)
33, 47' 31.890000", 116, 27' 29.930000"

S6 (1)
33, 46' 43.860000", 116, 27' 34.050000"

S6 (2)
33, 46' 43.850000", 116, 27' 34.050000"

S6 (3)
33, 46' 43.850000", 116, 27' 34.050000"

S6 (4)
33, 46' 43.850000", 116, 27' 34.050000"

S6 (5)
33, 46' 43.860000", 116, 27' 34.050000"

APPENDIX 5.2:

LONG-TERM NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

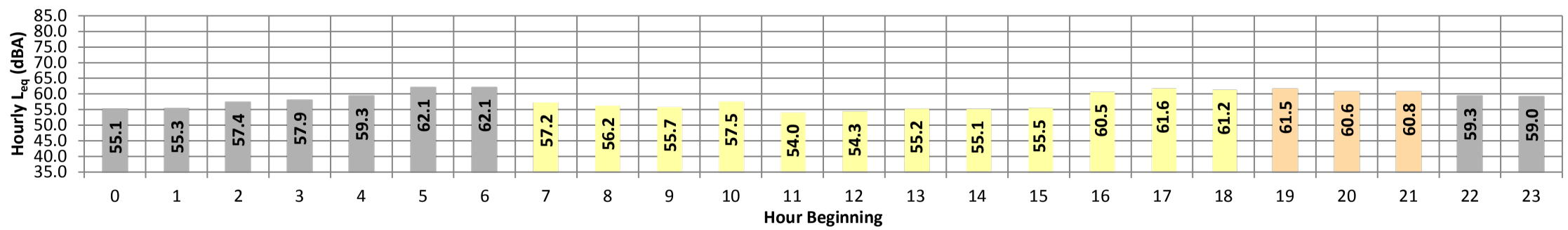
Date: Wednesday, April 18, 2018
Project: Cathedral City General Plan Update

Location: L1 - Located near Palm Drive, north of I-10, and existing commercial and residential uses in a vacant lot.

Meter: Piccolo I

JN: 11475
Analyst: A.Wolfe

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	55.1	81.3	44.8	59.0	58.0	57.0	56.0	54.0	52.0	49.0	48.0	46.0	55.1	10.0	65.1
	1	55.3	65.9	45.6	61.0	60.0	59.0	58.0	56.0	54.0	50.0	49.0	47.0	55.3	10.0	65.3
	2	57.4	66.8	46.3	63.0	62.0	61.0	60.0	58.0	56.0	51.0	50.0	48.0	57.4	10.0	67.4
	3	57.9	67.3	48.7	63.0	62.0	61.0	60.0	58.0	57.0	53.0	52.0	51.0	57.9	10.0	67.9
	4	59.3	71.4	51.2	66.0	65.0	63.0	62.0	59.0	57.0	54.0	54.0	52.0	59.3	10.0	69.3
	5	62.1	80.0	55.1	69.0	67.0	65.0	64.0	62.0	60.0	58.0	57.0	56.0	62.1	10.0	72.1
	6	62.1	77.2	54.6	68.0	67.0	65.0	64.0	62.0	60.0	58.0	57.0	56.0	62.1	10.0	72.1
Day	7	57.2	77.9	47.2	63.0	61.0	60.0	59.0	57.0	55.0	51.0	50.0	49.0	57.2	0.0	57.2
	8	56.2	79.4	46.8	65.0	63.0	59.0	57.0	54.0	52.0	49.0	48.0	47.0	56.2	0.0	56.2
	9	55.7	73.4	45.9	66.0	64.0	59.0	58.0	54.0	52.0	48.0	48.0	47.0	55.7	0.0	55.7
	10	57.5	83.0	46.0	65.0	62.0	58.0	57.0	53.0	51.0	49.0	48.0	47.0	57.5	0.0	57.5
	11	54.0	68.4	47.3	61.0	60.0	58.0	56.0	54.0	52.0	50.0	49.0	48.0	54.0	0.0	54.0
	12	54.3	74.6	47.2	62.0	60.0	58.0	57.0	54.0	52.0	50.0	49.0	48.0	54.3	0.0	54.3
	13	55.2	70.6	45.4	61.0	60.0	58.0	57.0	55.0	54.0	51.0	49.0	47.0	55.2	0.0	55.2
	14	55.1	74.5	48.5	62.0	61.0	58.0	57.0	55.0	53.0	50.0	50.0	49.0	55.1	0.0	55.1
	15	55.5	69.4	46.0	62.0	61.0	59.0	58.0	56.0	53.0	50.0	49.0	47.0	55.5	0.0	55.5
	16	60.5	81.6	48.6	68.0	66.0	64.0	63.0	60.0	58.0	54.0	53.0	50.0	60.5	0.0	60.5
	17	61.6	81.7	53.7	70.0	68.0	65.0	63.0	61.0	59.0	56.0	55.0	54.0	61.6	0.0	61.6
	18	61.2	77.7	53.5	69.0	67.0	64.0	63.0	60.0	59.0	57.0	56.0	55.0	61.2	0.0	61.2
Evening	19	61.5	87.2	53.7	67.0	66.0	63.0	62.0	60.0	58.0	56.0	56.0	55.0	61.5	5.0	66.5
	20	60.6	75.3	52.6	68.0	66.0	64.0	63.0	60.0	59.0	56.0	56.0	54.0	60.6	5.0	65.6
	21	60.8	75.3	54.0	67.0	65.0	64.0	63.0	61.0	59.0	57.0	56.0	55.0	60.8	5.0	65.8
Night	22	59.3	70.1	52.5	65.0	64.0	63.0	62.0	59.0	58.0	55.0	55.0	53.0	59.3	10.0	69.3
	23	59.0	78.0	50.7	65.0	64.0	62.0	61.0	59.0	57.0	54.0	54.0	52.0	59.0	10.0	69.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	54.0	68.4	45.4	61.0	60.0	58.0	56.0	53.0	51.0	48.0	48.0	47.0
	Max	61.6	83.0	53.7	70.0	68.0	65.0	63.0	61.0	59.0	57.0	56.0	55.0
Energy Average		57.8	Average:		64.5	62.8	60.0	58.8	56.1	54.2	51.3	50.3	49.0
Evening	Min	60.6	75.3	52.6	67.0	65.0	63.0	62.0	60.0	58.0	56.0	56.0	54.0
	Max	61.5	87.2	54.0	68.0	66.0	64.0	63.0	61.0	59.0	57.0	56.0	55.0
Energy Average		61.0	Average:		67.3	65.7	63.7	62.7	60.3	58.7	56.3	56.0	54.7
Night	Min	55.1	65.9	44.8	59.0	58.0	57.0	56.0	54.0	52.0	49.0	48.0	46.0
	Max	62.1	81.3	55.1	69.0	67.0	65.0	64.0	62.0	60.0	58.0	57.0	56.0
Energy Average		59.2	Average:		64.3	63.2	61.8	60.8	58.6	56.8	53.6	52.9	51.2

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
58.9	58.7	59.2

24-Hour CNEL (dBA)
66.0

24-Hour Noise Level Measurement Summary

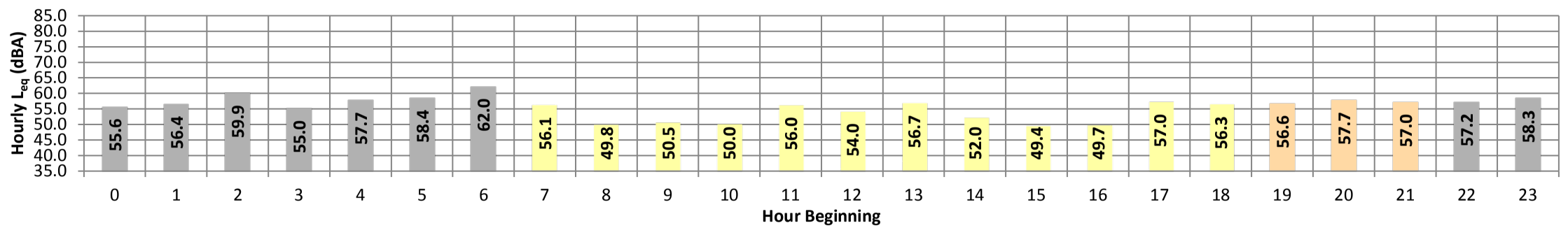
Date: Wednesday, April 18, 2018
Project: Cathedral City General Plan Update

Location: L2 - Located near existing residential homes and Rio Vista Elementary School, south of I-10 and the UPRR lines, west of Landaur Boulevard.

Meter: Piccolo I

JN: 11475
Analyst: A.Wolfe

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	55.6	71.8	46.0	62.0	61.0	60.0	59.0	56.0	53.0	49.0	48.0	46.0	55.6	10.0	65.6
	1	56.4	69.9	42.7	66.0	63.0	61.0	60.0	56.0	53.0	47.0	46.0	44.0	56.4	10.0	66.4
	2	59.9	72.5	42.7	70.0	69.0	67.0	64.0	58.0	54.0	49.0	48.0	46.0	59.9	10.0	69.9
	3	55.0	67.2	44.1	64.0	63.0	58.0	57.0	55.0	52.0	49.0	48.0	46.0	55.0	10.0	65.0
	4	57.7	69.1	48.8	66.0	65.0	63.0	61.0	57.0	55.0	52.0	51.0	50.0	57.7	10.0	67.7
	5	58.4	70.9	50.5	67.0	66.0	63.0	62.0	57.0	55.0	53.0	52.0	51.0	58.4	10.0	68.4
	6	62.0	77.1	53.2	71.0	70.0	67.0	66.0	60.0	58.0	56.0	55.0	54.0	62.0	10.0	72.0
Day	7	56.1	74.4	43.3	66.0	62.0	59.0	58.0	56.0	52.0	46.0	45.0	45.0	56.1	0.0	56.1
	8	49.8	69.6	40.7	58.0	57.0	54.0	53.0	48.0	46.0	43.0	42.0	42.0	49.8	0.0	49.8
	9	50.5	73.2	39.4	61.0	58.0	55.0	53.0	47.0	44.0	41.0	40.0	39.0	50.5	0.0	50.5
	10	50.0	68.6	39.8	62.0	59.0	53.0	51.0	47.0	45.0	42.0	41.0	40.0	50.0	0.0	50.0
	11	56.0	76.9	39.8	68.0	66.0	61.0	57.0	51.0	47.0	43.0	42.0	41.0	56.0	0.0	56.0
	12	54.0	75.9	41.1	65.0	62.0	56.0	55.0	51.0	48.0	44.0	43.0	42.0	54.0	0.0	54.0
	13	56.7	85.1	41.8	66.0	64.0	58.0	56.0	53.0	50.0	44.0	44.0	42.0	56.7	0.0	56.7
	14	52.0	74.7	40.9	63.0	60.0	55.0	53.0	49.0	46.0	42.0	42.0	41.0	52.0	0.0	52.0
	15	49.4	68.6	40.3	61.0	58.0	53.0	51.0	46.0	44.0	42.0	41.0	41.0	49.4	0.0	49.4
	16	49.7	70.5	42.3	58.0	56.0	53.0	52.0	48.0	47.0	44.0	43.0	42.0	49.7	0.0	49.7
	17	57.0	83.2	40.9	67.0	64.0	61.0	59.0	55.0	52.0	44.0	43.0	42.0	57.0	0.0	57.0
	18	56.3	72.3	48.4	64.0	63.0	61.0	60.0	56.0	53.0	51.0	50.0	49.0	56.3	0.0	56.3
Evening	19	56.6	71.4	48.6	64.0	62.0	60.0	60.0	56.0	54.0	52.0	51.0	50.0	56.6	5.0	61.6
	20	57.7	80.5	49.1	65.0	63.0	61.0	60.0	57.0	54.0	52.0	51.0	50.0	57.7	5.0	62.7
	21	57.0	69.6	48.3	65.0	64.0	62.0	60.0	57.0	54.0	51.0	51.0	49.0	57.0	5.0	62.0
Night	22	57.2	69.6	47.1	65.0	63.0	61.0	60.0	57.0	55.0	51.0	50.0	48.0	57.2	10.0	67.2
	23	58.3	70.0	48.6	66.0	65.0	63.0	62.0	58.0	56.0	52.0	51.0	50.0	58.3	10.0	68.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	49.4	68.6	39.4	58.0	56.0	53.0	51.0	46.0	44.0	41.0	40.0	39.0
	Max	57.0	85.1	48.4	68.0	66.0	61.0	60.0	56.0	53.0	51.0	50.0	49.0
Energy Average		54.1	Average:		63.3	60.8	56.6	54.8	50.6	47.8	43.8	43.0	42.2
Evening	Min	56.6	69.6	48.3	64.0	62.0	60.0	60.0	56.0	54.0	51.0	51.0	49.0
	Max	57.7	80.5	49.1	65.0	64.0	62.0	60.0	57.0	54.0	52.0	51.0	50.0
Energy Average		57.1	Average:		64.7	63.0	61.0	60.0	56.7	54.0	51.7	51.0	49.7
Night	Min	55.0	67.2	42.7	62.0	61.0	58.0	57.0	55.0	52.0	47.0	46.0	44.0
	Max	62.0	77.1	53.2	71.0	70.0	67.0	66.0	60.0	58.0	56.0	55.0	54.0
Energy Average		58.4	Average:		66.3	65.0	62.6	61.2	57.1	54.6	50.9	49.9	48.3

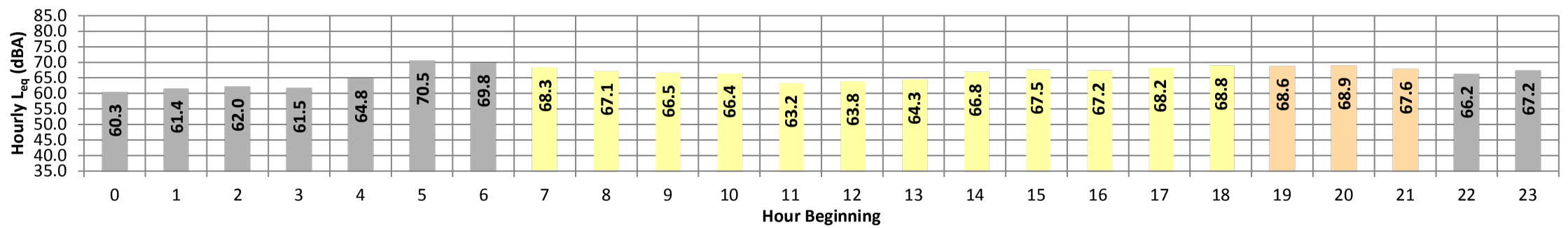
L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
56.5	54.9	58.4

24-Hour CNEL (dBA)
64.6

24-Hour Noise Level Measurement Summary

Date: Wednesday, April 18, 2018
Project: Cathedral City General Plan Update
Location: L3 - Located north of I-10 on Date Palm Drive near existing vacant land.
Meter: Piccolo I
JN: 11475
Analyst: A.Wolfe

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	60.3	78.2	47.2	70.0	68.0	64.0	62.0	59.0	57.0	53.0	51.0	49.0	60.3	10.0	70.3
	1	61.4	77.1	49.3	70.0	68.0	65.0	64.0	61.0	59.0	55.0	54.0	52.0	61.4	10.0	71.4
	2	62.0	80.6	46.8	70.0	68.0	66.0	65.0	61.0	59.0	55.0	53.0	50.0	62.0	10.0	72.0
	3	61.5	80.3	49.0	71.0	69.0	66.0	64.0	60.0	58.0	54.0	53.0	52.0	61.5	10.0	71.5
	4	64.8	86.0	52.7	75.0	73.0	69.0	67.0	63.0	60.0	56.0	55.0	54.0	64.8	10.0	74.8
	5	70.5	88.9	55.4	81.0	79.0	75.0	73.0	69.0	65.0	61.0	61.0	59.0	70.5	10.0	80.5
	6	69.8	85.3	57.0	78.0	76.0	74.0	73.0	70.0	67.0	62.0	60.0	58.0	69.8	10.0	79.8
Day	7	68.3	90.2	50.5	78.0	76.0	73.0	72.0	68.0	63.0	55.0	53.0	52.0	68.3	0.0	68.3
	8	67.1	85.9	48.5	77.0	75.0	72.0	71.0	66.0	61.0	53.0	51.0	50.0	67.1	0.0	67.1
	9	66.5	88.3	45.3	78.0	75.0	71.0	70.0	64.0	57.0	51.0	49.0	47.0	66.5	0.0	66.5
	10	66.4	89.2	47.3	78.0	75.0	71.0	69.0	62.0	56.0	51.0	50.0	48.0	66.4	0.0	66.4
	11	63.2	82.0	44.2	73.0	71.0	69.0	67.0	62.0	55.0	49.0	48.0	45.0	63.2	0.0	63.2
	12	63.8	81.5	44.2	75.0	73.0	69.0	68.0	62.0	55.0	47.0	46.0	45.0	63.8	0.0	63.8
	13	64.3	82.8	44.3	74.0	73.0	70.0	69.0	63.0	57.0	50.0	48.0	47.0	64.3	0.0	64.3
	14	66.8	88.0	45.2	78.0	75.0	71.0	70.0	65.0	59.0	51.0	49.0	46.0	66.8	0.0	66.8
	15	67.5	89.2	46.8	77.0	75.0	72.0	70.0	66.0	60.0	51.0	50.0	48.0	67.5	0.0	67.5
	16	67.2	87.8	48.3	77.0	75.0	72.0	71.0	66.0	61.0	53.0	52.0	50.0	67.2	0.0	67.2
	17	68.2	88.3	49.2	78.0	75.0	73.0	72.0	68.0	62.0	54.0	52.0	50.0	68.2	0.0	68.2
	18	68.8	86.0	55.2	77.0	76.0	74.0	73.0	69.0	64.0	60.0	59.0	57.0	68.8	0.0	68.8
Evening	19	68.6	87.6	55.7	76.0	75.0	73.0	72.0	69.0	64.0	60.0	59.0	58.0	68.6	5.0	73.6
	20	68.9	88.5	55.9	78.0	76.0	74.0	72.0	68.0	64.0	60.0	59.0	57.0	68.9	5.0	73.9
	21	67.6	81.6	55.0	76.0	75.0	73.0	72.0	67.0	63.0	59.0	58.0	57.0	67.6	5.0	72.6
Night	22	66.2	81.4	55.5	74.0	73.0	71.0	70.0	66.0	63.0	59.0	58.0	57.0	66.2	10.0	76.2
	23	67.2	79.9	52.6	75.0	74.0	72.0	71.0	67.0	64.0	60.0	58.0	57.0	67.2	10.0	77.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	63.2	81.5	44.2	73.0	71.0	69.0	67.0	62.0	55.0	47.0	46.0	45.0
	Max	68.8	90.2	55.2	78.0	76.0	74.0	73.0	69.0	64.0	60.0	59.0	57.0
Energy Average		66.8	Average:		76.7	74.5	71.4	70.2	65.1	59.2	52.1	50.6	48.8
Evening	Min	67.6	81.6	55.0	76.0	75.0	73.0	72.0	67.0	63.0	59.0	58.0	57.0
	Max	68.9	88.5	55.9	78.0	76.0	74.0	72.0	69.0	64.0	60.0	59.0	58.0
Energy Average		68.4	Average:		76.7	75.3	73.3	72.0	68.0	63.7	59.7	58.7	57.3
Night	Min	60.3	77.1	46.8	70.0	68.0	64.0	62.0	59.0	57.0	53.0	51.0	49.0
	Max	70.5	88.9	57.0	81.0	79.0	75.0	73.0	70.0	67.0	62.0	61.0	59.0
Energy Average		66.3	Average:		73.8	72.0	69.1	67.7	64.0	61.3	57.2	55.9	54.2

L_{eq} (dBA)

24-Hour	Daytime	Nighttime
66.9	**67.2**	**66.3**

24-Hour CNEL (dBA)

73.3

24-Hour Noise Level Measurement Summary

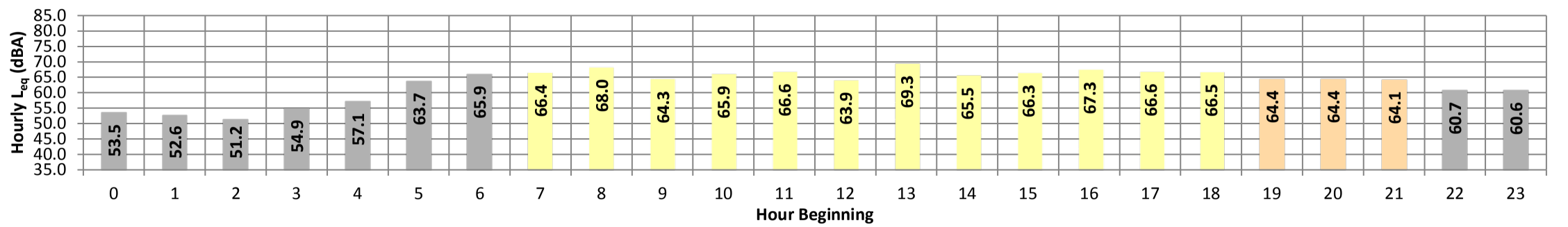
Date: Wednesday, April 18, 2018
Project: Cathedral City General Plan Update

Location: L4 - Located near existing residential homes and Landau Elementary School on Landau Boulevard.

