# 701 S. Myrtle Avenue

## NOISE ANALYSIS

## CITY OF MONROVIA

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# LIST OF ABBREVIATED TERMS

| | |
|---|---|
| (1) | Reference |
| ADT | Average Daily Traffic |
| CadnaA | Computer Aided Noise Abatement |
| Calveno | California Vehicle Noise |
| CEQA | California Environmental Quality Act |
| CFM | cubic feet per minute |
| CNEL | Community Noise Equivalent Level |
| dBA | A-weighted decibels |
| EPA | Environmental Protection Agency |
| FHWA | Federal Highway Administration |
| FTA | Federal Transit Administration |
| HVAC | Heating, air conditioning, and ventilation |
| INCE | Institute of Noise Control Engineering |
| $L_{eq}$ | Equivalent continuous (average) sound level |
| $L_w$ | Sound power level |
| mph | Miles per hour |
| NR | Noise Reduction |
| Project | 701 S. Myrtle Avenue |
| REMEL | Reference Energy Mean Emission Level |
| STC | Sound Transmission Class |

# EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise analysis to determine the noise exposure and the necessary noise abatement measures for the proposed residential development 701 S. Myrtle Avenue ("Project"). The Project site located on the southwest corner of Myrtle Avenue and Olive Avenue in the City of Monrovia. It is our understanding that the Project consists of one new five-story podium-style building consisting of 204 multi-family residential units and 1.5 subterranean parking levels. The Project includes 7,622 sf of non-residential ground floor space. Development of the 1.6-acre site also includes 19,205 sf of outdoor common open space areas and a 2,537-sf rooftop clubhouse. This noise analysis was prepared to satisfy the City of Monrovia noise level standards and ensure adequate noise abatement measures are incorporated into the Project's development.

## SUMMARY OF CEQA SIGNIFICANCE FINDINGS

The results of this 701 S. Myrtle Avenue noise analysis are summarized below based on the significance criteria in Section 4 of this report, consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1). Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures.

**TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS**

| Analysis | Report Section | Significance Findings | |
|---|---|---|---|
| | | Unmitigated | Mitigated |
| On-Site Traffic Noise | 8 | *Less Than Significant* | - |
| Off-Site Traffic Noise | 9 | *Less Than Significant* | - |
| Operational Noise | 10 | *Less Than Significant* | - |
| Construction Noise | 11 | *Significant* | *Less Than Significant* |
| Construction Vibration | | *Less Than Significant* | - |

### CONSTRUCTION NOISE MITIGATION

The Project will result in temporary noise-level increases due to construction activities ranging from 6.0 to 14.2 dBA $L_{eq}$ during the daytime hours at the nearest receiver locations. Therefore, mitigation has been included that will reduce the temporary increase to less than significant levels.

**NOI-1**: To reduce construction noise at the surrounding residences, it is recommended that the contractor install a 10-foot-high temporary noise barrier at the northern and western Project site boundary for the duration of construction activities. The limits of the noise barrier are shown in Exhibit ES-A. The noise control barrier shall include the following:

- The noise control barriers must present a solid face from top to bottom.
- The noise barriers shall be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired.

- The temporary noise barrier shall be constructed using one of the following materials with no decorative cutouts or line-of-sight openings between shielded areas and the noise source:
  - Masonry block;
  - Glass (1/4-inch-thick), or other transparent material with sufficient weight per square foot;
  - Earthen berm;
  - Any combination of these construction materials

**EXHIBIT ES-A: SUMMARY OF RECOMMENDATIONS**



# 1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the 701 S. Myrtle Avenue ("Project"). This noise analysis briefly describes the Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures for noise analysis, evaluates the potential noise impacts from the operation and construction of the Project, and, as necessary, identifies mitigation measures to reduce impacts.

## 1.1 SITE LOCATION

The Project is located on the southwest corner of Myrtle Avenue and Olive Avenue in the City of Monrovia, as shown in Exhibit 1-A. The nearest airport is the San Gabriel Airport, located approximately 3.9 miles southwest of the Project site, and the nearest major airport is the Burbank Airport, located roughly 16 miles west of the Project site.