Meter: Piccolo I

JN: 11475
Analyst: A.Wolfe

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	53.5	72.2	39.3	66.0	64.0	60.0	58.0	48.0	43.0	40.0	39.0	39.0	53.5	10.0	63.5
	1	52.6	74.4	39.3	65.0	62.0	57.0	53.0	46.0	43.0	41.0	41.0	39.0	52.6	10.0	62.6
	2	51.2	73.3	39.3	63.0	60.0	55.0	52.0	47.0	44.0	40.0	39.0	39.0	51.2	10.0	61.2
	3	54.9	72.8	39.3	67.0	65.0	61.0	58.0	49.0	44.0	41.0	41.0	41.0	54.9	10.0	64.9
	4	57.1	76.2	42.3	69.0	67.0	63.0	62.0	53.0	48.0	44.0	43.0	43.0	57.1	10.0	67.1
	5	63.7	83.8	45.7	74.0	73.0	69.0	68.0	62.0	56.0	50.0	49.0	47.0	63.7	10.0	73.7
	6	65.9	83.8	49.1	75.0	73.0	71.0	70.0	66.0	62.0	55.0	54.0	52.0	65.9	10.0	75.9
Day	7	66.4	88.5	48.3	75.0	73.0	71.0	70.0	66.0	62.0	54.0	53.0	50.0	66.4	0.0	66.4
	8	68.0	92.6	43.5	77.0	74.0	71.0	69.0	65.0	60.0	52.0	51.0	49.0	68.0	0.0	68.0
	9	64.3	86.3	44.8	73.0	71.0	69.0	68.0	64.0	59.0	51.0	50.0	47.0	64.3	0.0	64.3
	10	65.9	91.1	46.7	75.0	73.0	70.0	69.0	64.0	60.0	53.0	51.0	49.0	65.9	0.0	65.9
	11	66.6	91.3	47.1	75.0	73.0	70.0	69.0	64.0	61.0	53.0	52.0	50.0	66.6	0.0	66.6
	12	63.9	82.7	44.0	73.0	72.0	69.0	68.0	63.0	59.0	52.0	51.0	48.0	63.9	0.0	63.9
	13	69.3	98.2	47.1	76.0	73.0	70.0	69.0	64.0	60.0	53.0	51.0	49.0	69.3	0.0	69.3
	14	65.5	82.7	48.2	75.0	73.0	71.0	69.0	65.0	61.0	54.0	52.0	50.0	65.5	0.0	65.5
	15	66.3	88.5	49.0	76.0	74.0	71.0	70.0	65.0	61.0	55.0	53.0	52.0	66.3	0.0	66.3
	16	67.3	92.9	46.9	76.0	73.0	71.0	69.0	65.0	62.0	55.0	53.0	49.0	67.3	0.0	67.3
	17	66.6	90.1	48.1	77.0	74.0	71.0	69.0	65.0	60.0	52.0	51.0	49.0	66.6	0.0	66.6
	18	66.5	93.9	49.5	75.0	73.0	70.0	68.0	64.0	61.0	55.0	54.0	52.0	66.5	0.0	66.5
Evening	19	64.4	88.2	49.2	73.0	71.0	68.0	67.0	63.0	60.0	55.0	54.0	52.0	64.4	5.0	69.4
	20	64.4	85.8	47.8	74.0	71.0	69.0	67.0	63.0	59.0	53.0	52.0	50.0	64.4	5.0	69.4
	21	64.1	90.0	46.8	74.0	71.0	67.0	66.0	62.0	59.0	52.0	51.0	49.0	64.1	5.0	69.1
Night	22	60.7	80.2	47.0	70.0	68.0	65.0	64.0	60.0	57.0	51.0	49.0	48.0	60.7	10.0	70.7
	23	60.6	81.6	45.3	70.0	67.0	64.0	63.0	60.0	57.0	52.0	50.0	47.0	60.6	10.0	70.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	63.9	82.7	43.5	73.0	71.0	69.0	68.0	63.0	59.0	51.0	50.0	47.0
	Max	69.3	98.2	49.5	77.0	74.0	71.0	70.0	66.0	62.0	55.0	54.0	52.0
Energy Average		66.6	Average:		75.3	73.0	70.3	68.9	64.5	60.5	53.3	51.8	49.5
Evening	Min	64.1	85.8	46.8	73.0	71.0	67.0	66.0	62.0	59.0	52.0	51.0	49.0
	Max	64.4	90.0	49.2	74.0	71.0	69.0	67.0	63.0	60.0	55.0	54.0	52.0
Energy Average		64.3	Average:		73.7	71.0	68.0	66.7	62.7	59.3	53.3	52.3	50.3
Night	Min	51.2	72.2	39.3	63.0	60.0	55.0	52.0	46.0	43.0	40.0	39.0	39.0
	Max	65.9	83.8	49.1	75.0	73.0	71.0	70.0	66.0	62.0	55.0	54.0	52.0
Energy Average		60.4	Average:		68.8	66.6	62.8	60.9	54.6	50.4	46.0	45.0	43.9

L_{eq} (dBA)

24-Hour	Daytime	Nighttime
64.8	66.2	60.4

24-Hour CNEL (dBA)

68.7

24-Hour Noise Level Measurement Summary

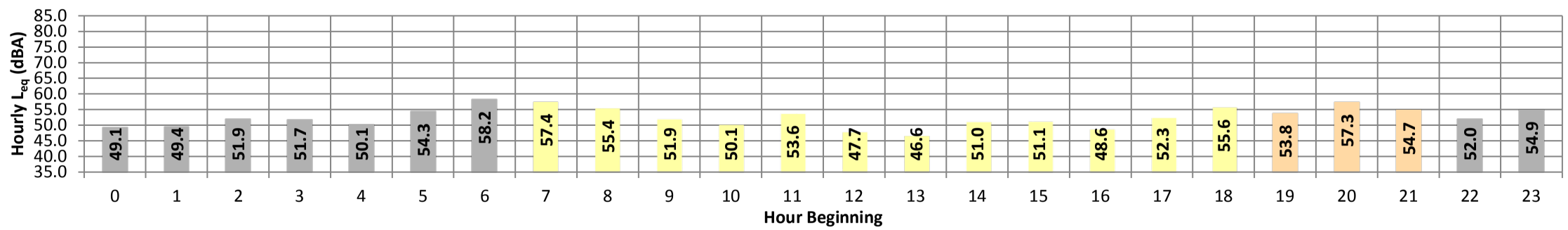
Date: Wednesday, April 18, 2018
Project: Cathedral City General Plan Update

Location: L5 - Located on Santoro Drive near existing residential homes and James Workman Middle School.

Meter: Piccolo I

JN: 11475
Analyst: A.Wolfe

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	49.1	74.0	41.3	57.0	55.0	51.0	51.0	49.0	47.0	44.0	43.0	42.0	49.1	10.0	59.1
	1	49.4	68.5	39.5	59.0	57.0	55.0	54.0	46.0	44.0	42.0	41.0	39.0	49.4	10.0	59.4
	2	51.9	63.9	39.5	61.0	61.0	59.0	57.0	49.0	47.0	43.0	42.0	41.0	51.9	10.0	61.9
	3	51.7	69.8	40.9	62.0	61.0	59.0	54.0	48.0	46.0	43.0	42.0	41.0	51.7	10.0	61.7
	4	50.1	65.8	43.2	59.0	57.0	55.0	52.0	48.0	47.0	45.0	45.0	44.0	50.1	10.0	60.1
	5	54.3	69.8	45.9	63.0	62.0	60.0	58.0	53.0	51.0	48.0	47.0	46.0	54.3	10.0	64.3
	6	58.2	73.5	49.9	65.0	64.0	62.0	62.0	58.0	55.0	52.0	52.0	51.0	58.2	10.0	68.2
Day	7	57.4	82.4	43.7	68.0	63.0	58.0	56.0	52.0	50.0	46.0	45.0	44.0	57.4	0.0	57.4
	8	55.4	82.9	39.4	64.0	61.0	57.0	53.0	46.0	44.0	41.0	41.0	41.0	55.4	0.0	55.4
	9	51.9	73.8	36.5	65.0	62.0	57.0	55.0	44.0	41.0	37.0	36.0	36.0	51.9	0.0	51.9
	10	50.1	73.4	36.5	63.0	60.0	54.0	51.0	42.0	39.0	36.0	36.0	36.0	50.1	0.0	50.1
	11	53.6	74.4	36.5	64.0	62.0	60.0	58.0	51.0	44.0	39.0	37.0	36.0	53.6	0.0	53.6
	12	47.7	72.3	36.5	59.0	57.0	53.0	51.0	43.0	39.0	36.0	36.0	36.0	47.7	0.0	47.7
	13	46.6	69.9	36.5	58.0	55.0	51.0	49.0	41.0	39.0	36.0	36.0	36.0	46.6	0.0	46.6
	14	51.0	76.6	36.5	62.0	58.0	52.0	50.0	43.0	39.0	36.0	36.0	36.0	51.0	0.0	51.0
	15	51.1	74.9	36.5	65.0	60.0	54.0	51.0	44.0	40.0	36.0	36.0	36.0	51.1	0.0	51.1
	16	48.6	67.5	36.5	61.0	59.0	54.0	52.0	43.0	40.0	36.0	36.0	36.0	48.6	0.0	48.6
	17	52.3	74.6	36.5	64.0	61.0	58.0	56.0	48.0	45.0	39.0	38.0	36.0	52.3	0.0	52.3
	18	55.6	75.4	47.5	65.0	63.0	60.0	58.0	54.0	52.0	49.0	49.0	48.0	55.6	0.0	55.6
Evening	19	53.8	66.8	48.2	61.0	59.0	58.0	56.0	53.0	52.0	50.0	49.0	49.0	53.8	5.0	58.8
	20	57.3	86.8	48.1	59.0	56.0	54.0	53.0	52.0	51.0	49.0	49.0	49.0	57.3	5.0	62.3
	21	54.7	84.0	46.9	62.0	60.0	58.0	56.0	52.0	50.0	49.0	48.0	47.0	54.7	5.0	59.7
Night	22	52.0	66.4	46.8	58.0	57.0	55.0	54.0	52.0	51.0	48.0	48.0	47.0	52.0	10.0	62.0
	23	54.9	79.4	46.8	61.0	60.0	58.0	57.0	55.0	53.0	49.0	49.0	47.0	54.9	10.0	64.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	46.6	67.5	36.5	58.0	55.0	51.0	49.0	41.0	39.0	36.0	36.0	36.0
	Max	57.4	82.9	47.5	68.0	63.0	60.0	58.0	54.0	52.0	49.0	49.0	48.0
Energy Average		52.9	Average:		63.2	60.1	55.7	53.3	45.9	42.7	38.9	38.5	38.1
Evening	Min	53.8	66.8	46.9	59.0	56.0	54.0	53.0	52.0	50.0	49.0	48.0	47.0
	Max	57.3	86.8	48.2	62.0	60.0	58.0	56.0	53.0	52.0	50.0	49.0	49.0
Energy Average		55.5	Average:		60.7	58.3	56.7	55.0	52.3	51.0	49.3	48.7	48.3
Night	Min	49.1	63.9	39.5	57.0	55.0	51.0	51.0	46.0	44.0	42.0	41.0	39.0
	Max	58.2	79.4	49.9	65.0	64.0	62.0	62.0	58.0	55.0	52.0	52.0	51.0
Energy Average		53.4	Average:		60.6	59.3	57.1	55.4	50.9	49.0	46.0	45.4	44.2

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
53.5	53.6	53.4

24-Hour CNEL (dBA)
60.3

24-Hour Noise Level Measurement Summary

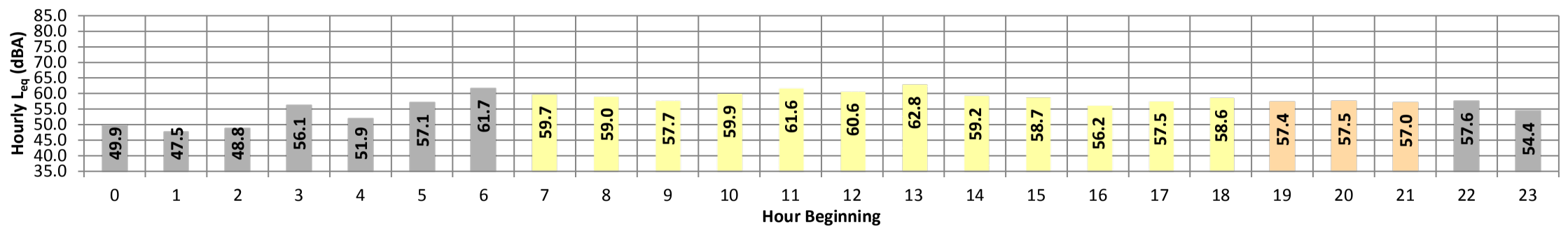
Date: Wednesday, April 18, 2018
Project: Cathedral City General Plan Update

Location: L6 - Located south of Ramon Road near existing commercial uses, southeast of Palm Springs International Airport.

Meter: Piccolo I

JN: 11475
Analyst: A.Wolfe

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	49.9	68.8	41.2	59.0	57.0	55.0	53.0	49.0	46.0	42.0	42.0	41.0	49.9	10.0	59.9
	1	47.5	63.8	40.6	56.0	54.0	51.0	50.0	47.0	45.0	42.0	41.0	41.0	47.5	10.0	57.5
	2	48.8	62.7	41.2	55.0	54.0	53.0	52.0	49.0	47.0	43.0	42.0	41.0	48.8	10.0	58.8
	3	56.1	70.8	42.9	66.0	63.0	61.0	60.0	55.0	51.0	46.0	45.0	44.0	56.1	10.0	66.1
	4	51.9	69.4	44.9	58.0	56.0	54.0	54.0	52.0	50.0	48.0	47.0	46.0	51.9	10.0	61.9
	5	57.1	75.9	47.4	66.0	64.0	61.0	60.0	56.0	54.0	51.0	50.0	49.0	57.1	10.0	67.1
	6	61.7	84.6	52.2	71.0	68.0	66.0	63.0	59.0	57.0	55.0	54.0	53.0	61.7	10.0	71.7
Day	7	59.7	85.0	48.3	67.0	66.0	63.0	62.0	58.0	57.0	53.0	52.0	51.0	59.7	0.0	59.7
	8	59.0	80.6	47.9	68.0	66.0	62.0	61.0	57.0	55.0	51.0	51.0	49.0	59.0	0.0	59.0
	9	57.7	80.0	45.9	66.0	64.0	61.0	59.0	57.0	55.0	51.0	50.0	48.0	57.7	0.0	57.7
	10	59.9	79.7	47.8	71.0	69.0	63.0	61.0	57.0	55.0	51.0	50.0	49.0	59.9	0.0	59.9
	11	61.6	80.7	47.3	74.0	70.0	65.0	64.0	59.0	56.0	52.0	51.0	49.0	61.6	0.0	61.6
	12	60.6	82.5	47.0	72.0	70.0	64.0	61.0	57.0	55.0	51.0	50.0	49.0	60.6	0.0	60.6
	13	62.8	84.2	48.8	75.0	72.0	67.0	63.0	57.0	55.0	52.0	51.0	50.0	62.8	0.0	62.8
	14	59.2	84.5	48.8	68.0	65.0	62.0	60.0	57.0	54.0	51.0	50.0	49.0	59.2	0.0	59.2
	15	58.7	77.5	48.4	70.0	67.0	62.0	60.0	56.0	54.0	51.0	50.0	49.0	58.7	0.0	58.7
	16	56.2	74.1	47.7	63.0	62.0	60.0	59.0	56.0	54.0	51.0	50.0	49.0	56.2	0.0	56.2
	17	57.5	72.6	48.3	66.0	64.0	61.0	60.0	57.0	55.0	52.0	51.0	50.0	57.5	0.0	57.5
	18	58.6	73.9	49.7	68.0	66.0	62.0	61.0	58.0	56.0	53.0	52.0	51.0	58.6	0.0	58.6
Evening	19	57.4	74.4	49.5	66.0	64.0	61.0	60.0	57.0	55.0	52.0	51.0	50.0	57.4	5.0	62.4
	20	57.5	77.8	48.0	66.0	64.0	61.0	60.0	56.0	54.0	51.0	50.0	49.0	57.5	5.0	62.5
	21	57.0	74.9	46.9	67.0	64.0	61.0	59.0	56.0	53.0	50.0	49.0	48.0	57.0	5.0	62.0
Night	22	57.6	77.9	47.8	67.0	65.0	62.0	60.0	56.0	54.0	50.0	49.0	48.0	57.6	10.0	67.6
	23	54.4	72.8	46.0	63.0	61.0	58.0	56.0	54.0	52.0	49.0	48.0	47.0	54.4	10.0	64.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	56.2	72.6	45.9	63.0	62.0	60.0	59.0	56.0	54.0	51.0	50.0	48.0
	Max	62.8	85.0	49.7	75.0	72.0	67.0	64.0	59.0	57.0	53.0	52.0	51.0
Energy Average		59.6	Average:		69.0	66.8	62.7	60.9	57.2	55.1	51.6	50.7	49.4
Evening	Min	57.0	74.4	46.9	66.0	64.0	61.0	59.0	56.0	53.0	50.0	49.0	48.0
	Max	57.5	77.8	49.5	67.0	64.0	61.0	60.0	57.0	55.0	52.0	51.0	50.0
Energy Average		57.3	Average:		66.3	64.0	61.0	59.7	56.3	54.0	51.0	50.0	49.0
Night	Min	47.5	62.7	40.6	55.0	54.0	51.0	50.0	47.0	45.0	42.0	41.0	41.0
	Max	61.7	84.6	52.2	71.0	68.0	66.0	63.0	59.0	57.0	55.0	54.0	53.0
Energy Average		56.1	Average:		62.3	60.2	57.9	56.4	53.0	50.7	47.3	46.4	45.6

L_{eq} (dBA)

24-Hour	Daytime	Nighttime
58.3	**59.3**	**56.1**

24-Hour CNEL (dBA)

63.4

24-Hour Noise Level Measurement Summary

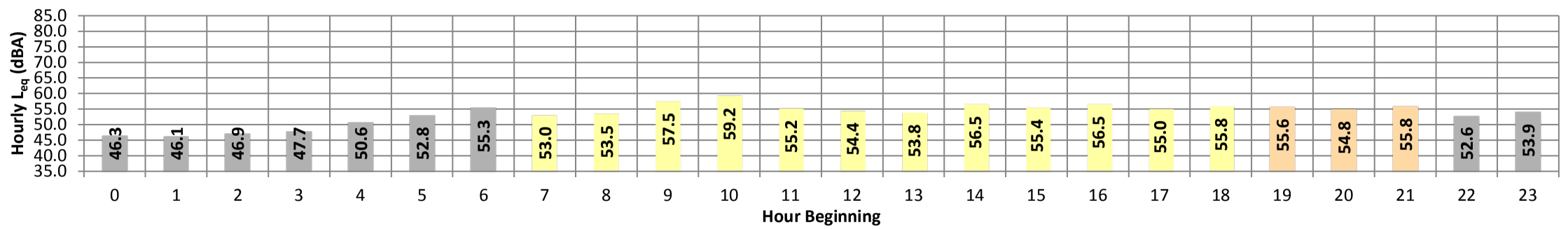
Date: Wednesday, April 18, 2018
Project: Cathedral City General Plan Update

Location: L7 - Located west of Date Palm Drive near existing commercial and residential uses north of Ramon Road.

Meter: Piccolo I

JN: 11475
Analyst: A.Wolfe

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	46.3	63.2	42.2	54.0	53.0	49.0	47.0	46.0	44.0	43.0	43.0	42.0	46.3	10.0	56.3
	1	46.1	63.8	42.0	53.0	51.0	49.0	48.0	45.0	44.0	43.0	43.0	42.0	46.1	10.0	56.1
	2	46.9	59.9	42.1	54.0	53.0	51.0	50.0	46.0	45.0	43.0	43.0	42.0	46.9	10.0	56.9
	3	47.7	71.1	41.9	55.0	54.0	52.0	51.0	46.0	45.0	43.0	42.0	42.0	47.7	10.0	57.7
	4	50.6	67.3	43.8	58.0	57.0	55.0	54.0	50.0	48.0	45.0	45.0	44.0	50.6	10.0	60.6
	5	52.8	67.8	45.0	60.0	58.0	56.0	55.0	53.0	51.0	47.0	46.0	46.0	52.8	10.0	62.8
	6	55.3	72.3	48.5	62.0	61.0	59.0	58.0	55.0	53.0	51.0	50.0	49.0	55.3	10.0	65.3
Day	7	53.0	68.3	46.4	61.0	60.0	57.0	56.0	52.0	50.0	48.0	48.0	47.0	53.0	0.0	53.0
	8	53.5	71.2	45.9	63.0	61.0	58.0	56.0	52.0	50.0	47.0	47.0	46.0	53.5	0.0	53.5
	9	57.5	81.7	45.2	69.0	66.0	60.0	58.0	53.0	50.0	47.0	47.0	46.0	57.5	0.0	57.5
	10	59.2	80.7	45.5	70.0	65.0	62.0	61.0	59.0	53.0	49.0	48.0	47.0	59.2	0.0	59.2
	11	55.2	74.3	45.9	65.0	63.0	61.0	58.0	53.0	50.0	48.0	47.0	47.0	55.2	0.0	55.2
	12	54.4	74.0	46.1	64.0	62.0	58.0	57.0	53.0	51.0	48.0	47.0	47.0	54.4	0.0	54.4
	13	53.8	69.3	46.1	63.0	61.0	59.0	57.0	53.0	50.0	48.0	47.0	46.0	53.8	0.0	53.8
	14	56.5	72.9	47.4	66.0	65.0	62.0	60.0	55.0	52.0	49.0	49.0	48.0	56.5	0.0	56.5
	15	55.4	74.8	47.0	64.0	62.0	60.0	58.0	54.0	52.0	49.0	48.0	48.0	55.4	0.0	55.4
	16	56.5	77.2	46.8	66.0	64.0	61.0	60.0	55.0	52.0	49.0	49.0	48.0	56.5	0.0	56.5
	17	55.0	76.5	47.4	65.0	62.0	59.0	57.0	53.0	51.0	49.0	48.0	48.0	55.0	0.0	55.0
	18	55.8	77.0	47.4	65.0	63.0	60.0	58.0	55.0	52.0	49.0	49.0	48.0	55.8	0.0	55.8
Evening	19	55.6	70.0	47.3	63.0	62.0	60.0	59.0	56.0	52.0	50.0	49.0	48.0	55.6	5.0	60.6
	20	54.8	68.6	47.6	63.0	61.0	59.0	58.0	55.0	52.0	49.0	49.0	48.0	54.8	5.0	59.8
	21	55.8	73.0	46.6	64.0	62.0	61.0	59.0	55.0	53.0	49.0	48.0	47.0	55.8	5.0	60.8
Night	22	52.6	66.8	45.8	61.0	60.0	57.0	56.0	52.0	50.0	47.0	47.0	46.0	52.6	10.0	62.6
	23	53.9	70.1	45.4	63.0	61.0	59.0	58.0	53.0	50.0	47.0	47.0	46.0	53.9	10.0	63.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	53.0	68.3	45.2	61.0	60.0	57.0	56.0	52.0	50.0	47.0	47.0	46.0
	Max	59.2	81.7	47.4	70.0	66.0	62.0	61.0	59.0	53.0	49.0	49.0	48.0
Energy Average		55.8	Average:		65.1	62.8	59.8	58.0	53.9	51.1	48.3	47.8	47.2
Evening	Min	54.8	68.6	46.6	63.0	61.0	59.0	58.0	55.0	52.0	49.0	48.0	47.0
	Max	55.8	73.0	47.6	64.0	62.0	61.0	59.0	56.0	53.0	50.0	49.0	48.0
Energy Average		55.4	Average:		63.3	61.7	60.0	58.7	55.3	52.3	49.3	48.7	47.7
Night	Min	46.1	59.9	41.9	53.0	51.0	49.0	47.0	45.0	44.0	43.0	42.0	42.0
	Max	55.3	72.3	48.5	63.0	61.0	59.0	58.0	55.0	53.0	51.0	50.0	49.0
Energy Average		51.5	Average:		57.8	56.4	54.1	53.0	49.6	47.8	45.4	45.1	44.3

L_{eq} (dBA)

24-Hour	Daytime	Nighttime
54.6	**55.8**	**51.5**

24-Hour CNEL (dBA)

59.3

24-Hour Noise Level Measurement Summary

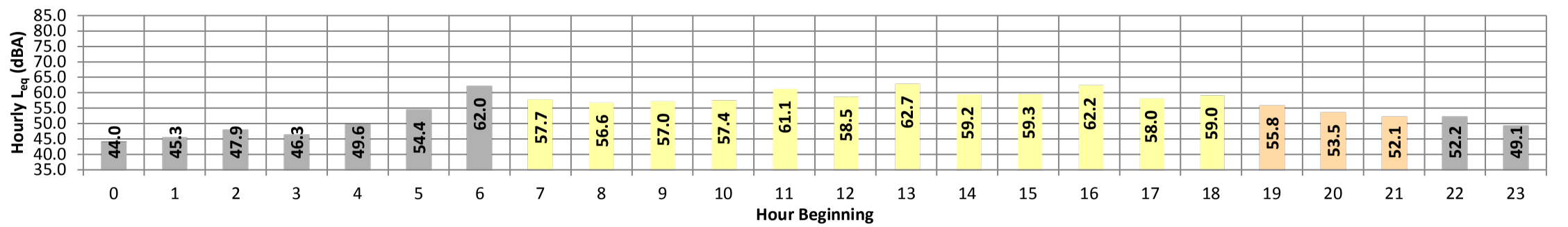
Date: Wednesday, April 18, 2018
Project: Cathedral City General Plan Update

Location: L8 - Located south of Dina Shore Drive, east of Date Palm Drive, near existing commercial and residential uses.