## 1.2 PROJECT DESCRIPTION

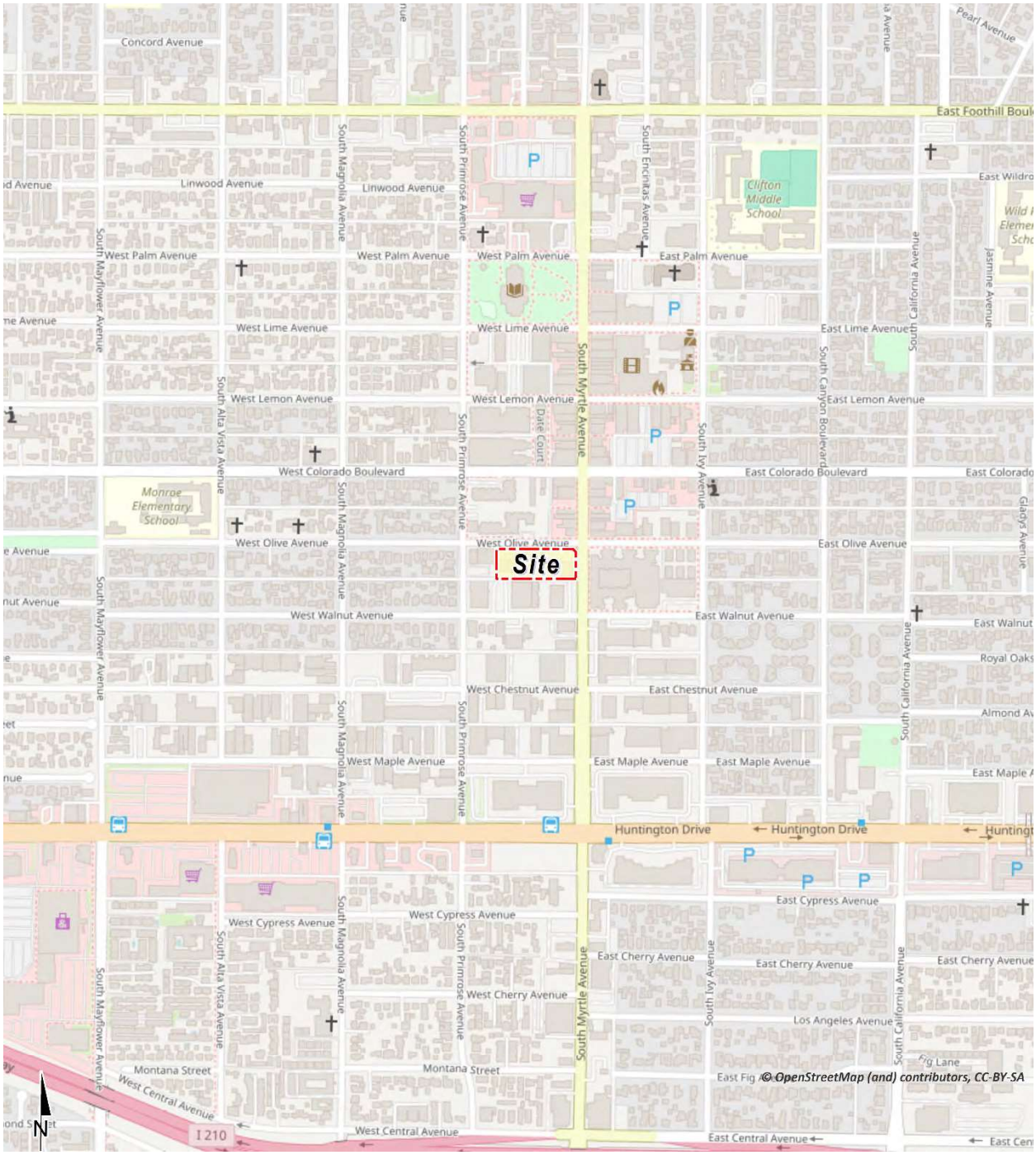
It is our understanding that the Project requires the demolition of 25,191[1] square feet (sf) of general commercial use to allow for the construction of one new five-story podium-style building on the 1.6-acre Project site, consisting of 204 multi-family residential units and 1.5 subterranean parking levels. The Project includes 7,622 sf of non-residential ground floor space, which includes 2,370 sf of commercial retail uses, a 2,782-sf fitness room, 1,080 sf of leasing office space, and a residential lobby and mail room comprising 1,390 sf. Development of the site also includes 19,205 sf of outdoor common open space areas and a 2,537-sf rooftop clubhouse. A preliminary site plan for the proposed Project is shown in Exhibit 1-B.