Meter: Piccolo I

JN: 11475
Analyst: A.Wolfe

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	44.0	66.0	38.2	52.0	49.0	47.0	45.0	42.0	41.0	38.0	38.0	38.0	44.0	10.0	54.0
	1	45.3	73.4	37.3	52.0	49.0	46.0	44.0	41.0	40.0	38.0	38.0	38.0	45.3	10.0	55.3
	2	47.9	77.2	35.3	54.0	50.0	46.0	45.0	41.0	39.0	38.0	38.0	35.0	47.9	10.0	57.9
	3	46.3	73.0	35.3	52.0	50.0	48.0	46.0	43.0	40.0	38.0	38.0	38.0	46.3	10.0	56.3
	4	49.6	72.3	40.0	59.0	56.0	52.0	51.0	47.0	45.0	42.0	41.0	40.0	49.6	10.0	59.6
	5	54.4	79.2	44.1	64.0	61.0	56.0	54.0	51.0	49.0	47.0	46.0	45.0	54.4	10.0	64.4
	6	62.0	82.7	45.5	76.0	72.0	64.0	60.0	54.0	52.0	50.0	49.0	48.0	62.0	10.0	72.0
Day	7	57.7	79.7	42.9	71.0	68.0	61.0	57.0	52.0	50.0	46.0	45.0	44.0	57.7	0.0	57.7
	8	56.6	76.4	42.2	69.0	67.0	62.0	59.0	51.0	49.0	45.0	44.0	43.0	56.6	0.0	56.6
	9	57.0	76.8	39.8	70.0	68.0	62.0	58.0	51.0	48.0	44.0	43.0	41.0	57.0	0.0	57.0
	10	57.4	78.8	41.9	70.0	67.0	62.0	58.0	51.0	48.0	45.0	44.0	43.0	57.4	0.0	57.4
	11	61.1	86.9	42.1	73.0	69.0	64.0	61.0	53.0	49.0	45.0	45.0	43.0	61.1	0.0	61.1
	12	58.5	79.6	41.3	71.0	68.0	63.0	60.0	53.0	49.0	45.0	44.0	43.0	58.5	0.0	58.5
	13	62.7	85.0	42.1	75.0	73.0	67.0	63.0	54.0	51.0	47.0	46.0	43.0	62.7	0.0	62.7
	14	59.2	82.1	43.2	71.0	68.0	63.0	60.0	54.0	51.0	47.0	46.0	44.0	59.2	0.0	59.2
	15	59.3	81.8	43.1	71.0	69.0	64.0	60.0	52.0	49.0	46.0	45.0	44.0	59.3	0.0	59.3
	16	62.2	93.6	43.6	69.0	66.0	61.0	58.0	53.0	51.0	47.0	46.0	44.0	62.2	0.0	62.2
	17	58.0	79.0	43.6	70.0	67.0	61.0	59.0	54.0	52.0	48.0	47.0	45.0	58.0	0.0	58.0
	18	59.0	79.8	43.9	72.0	69.0	63.0	60.0	54.0	52.0	48.0	47.0	46.0	59.0	0.0	59.0
Evening	19	55.8	74.4	45.7	67.0	64.0	60.0	58.0	54.0	51.0	48.0	47.0	47.0	55.8	5.0	60.8
	20	53.5	73.6	43.1	63.0	60.0	56.0	55.0	52.0	50.0	46.0	45.0	44.0	53.5	5.0	58.5
	21	52.1	72.9	42.8	63.0	59.0	54.0	53.0	50.0	48.0	45.0	44.0	43.0	52.1	5.0	57.1
Night	22	52.2	74.8	41.3	61.0	58.0	55.0	54.0	50.0	48.0	44.0	44.0	42.0	52.2	10.0	62.2
	23	49.1	71.9	41.2	58.0	55.0	51.0	50.0	47.0	45.0	43.0	42.0	42.0	49.1	10.0	59.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	56.6	76.4	39.8	69.0	66.0	61.0	57.0	51.0	48.0	44.0	43.0	41.0
	Max	62.7	93.6	43.9	75.0	73.0	67.0	63.0	54.0	52.0	48.0	47.0	46.0
Energy Average		59.5	Average:		71.0	68.3	62.8	59.4	52.7	49.9	46.1	45.2	43.6
Evening	Min	52.1	72.9	42.8	63.0	59.0	54.0	53.0	50.0	48.0	45.0	44.0	43.0
	Max	55.8	74.4	45.7	67.0	64.0	60.0	58.0	54.0	51.0	48.0	47.0	47.0
Energy Average		54.1	Average:		64.3	61.0	56.7	55.3	52.0	49.7	46.3	45.3	44.7
Night	Min	44.0	66.0	35.3	52.0	49.0	46.0	44.0	41.0	39.0	38.0	38.0	35.0
	Max	62.0	82.7	45.5	76.0	72.0	64.0	60.0	54.0	52.0	50.0	49.0	48.0
Energy Average		54.2	Average:		58.7	55.6	51.7	49.9	46.2	44.3	42.0	41.6	40.7

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
57.6	58.8	54.2

24-Hour CNEL (dBA)
61.9

24-Hour Noise Level Measurement Summary

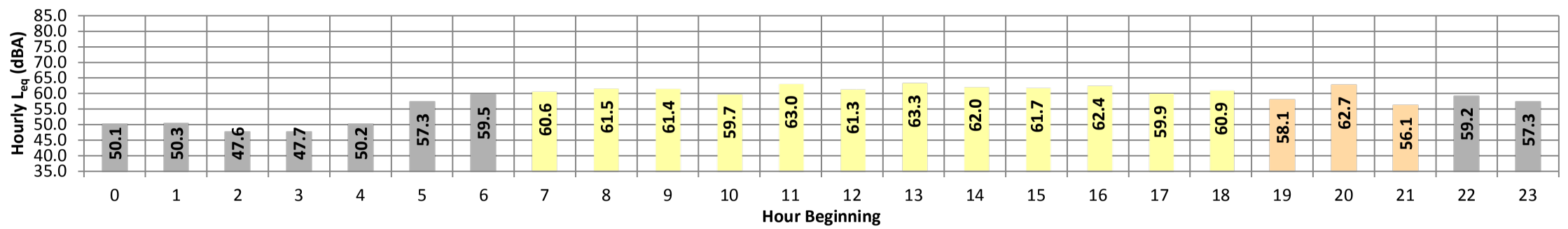
Date: Wednesday, April 18, 2018
Project: Cathedral City General Plan Update

Location: L9 - Located near Highway 111 and Perez Road, adjacent to existing commercial and automobile dealership uses.

Meter: Piccolo I

JN: 11475
Analyst: A.Wolfe

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	50.1	67.3	44.0	60.0	58.0	55.0	53.0	48.0	46.0	45.0	45.0	44.0	50.1	10.0	60.1
	1	50.3	64.7	42.9	60.0	59.0	56.0	54.0	49.0	46.0	44.0	44.0	43.0	50.3	10.0	60.3
	2	47.6	68.7	42.8	56.0	53.0	50.0	49.0	46.0	45.0	43.0	43.0	43.0	47.6	10.0	57.6
	3	47.7	64.1	42.8	58.0	55.0	51.0	50.0	46.0	44.0	43.0	43.0	43.0	47.7	10.0	57.7
	4	50.2	64.4	42.9	60.0	58.0	55.0	53.0	49.0	47.0	45.0	44.0	43.0	50.2	10.0	60.2
	5	57.3	76.6	44.6	68.0	65.0	62.0	61.0	55.0	50.0	47.0	46.0	45.0	57.3	10.0	67.3
	6	59.5	75.9	48.0	68.0	66.0	64.0	63.0	59.0	56.0	51.0	50.0	49.0	59.5	10.0	69.5
Day	7	60.6	78.6	45.9	69.0	67.0	65.0	64.0	61.0	58.0	51.0	50.0	47.0	60.6	0.0	60.6
	8	61.5	78.0	45.5	73.0	70.0	66.0	65.0	60.0	57.0	50.0	49.0	47.0	61.5	0.0	61.5
	9	61.4	80.4	44.4	71.0	69.0	65.0	64.0	60.0	57.0	50.0	49.0	46.0	61.4	0.0	61.4
	10	59.7	73.5	45.4	69.0	67.0	65.0	63.0	60.0	56.0	51.0	49.0	46.0	59.7	0.0	59.7
	11	63.0	86.1	46.1	74.0	70.0	66.0	64.0	60.0	57.0	51.0	50.0	47.0	63.0	0.0	63.0
	12	61.3	83.4	46.2	71.0	68.0	65.0	64.0	60.0	57.0	51.0	50.0	48.0	61.3	0.0	61.3
	13	63.3	85.6	49.4	73.0	71.0	68.0	66.0	62.0	59.0	56.0	55.0	52.0	63.3	0.0	63.3
	14	62.0	82.2	47.6	72.0	69.0	66.0	64.0	61.0	58.0	52.0	50.0	49.0	62.0	0.0	62.0
	15	61.7	81.7	47.5	72.0	69.0	66.0	64.0	60.0	57.0	52.0	50.0	49.0	61.7	0.0	61.7
	16	62.4	82.7	46.4	73.0	71.0	67.0	65.0	61.0	57.0	51.0	50.0	47.0	62.4	0.0	62.4
	17	59.9	81.7	46.1	69.0	67.0	64.0	62.0	59.0	56.0	49.0	48.0	47.0	59.9	0.0	59.9
	18	60.9	88.3	45.5	70.0	67.0	63.0	62.0	58.0	54.0	49.0	48.0	46.0	60.9	0.0	60.9
Evening	19	58.1	81.9	45.6	66.0	65.0	62.0	61.0	57.0	53.0	48.0	48.0	46.0	58.1	5.0	63.1
	20	62.7	75.4	45.9	68.0	67.0	65.0	65.0	64.0	62.0	53.0	50.0	48.0	62.7	5.0	67.7
	21	56.1	75.4	44.3	64.0	63.0	61.0	60.0	56.0	52.0	46.0	46.0	45.0	56.1	5.0	61.1
Night	22	59.2	74.5	45.7	68.0	66.0	62.0	61.0	58.0	57.0	56.0	53.0	47.0	59.2	10.0	69.2
	23	57.3	81.0	44.2	64.0	62.0	60.0	60.0	57.0	52.0	49.0	48.0	45.0	57.3	10.0	67.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	59.7	73.5	44.4	69.0	67.0	63.0	62.0	58.0	54.0	49.0	48.0	46.0
	Max	63.3	88.3	49.4	74.0	71.0	68.0	66.0	62.0	59.0	56.0	55.0	52.0
Energy Average		61.6	Average:		71.3	68.8	65.5	63.9	60.2	56.9	51.1	49.8	47.6
Evening	Min	56.1	75.4	44.3	64.0	63.0	61.0	60.0	56.0	52.0	46.0	46.0	45.0
	Max	62.7	81.9	45.9	68.0	67.0	65.0	65.0	64.0	62.0	53.0	50.0	48.0
Energy Average		59.9	Average:		66.0	65.0	62.7	62.0	59.0	55.7	49.0	48.0	46.3
Night	Min	47.6	64.1	42.8	56.0	53.0	50.0	49.0	46.0	44.0	43.0	43.0	43.0
	Max	59.5	81.0	48.0	68.0	66.0	64.0	63.0	59.0	57.0	56.0	53.0	49.0
Energy Average		55.5	Average:		62.4	60.2	57.2	56.0	51.9	49.2	47.0	46.2	44.7

L_{eq} (dBA)

24-Hour	Daytime	Nighttime
59.9	**61.3**	**55.5**

24-Hour CNEL (dBA)

63.9

24-Hour Noise Level Measurement Summary

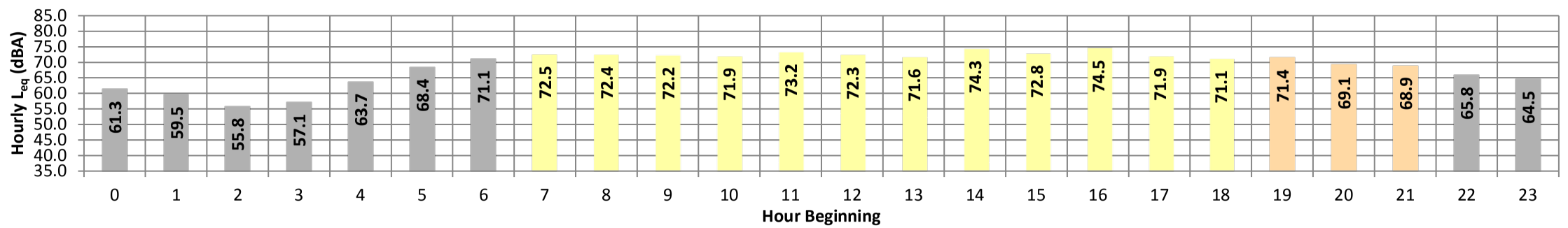
Date: Wednesday, April 18, 2018
Project: Cathedral City General Plan Update

Location: L10 - Located on Cathedral Canyon Drive near an existing recreational vehicle resort and commercial uses.

Meter: Piccolo I

JN: 11475
Analyst: A.Wolfe

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	61.3	87.8	36.3	73.0	71.0	65.0	61.0	46.0	42.0	39.0	39.0	39.0	61.3	10.0	71.3
	1	59.5	81.7	38.6	72.0	70.0	67.0	63.0	47.0	42.0	39.0	39.0	39.0	59.5	10.0	69.5
	2	55.8	79.0	36.3	69.0	66.0	56.0	50.0	41.0	39.0	37.0	36.0	36.0	55.8	10.0	65.8
	3	57.1	78.8	36.3	71.0	68.0	61.0	56.0	44.0	39.0	39.0	37.0	36.0	57.1	10.0	67.1
	4	63.7	85.6	39.3	75.0	72.0	69.0	66.0	59.0	55.0	48.0	43.0	41.0	63.7	10.0	73.7
	5	68.4	89.7	45.7	78.0	76.0	74.0	73.0	67.0	60.0	51.0	50.0	48.0	68.4	10.0	78.4
	6	71.1	87.6	52.4	79.0	78.0	76.0	75.0	71.0	68.0	58.0	56.0	54.0	71.1	10.0	81.1
Day	7	72.5	89.7	51.5	81.0	79.0	77.0	76.0	72.0	69.0	60.0	58.0	54.0	72.5	0.0	72.5
	8	72.4	90.6	48.9	82.0	80.0	77.0	76.0	72.0	69.0	59.0	55.0	50.0	72.4	0.0	72.4
	9	72.2	94.5	49.1	81.0	79.0	76.0	75.0	71.0	67.0	59.0	57.0	52.0	72.2	0.0	72.2
	10	71.9	94.2	48.1	81.0	79.0	76.0	75.0	71.0	68.0	58.0	55.0	50.0	71.9	0.0	71.9
	11	73.2	98.2	49.1	82.0	80.0	77.0	75.0	71.0	67.0	59.0	58.0	52.0	73.2	0.0	73.2
	12	72.3	92.0	46.8	82.0	80.0	77.0	76.0	72.0	67.0	56.0	53.0	49.0	72.3	0.0	72.3
	13	71.6	91.5	47.1	81.0	78.0	76.0	75.0	71.0	67.0	57.0	54.0	49.0	71.6	0.0	71.6
	14	74.3	99.1	47.4	84.0	82.0	78.0	77.0	72.0	68.0	58.0	55.0	50.0	74.3	0.0	74.3
	15	72.8	89.2	47.0	82.0	81.0	78.0	76.0	72.0	68.0	57.0	54.0	50.0	72.8	0.0	72.8
	16	74.5	96.6	46.7	85.0	82.0	78.0	77.0	73.0	69.0	59.0	55.0	51.0	74.5	0.0	74.5
	17	71.9	91.1	45.3	81.0	79.0	77.0	76.0	72.0	67.0	55.0	52.0	48.0	71.9	0.0	71.9
	18	71.1	91.7	48.2	81.0	78.0	76.0	75.0	71.0	66.0	56.0	54.0	50.0	71.1	0.0	71.1
Evening	19	71.4	93.4	42.1	81.0	78.0	76.0	75.0	70.0	64.0	52.0	49.0	47.0	71.4	5.0	76.4
	20	69.1	88.3	42.7	78.0	77.0	75.0	73.0	69.0	62.0	50.0	48.0	45.0	69.1	5.0	74.1
	21	68.9	92.0	45.8	78.0	76.0	74.0	73.0	67.0	60.0	50.0	49.0	47.0	68.9	5.0	73.9
Night	22	65.8	84.3	40.8	76.0	74.0	72.0	70.0	63.0	58.0	50.0	48.0	42.0	65.8	10.0	75.8
	23	64.5	89.4	39.3	75.0	73.0	70.0	67.0	60.0	57.0	44.0	41.0	40.0	64.5	10.0	74.5

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	71.1	89.2	45.3	81.0	78.0	76.0	75.0	71.0	66.0	55.0	52.0	48.0
	Max	74.5	99.1	51.5	85.0	82.0	78.0	77.0	73.0	69.0	60.0	58.0	54.0
Energy Average		72.7	Average:		81.9	79.8	76.9	75.8	71.7	67.7	57.8	55.0	50.4
Evening	Min	68.9	88.3	42.1	78.0	76.0	74.0	73.0	67.0	60.0	50.0	48.0	45.0
	Max	71.4	93.4	45.8	81.0	78.0	76.0	75.0	70.0	64.0	52.0	49.0	47.0
Energy Average		70.0	Average:		79.0	77.0	75.0	73.7	68.7	62.0	50.7	48.7	46.3
Night	Min	55.8	78.8	36.3	69.0	66.0	56.0	50.0	41.0	39.0	37.0	36.0	36.0
	Max	71.1	89.7	52.4	79.0	78.0	76.0	75.0	71.0	68.0	58.0	56.0	54.0
Energy Average		65.5	Average:		74.2	72.0	67.8	64.6	55.3	51.1	45.0	43.2	41.7

L_{eq} (dBA)

24-Hour	Daytime	Nighttime
70.7	**72.2**	**65.5**

24-Hour CNEL (dBA)

74.2

24-Hour Noise Level Measurement Summary

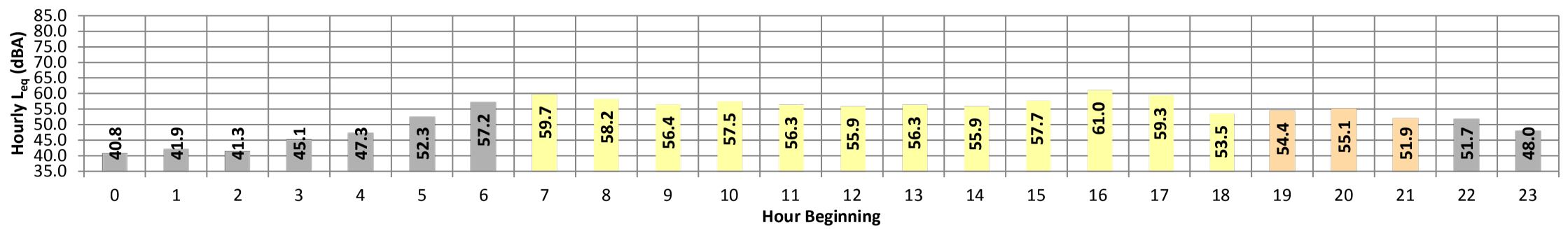
Date: Wednesday, April 18, 2018
Project: Cathedral City General Plan Update

Location: L11 - Located near existing residential homes west of Da Vall Drive and south of Sunny Lane.

Meter: Piccolo I

JN: 11475
Analyst: A.Wolfe

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	40.8	62.5	34.7	53.0	50.0	42.0	39.0	37.0	37.0	37.0	35.0	35.0	40.8	10.0	50.8
	1	41.9	63.1	34.7	53.0	51.0	45.0	42.0	37.0	37.0	35.0	35.0	35.0	41.9	10.0	51.9
	2	41.3	66.8	34.7	52.0	48.0	42.0	39.0	37.0	37.0	35.0	35.0	35.0	41.3	10.0	51.3
	3	45.1	72.2	34.7	57.0	53.0	48.0	44.0	38.0	37.0	37.0	35.0	35.0	45.1	10.0	55.1
	4	47.3	67.2	34.7	58.0	57.0	54.0	51.0	42.0	39.0	37.0	37.0	37.0	47.3	10.0	57.3
	5	52.3	71.6	39.4	62.0	60.0	58.0	57.0	51.0	46.0	41.0	40.0	39.0	52.3	10.0	62.3
	6	57.2	70.6	42.3	64.0	63.0	62.0	61.0	58.0	54.0	45.0	44.0	43.0	57.2	10.0	67.2
Day	7	59.7	78.5	40.7	66.0	65.0	63.0	63.0	60.0	58.0	51.0	48.0	43.0	59.7	0.0	59.7
	8	58.2	80.0	40.6	66.0	63.0	61.0	61.0	58.0	56.0	49.0	46.0	43.0	58.2	0.0	58.2
	9	56.4	73.8	40.4	66.0	64.0	61.0	59.0	56.0	53.0	45.0	44.0	42.0	56.4	0.0	56.4
	10	57.5	84.2	39.3	64.0	62.0	60.0	59.0	57.0	53.0	44.0	43.0	40.0	57.5	0.0	57.5
	11	56.3	77.0	39.4	64.0	62.0	60.0	59.0	56.0	53.0	46.0	45.0	43.0	56.3	0.0	56.3
	12	55.9	70.1	40.3	63.0	62.0	60.0	59.0	56.0	54.0	47.0	45.0	43.0	55.9	0.0	55.9
	13	56.3	74.9	42.3	65.0	63.0	61.0	59.0	56.0	53.0	45.0	44.0	43.0	56.3	0.0	56.3
	14	55.9	69.4	41.5	64.0	62.0	60.0	59.0	57.0	53.0	46.0	45.0	43.0	55.9	0.0	55.9
	15	57.7	79.8	42.3	66.0	64.0	61.0	61.0	58.0	55.0	47.0	45.0	43.0	57.7	0.0	57.7
	16	61.0	78.6	39.9	70.0	69.0	67.0	65.0	60.0	57.0	50.0	48.0	42.0	61.0	0.0	61.0
	17	59.3	78.6	39.4	68.0	66.0	65.0	64.0	59.0	54.0	45.0	43.0	41.0	59.3	0.0	59.3
	18	53.5	68.9	38.7	62.0	60.0	59.0	58.0	54.0	49.0	43.0	41.0	40.0	53.5	0.0	53.5
Evening	19	54.4	76.7	39.0	65.0	62.0	58.0	57.0	52.0	48.0	42.0	40.0	39.0	54.4	5.0	59.4
	20	55.1	76.4	37.7	67.0	65.0	59.0	58.0	53.0	48.0	41.0	39.0	38.0	55.1	5.0	60.1
	21	51.9	67.8	40.6	61.0	59.0	57.0	55.0	52.0	48.0	42.0	41.0	41.0	51.9	5.0	56.9
Night	22	51.7	69.0	39.4	61.0	59.0	57.0	55.0	51.0	47.0	42.0	41.0	40.0	51.7	10.0	61.7
	23	48.0	73.2	37.6	57.0	54.0	50.0	48.0	45.0	42.0	39.0	37.0	37.0	48.0	10.0	58.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	53.5	68.9	38.7	62.0	60.0	59.0	58.0	54.0	49.0	43.0	41.0	40.0
	Max	61.0	84.2	42.3	70.0	69.0	67.0	65.0	60.0	58.0	51.0	48.0	43.0
Energy Average		57.7	Average:		65.3	63.5	61.5	60.5	57.3	54.0	46.5	44.8	42.2
Evening	Min	51.9	67.8	37.7	61.0	59.0	57.0	55.0	52.0	48.0	41.0	39.0	38.0
	Max	55.1	76.7	40.6	67.0	65.0	59.0	58.0	53.0	48.0	42.0	41.0	41.0
Energy Average		54.0	Average:		64.3	62.0	58.0	56.7	52.3	48.0	41.7	40.0	39.3
Night	Min	40.8	62.5	34.7	52.0	48.0	42.0	39.0	37.0	37.0	35.0	35.0	35.0
	Max	57.2	73.2	42.3	64.0	63.0	62.0	61.0	58.0	54.0	45.0	44.0	43.0
Energy Average		50.6	Average:		57.4	55.0	50.9	48.4	44.0	41.8	38.7	37.7	37.3

L_{eq} (dBA)

24-Hour	Daytime	Nighttime
55.7	57.2	50.6

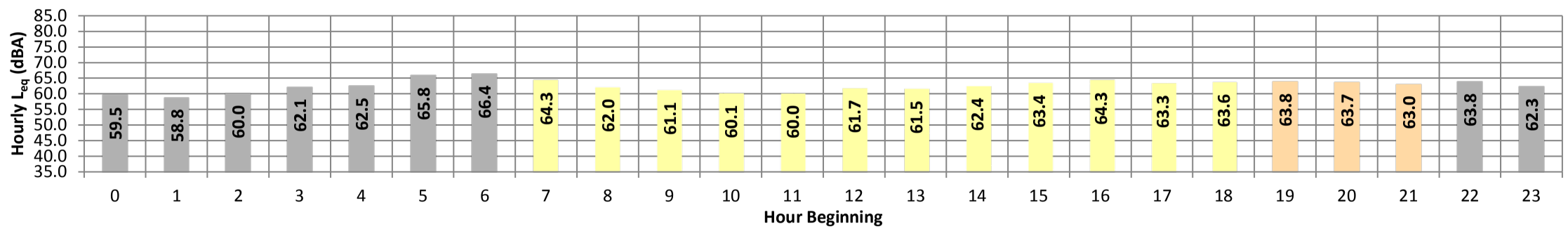
24-Hour CNEL (dBA)

59.2

24-Hour Noise Level Measurement Summary

Date: Wednesday, April 18, 2018
Project: Cathedral City General Plan Update
Location: L12 - Located north of I-10 near Varner Road and existing vacant land.
Meter: Piccolo I
JN: 11475
Analyst: A.Wolfe

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	59.5	81.8	45.1	69.0	66.0	63.0	61.0	58.0	56.0	53.0	52.0	50.0	59.5	10.0	69.5
	1	58.8	75.7	46.7	67.0	65.0	63.0	61.0	58.0	56.0	52.0	51.0	49.0	58.8	10.0	68.8
	2	60.0	78.3	48.1	68.0	66.0	64.0	63.0	59.0	57.0	54.0	53.0	50.0	60.0	10.0	70.0
	3	62.1	88.5	48.2	71.0	68.0	64.0	63.0	60.0	58.0	54.0	53.0	52.0	62.1	10.0	72.1
	4	62.5	81.9	53.0	72.0	70.0	66.0	64.0	62.0	60.0	57.0	56.0	55.0	62.5	10.0	72.5
	5	65.8	83.5	56.2	75.0	73.0	71.0	70.0	64.0	61.0	59.0	58.0	57.0	65.8	10.0	75.8
	6	66.4	81.7	57.3	75.0	74.0	72.0	71.0	66.0	62.0	59.0	59.0	58.0	66.4	10.0	76.4
Day	7	64.3	79.4	49.2	74.0	72.0	70.0	69.0	63.0	58.0	53.0	52.0	51.0	64.3	0.0	64.3
	8	62.0	79.5	43.0	72.0	71.0	69.0	67.0	60.0	52.0	46.0	45.0	43.0	62.0	0.0	62.0
	9	61.1	78.5	42.7	72.0	70.0	68.0	66.0	58.0	50.0	45.0	45.0	44.0	61.1	0.0	61.1
	10	60.1	80.3	41.6	71.0	69.0	66.0	65.0	57.0	49.0	44.0	44.0	43.0	60.1	0.0	60.1
	11	60.0	77.8	43.3	70.0	69.0	66.0	65.0	58.0	50.0	45.0	45.0	44.0	60.0	0.0	60.0
	12	61.7	85.9	41.1	71.0	70.0	67.0	66.0	59.0	50.0	45.0	43.0	42.0	61.7	0.0	61.7
	13	61.5	79.1	44.0	71.0	70.0	67.0	66.0	60.0	52.0	48.0	47.0	45.0	61.5	0.0	61.5
	14	62.4	79.3	44.0	72.0	70.0	68.0	67.0	62.0	53.0	47.0	46.0	45.0	62.4	0.0	62.4
	15	63.4	79.9	45.6	73.0	71.0	69.0	68.0	63.0	54.0	48.0	48.0	46.0	63.4	0.0	63.4
	16	64.3	84.7	46.3	74.0	72.0	70.0	69.0	64.0	55.0	49.0	48.0	47.0	64.3	0.0	64.3
	17	63.3	80.4	45.3	73.0	72.0	69.0	68.0	62.0	53.0	47.0	47.0	46.0	63.3	0.0	63.3
	18	63.6	80.9	46.1	73.0	72.0	70.0	69.0	61.0	57.0	50.0	48.0	47.0	63.6	0.0	63.6
Evening	19	63.8	76.8	53.3	73.0	72.0	70.0	69.0	62.0	59.0	56.0	55.0	54.0	63.8	5.0	68.8
	20	63.7	82.3	53.7	73.0	72.0	70.0	68.0	61.0	59.0	56.0	56.0	55.0	63.7	5.0	68.7
	21	63.0	78.9	51.5	73.0	72.0	69.0	67.0	60.0	58.0	55.0	54.0	53.0	63.0	5.0	68.0
Night	22	63.8	89.3	53.0	73.0	71.0	69.0	66.0	61.0	59.0	56.0	55.0	54.0	63.8	10.0	73.8
	23	62.3	78.4	53.6	71.0	70.0	67.0	65.0	62.0	59.0	56.0	55.0	54.0	62.3	10.0	72.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	60.0	77.8	41.1	70.0	69.0	66.0	65.0	57.0	49.0	44.0	43.0	42.0
	Max	64.3	85.9	49.2	74.0	72.0	70.0	69.0	64.0	58.0	53.0	52.0	51.0
Energy Average		62.5	Average:		72.2	70.7	68.3	67.1	60.6	52.8	47.3	46.5	45.3
Evening	Min	63.0	76.8	51.5	73.0	72.0	69.0	67.0	60.0	58.0	55.0	54.0	53.0
	Max	63.8	82.3	53.7	73.0	72.0	70.0	69.0	62.0	59.0	56.0	56.0	55.0
Energy Average		63.5	Average:		73.0	72.0	69.7	68.0	61.0	58.7	55.7	55.0	54.0
Night	Min	58.8	75.7	45.1	67.0	65.0	63.0	61.0	58.0	56.0	52.0	51.0	49.0
	Max	66.4	89.3	57.3	75.0	74.0	72.0	71.0	66.0	62.0	59.0	59.0	58.0
Energy Average		63.1	Average:		71.2	69.2	66.6	64.9	61.1	58.7	55.6	54.7	53.2

L_{eq} (dBA)

24-Hour	Daytime	Nighttime
62.9	**62.8**	**63.1**

24-Hour CNEL (dBA)

69.7

APPENDIX 5.3:

SHORT-TERM NOISE LEVEL MEASUREMENT WORKSHEETS

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Short-Term Noise Level Measurement Summary

Project Name:	Cathedral City General Plan Update	*JN:*	11475
Measurement ID:	S1	*Analyst:*	A. Wolfe
		Date:	4/17/2018

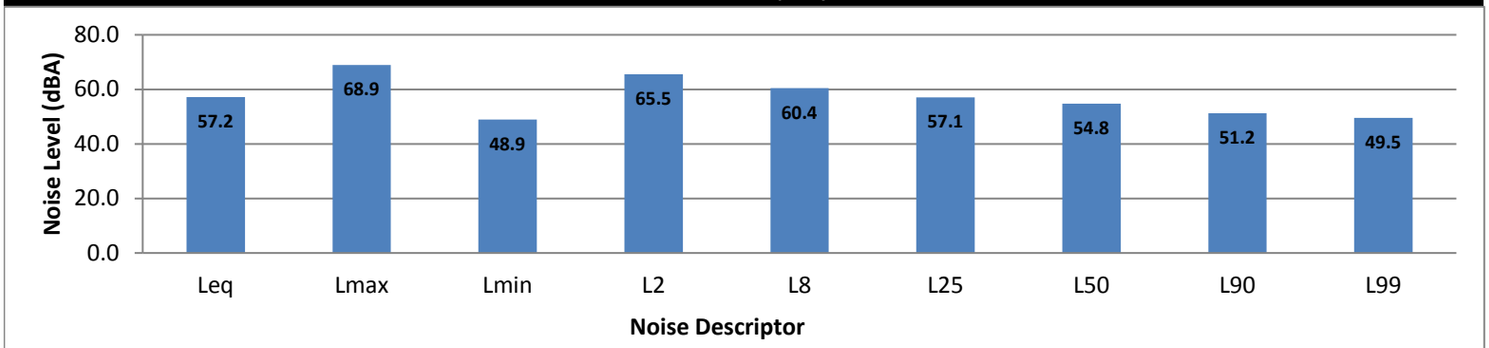
Measurement Time (hh:mm:ss)		
Start	*Stop*	*Duration*
1:30:45 PM	1:40:45 PM	0:10:00
S1		

Sound Level Meter: Larson Davis LxT Type 1

Response: Slow

Noise Source: Existing commercial uses, including a fast-food restaurant (Jack in the Box) with drive-through activities.

Noise Levels (dBA)



Measurement Results (dBA)

L_{eq}	L_{max}	L_{min}	L_2	L_8	L_{25}	L_{50}	L_{90}	L_{99}
57.2	68.9	48.9	65.5	60.4	57.1	54.8	51.2	49.5

Short-Term Noise Level Measurement Summary

Project Name:	Cathedral City General Plan Update	*JN:*	11475
Measurement ID:	S2	*Analyst:*	A. Wolfe
		Date:	4/17/2018

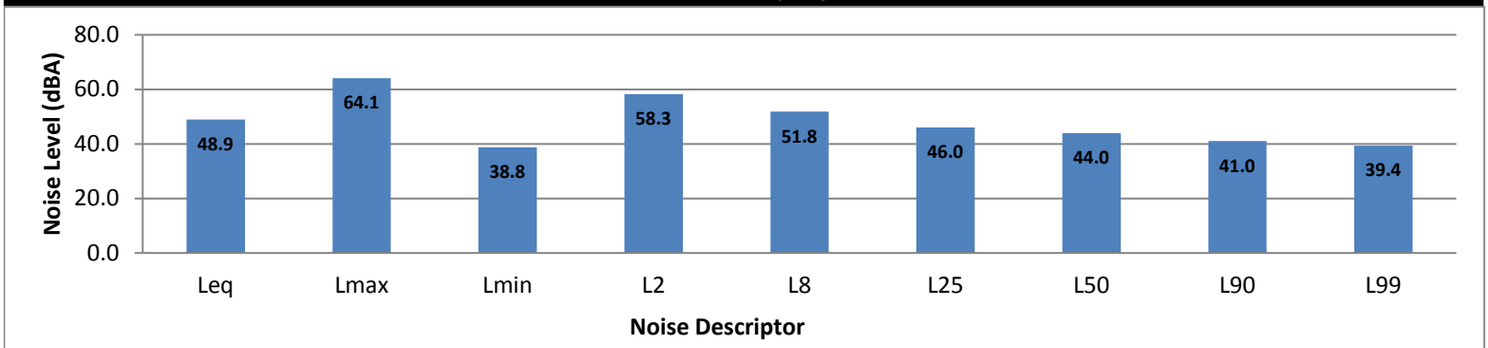
Measurement Time (hh:mm:ss)		
Start	*Stop*	*Duration*
1:11:04 PM	1:21:04 PM	0:10:00
S2		

Sound Level Meter: Larson Davis LxT Type 1

Response: Slow

Noise Source: Ambient noise levels near existing residential homes and Rio Vista Elementary School, south of I-10.

Noise Levels (dBA)



Measurement Results (dBA)

L_{eq}	L_{max}	L_{min}	L_2	L_8	L_{25}	L_{50}	L_{90}	L_{99}
48.9	64.1	38.8	58.3	51.8	46.0	44.0	41.0	39.4

Short-Term Noise Level Measurement Summary

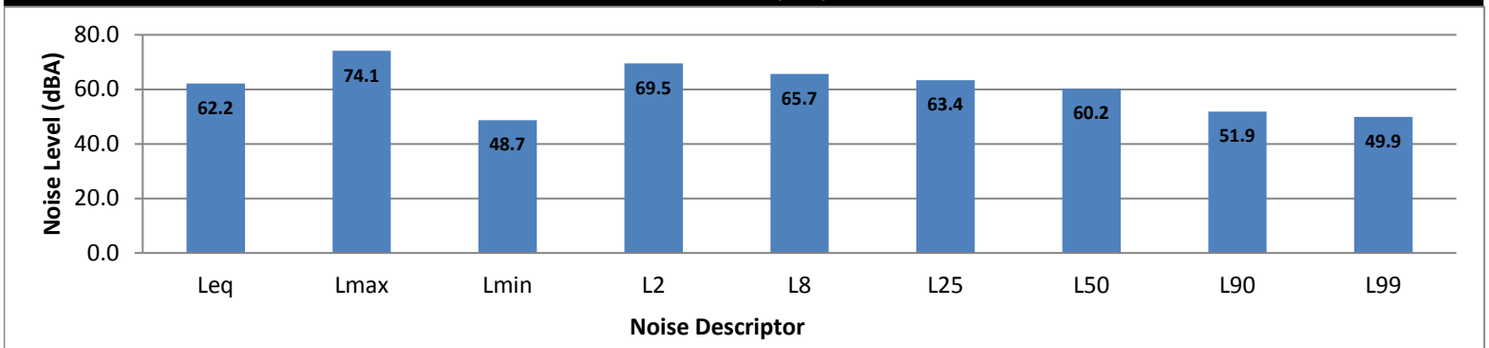
Project Name:	Cathedral City General Plan Update	*JN:*	11475	*Measurement Time (hh:mm:ss)*	
Measurement ID:	S3	*Analyst:*	A. Wolfe	*Start*	*Stop*	*Duration*
		Date:	4/17/2018	12:17:02 PM	12:27:02 PM	0:10:00
				S3		

Sound Level Meter: Larson Davis LxT Type 1

Response: Slow

Noise Source: Ambient noise levels on Ramon Road near existing commercial, residential, and recreation uses.

Noise Levels (dBA)



Measurement Results (dBA)

L_{eq}	L_{max}	L_{min}	L_2	L_8	L_{25}	L_{50}	L_{90}	L_{99}
62.2	74.1	48.7	69.5	65.7	63.4	60.2	51.9	49.9

Short-Term Noise Level Measurement Summary

Project Name: Cathedral City General Plan Update
Measurement ID: S4

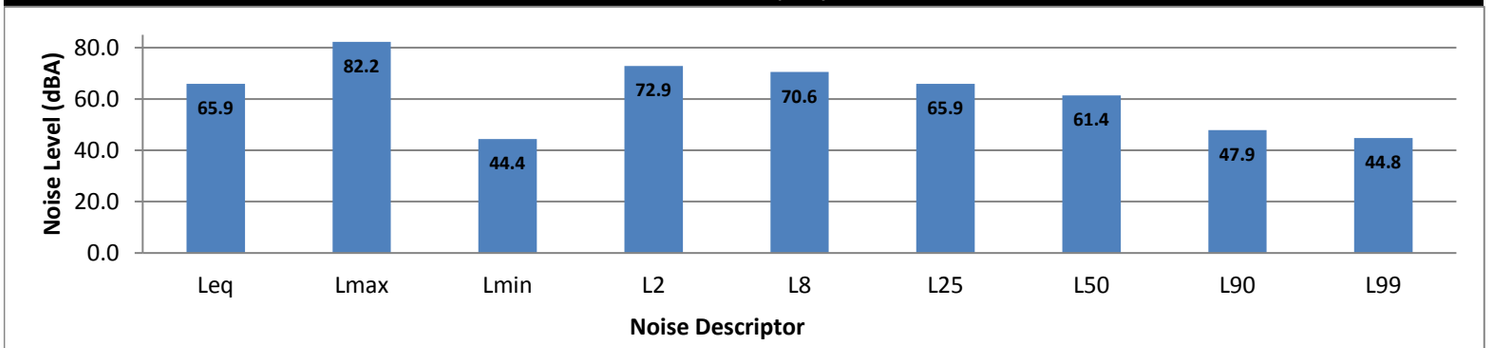
JN: 11475
Analyst: A. Wolfe
Date: 4/17/2018

Measurement Time (hh:mm:ss)		
Start	*Stop*	*Duration*
11:55:53 AM	12:05:53 PM	0:10:00

S4

Sound Level Meter: Larson Davis LxT Type 1
Response: Slow
Noise Source: Ambient noise levels south of Ramon Road and west of Da Vall Drive near existing medical, commercial, and institutional uses.

Noise Levels (dBA)



Measurement Results (dBA)

L_{eq}	L_{max}	L_{min}	L_2	L_8	L_{25}	L_{50}	L_{90}	L_{99}
65.9	82.2	44.4	72.9	70.6	65.9	61.4	47.9	44.8

Short-Term Noise Level Measurement Summary

Project Name: Cathedral City General Plan Update
Measurement ID: S5

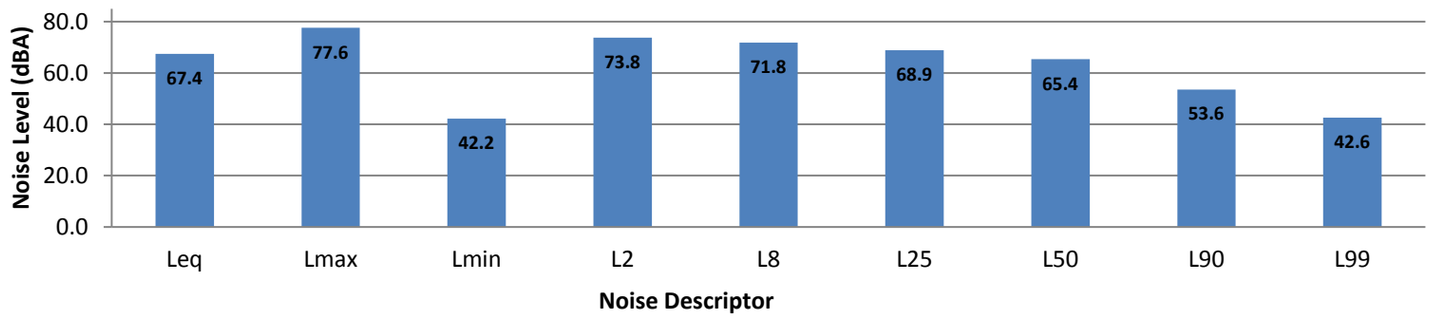
JN: 11475
Analyst: A. Wolfe
Date: 4/17/2018

Measurement Time (hh:mm:ss)		
Start	*Stop*	*Duration*
11:32:27 AM	11:42:27 AM	0:10:00

S5

Sound Level Meter: Larson Davis LxT Type 1
Response: Slow
Noise Source: Ambient noise levels adjacent to an existing commercial parking lot on of Date Palm Drive near Converse Road.