The Project provides on-site amenities and facilities for resident use and may include a clubhouse, fitness area, swimming pool, and courtyard areas for socializing and recreation. Common open space areas within the Project include a plaza, courtyards, a community pool, a clubhouse, a California room, and a rooftop deck. Additionally, select units will have private open areas, such as decks or balconies. The Level R1 podium provides private recreational gathering areas which include a community pool while Level R4 features a rooftop deck and private dining pavilion. A dog park is located on the ground floor just outside the western end of the building, adjacent to the parking garage.

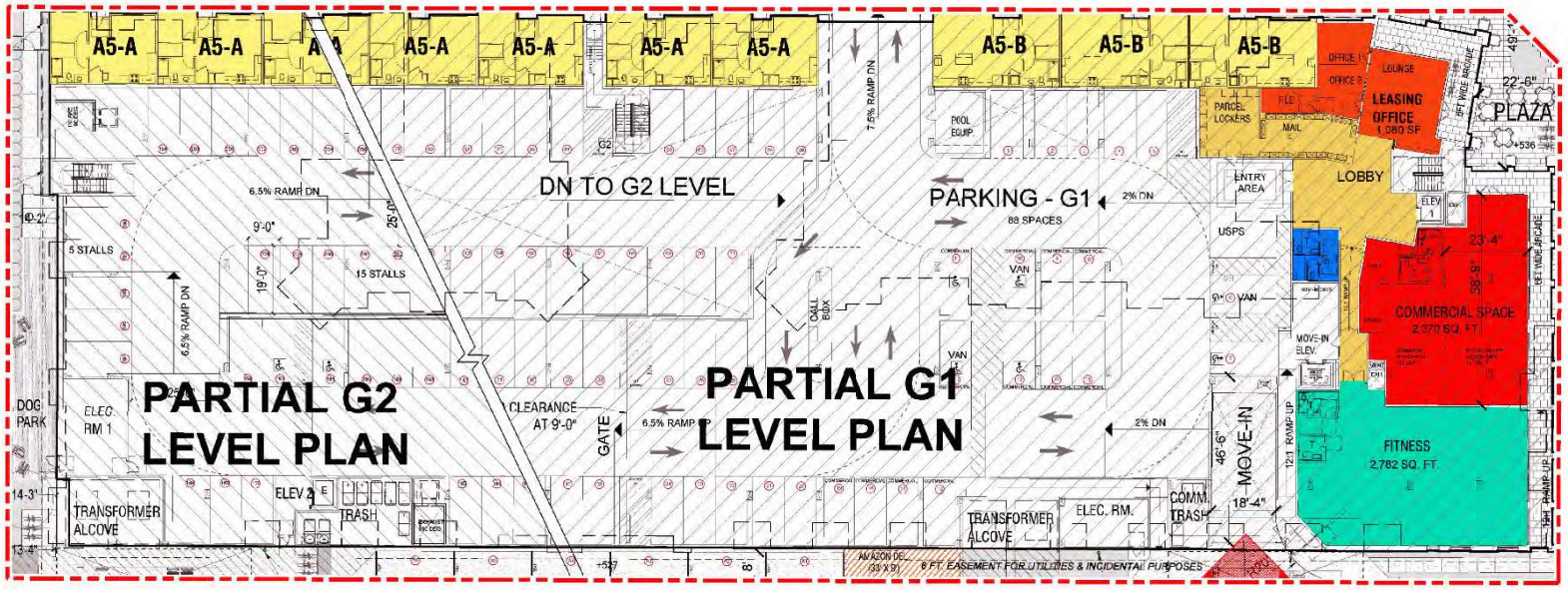
Resident and visitor vehicle entry to the Project's ground floor and subterranean parking levels would be provided by one driveway located on the north side of the Project site with a proposed driveway along West Olive Avenue. A total of 323 parking spaces are planned inside the building and 6 spaces are planned in the alley south of the building, for a total of 329 proposed parking spaces. The parking spaces would be allocated as follows: 255 spaces for residents, 50 spaces for guests, 6 spaces for the leasing office, and 12 spaces for the ground floor commercial uses. Each residential unit would have designated parking.

[1] For analytical purposes, the demolition quantities were modeled as 1,950 tons based on information provided by the Project Applicant.

## EXHIBIT 1-A: LOCATION MAP



## EXHIBIT 1-B: SITE PLAN



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# 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 | SLEEP DISTURBANCE |
| QUIET URBAN NIGHTTIME | THEATER, LARGE CONFERENCE ROOM (BACKGROUND) | 40 | | |
| 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. (2) 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. (3) 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 typically based on average noise levels over time, rather than instantaneous measurements. The most commonly used metric is the equivalent continuous sound level ($L_{eq}$). Rather than being measured directly, Leq is calculated from A-weighted sound pressure levels (dBA) recorded over a specified period. The $L_{eq}$ represents the constant sound level that, over a given time, would contain the same acoustic energy as the actual fluctuating sound levels. As such, it is widely used to describe average environmental noise exposure. Importantly, while sound pressure levels (e.g., $L_{eq}$) express the intensity of sound at a specific location and are affected by distance and environmental conditions, sound power levels ($L_w$) are intrinsic properties of the sound source itself. Unlike sound pressure, sound power is independent of distance and unaffected by obstacles, air absorption, or weather conditions. In contrast, sound pressure levels decrease with distance due to factors such as geometric spreading, absorption by air and surfaces, intervening barriers or obstacles, and meteorological conditions (e.g., wind, humidity).

To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors $L_{50}$, $L_{25}$, $L_{8,\text{ and }L2}$ are commonly used. The percentile noise descriptors are the noise levels equaled or exceeded during 50 percent, 25 percent, 8 percent, and 2 percent of a stated time. Sound levels associated with the $L_2$ and $L_8$ typically describe transient or short-term events, while levels associated with the $L_{50}$ describe the steady state (or median) noise conditions. While the $L_{50}$ describes the median noise levels occurring 50 percent of the time, the $L_{eq}$ accounts for the total energy (average) observed for the entire hour. Therefore, the $L_{eq}$ noise descriptor is generally 1-2 dBA higher than the $L_{50}$ noise level.

While useful, peak-hour or average noise levels 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. The City of Monrovia 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. (2)

### 2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receptor is usually 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 feet. 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. (4)

### 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. (2)

### 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 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 residents. 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. (4)

## 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. (4)

## 2.6 LAND USE COMPATIBILITY WITH NOISE

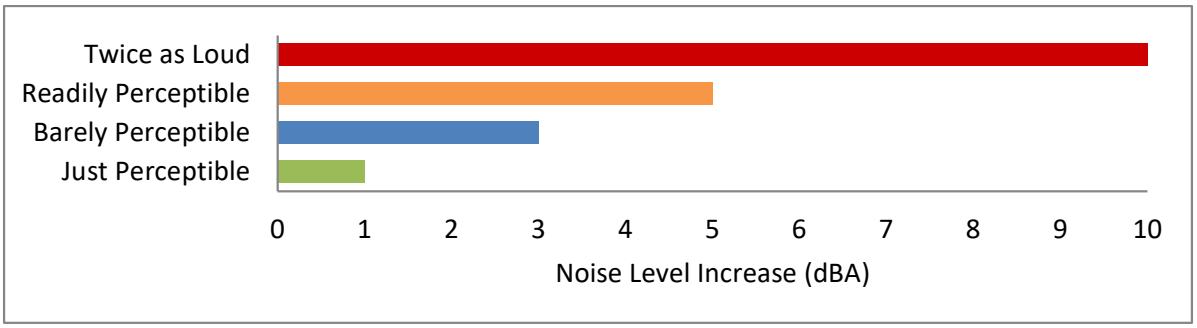
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, 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. (5)

## 2.7 COMMUNITY RESPONSE TO NOISE

Approximately sixteen 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 may occur. Twenty to thirty percent of the population will not complain even in very severe noise environments. (6 pp. 8-6) Thus, a variety of reactions can be expected from people exposed to any given noise environment.