Noise Levels (dBA)



Measurement Results (dBA)

L_{eq}	L_{max}	L_{min}	L_2	L_8	L_{25}	L_{50}	L_{90}	L_{99}
67.4	77.6	42.2	73.8	71.8	68.9	65.4	53.6	42.6

Short-Term Noise Level Measurement Summary

Project Name:	Cathedral City General Plan Update	*JN:*	11475
Measurement ID:	S6	*Analyst:*	A. Wolfe
		Date:	4/17/2018

Measurement Time (hh:mm:ss)		
Start	*Stop*	*Duration*
11:08:51 AM	11:18:51 AM	0:10:00

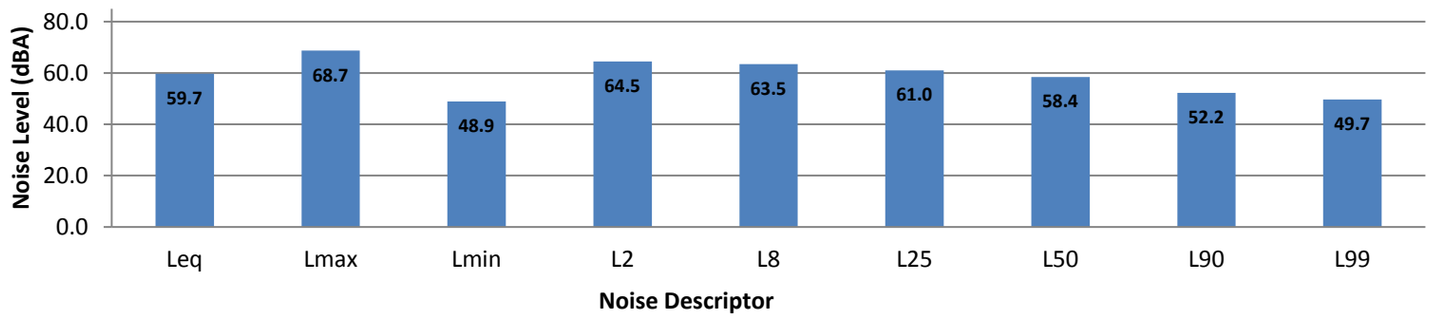
S6

Sound Level Meter: Larson Davis LxT Type 1

Response: Slow

Noise Source: Ambient noise levels north of Highway 111 and west of Date Palm Drive.

Noise Levels (dBA)



Measurement Results (dBA)

L_{eq}	L_{max}	L_{min}	L_2	L_8	L_{25}	L_{50}	L_{90}	L_{99}
59.7	68.7	48.9	64.5	63.5	61.0	58.4	52.2	49.7

URBAN CROSSROADS

Short-Term Noise Level Measurement Summary

Project Name:	Cathedral City General Plan Update	*JN:*	11475
Measurement ID:	S7	*Analyst:*	A. Wolfe
		Date:	4/17/2018

Measurement Time (hh:mm:ss)		
Start	*Stop*	*Duration*
12:38:40 AM	12:42:11 AM	0:03:31

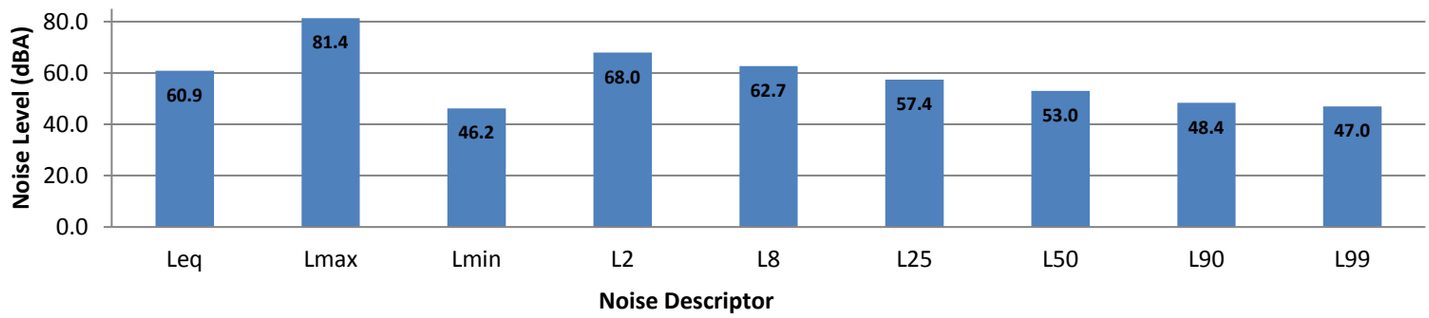
S7

Sound Level Meter: Larson Davis LxT Type 1

Response: Slow

Noise Source: Ambient noise levels southeast of Palm Springs International Airport, without aircraft activity, east of San Luis Rey Drive and south of Sunny Dunes Road.

Noise Levels (dBA)



Measurement Results (dBA)

L_{eq}	L_{max}	L_{min}	L_2	L_8	L_{25}	L_{50}	L_{90}	L_{99}
60.9	81.4	46.2	68.0	62.7	57.4	53.0	48.4	47.0

URBAN CROSSROADS

Short-Term Noise Level Measurement Summary

Project Name:	Cathedral City General Plan Update	*JN:*	11475
Measurement ID:	S8	*Analyst:*	A. Wolfe
		Date:	4/17/2018

Measurement Time (hh:mm:ss)		
Start	*Stop*	*Duration*
12:58:43 AM	12:59:43 AM	0:01:00

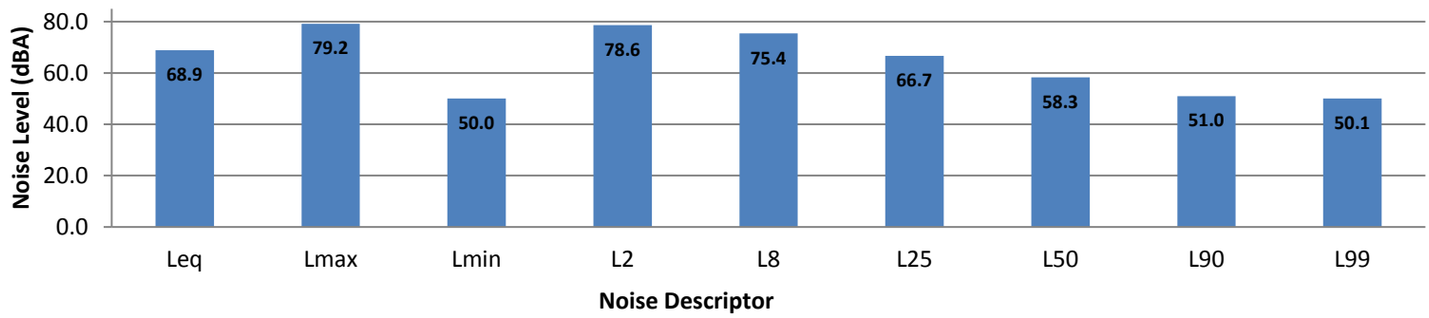
S8

Sound Level Meter: Larson Davis LxT Type 1

Response: Slow

Noise Source: Ambient noise levels southeast of Palm Springs International Airport, with an aircraft flyover event, east of San Luis Rey Drive and south of Sunny Dunes Road.

Noise Levels (dBA)



Measurement Results (dBA)

L_{eq}	L_{max}	L_{min}	L_2	L_8	L_{25}	L_{50}	L_{90}	L_{99}
68.9	79.2	50.0	78.6	75.4	66.7	58.3	51.0	50.1

APPENDIX 6.1:

CADNAA NOISE MODEL INPUTS

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ExistingRoads

LotInfoID	RoadName	Segment	CNEL	CNEL70	CNEL65	CNEL60	CNEL55	Calibrated PWL
1	Palm Dr.	n/o I-10 WB Ramps	74.79	131.00	283.00	610.00	1,314.00	99.8
2	Gene Autry Tr.	s/o I-10 EB Ramps	75.06	137.00	295.00	636.00	1,369.00	100.1
3	Mountain View Rd.	n/o Varner Rd.	70.52	68.00	147.00	317.00	683.00	95.5
4	Landau Bl.	n/o Ramon Rd.	71.15	67.00	144.00	310.00	668.00	95.4
5	Cathedral Cyn Dr.	n/o Dinah Shore Dr.	71.80	58.00	125.00	269.00	580.00	94.5
6	Cathedral Cyn Dr.	s/o Dinah Shore Dr.	72.64	66.00	142.00	306.00	659.00	95.3
7	Date Palm Dr.	s/o Varner Rd.	68.32	49.00	105.00	226.00	487.00	93.4
8	Date Palm Dr.	s/o I-10 EB Ramps	74.24	121.00	260.00	561.00	1,208.00	99.2
9	Date Palm Dr.	n/o 30th Av.	73.44	107.00	230.00	496.00	1,069.00	98.4
10	Date Palm Dr.	n/o Ramon Rd.	73.44	107.00	230.00	496.00	1,069.00	98.4
11	Date Palm Dr.	n/o Dinah Shore Dr.	72.58	94.00	202.00	435.00	936.00	97.6
12	Date Palm Dr.	n/o Gerald Ford Dr.	70.98	73.00	158.00	340.00	732.00	95.9
13	Date Palm Dr.	n/o Hwy. 111	69.27	56.00	121.00	261.00	563.00	94.2
14	Da Vall Dr.	n/o Ramon Rd.	67.74	40.00	85.00	184.00	396.00	92.0
15	Da Vall Dr.	s/o Ramon Rd.	68.41	44.00	94.00	204.00	438.00	92.7
16	Bob Hope Dr.	n/o I-10 WB Ramps	71.17	75.00	162.00	350.00	754.00	96.1
17	Bob Hope Dr.	s/o I-10 EB Ramps	73.46	107.00	231.00	497.00	1,071.00	98.4
18	Varner Rd.	e/o Palm Dr.	63.11	19.00	42.00	90.00	195.00	87.2
19	Varner Rd.	w/o Date Palm Dr.	72.13	87.00	188.00	405.00	873.00	97.1
20	Varner Rd.	e/o Date Palm Dr.	67.14	36.00	78.00	168.00	361.00	91.3
21	Valley Center Bl.	e/o Palm Dr.	-	-	-	-	-	-
22	Valley Center Bl.	e/o Date Palm Dr.	-	-	-	-	-	-
23	Valley Center Bl.	e/o Da Vall Dr.	-	-	-	-	-	-
24	Vista Chino	w/o Landau Bl.	73.25	104.00	223.00	481.00	1,037.00	98.3
25	Vista Chino	w/o Date Palm Dr.	72.96	99.00	214.00	460.00	992.00	97.9
26	30th Av.	w/o Date Palm Dr.	66.21	25.00	53.00	114.00	246.00	89.0
27	30th Av.	e/o Date Palm Dr.	68.33	34.00	73.00	158.00	341.00	91.0
28	Ramon Rd.	w/o Landau Bl.	73.03	100.00	216.00	466.00	1,003.00	98.0
29	Ramon Rd.	e/o Landau Bl.	72.79	97.00	208.00	449.00	967.00	97.8
30	Ramon Rd.	w/o Da Vall Dr.	71.84	84.00	180.00	388.00	836.00	96.9
31	Dinah Shore Dr.	w/o Cathedral Cyn. Dr.	69.47	58.00	125.00	269.00	580.00	94.5
32	Dinah Shore Dr.	e/o Date Palm Dr.	71.57	80.00	173.00	372.00	802.00	96.5
33	Gerald Ford Dr.	e/o Date Palm Dr.	69.64	53.00	114.00	246.00	530.00	93.9
34	Perez Rd.	w/o Cathedral Cyn. Dr.	67.46	38.00	82.00	176.00	379.00	91.7
35	Perez Rd.	e/o Cathedral Cyn. Dr.	67.85	40.00	87.00	187.00	403.00	92.0
36	Hwy. 111	w/o Canyon Plaza Dr. W.	75.67	150.00	324.00	698.00	1,505.00	100.6
37	Hwy. 111	w/o Cathedral Cyn. Dr.	72.57	93.00	201.00	434.00	935.00	97.5
38	Hwy. 111	w/o Date Palm Dr.	73.22	103.00	222.00	479.00	1,032.00	98.2
39	Hwy. 111	e/o Sungate Wy.	73.63	110.00	237.00	511.00	1,100.00	98.6

ExistingFwy

LotInfoID	RoadName	Segment	CNEL	CNEL70	CNEL65	CNEL60	CNEL55	Calibrated PWL
1	I-10	n/o Cathedral City	83.26	766.00	1,650.00	3,554.00	7,657.00	111.3

FutureRoads

LotInfoID	RoadName	Segment	CNEL	CNEL70	CNEL65	CNEL60	CNEL55	Calibrated PWL
1	Palm Dr.	n/o I-10 WB Ramps	75.22	140.00	302.00	652.00	1,404.00	100.2
2	Gene Autry Tr.	s/o I-10 EB Ramps	75.15	139.00	299.00	644.00	1,388.00	100.1
3	Mountain View Rd.	n/o Varner Rd.	76.26	152.00	327.00	704.00	1,517.00	100.7
4	Landau Bl.	n/o Ramon Rd.	74.21	97.00	210.00	452.00	973.00	97.8
5	Cathedral Cyn Dr.	n/o Dinah Shore Dr.	72.22	62.00	133.00	287.00	618.00	94.9
6	Cathedral Cyn Dr.	s/o Dinah Shore Dr.	72.47	64.00	139.00	299.00	643.00	95.1
7	Date Palm Dr.	s/o Varner Rd.	73.57	109.00	235.00	506.00	1,090.00	98.6
8	Date Palm Dr.	s/o I-10 EB Ramps	75.50	147.00	316.00	681.00	1,466.00	100.5
9	Date Palm Dr.	n/o 30th Av.	74.07	118.00	253.00	546.00	1,177.00	99.1
10	Date Palm Dr.	n/o Ramon Rd.	73.75	112.00	241.00	520.00	1,121.00	98.7
11	Date Palm Dr.	n/o Dinah Shore Dr.	72.91	98.00	212.00	457.00	984.00	97.9
12	Date Palm Dr.	n/o Gerald Ford Dr.	72.11	87.00	188.00	404.00	871.00	97.1
13	Date Palm Dr.	n/o Hwy. 111	71.60	80.00	173.00	374.00	805.00	96.5
14	Da Vall Dr.	n/o Ramon Rd.	72.66	84.00	181.00	391.00	842.00	96.9
15	Da Vall Dr.	s/o Ramon Rd.	72.39	81.00	174.00	375.00	808.00	96.6
16	Bob Hope Dr.	n/o I-10 WB Ramps	77.44	198.00	426.00	917.00	1,975.00	102.4
17	Bob Hope Dr.	s/o I-10 EB Ramps	75.71	151.00	326.00	703.00	1,514.00	100.7
18	Varner Rd.	e/o Palm Dr.	67.89	37.00	79.00	171.00	369.00	91.5
19	Varner Rd.	w/o Date Palm Dr.	76.51	158.00	339.00	731.00	1,576.00	101.0
20	Varner Rd.	e/o Date Palm Dr.	74.48	101.00	219.00	471.00	1,014.00	98.1
21	Valley Center Bl.	e/o Palm Dr.	72.45	82.00	176.00	379.00	816.00	96.7
22	Valley Center Bl.	e/o Date Palm Dr.	70.25	58.00	125.00	270.00	582.00	94.5
23	Valley Center Bl.	e/o Da Vall Dr.	68.45	44.00	95.00	205.00	441.00	92.7
24	Vista Chino	w/o Landau Bl.	74.16	110.00	237.00	510.00	1,099.00	98.6
25	Vista Chino	w/o Date Palm Dr.	73.71	103.00	221.00	476.00	1,025.00	98.2
26	30th Av.	w/o Date Palm Dr.	68.94	37.00	81.00	174.00	374.00	91.5
27	30th Av.	e/o Date Palm Dr.	70.57	48.00	103.00	223.00	480.00	93.2
28	Ramon Rd.	w/o Landau Bl.	74.75	120.00	259.00	558.00	1,203.00	99.2
29	Ramon Rd.	e/o Landau Bl.	73.54	100.00	215.00	464.00	999.00	98.0
30	Ramon Rd.	w/o Da Vall Dr.	73.38	97.00	210.00	452.00	974.00	97.8
31	Dinah Shore Dr.	w/o Cathedral Cyn. Dr.	72.91	81.00	175.00	377.00	813.00	96.6
32	Dinah Shore Dr.	e/o Date Palm Dr.	74.20	99.00	213.00	460.00	991.00	97.9
33	Gerald Ford Dr.	e/o Date Palm Dr.	72.58	80.00	173.00	373.00	803.00	96.5
34	Perez Rd.	w/o Cathedral Cyn. Dr.	69.83	53.00	113.00	244.00	526.00	93.9
35	Perez Rd.	e/o Cathedral Cyn. Dr.	70.18	56.00	120.00	258.00	555.00	94.2
36	Hwy. 111	w/o Canyon Plaza Dr. W.	75.41	145.00	311.00	671.00	1,445.00	100.4
37	Hwy. 111	w/o Cathedral Cyn. Dr.	73.07	101.00	217.00	468.00	1,009.00	98.1
38	Hwy. 111	w/o Date Palm Dr.	73.23	103.00	223.00	480.00	1,035.00	98.2
39	Hwy. 111	e/o Sungate Wy.	74.17	120.00	258.00	555.00	1,196.00	99.2

FutureFwy

LotInfoID	RoadName	Segment	CNEL	CNEL70	CNEL65	CNEL60	CNEL55	Calibrated PWL
1	I-10	n/o Cathedral City	85.98	1,163.00	2,506.00	5,399.00	11,631.00	114.0

11475

CadnaA Noise Prediction Model
11475-10 Existing Contours.cna
Date:
28.03.19
Analyst:
A.Wolfe

Line Source(s)

Name	ID	Lw / Li		
		Type	Value	norm.
				dB(A)
1	1	Lw'	99.8	
2	2	Lw'	100.1	
3	3	Lw'	95.5	
4	4	Lw'	95.4	
5	5	Lw'	94.5	
6	6	Lw'	95.3	
7	7	Lw'	93.4	
8	8	Lw'	99.3	
9	9	Lw'	98.4	
10	10	Lw'	98.4	
11	11	Lw'	97.6	
12	12	Lw'	95.9	
13	13	Lw'	94.2	
14	14	Lw'	92	
15	15	Lw'	92.7	
16	16	Lw'	96.1	
17	17	Lw'	98.4	
18	18	Lw'	87.2	
19	19	Lw'	97.1	
20	20	Lw'	91.3	
24	24	Lw'	98.3	
25	25	Lw'	97.9	
26	26	Lw'	89	
27	27	Lw'	91	
28	28	Lw'	98	
29	29	Lw'	97.8	
30	30	Lw'	96.9	
31	31	Lw'	94.5	
32	32	Lw'	96.5	
33	33	Lw'	93.9	
34	34	Lw'	91.7	
35	35	Lw'	92	
36	36	Lw'	100.6	
37	37	Lw'	97.5	
38	38	Lw'	98.2	
39	39	Lw'	98.6	
I-10	0	Lw'	111.3	
UPRR	0	Lw'	94.48	

11475

CadnaA Noise Prediction Model
11475-10 Future Contours.cna
Date:
27.03.19
Analyst:
A.Wolfe

Line Source(s)

Name	ID	Lw / Li		
		Type	Value	norm.
				dB(A)
1	1	Lw'	100.2	
2	2	Lw'	100.1	
3	3	Lw'	100.7	
4	4	Lw'	97.8	
5	5	Lw'	94.9	
6	6	Lw'	95.1	
7	7	Lw'	98.6	
8	8	Lw'	100.5	
9	9	Lw'	99.1	
10	10	Lw'	98.7	
11	11	Lw'	97.9	
12	12	Lw'	97.1	
13	13	Lw'	96.5	
14	14	Lw'	96.9	
15	15	Lw'	96.6	
16	16	Lw'	102.4	
17	17	Lw'	100.7	
18	18	Lw'	91.5	
19	19	Lw'	101	
20	20	Lw'	98.1	
21	21	Lw'	96.7	
22	22	Lw'	94.5	
23	23	Lw'	92.7	
24	24	Lw'	98.6	
25	25	Lw'	98.2	
26	26	Lw'	91.5	
27	27	Lw'	93.2	
28	28	Lw'	99.2	
29	29	Lw'	98	
30	30	Lw'	97.8	
31	31	Lw'	96.6	
32	32	Lw'	97.9	
33	33	Lw'	96.5	
34	34	Lw'	93.9	
35	35	Lw'	94.2	
36	36	Lw'	100.4	
37	37	Lw'	98.1	
38	38	Lw'	98.2	
39	39	Lw'	99.2	
I-10	0	Lw'	114	
UPRR	0	Lw'	97.38	

Federal Transit Administration
Noise Impact Assessment Spreadsheet
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version: 7/3/2007

Project:	**11475**

Receiver Parameters	
Receiver:	**Rail Calibration**
Land Use Category:	**2. Residential**
Existing Noise (Measured or Generic Value):	

Noise Source Parameters	
Number of Noise Sources:	**2**

Noise Source Parameters		**Source 1**
	Source Type:	Fixed Guideway
	Specific Source:	Diesel Electric Locomotive
Daytime hrs	**Avg. Number of Locos/train**	2
	Speed (mph)	70
	Avg. Number of Events/hr	1.7
Nighttime hrs	**Avg. Number of Locos/train**	2
	Speed (mph)	70
	Avg. Number of Events/hr	1.7
Distance	**Distance from Source to Receiver (ft)**	50
	Number of Intervening Rows of Buildings	0
Adjustments		

Noise Source Parameters		**Source 2**
	Source Type:	Fixed Guideway
	Specific Source:	Rail Car
Daytime hrs	**Avg. Number of Rail Cars/train**	80
	Speed (mph)	70
	Avg. Number of Events/hr	1.7
Nighttime hrs	**Avg. Number of Rail Cars/train**	80
	Speed (mph)	70
	Avg. Number of Events/hr	1.7
Distance	**Distance from Source to Receiver (ft)**	50
	Number of Intervening Rows of Buildings	0
Adjustments	**Noise Barrier?**	No
	Jointed Track?	No
	Embedded Track?	No
	Aerial Structure?	No

Project: 11475
Receiver: Rail Calibration

Hour	Source 1	Source 2	Source 3		LOG SUM	Adj.
0	60.3	70.7			71.0	81.0
1	60.3	70.7			71.0	81.0
2	60.3	70.7			71.0	81.0
3	60.3	70.7			71.0	81.0
4	60.3	70.7			71.0	81.0
5	60.3	70.7			71.0	81.0
6	60.3	70.7			71.0	81.0
7	60.3	70.7			71.0	71.0
8	60.3	70.7			71.0	71.0
9	60.3	70.7			71.0	71.0
10	60.3	70.7			71.0	71.0
11	60.3	70.7			71.0	71.0
12	60.3	70.7			71.0	71.0
13	60.3	70.7			71.0	71.0
14	60.3	70.7			71.0	71.0
15	60.3	70.7			71.0	71.0
16	60.3	70.7			71.0	71.0
17	60.3	70.7			71.0	71.0
18	60.3	70.7			71.0	71.0
19	60.3	70.7			71.0	76.0
20	60.3	70.7			71.0	76.0
21	60.3	70.7			71.0	76.0
22	60.3	70.7			71.0	81.0
23	60.3	70.7			71.0	81.0

CNEL **77.7**

Federal Transit Administration
Noise Impact Assessment Spreadsheet
Copyright 2007 HMMH Inc.
version: 7/3/2007

Project:	**11475**

Receiver Parameters	
Receiver:	**Rail Calibration**
Land Use Category:	**2. Residential**
Existing Noise (Measured or Generic Value):	

Noise Source Parameters	
Number of Noise Sources:	**2**

Noise Source Parameters		**Source 1**
	Source Type:	Fixed Guideway
	Specific Source:	Diesel Electric Locomotive
Daytime hrs	**Avg. Number of Locos/train**	2
	Speed (mph)	70
	Avg. Number of Events/hr	3.3
Nighttime hrs	**Avg. Number of Locos/train**	2
	Speed (mph)	70
	Avg. Number of Events/hr	3.3
Distance	**Distance from Source to Receiver (ft)**	50
	Number of Intervening Rows of Buildings	0
Adjustments		

Noise Source Parameters		**Source 2**
	Source Type:	Fixed Guideway
	Specific Source:	Rail Car
Daytime hrs	**Avg. Number of Rail Cars/train**	80
	Speed (mph)	70
	Avg. Number of Events/hr	3.3
Nighttime hrs	**Avg. Number of Rail Cars/train**	80
	Speed (mph)	70
	Avg. Number of Events/hr	3.3
Distance	**Distance from Source to Receiver (ft)**	50
	Number of Intervening Rows of Buildings	0
Adjustments	**Noise Barrier?**	No
	Jointed Track?	No
	Embedded Track?	No
	Aerial Structure?	No

Project: 11475
Receiver: Rail Calibration

Hour	Source 1	Source 2	Source 3		LOG SUM	Adj.
0	63.1	73.5			73.9	83.9
1	63.1	73.5			73.9	83.9
2	63.1	73.5			73.9	83.9
3	63.1	73.5			73.9	83.9
4	63.1	73.5			73.9	83.9
5	63.1	73.5			73.9	83.9
6	63.1	73.5			73.9	83.9
7	63.1	73.5			73.9	73.9
8	63.1	73.5			73.9	73.9
9	63.1	73.5			73.9	73.9
10	63.1	73.5			73.9	73.9
11	63.1	73.5			73.9	73.9
12	63.1	73.5			73.9	73.9
13	63.1	73.5			73.9	73.9
14	63.1	73.5			73.9	73.9
15	63.1	73.5			73.9	73.9
16	63.1	73.5			73.9	73.9
17	63.1	73.5			73.9	73.9
18	63.1	73.5			73.9	73.9
19	63.1	73.5			73.9	78.9
20	63.1	73.5			73.9	78.9
21	63.1	73.5			73.9	78.9
22	63.1	73.5			73.9	83.9
23	63.1	73.5			73.9	83.9

CNEL **80.6**

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Palm Dr.
Road Segment: n/o I-10 WB Ramps
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,990	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.76	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-12.35	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.65	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.3	70.4	68.4	62.5	71.2	71.7
Medium Trucks:	68.8	67.4	61.5	58.6	67.5	67.8
Heavy Trucks:	71.5	70.2	64.2	58.9	69.3	69.7
Vehicle Noise:	75.9	74.3	70.4	65.2	74.3	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	123	264	569	1,226
CNEL:	131	283	610	1,314

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Gene Autry Tr.
Road Segment: s/o I-10 EB Ramps
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,180	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.03	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-12.09	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.39	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.5	70.7	68.7	62.8	71.4	72.0
Medium Trucks:	69.1	67.6	61.7	58.9	67.8	68.0
Heavy Trucks:	71.8	70.5	64.5	59.2	69.6	69.9
Vehicle Noise:	76.1	74.6	70.7	65.4	74.6	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	128	275	593	1,277
CNEL:	137	295	636	1,369

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Mountain View Rd.
Road Segment: n/o Varner Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,120	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.50	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-16.62	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.92	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.0	66.2	64.2	58.2	66.9	67.5
Medium Trucks:	64.5	63.1	57.2	54.3	63.2	63.5
Heavy Trucks:	67.2	66.0	60.0	54.7	65.0	65.4
Vehicle Noise:	71.6	70.0	66.2	60.9	70.1	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	137	296	637
CNEL:	68	147	317	683

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Landau Bl.
Road Segment: n/o Ramon Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,910	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	60	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	56.0	feet
Centerline Dist. to Observer:	56.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.69	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	79.45	-13.43	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-14.73	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.3	64.3	58.4	67.0	67.6
Medium Trucks:	65.1	63.6	57.7	54.9	63.7	64.0
Heavy Trucks:	68.6	67.3	61.3	56.0	66.4	66.7
Vehicle Noise:	72.3	70.8	66.7	61.4	70.7	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	135	290	625
CNEL:	67	144	310	668

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Cathedral Cyn Dr.
Road Segment: n/o Dinah Shore Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,610	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	44	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.432
Medium Trucks:	38.201
Heavy Trucks:	38.224

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.05	1.61	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-14.17	1.65	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-15.47	1.65	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	67.0	65.0	59.0	67.7	68.3
Medium Trucks:	65.7	64.3	58.4	55.5	64.4	64.7
Heavy Trucks:	69.2	67.9	62.0	56.7	67.0	67.4
Vehicle Noise:	73.0	71.4	67.3	62.1	71.4	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	117	252	542
CNEL:	58	125	269	580

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Cathedral Cyn Dr.
Road Segment: s/o Dinah Shore Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,950	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	44	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.432
Medium Trucks:	38.201
Heavy Trucks:	38.224

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.78	1.61	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-13.34	1.65	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-14.64	1.65	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.8	65.8	59.9	68.5	69.1
Medium Trucks:	66.6	65.1	59.2	56.3	65.2	65.5
Heavy Trucks:	70.1	68.8	62.8	57.5	67.9	68.2
Vehicle Noise:	73.8	72.3	68.2	62.9	72.2	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	133	286	616
CNEL:	66	142	306	659

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Date Palm Dr.
Road Segment: s/o Varner Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	840	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.34	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-17.45	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.75	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	63.7	61.7	55.8	64.5	65.1
Medium Trucks:	62.3	60.9	55.0	52.1	61.0	61.3
Heavy Trucks:	65.4	64.1	58.1	52.8	63.2	63.5
Vehicle Noise:	69.4	67.9	63.9	58.7	67.9	68.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	98	211	455
CNEL:	49	105	226	487

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Date Palm Dr.
Road Segment: s/o I-10 EB Ramps
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,280	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.58	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-11.54	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.84	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.7	67.7	61.7	70.4	71.0
Medium Trucks:	68.2	66.8	60.9	58.0	66.9	67.2
Heavy Trucks:	71.3	70.0	64.0	58.7	69.1	69.4
Vehicle Noise:	75.4	73.8	69.8	64.6	73.8	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	243	524	1,128
CNEL:	121	260	561	1,208

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Date Palm Dr.
Road Segment: n/o 30th Av.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,730	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.78	-0.07	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-12.33	-0.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-13.64	-0.05	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.9	66.9	60.9	69.6	70.2
Medium Trucks:	67.4	66.0	60.1	57.2	66.1	66.4
Heavy Trucks:	70.5	69.2	63.2	57.9	68.3	68.7
Vehicle Noise:	74.6	73.0	69.0	63.8	73.0	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	100	215	463	998
CNEL:	107	230	496	1,069

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Date Palm Dr.
Road Segment: n/o Ramon Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,730	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.78	-0.07	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-12.33	-0.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-13.64	-0.05	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.9	66.9	60.9	69.6	70.2
Medium Trucks:	67.4	66.0	60.1	57.2	66.1	66.4
Heavy Trucks:	70.5	69.2	63.2	57.9	68.3	68.7
Vehicle Noise:	74.6	73.0	69.0	63.8	73.0	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	100	215	463	998
CNEL:	107	230	496	1,069

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Date Palm Dr.
Road Segment: n/o Dinah Shore Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,840	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.41	-0.07	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-11.71	-0.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-13.01	-0.05	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.7	65.8	59.8	68.5	69.1
Medium Trucks:	66.5	65.0	59.2	56.3	65.2	65.5
Heavy Trucks:	70.0	68.7	62.7	57.4	67.8	68.2
Vehicle Noise:	73.7	72.2	68.1	62.9	72.1	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	88	189	406	875
CNEL:	94	202	435	936

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Date Palm Dr.
Road Segment: n/o Gerald Ford Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,550	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.46	-0.07	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	77.72	-11.66	-0.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-12.96	-0.05	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.7	65.8	63.8	57.9	66.6	67.2
Medium Trucks:	64.8	63.4	57.5	54.6	63.5	63.8
Heavy Trucks:	68.8	67.5	61.5	56.2	66.6	66.9
Vehicle Noise:	72.2	70.7	66.4	61.2	70.5	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	148	318	685
CNEL:	73	158	340	732

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Date Palm Dr.
Road Segment: n/o Hwy. 111
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,720	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.75	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-13.37	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-14.67	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.0	64.1	62.1	56.2	64.9	65.4
Medium Trucks:	63.1	61.6	55.8	52.9	61.8	62.1
Heavy Trucks:	67.1	65.8	59.8	54.5	64.9	65.2
Vehicle Noise:	70.5	68.9	64.7	59.5	68.8	69.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	53	113	245	527
CNEL:	56	121	261	563

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Da Vall Dr.
Road Segment: n/o Ramon Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	870	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	60	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	56.0	feet
Centerline Dist. to Observer:	56.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-2.73	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	79.45	-16.84	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-18.14	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.8	62.9	60.9	55.0	63.6	64.2
Medium Trucks:	61.7	60.2	54.3	51.4	60.3	60.6
Heavy Trucks:	65.2	63.9	57.9	52.6	63.0	63.3
Vehicle Noise:	68.9	67.4	63.3	58.0	67.3	67.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	37	80	172	370
CNEL:	40	85	184	396

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Da Vall Dr.
Road Segment: s/o Ramon Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	800	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	60	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	56.0	feet
Centerline Dist. to Observer:	56.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.55	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	81.00	-17.67	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-18.97	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.7	63.8	61.8	55.9	64.6	65.1
Medium Trucks:	62.4	60.9	55.0	52.2	61.1	61.3
Heavy Trucks:	65.5	64.2	58.2	52.9	63.3	63.6
Vehicle Noise:	69.5	68.0	64.0	58.7	68.0	68.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	88	190	409
CNEL:	44	94	204	438

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Bob Hope Dr.
Road Segment: n/o I-10 WB Ramps
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,300	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.85	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-15.97	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.27	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	66.8	64.8	58.9	67.5	68.1
Medium Trucks:	65.2	63.7	57.9	55.0	63.9	64.2
Heavy Trucks:	67.9	66.6	60.6	55.3	65.7	66.0
Vehicle Noise:	72.2	70.7	66.8	61.5	70.7	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	152	327	704
CNEL:	75	162	350	754

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Bob Hope Dr.
Road Segment: s/o I-10 EB Ramps
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,200 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.43	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-13.69	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-14.99	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.9	69.1	67.1	61.2	69.8	70.4
Medium Trucks:	67.5	66.0	60.1	57.3	66.2	66.4
Heavy Trucks:	70.2	68.9	62.9	57.6	68.0	68.3
Vehicle Noise:	74.5	73.0	69.1	63.8	73.0	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	100	215	464	999
CNEL:	107	231	497	1,071

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Varner Rd.
Road Segment: e/o Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	190 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-10.20	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	82.40	-24.32	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-25.62	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.6	58.7	56.7	50.8	59.5	60.1
Medium Trucks:	57.1	55.7	49.8	46.9	55.8	56.1
Heavy Trucks:	59.8	58.5	52.6	47.2	57.6	58.0
Vehicle Noise:	64.2	62.6	58.7	53.5	62.7	63.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	39	84	182
CNEL:	19	42	90	195

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Varner Rd.
Road Segment: w/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,620 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.90	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-15.01	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.32	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.8	65.8	59.8	68.5	69.1
Medium Trucks:	66.1	64.7	58.8	55.9	64.8	65.1
Heavy Trucks:	68.8	67.6	61.6	56.3	66.6	67.0
Vehicle Noise:	73.2	71.6	67.8	62.5	71.7	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	176	378	815
CNEL:	87	188	405	873

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Varner Rd.
Road Segment: e/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	480 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-6.18	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	82.40	-20.30	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-21.60	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.6	62.8	60.8	54.8	63.5	64.1
Medium Trucks:	61.2	59.7	53.8	50.9	59.8	60.1
Heavy Trucks:	63.8	62.6	56.6	51.3	61.7	62.0
Vehicle Noise:	68.2	66.7	62.8	57.5	66.7	67.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	34	73	156	337
CNEL:	36	78	168	361

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Valley Center Bl.
Road Segment: e/o Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	10 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-22.99	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	82.40	-37.11	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-38.41	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.8	46.0	44.0	38.0	46.7	47.3
Medium Trucks:	44.3	42.9	37.0	34.1	43.0	43.3
Heavy Trucks:	47.0	45.8	39.8	34.5	44.8	45.2
Vehicle Noise:	51.4	49.8	46.0	40.7	49.9	50.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	3	5	12	25
CNEL:	3	6	13	27

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Valley Center Bl.
Road Segment: e/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	10 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-22.99	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	82.40	-37.11	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-38.41	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.8	46.0	44.0	38.0	46.7	47.3
Medium Trucks:	44.3	42.9	37.0	34.1	43.0	43.3
Heavy Trucks:	47.0	45.8	39.8	34.5	44.8	45.2
Vehicle Noise:	51.4	49.8	46.0	40.7	49.9	50.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	3	5	12	25
CNEL:	3	6	13	27

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Valley Center Bl.
Road Segment: e/o Da Vall Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	10 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-22.99	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	82.40	-37.11	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-38.41	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.8	46.0	44.0	38.0	46.7	47.3
Medium Trucks:	44.3	42.9	37.0	34.1	43.0	43.3
Heavy Trucks:	47.0	45.8	39.8	34.5	44.8	45.2
Vehicle Noise:	51.4	49.8	46.0	40.7	49.9	50.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	3	5	12	25
CNEL:	3	6	13	27

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Vista Chino
Road Segment: w/o Landau Bl.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,610 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.59	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-12.53	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.83	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	68.7	66.7	60.7	69.4	70.0
Medium Trucks:	67.2	65.8	59.9	57.0	65.9	66.2
Heavy Trucks:	70.3	69.0	63.0	57.7	68.1	68.5
Vehicle Noise:	74.4	72.8	68.8	63.6	72.8	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	97	209	450	969
CNEL:	104	223	481	1,037

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Vista Chino
Road Segment: w/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,440	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.30	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-12.82	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.12	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.2	68.4	66.4	60.4	69.1	69.7
Medium Trucks:	66.9	65.5	59.6	56.7	65.6	65.9
Heavy Trucks:	70.0	68.7	62.7	57.4	67.8	68.2
Vehicle Noise:	74.1	72.5	68.5	63.3	72.5	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	200	430	926
CNEL:	99	214	460	992

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: 30th Av.
Road Segment: w/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	770	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	44	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.432
Medium Trucks:	38.201
Heavy Trucks:	38.224

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.16	1.61	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-16.28	1.65	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-17.58	1.65	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.5	60.7	58.7	52.8	61.4	62.0
Medium Trucks:	59.9	58.5	52.6	49.7	58.6	58.9
Heavy Trucks:	64.4	63.2	57.2	51.9	62.2	62.6
Vehicle Noise:	67.4	66.0	61.6	56.4	65.8	66.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	23	50	107	230
CNEL:	25	53	114	246

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: 30th Av.
Road Segment: e/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	940	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	44	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.432
Medium Trucks:	38.201
Heavy Trucks:	38.224

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.88	1.61	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-16.00	1.65	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-17.30	1.65	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.0	63.2	61.2	55.3	63.9	64.5
Medium Trucks:	62.2	60.7	54.8	52.0	60.8	61.1
Heavy Trucks:	66.1	64.9	58.9	53.6	63.9	64.3
Vehicle Noise:	69.5	68.0	63.8	58.6	67.9	68.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	32	69	148	319
CNEL:	34	73	158	341

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Ramon Rd.
Road Segment: w/o Landau Bl.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,090	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.51	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-9.61	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-10.91	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.9	65.9	60.0	68.6	69.2
Medium Trucks:	66.9	65.4	59.5	56.6	65.5	65.8
Heavy Trucks:	70.8	69.6	63.6	58.3	68.6	69.0
Vehicle Noise:	74.2	72.7	68.5	63.3	72.6	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	94	202	436	938
CNEL:	100	216	466	1,003

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Ramon Rd.
Road Segment: e/o Landau Bl.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,870	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.27	-0.07	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	77.72	-9.85	-0.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-11.15	-0.05	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	67.7	65.7	59.7	68.4	69.0
Medium Trucks:	66.6	65.2	59.3	56.4	65.3	65.6
Heavy Trucks:	70.6	69.3	63.3	58.0	68.4	68.8
Vehicle Noise:	74.0	72.5	68.2	63.0	72.4	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	90	195	420	904
CNEL:	97	208	449	967

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Ramon Rd.
Road Segment: w/o Da Vall Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,110	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.32	-0.07	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	77.72	-10.80	-0.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-12.10	-0.05	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.6	66.7	64.7	58.8	67.4	68.0
Medium Trucks:	65.7	64.2	58.3	55.5	64.3	64.6
Heavy Trucks:	69.6	68.4	62.4	57.1	67.5	67.8
Vehicle Noise:	73.0	71.5	67.3	62.1	71.4	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	78	168	363	782
CNEL:	84	180	388	836

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Dinah Shore Dr.
Road Segment: w/o Cathedral Cyn. Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,800	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.94	-0.07	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	77.72	-13.17	-0.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-14.48	-0.05	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.2	64.3	62.3	56.4	65.1	65.6
Medium Trucks:	63.3	61.8	56.0	53.1	62.0	62.3
Heavy Trucks:	67.3	66.0	60.0	54.7	65.1	65.4
Vehicle Noise:	70.7	69.1	64.9	59.7	69.0	69.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	117	252	543
CNEL:	58	125	269	580

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Dinah Shore Dr.
Road Segment: e/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,250	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.40	-0.07	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-12.72	-0.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-14.02	-0.05	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.6	66.7	64.7	58.8	67.5	68.1
Medium Trucks:	65.5	64.0	58.2	55.3	64.2	64.5
Heavy Trucks:	69.0	67.7	61.7	56.4	66.8	67.1
Vehicle Noise:	72.7	71.2	67.1	61.9	71.1	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	161	348	749
CNEL:	80	173	372	802

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Gerald Ford Dr.
Road Segment: e/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,350 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.82	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	79.45	-14.94	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-16.24	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.7	64.8	62.8	56.9	65.5	66.1
Medium Trucks:	63.6	62.1	56.2	53.3	62.2	62.5
Heavy Trucks:	67.1	65.8	59.8	54.5	64.9	65.2
Vehicle Noise:	70.8	69.3	65.2	59.9	69.2	69.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	107	230	496
CNEL:	53	114	246	530

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Perez Rd.
Road Segment: w/o Cathedral Cyn. Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,060 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.36	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	77.72	-15.47	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-16.78	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.2	62.3	60.3	54.4	63.1	63.6
Medium Trucks:	61.3	59.8	54.0	51.1	60.0	60.3
Heavy Trucks:	65.3	64.0	58.0	52.7	63.1	63.4
Vehicle Noise:	68.6	67.1	62.9	57.7	67.0	67.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	35	76	165	355
CNEL:	38	82	176	379

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Perez Rd.
Road Segment: e/o Cathedral Cyn. Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,160 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.96	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	77.72	-15.08	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-16.38	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.6	62.7	60.7	54.8	63.4	64.0
Medium Trucks:	61.7	60.2	54.3	51.5	60.4	60.6
Heavy Trucks:	65.7	64.4	58.4	53.1	63.5	63.8
Vehicle Noise:	69.0	67.5	63.3	58.1	67.4	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	38	81	175	377
CNEL:	40	87	187	403

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Hwy. 111
Road Segment: w/o Canyon Plaza Dr. W.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,560 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.01	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-10.11	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.41	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.9	71.1	69.1	63.2	71.8	72.4
Medium Trucks:	69.6	68.2	62.3	59.4	68.3	68.6
Heavy Trucks:	72.7	71.4	65.5	60.2	70.5	70.9
Vehicle Noise:	76.8	75.2	71.3	66.0	75.2	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	141	303	652	1,405
CNEL:	150	324	698	1,505

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Hwy. 111
Road Segment: w/o Cathedral Cyn. Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,680	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.05	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-10.07	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-11.37	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.4	65.4	59.5	68.2	68.8
Medium Trucks:	66.4	64.9	59.1	56.2	65.1	65.4
Heavy Trucks:	70.4	69.1	63.1	57.8	68.2	68.5
Vehicle Noise:	73.8	72.2	68.0	62.8	72.1	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	87	188	406	875
CNEL:	93	201	434	935

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Hwy. 111
Road Segment: w/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,270	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.69	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-9.42	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-10.72	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.9	68.1	66.1	60.2	68.8	69.4
Medium Trucks:	67.0	65.6	59.7	56.8	65.7	66.0
Heavy Trucks:	71.0	69.7	63.8	58.5	68.8	69.2
Vehicle Noise:	74.4	72.9	68.7	63.5	72.8	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	97	208	448	966
CNEL:	103	222	479	1,032

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Hwy. 111
Road Segment: e/o Sungate Wy.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	47,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,700	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	5.11	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-9.01	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-10.31	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	68.5	66.5	60.6	69.2	69.8
Medium Trucks:	67.5	66.0	60.1	57.2	66.1	66.4
Heavy Trucks:	71.4	70.2	64.2	58.9	69.2	69.6
Vehicle Noise:	74.8	73.3	69.1	63.9	73.2	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	103	222	478	1,030
CNEL:	110	237	511	1,100

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Palm Dr.
Road Segment: n/o I-10 WB Ramps
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,560	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.52	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-11.60	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.90	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.0	71.2	69.2	63.3	71.9	72.5
Medium Trucks:	69.6	68.1	62.2	59.3	68.2	68.5
Heavy Trucks:	72.3	71.0	65.0	59.7	70.1	70.4
Vehicle Noise:	76.6	75.1	71.2	65.9	75.1	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	138	297	639	1,377
CNEL:	148	318	685	1,476

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted) *Project Name:* CCGP
Road Name: Gene Autry Tr. *Job Number:* 11475
Road Segment: s/o I-10 EB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,500 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.45	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-11.67	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.97	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.0	71.1	69.1	63.2	71.8	72.4
Medium Trucks:	69.5	68.0	62.2	59.3	68.2	68.5
Heavy Trucks:	72.2	70.9	64.9	59.6	70.0	70.3
Vehicle Noise:	76.5	75.0	71.1	65.8	75.0	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	136	293	632	1,362
CNEL:	146	314	677	1,460

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted) *Project Name:* CCGP
Road Name: Mountain View Rd. *Job Number:* 11475
Road Segment: n/o Varner Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,750 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.75	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-11.37	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.67	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.3	71.4	69.4	63.5	72.1	72.7
Medium Trucks:	69.8	68.3	62.5	59.6	68.5	68.8
Heavy Trucks:	72.5	71.2	65.2	59.9	70.3	70.6
Vehicle Noise:	76.8	75.3	71.4	66.1	75.3	75.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	143	307	662	1,426
CNEL:	153	329	709	1,528

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted) *Project Name:* CCGP
Road Name: Landau Bl. *Job Number:* 11475
Road Segment: n/o Ramon Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,510 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.33	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	79.45	-10.79	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-12.09	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	69.0	67.0	61.0	69.7	70.3
Medium Trucks:	67.7	66.3	60.4	57.5	66.4	66.7
Heavy Trucks:	71.2	69.9	64.0	58.6	69.0	69.4
Vehicle Noise:	74.9	73.4	69.3	64.1	73.4	73.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	94	202	435	937
CNEL:	100	216	465	1,003

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted) *Project Name:* CCGP
Road Name: Cathedral Cyn Dr. *Job Number:* 11475
Road Segment: n/o Dinah Shore Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,780 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.432
Medium Trucks:	38.201
Heavy Trucks:	38.224

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.38	1.61	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-13.73	1.65	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-15.04	1.65	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.4	65.4	59.5	68.1	68.7
Medium Trucks:	66.2	64.7	58.8	55.9	64.8	65.1
Heavy Trucks:	69.7	68.4	62.4	57.1	67.5	67.8
Vehicle Noise:	73.4	71.9	67.8	62.5	71.8	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	125	269	580
CNEL:	62	134	288	620

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Cathedral Cyn Dr.
Road Segment: s/o Dinah Shore Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,000 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006

Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	38.432
Medium Trucks:	38.201
Heavy Trucks:	38.224

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.89	1.61	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-13.23	1.65	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-14.53	1.65	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.9	65.9	60.0	68.6	69.2
Medium Trucks:	66.7	65.2	59.3	56.5	65.3	65.6
Heavy Trucks:	70.2	68.9	62.9	57.6	68.0	68.3
Vehicle Noise:	73.9	72.4	68.3	63.0	72.3	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	63	135	291	627
CNEL:	67	144	311	671

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Date Palm Dr.
Road Segment: s/o Varner Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,030 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006

Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.24	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-11.88	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.18	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.3	67.3	61.4	70.0	70.6
Medium Trucks:	67.9	66.4	60.5	57.7	66.6	66.8
Heavy Trucks:	70.9	69.7	63.7	58.4	68.8	69.1
Vehicle Noise:	75.0	73.5	69.5	64.2	73.5	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	107	231	497	1,070
CNEL:	115	247	532	1,146

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Date Palm Dr.
Road Segment: s/o I-10 EB Ramps
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,660 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006

Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.11	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-10.01	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.31	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.0	71.2	69.2	63.3	71.9	72.5
Medium Trucks:	69.7	68.3	62.4	59.5	68.4	68.7
Heavy Trucks:	72.8	71.5	65.6	60.2	70.6	71.0
Vehicle Noise:	76.9	75.3	71.3	66.1	75.3	75.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	143	307	662	1,426
CNEL:	153	329	709	1,527

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Date Palm Dr.
Road Segment: n/o 30th Av.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,280 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006

Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.58	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-11.54	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.84	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.7	67.7	61.7	70.4	71.0
Medium Trucks:	68.2	66.8	60.9	58.0	66.9	67.2
Heavy Trucks:	71.3	70.0	64.0	58.7	69.1	69.4
Vehicle Noise:	75.4	73.8	69.8	64.6	73.8	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	243	524	1,128
CNEL:	121	260	561	1,208

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Date Palm Dr.
Road Segment: n/o Ramon Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,000	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.19	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-11.92	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.23	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.3	67.3	61.3	70.0	70.6
Medium Trucks:	67.8	66.4	60.5	57.6	66.5	66.8
Heavy Trucks:	70.9	69.6	63.6	58.3	68.7	69.1
Vehicle Noise:	75.0	73.4	69.4	64.2	73.4	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	106	229	493	1,063
CNEL:	114	245	528	1,138

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Date Palm Dr.
Road Segment: n/o Dinah Shore Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,120	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.82	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-11.30	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-12.60	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.2	66.2	60.2	68.9	69.5
Medium Trucks:	66.9	65.5	59.6	56.7	65.6	65.9
Heavy Trucks:	70.4	69.1	63.1	57.8	68.2	68.6
Vehicle Noise:	74.1	72.6	68.5	63.3	72.5	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	201	432	932
CNEL:	100	215	463	997

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Date Palm Dr.
Road Segment: n/o Gerald Ford Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,480	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.81	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-10.31	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-11.61	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.2	65.2	59.3	67.9	68.5
Medium Trucks:	66.2	64.7	58.8	55.9	64.8	65.1
Heavy Trucks:	70.1	68.9	62.9	57.6	67.9	68.3
Vehicle Noise:	73.5	72.0	67.8	62.6	71.9	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	84	182	391	843
CNEL:	90	194	418	901

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Date Palm Dr.
Road Segment: n/o Hwy. 111
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,890	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.00	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-11.12	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-12.42	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.4	64.4	58.5	67.1	67.7
Medium Trucks:	65.4	63.9	58.0	55.1	64.0	64.3
Heavy Trucks:	69.3	68.0	62.1	56.8	67.1	67.5
Vehicle Noise:	72.7	71.2	67.0	61.8	71.1	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	160	346	744
CNEL:	80	171	369	796

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Da Vall Dr.
Road Segment: n/o Ramon Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,730 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006
Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.24	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	79.45	-11.88	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-13.18	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.9	65.9	59.9	68.6	69.2
Medium Trucks:	66.6	65.2	59.3	56.4	65.3	65.6
Heavy Trucks:	70.1	68.8	62.9	57.6	67.9	68.3
Vehicle Noise:	73.8	72.3	68.2	63.0	72.3	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	171	368	792
CNEL:	85	183	394	848

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Da Vall Dr.
Road Segment: s/o Ramon Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,040 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006
Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.52	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	81.00	-13.60	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-14.90	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.9	65.9	60.0	68.6	69.2
Medium Trucks:	66.5	65.0	59.1	56.2	65.1	65.4
Heavy Trucks:	69.5	68.2	62.3	57.0	67.3	67.7
Vehicle Noise:	73.6	72.0	68.1	62.8	72.0	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	165	355	764
CNEL:	82	176	380	818

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Bob Hope Dr.
Road Segment: n/o I-10 WB Ramps
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,170 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006
Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.14	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-9.98	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.28	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.7	72.8	70.8	64.9	73.5	74.1
Medium Trucks:	71.2	69.7	63.8	61.0	69.9	70.1
Heavy Trucks:	73.9	72.6	66.6	61.3	71.7	72.0
Vehicle Noise:	78.2	76.7	72.8	67.5	76.7	77.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	177	381	820	1,766
CNEL:	189	408	879	1,893

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Bob Hope Dr.
Road Segment: s/o I-10 EB Ramps
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,470 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006
Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.41	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-11.71	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.01	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.9	71.1	69.1	63.1	71.8	72.4
Medium Trucks:	69.5	68.0	62.1	59.2	68.1	68.4
Heavy Trucks:	72.1	70.9	64.9	59.6	69.9	70.3
Vehicle Noise:	76.5	75.0	71.1	65.8	75.0	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	135	292	628	1,354
CNEL:	145	313	674	1,451

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Varner Rd.
Road Segment: e/o Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	500 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006
Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-6.00	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	82.40	-20.12	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-21.42	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.8	62.9	60.9	55.0	63.7	64.3
Medium Trucks:	61.3	59.9	54.0	51.1	60.0	60.3
Heavy Trucks:	64.0	62.7	56.8	51.5	61.8	62.2
Vehicle Noise:	68.4	66.8	62.9	57.7	66.9	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	35	75	161	346
CNEL:	37	80	172	371

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Varner Rd.
Road Segment: w/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,970 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006
Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.00	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-11.12	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.42	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.5	71.6	69.7	63.7	72.4	73.0
Medium Trucks:	70.0	68.6	62.7	59.8	68.7	69.0
Heavy Trucks:	72.7	71.4	65.5	60.2	70.5	70.9
Vehicle Noise:	77.1	75.5	71.6	66.4	75.6	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	148	319	687	1,481
CNEL:	159	342	737	1,587

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Varner Rd.
Road Segment: e/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,280 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006
Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.59	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	82.40	-13.53	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-14.83	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	69.5	67.5	61.6	70.3	70.8
Medium Trucks:	67.9	66.5	60.6	57.7	66.6	66.9
Heavy Trucks:	70.6	69.3	63.4	58.0	68.4	68.8
Vehicle Noise:	75.0	73.4	69.5	64.3	73.5	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	95	205	442	951
CNEL:	102	220	473	1,020

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Valley Center Bl.
Road Segment: e/o Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,510 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006
Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.20	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	82.40	-15.32	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-16.62	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.7	65.7	59.8	68.5	69.1
Medium Trucks:	66.1	64.7	58.8	55.9	64.8	65.1
Heavy Trucks:	68.8	67.5	61.6	56.3	66.6	67.0
Vehicle Noise:	73.2	71.6	67.7	62.5	71.7	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	156	336	723
CNEL:	77	167	360	775

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Valley Center Bl.
Road Segment: e/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	910	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	60	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	56.0	feet
Centerline Dist. to Observer:	56.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-3.40	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	82.40	-17.52	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-18.82	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.4	65.5	63.5	57.6	66.3	66.9
Medium Trucks:	63.9	62.5	56.6	53.7	62.6	62.9
Heavy Trucks:	66.6	65.3	59.4	54.1	64.4	64.8
Vehicle Noise:	71.0	69.4	65.5	60.3	69.5	69.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	111	239	516
CNEL:	55	119	257	553

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Valley Center Bl.
Road Segment: e/o Da Vall Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	600	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	60	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	56.0	feet
Centerline Dist. to Observer:	56.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-5.21	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	82.40	-19.33	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-20.63	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	63.7	61.7	55.8	64.5	65.1
Medium Trucks:	62.1	60.7	54.8	51.9	60.8	61.1
Heavy Trucks:	64.8	63.5	57.6	52.2	62.6	63.0
Vehicle Noise:	69.2	67.6	63.7	58.5	67.7	68.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	84	181	391
CNEL:	42	90	194	419

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Vista Chino
Road Segment: w/o Landau Bl.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,310	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.62	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-11.50	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.80	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.6	69.7	67.7	61.8	70.4	71.0
Medium Trucks:	68.3	66.8	60.9	58.0	66.9	67.2
Heavy Trucks:	71.3	70.1	64.1	58.8	69.1	69.5
Vehicle Noise:	75.4	73.8	69.9	64.6	73.8	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	244	527	1,135
CNEL:	122	262	564	1,215

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Vista Chino
Road Segment: w/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,040	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.25	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-11.87	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.17	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.3	67.3	61.4	70.1	70.6
Medium Trucks:	67.9	66.4	60.6	57.7	66.6	66.9
Heavy Trucks:	71.0	69.7	63.7	58.4	68.8	69.1
Vehicle Noise:	75.0	73.5	69.5	64.2	73.5	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	107	231	498	1,072
CNEL:	115	247	533	1,148

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted) *Project Name:* CCGP
Road Name: 30th Av. *Job Number:* 11475
Road Segment: w/o Date Palm Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,560 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	44 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.432
Medium Trucks:	38.201
Heavy Trucks:	38.224

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	0.90	1.61	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-13.22	1.65	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-14.52	1.65	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	63.8	61.8	55.8	64.5	65.1
Medium Trucks:	63.0	61.5	55.6	52.8	61.7	61.9
Heavy Trucks:	67.5	66.2	60.2	54.9	65.3	65.7
Vehicle Noise:	70.5	69.0	64.7	59.5	68.8	69.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	37	79	171	369
CNEL:	39	85	183	393

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted) *Project Name:* CCGP
Road Name: 30th Av. *Job Number:* 11475
Road Segment: e/o Date Palm Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,610 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	44 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.432
Medium Trucks:	38.201
Heavy Trucks:	38.224

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.46	1.61	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-13.66	1.65	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-14.96	1.65	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.4	65.5	63.5	57.6	66.3	66.8
Medium Trucks:	64.5	63.1	57.2	54.3	63.2	63.5
Heavy Trucks:	68.5	67.2	61.2	55.9	66.3	66.6
Vehicle Noise:	71.9	70.3	66.1	60.9	70.2	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	98	212	456
CNEL:	49	105	226	488

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted) *Project Name:* CCGP
Road Name: Ramon Rd. *Job Number:* 11475
Road Segment: w/o Landau Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	57,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,720 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	5.96	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-8.15	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-9.45	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.3	67.4	61.4	70.1	70.7
Medium Trucks:	68.3	66.9	61.0	58.1	67.0	67.3
Heavy Trucks:	72.3	71.0	65.0	59.7	70.1	70.5
Vehicle Noise:	75.7	74.2	69.9	64.7	74.1	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	117	253	545	1,174
CNEL:	125	270	582	1,254

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted) *Project Name:* CCGP
Road Name: Ramon Rd. *Job Number:* 11475
Road Segment: e/o Landau Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,260 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.68	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-9.43	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-10.73	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.9	68.1	66.1	60.1	68.8	69.4
Medium Trucks:	67.0	65.6	59.7	56.8	65.7	66.0
Heavy Trucks:	71.0	69.7	63.8	58.4	68.8	69.2
Vehicle Noise:	74.4	72.9	68.7	63.5	72.8	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	96	208	448	964
CNEL:	103	222	478	1,031

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted) *Project Name:* CCGP
Road Name: Ramon Rd. *Job Number:* 11475
Road Segment: w/o Da Vall Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,940	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.35	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-9.77	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-11.07	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.7	65.7	59.8	68.5	69.0
Medium Trucks:	66.7	65.2	59.4	56.5	65.4	65.7
Heavy Trucks:	70.7	69.4	63.4	58.1	68.5	68.8
Vehicle Noise:	74.1	72.5	68.3	63.1	72.4	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	92	197	425	915
CNEL:	98	211	454	978

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted) *Project Name:* CCGP
Road Name: Dinah Shore Dr. *Job Number:* 11475
Road Segment: w/o Cathedral Cyn. Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,700	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.07	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-10.04	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-11.35	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.5	65.5	59.5	68.2	68.8
Medium Trucks:	66.4	65.0	59.1	56.2	65.1	65.4
Heavy Trucks:	70.4	69.1	63.1	57.8	68.2	68.6
Vehicle Noise:	73.8	72.3	68.1	62.8	72.2	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	88	189	407	878
CNEL:	94	202	435	938

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted) *Project Name:* CCGP
Road Name: Dinah Shore Dr. *Job Number:* 11475
Road Segment: e/o Date Palm Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,590	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.43	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-10.69	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-11.99	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.8	66.8	60.8	69.5	70.1
Medium Trucks:	67.5	66.1	60.2	57.3	66.2	66.5
Heavy Trucks:	71.0	69.7	63.8	58.4	68.8	69.2
Vehicle Noise:	74.7	73.2	69.1	63.9	73.2	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	102	220	475	1,023
CNEL:	109	236	508	1,095

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted) *Project Name:* CCGP
Road Name: Gerald Ford Dr. *Job Number:* 11475
Road Segment: e/o Date Palm Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,620	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	60	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	56.0	feet
Centerline Dist. to Observer:	56.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.06	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	79.45	-12.06	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-13.36	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	67.7	65.7	59.8	68.4	69.0
Medium Trucks:	66.4	65.0	59.1	56.2	65.1	65.4
Heavy Trucks:	69.9	68.7	62.7	57.4	67.7	68.1
Vehicle Noise:	73.7	72.1	68.0	62.8	72.1	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	77	166	358	771
CNEL:	82	178	383	825

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Perez Rd.
Road Segment: w/o Cathedral Cyn. Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,150 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006
Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.71	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	77.72	-12.40	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-13.70	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.3	65.4	63.4	57.5	66.1	66.7
Medium Trucks:	64.4	62.9	57.0	54.1	63.0	63.3
Heavy Trucks:	68.3	67.1	61.1	55.8	66.1	66.5
Vehicle Noise:	71.7	70.2	66.0	60.8	70.1	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	57	122	264	568
CNEL:	61	131	282	607

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Perez Rd.
Road Segment: e/o Cathedral Cyn. Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,330 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006
Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.550
Medium Trucks:	47.364
Heavy Trucks:	47.382

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.06	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	77.72	-12.05	0.25	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-13.35	0.25	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.6	65.7	63.7	57.8	66.5	67.1
Medium Trucks:	64.7	63.3	57.4	54.5	63.4	63.7
Heavy Trucks:	68.7	67.4	61.4	56.1	66.5	66.8
Vehicle Noise:	72.1	70.6	66.3	61.1	70.4	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	129	278	600
CNEL:	64	138	297	641

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Hwy. 111
Road Segment: w/o Canyon Plaza Dr. W.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	50,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,010 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006
Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.42	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-9.70	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.00	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.4	71.5	69.5	63.6	72.2	72.8
Medium Trucks:	70.1	68.6	62.7	59.8	68.7	69.0
Heavy Trucks:	73.1	71.9	65.9	60.6	70.9	71.3
Vehicle Noise:	77.2	75.6	71.7	66.4	75.6	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	150	322	694	1,496
CNEL:	160	345	744	1,602

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Hwy. 111
Road Segment: w/o Cathedral Cyn. Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	44,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,400 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006
Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.83	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-9.29	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-10.59	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	68.2	66.2	60.3	68.9	69.5
Medium Trucks:	67.2	65.7	59.8	57.0	65.9	66.1
Heavy Trucks:	71.2	69.9	63.9	58.6	69.0	69.3
Vehicle Noise:	74.5	73.0	68.8	63.6	72.9	73.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	99	212	457	985
CNEL:	105	227	489	1,053

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Hwy. 111
Road Segment: w/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	47,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,740	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	5.15	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-8.97	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-10.27	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	68.5	66.5	60.6	69.3	69.9
Medium Trucks:	67.5	66.0	60.2	57.3	66.2	66.5
Heavy Trucks:	71.5	70.2	64.2	58.9	69.3	69.6
Vehicle Noise:	74.9	73.3	69.1	63.9	73.2	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	104	223	481	1,035
CNEL:	111	238	514	1,107

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: General Plan Buildout (Adopted)
Road Name: Hwy. 111
Road Segment: e/o Sungate Wy.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	58,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	5,830	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	49.729
Medium Trucks:	49.551
Heavy Trucks:	49.568

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	6.05	-0.07	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-8.07	-0.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-9.37	-0.05	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	69.4	67.4	61.5	70.2	70.7
Medium Trucks:	68.4	66.9	61.1	58.2	67.1	67.4
Heavy Trucks:	72.4	71.1	65.1	59.8	70.2	70.5
Vehicle Noise:	75.8	74.2	70.0	64.8	74.1	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	119	256	552	1,189
CNEL:	127	274	590	1,270

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Palm Dr.
Road Segment: n/o I-10 WB Ramps
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,560	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	71	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	52.285
Medium Trucks:	52.116
Heavy Trucks:	52.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.52	-0.39	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-11.60	-0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.90	-0.38	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.7	70.8	68.9	62.9	71.6	72.2
Medium Trucks:	69.2	67.8	61.9	59.0	67.9	68.2
Heavy Trucks:	71.9	70.6	64.7	59.4	69.7	70.1
Vehicle Noise:	76.3	74.7	70.8	65.6	74.8	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	131	282	608	1,310
CNEL:	140	302	652	1,404

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Gene Autry Tr.
Road Segment: s/o I-10 EB Ramps
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,500	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	71	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	52.285
Medium Trucks:	52.116
Heavy Trucks:	52.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.45	-0.39	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-11.67	-0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.97	-0.38	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	70.8	68.8	62.9	71.5	72.1
Medium Trucks:	69.2	67.7	61.8	58.9	67.8	68.1
Heavy Trucks:	71.9	70.6	64.6	59.3	69.7	70.0
Vehicle Noise:	76.2	74.7	70.8	65.5	74.7	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	129	279	601	1,295
CNEL:	139	299	644	1,388

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Mountain View Rd.
Road Segment: n/o Varner Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,750 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	71 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	58.0 feet
Centerline Dist. to Observer:	58.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.138
Medium Trucks:	45.946
Heavy Trucks:	45.965

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.75	0.42	-1.20	-4.68	0.000	0.000
Medium Trucks:	82.40	-11.37	0.45	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-12.67	0.44	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.7	71.9	69.9	64.0	72.6	73.2
Medium Trucks:	70.3	68.8	62.9	60.1	69.0	69.2
Heavy Trucks:	73.0	71.7	65.7	60.4	70.8	71.1
Vehicle Noise:	77.3	75.8	71.9	66.6	75.8	76.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	142	305	657	1,415
CNEL:	152	327	704	1,517

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Landau Bl.
Road Segment: n/o Ramon Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,620 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	47 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	51.0 feet
Centerline Dist. to Observer:	51.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	45.538
Medium Trucks:	45.344
Heavy Trucks:	45.363

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.47	0.51	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-10.65	0.53	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-11.95	0.53	-1.20	-5.42	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.4	67.4	61.4	70.1	70.7
Medium Trucks:	68.1	66.7	60.8	57.9	66.8	67.1
Heavy Trucks:	71.6	70.4	64.4	59.1	69.4	69.8
Vehicle Noise:	75.4	73.8	69.7	64.5	73.8	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	91	196	422	910
CNEL:	97	210	452	973

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Cathedral Cyn Dr.
Road Segment: n/o Dinah Shore Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,790 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	43 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.714
Medium Trucks:	38.484
Heavy Trucks:	38.507

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.41	1.56	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-13.71	1.60	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-15.01	1.60	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.2	67.4	65.4	59.4	68.1	68.7
Medium Trucks:	66.1	64.7	58.8	55.9	64.8	65.1
Heavy Trucks:	69.6	68.4	62.4	57.1	67.4	67.8
Vehicle Noise:	73.4	71.8	67.7	62.5	71.8	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	124	268	578
CNEL:	62	133	287	618

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Cathedral Cyn Dr.
Road Segment: s/o Dinah Shore Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,900 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	43 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.714
Medium Trucks:	38.484
Heavy Trucks:	38.507

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.67	1.56	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-13.45	1.60	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-14.75	1.60	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	67.6	65.6	59.7	68.4	68.9
Medium Trucks:	66.4	64.9	59.1	56.2	65.1	65.4
Heavy Trucks:	69.9	68.6	62.6	57.3	67.7	68.1
Vehicle Noise:	73.6	72.1	68.0	62.8	72.0	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	130	279	601
CNEL:	64	139	299	643

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Date Palm Dr.
Road Segment: s/o Varner Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,030	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	71	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.285
Medium Trucks:	52.116
Heavy Trucks:	52.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.24	-0.39	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-11.88	-0.37	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-13.18	-0.38	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	69.0	67.0	61.1	69.7	70.3
Medium Trucks:	67.5	66.1	60.2	57.3	66.2	66.5
Heavy Trucks:	70.6	69.3	63.4	58.0	68.4	68.8
Vehicle Noise:	74.7	73.1	69.1	63.9	73.1	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	102	219	472	1,017
CNEL:	109	235	506	1,090

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Date Palm Dr.
Road Segment: s/o I-10 EB Ramps
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	47,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,730	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	71	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.285
Medium Trucks:	52.116
Heavy Trucks:	52.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.17	-0.39	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-9.95	-0.37	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-11.25	-0.38	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.8	70.9	68.9	63.0	71.7	72.2
Medium Trucks:	69.5	68.0	62.1	59.3	68.2	68.4
Heavy Trucks:	72.6	71.3	65.3	60.0	70.4	70.7
Vehicle Noise:	76.6	75.1	71.1	65.8	75.1	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	137	295	635	1,369
CNEL:	147	316	681	1,466

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Date Palm Dr.
Road Segment: n/o 30th Av.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,400	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	71	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.285
Medium Trucks:	52.116
Heavy Trucks:	52.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.74	-0.39	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-11.38	-0.37	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-12.68	-0.38	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	69.5	67.5	61.6	70.2	70.8
Medium Trucks:	68.0	66.6	60.7	57.8	66.7	67.0
Heavy Trucks:	71.1	69.8	63.9	58.5	68.9	69.3
Vehicle Noise:	75.2	73.6	69.6	64.4	73.6	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	110	237	510	1,099
CNEL:	118	253	546	1,177

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Date Palm Dr.
Road Segment: n/o Ramon Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,160	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	71	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.285
Medium Trucks:	52.116
Heavy Trucks:	52.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.42	-0.39	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-11.70	-0.37	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-13.00	-0.38	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	69.2	67.2	61.2	69.9	70.5
Medium Trucks:	67.7	66.3	60.4	57.5	66.4	66.7
Heavy Trucks:	70.8	69.5	63.5	58.2	68.6	69.0
Vehicle Noise:	74.9	73.3	69.3	64.1	73.3	73.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	105	225	486	1,046
CNEL:	112	241	520	1,121

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Date Palm Dr.
Road Segment: n/o Dinah Shore Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,300 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	71 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.285
Medium Trucks:	52.116
Heavy Trucks:	52.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.06	-0.39	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-11.05	-0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-12.35	-0.38	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.9	68.1	66.1	60.1	68.8	69.4
Medium Trucks:	66.8	65.4	59.5	56.6	65.5	65.8
Heavy Trucks:	70.3	69.0	63.1	57.8	68.1	68.5
Vehicle Noise:	74.1	72.5	68.4	63.2	72.5	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	92	198	427	920
CNEL:	98	212	457	984

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Date Palm Dr.
Road Segment: n/o Gerald Ford Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,570 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	71 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.285
Medium Trucks:	52.116
Heavy Trucks:	52.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.92	-0.39	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-10.20	-0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-11.50	-0.38	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	67.0	65.0	59.1	67.7	68.3
Medium Trucks:	65.9	64.5	58.6	55.7	64.6	64.9
Heavy Trucks:	69.9	68.6	62.7	57.3	67.7	68.1
Vehicle Noise:	73.3	71.8	67.6	62.4	71.7	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	82	176	378	815
CNEL:	87	188	404	871

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Date Palm Dr.
Road Segment: n/o Hwy. 111
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,170 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	71 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.285
Medium Trucks:	52.116
Heavy Trucks:	52.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.40	-0.39	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-10.72	-0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-12.02	-0.38	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.3	66.5	64.5	58.5	67.2	67.8
Medium Trucks:	65.4	64.0	58.1	55.2	64.1	64.4
Heavy Trucks:	69.4	68.1	62.1	56.8	67.2	67.6
Vehicle Noise:	72.8	71.3	67.1	61.8	71.2	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	162	350	753
CNEL:	80	173	374	805

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Da Vall Dr.
Road Segment: n/o Ramon Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,900 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	56.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.850
Medium Trucks:	49.672
Heavy Trucks:	49.689

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.50	-0.08	-1.20	-4.67	0.000	0.000
Medium Trucks:	79.45	-11.61	-0.06	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-12.92	-0.06	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.8	65.8	59.9	68.6	69.1
Medium Trucks:	66.6	65.1	59.2	56.4	65.3	65.5
Heavy Trucks:	70.1	68.8	62.8	57.5	67.9	68.2
Vehicle Noise:	73.8	72.3	68.2	62.9	72.2	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	170	365	787
CNEL:	84	181	391	842

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Da Vall Dr.
Road Segment: s/o Ramon Rd.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,150	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	56.0	feet
Centerline Dist. to Observer:	56.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	49.850
Medium Trucks:	49.672
Heavy Trucks:	49.689

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.75	-0.08	-1.20	-4.67	0.000	0.000
Medium Trucks:	81.00	-13.37	-0.06	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-14.67	-0.06	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.8	65.8	59.9	68.5	69.1
Medium Trucks:	66.4	64.9	59.0	56.2	65.0	65.3
Heavy Trucks:	69.4	68.2	62.2	56.9	67.2	67.6
Vehicle Noise:	73.5	72.0	68.0	62.7	71.9	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	163	350	755
CNEL:	81	174	375	808

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Bob Hope Dr.
Road Segment: n/o I-10 WB Ramps
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	5,170	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	83	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.663
Medium Trucks:	47.477
Heavy Trucks:	47.495

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.14	0.21	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-9.98	0.23	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.28	0.23	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.9	73.1	71.1	65.1	73.8	74.4
Medium Trucks:	71.5	70.0	64.1	61.2	70.1	70.4
Heavy Trucks:	74.2	72.9	66.9	61.6	72.0	72.3
Vehicle Noise:	78.5	77.0	73.1	67.8	77.0	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	184	397	855	1,843
CNEL:	198	426	917	1,975

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Bob Hope Dr.
Road Segment: s/o I-10 EB Ramps
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,470	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	83	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.663
Medium Trucks:	47.477
Heavy Trucks:	47.495

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.41	0.21	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-11.71	0.23	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.01	0.23	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.2	71.3	69.3	63.4	72.1	72.7
Medium Trucks:	69.7	68.3	62.4	59.5	68.4	68.7
Heavy Trucks:	72.4	71.1	65.2	59.8	70.2	70.6
Vehicle Noise:	76.8	75.2	71.3	66.1	75.3	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	141	304	656	1,413
CNEL:	151	326	703	1,514

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Varner Rd.
Road Segment: e/o Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	500	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	54	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	51.0	feet
Centerline Dist. to Observer:	51.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.555
Medium Trucks:	43.351
Heavy Trucks:	43.371

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-6.00	0.80	-1.20	-4.65	0.000	0.000
Medium Trucks:	82.40	-20.12	0.83	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-21.42	0.82	-1.20	-5.42	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	63.5	61.5	55.6	64.2	64.8
Medium Trucks:	61.9	60.5	54.6	51.7	60.6	60.9
Heavy Trucks:	64.6	63.3	57.3	52.0	62.4	62.8
Vehicle Noise:	69.0	67.4	63.5	58.3	67.4	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	34	74	160	344
CNEL:	37	79	171	369

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Varner Rd.
Road Segment: w/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,970	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	71	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	58.0	feet
Centerline Dist. to Observer:	58.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.138
Medium Trucks:	45.946
Heavy Trucks:	45.965

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.00	0.42	-1.20	-4.68	0.000	0.000
Medium Trucks:	82.40	-11.12	0.45	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-12.42	0.44	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.0	72.1	70.1	64.2	72.9	73.5
Medium Trucks:	70.5	69.1	63.2	60.3	69.2	69.5
Heavy Trucks:	73.2	71.9	66.0	60.6	71.0	71.4
Vehicle Noise:	77.6	76.0	72.1	66.9	76.1	76.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	147	317	682	1,470
CNEL:	158	339	731	1,576

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Varner Rd.
Road Segment: e/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,280	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	54	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	51.0	feet
Centerline Dist. to Observer:	51.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.555
Medium Trucks:	43.351
Heavy Trucks:	43.371

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.59	0.80	-1.20	-4.65	0.000	0.000
Medium Trucks:	82.40	-13.53	0.83	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-14.83	0.82	-1.20	-5.42	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.0	70.1	68.1	62.2	70.8	71.4
Medium Trucks:	68.5	67.0	61.2	58.3	67.2	67.5
Heavy Trucks:	71.2	69.9	63.9	58.6	69.0	69.3
Vehicle Noise:	75.6	74.0	70.1	64.8	74.0	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	95	204	439	946
CNEL:	101	219	471	1,014

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Valley Center Bl.
Road Segment: e/o Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,510	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	67	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	56.0	feet
Centerline Dist. to Observer:	56.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	45.153
Medium Trucks:	44.956
Heavy Trucks:	44.975

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.20	0.56	-1.20	-4.67	0.000	0.000
Medium Trucks:	82.40	-15.32	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-16.62	0.59	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.9	68.1	66.1	60.2	68.8	69.4
Medium Trucks:	66.5	65.0	59.1	56.3	65.2	65.4
Heavy Trucks:	69.2	67.9	61.9	56.6	67.0	67.3
Vehicle Noise:	73.5	72.0	68.1	62.8	72.0	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	164	353	761
CNEL:	82	176	379	816

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Valley Center Bl.
Road Segment: e/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	910	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	67	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	56.0	feet
Centerline Dist. to Observer:	56.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	45.153
Medium Trucks:	44.956
Heavy Trucks:	44.975

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-3.40	0.56	-1.20	-4.67	0.000	0.000
Medium Trucks:	82.40	-17.52	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-18.82	0.59	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.7	65.9	63.9	58.0	66.6	67.2
Medium Trucks:	64.3	62.8	56.9	54.1	63.0	63.2
Heavy Trucks:	67.0	65.7	59.7	54.4	64.8	65.1
Vehicle Noise:	71.3	69.8	65.9	60.6	69.8	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	117	252	543
CNEL:	58	125	270	582

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Valley Center Bl.
Road Segment: e/o Da Vall Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	600	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	67	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	56.0	feet
Centerline Dist. to Observer:	56.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	45.153
Medium Trucks:	44.956
Heavy Trucks:	44.975

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-5.21	0.56	-1.20	-4.67	0.000	0.000
Medium Trucks:	82.40	-19.33	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-20.63	0.59	-1.20	-5.37	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.9	64.1	62.1	56.1	64.8	65.4
Medium Trucks:	62.5	61.0	55.1	52.2	61.1	61.4
Heavy Trucks:	65.2	63.9	57.9	52.6	63.0	63.3
Vehicle Noise:	69.5	68.0	64.1	58.8	68.0	68.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	89	191	412
CNEL:	44	95	205	441

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Vista Chino
Road Segment: w/o Landau Bl.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,550	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	58.0	feet
Centerline Dist. to Observer:	58.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	53.038
Medium Trucks:	52.871
Heavy Trucks:	52.887

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.92	-0.49	-1.20	-4.68	0.000	0.000
Medium Trucks:	81.00	-11.19	-0.47	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-12.50	-0.47	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	69.6	67.6	61.7	70.3	70.9
Medium Trucks:	68.1	66.7	60.8	57.9	66.8	67.1
Heavy Trucks:	71.2	69.9	64.0	58.6	69.0	69.4
Vehicle Noise:	75.3	73.7	69.7	64.5	73.7	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	103	221	476	1,026
CNEL:	110	237	510	1,099

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Vista Chino
Road Segment: w/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,200	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	58.0	feet
Centerline Dist. to Observer:	58.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	53.038
Medium Trucks:	52.871
Heavy Trucks:	52.887

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.47	-0.49	-1.20	-4.68	0.000	0.000
Medium Trucks:	81.00	-11.64	-0.47	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-12.95	-0.47	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	69.1	67.1	61.2	69.9	70.4
Medium Trucks:	67.7	66.2	60.4	57.5	66.4	66.7
Heavy Trucks:	70.8	69.5	63.5	58.2	68.6	68.9
Vehicle Noise:	74.8	73.3	69.3	64.0	73.3	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	96	206	444	958
CNEL:	103	221	476	1,025

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: 30th Av.
Road Segment: w/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,690	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	24	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.626
Medium Trucks:	42.418
Heavy Trucks:	42.439

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.25	0.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-12.87	0.97	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-14.17	0.96	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.3	63.4	61.4	55.5	64.2	64.7
Medium Trucks:	62.6	61.2	55.3	52.4	61.3	61.6
Heavy Trucks:	67.2	65.9	59.9	54.6	65.0	65.3
Vehicle Noise:	70.2	68.7	64.3	59.1	68.5	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	35	75	163	350
CNEL:	37	81	174	374

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: 30th Av.
Road Segment: e/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,840 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.626
Medium Trucks:	42.418
Heavy Trucks:	42.439

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.04	0.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-13.08	0.97	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-14.38	0.96	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.3	65.4	63.4	57.5	66.2	66.7
Medium Trucks:	64.4	63.0	57.1	54.2	63.1	63.4
Heavy Trucks:	68.4	67.1	61.1	55.8	66.2	66.5
Vehicle Noise:	71.8	70.2	66.0	60.8	70.1	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	97	209	449
CNEL:	48	103	223	480

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Ramon Rd.
Road Segment: w/o Landau Bl.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	54,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,430 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	71 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	58.0 feet
Centerline Dist. to Observer:	58.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.138
Medium Trucks:	45.946
Heavy Trucks:	45.965

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	5.74	0.42	-1.20	-4.68	0.000	0.000
Medium Trucks:	77.72	-8.38	0.45	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-9.68	0.44	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.6	67.6	61.7	70.3	70.9
Medium Trucks:	68.6	67.1	61.2	58.4	67.3	67.5
Heavy Trucks:	72.6	71.3	65.3	60.0	70.4	70.7
Vehicle Noise:	75.9	74.4	70.2	65.0	74.3	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	242	522	1,125
CNEL:	120	259	558	1,203

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Ramon Rd.
Road Segment: e/o Landau Bl.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,110 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	71 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	58.0 feet
Centerline Dist. to Observer:	58.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.138
Medium Trucks:	45.946
Heavy Trucks:	45.965

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.53	0.42	-1.20	-4.68	0.000	0.000
Medium Trucks:	77.72	-9.59	0.45	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-10.89	0.44	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.4	60.5	69.1	69.7
Medium Trucks:	67.4	65.9	60.0	57.2	66.1	66.3
Heavy Trucks:	71.3	70.1	64.1	58.8	69.2	69.5
Vehicle Noise:	74.7	73.2	69.0	63.8	73.1	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	201	434	935
CNEL:	100	215	464	999

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Ramon Rd.
Road Segment: w/o Da Vall Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,960 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	71 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	58.0 feet
Centerline Dist. to Observer:	58.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.138
Medium Trucks:	45.946
Heavy Trucks:	45.965

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.37	0.42	-1.20	-4.68	0.000	0.000
Medium Trucks:	77.72	-9.75	0.45	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-11.05	0.44	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	68.2	66.2	60.3	69.0	69.6
Medium Trucks:	67.2	65.8	59.9	57.0	65.9	66.2
Heavy Trucks:	71.2	69.9	63.9	58.6	69.0	69.3
Vehicle Noise:	74.6	73.1	68.8	63.6	72.9	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	91	196	423	912
CNEL:	97	210	452	974

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Dinah Shore Dr.
Road Segment: w/o Cathedral Cyn. Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,320	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	56	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	52.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.102
Medium Trucks:	43.901
Heavy Trucks:	43.921

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.60	0.71	-1.20	-4.66	0.000	0.000
Medium Trucks:	77.72	-10.52	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-11.82	0.74	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.8	65.8	59.8	68.5	69.1
Medium Trucks:	66.7	65.3	59.4	56.5	65.4	65.7
Heavy Trucks:	70.7	69.4	63.5	58.1	68.5	68.9
Vehicle Noise:	74.1	72.6	68.4	63.2	72.5	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	164	353	760
CNEL:	81	175	377	813

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Dinah Shore Dr.
Road Segment: e/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,440	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	56	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	52.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.102
Medium Trucks:	43.901
Heavy Trucks:	43.921

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.24	0.71	-1.20	-4.66	0.000	0.000
Medium Trucks:	79.45	-10.87	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-12.17	0.74	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.4	67.4	61.4	70.1	70.7
Medium Trucks:	68.1	66.7	60.8	57.9	66.8	67.1
Heavy Trucks:	71.6	70.3	64.4	59.0	69.4	69.8
Vehicle Noise:	75.3	73.8	69.7	64.5	73.8	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	199	430	926
CNEL:	99	213	460	991

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Gerald Ford Dr.
Road Segment: e/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,660	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	54.0	feet
Centerline Dist. to Observer:	54.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.592
Medium Trucks:	47.406
Heavy Trucks:	47.424

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.13	0.22	-1.20	-4.67	0.000	0.000
Medium Trucks:	79.45	-11.99	0.24	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-13.29	0.24	-1.20	-5.39	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.7	65.8	59.8	68.5	69.1
Medium Trucks:	66.5	65.1	59.2	56.3	65.2	65.5
Heavy Trucks:	70.0	68.7	62.7	57.4	67.8	68.2
Vehicle Noise:	73.7	72.2	68.1	62.9	72.1	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	162	348	750
CNEL:	80	173	373	803

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Perez Rd.
Road Segment: w/o Cathedral Cyn. Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,150	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	24	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	54.0	feet
Centerline Dist. to Observer:	54.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.887
Medium Trucks:	52.719
Heavy Trucks:	52.736

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.71	-0.47	-1.20	-4.67	0.000	0.000
Medium Trucks:	77.72	-12.40	-0.45	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-13.70	-0.45	-1.20	-5.39	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.6	64.7	62.7	56.8	65.4	66.0
Medium Trucks:	63.7	62.2	56.3	53.4	62.3	62.6
Heavy Trucks:	67.6	66.4	60.4	55.1	65.4	65.8
Vehicle Noise:	71.0	69.5	65.3	60.1	69.4	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	106	229	493
CNEL:	53	113	244	526

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Perez Rd.
Road Segment: e/o Cathedral Cyn. Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,330 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	54.0 feet
Centerline Dist. to Observer:	54.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.887
Medium Trucks:	52.719
Heavy Trucks:	52.736

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.06	-0.47	-1.20	-4.67	0.000	0.000
Medium Trucks:	77.72	-12.05	-0.45	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-13.35	-0.45	-1.20	-5.39	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.9	65.0	63.1	57.1	65.8	66.4
Medium Trucks:	64.0	62.6	56.7	53.8	62.7	63.0
Heavy Trucks:	68.0	66.7	60.7	55.4	65.8	66.1
Vehicle Noise:	71.4	69.9	65.6	60.4	69.7	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	112	241	520
CNEL:	56	120	258	555

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Hwy. 111
Road Segment: w/o Canyon Plaza Dr. W.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,630 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	71 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.285
Medium Trucks:	52.116
Heavy Trucks:	52.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.08	-0.39	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-10.04	-0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.34	-0.38	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.7	70.8	68.8	62.9	71.6	72.1
Medium Trucks:	69.4	67.9	62.1	59.2	68.1	68.3
Heavy Trucks:	72.5	71.2	65.2	59.9	70.3	70.6
Vehicle Noise:	76.5	75.0	71.0	65.7	75.0	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	135	291	627	1,350
CNEL:	145	311	671	1,445

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Hwy. 111
Road Segment: w/o Cathedral Cyn. Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	44,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,450 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	71 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.285
Medium Trucks:	52.116
Heavy Trucks:	52.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.87	-0.39	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-9.24	-0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-10.54	-0.38	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.9	65.9	60.0	68.7	69.2
Medium Trucks:	66.9	65.4	59.6	56.7	65.6	65.9
Heavy Trucks:	70.9	69.6	63.6	58.3	68.7	69.0
Vehicle Noise:	74.3	72.7	68.5	63.3	72.6	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	94	203	438	944
CNEL:	101	217	468	1,009

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Hwy. 111
Road Segment: w/o Date Palm Dr.
Project Name: CCGP
Job Number: 11475

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,620 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	71 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	63.0 feet
Centerline Dist. to Observer:	63.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.285
Medium Trucks:	52.116
Heavy Trucks:	52.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	5.04	-0.39	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-9.08	-0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-10.38	-0.38	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.1	66.1	60.2	68.8	69.4
Medium Trucks:	67.1	65.6	59.7	56.8	65.7	66.0
Heavy Trucks:	71.0	69.8	63.8	58.5	68.8	69.2
Vehicle Noise:	74.4	72.9	68.7	63.5	72.8	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	97	209	449	968
CNEL:	103	223	480	1,035

Tuesday, March 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing	*Project Name:*	CCGP
Road Name:	Hwy. 111	*Job Number:*	11475
Road Segment:	e/o Sungate Wy.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	57,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	5,740	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	71	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	63.0	feet
Centerline Dist. to Observer:	63.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	78.2%	12.3%	9.5%	93.68%
Medium Trucks:	85.9%	5.5%	8.6%	3.63%
Heavy Trucks:	89.4%	5.6%	5.0%	2.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.285
Medium Trucks:	52.116
Heavy Trucks:	52.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	5.98	-0.39	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	77.72	-8.14	-0.37	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-9.44	-0.38	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.9	69.0	67.0	61.1	69.8	70.4
Medium Trucks:	68.0	66.6	60.7	57.8	66.7	67.0
Heavy Trucks:	72.0	70.7	64.7	59.4	69.8	70.1
Vehicle Noise:	75.4	73.9	69.6	64.4	73.7	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	112	241	519	1,119
CNEL:	120	258	555	1,196

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