Surveys have shown that community response to noise varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing. (7) According to research originally published in the Noise Effects Handbook (6), the percentage of high annoyance ranges from approximately 0 percent at 45 dB or less, 10 percent are highly annoyed around 60 dB, and increases rapidly to approximately 70 percent being highly annoyed at approximately 85 dB or greater. 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 in Exhibit 2-B. A change of 3 dBA is considered barely perceptible, and changes of 5 dBA are considered readily perceptible. (7)

**EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION**




## 2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual*, 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.

Additionally, in contrast to airborne noise, ground-borne vibration outdoors is not a common environmental problem, and annoyance from ground-borne vibration is almost exclusively an indoor phenomenon (7). Therefore, the effects of vibrations should only be evaluated at a structure and the effects of the building structure on the vibration should be considered. Wood-frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. In contrast, large masonry buildings with spread footings have a low response to ground vibration (7). In general, the heavier a building is, the lower the response will be to the incident vibration energy. However, all structures reduce vibration levels due to the coupling of the building to the soil.

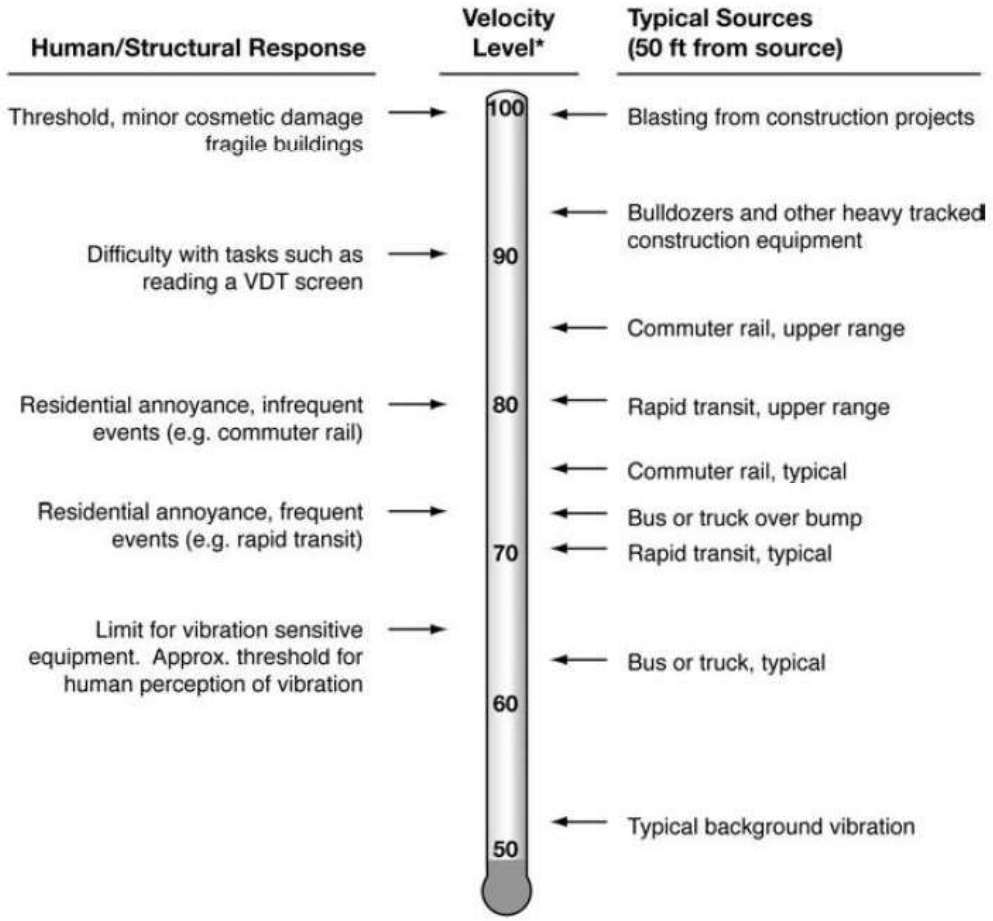
Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal (7). The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) 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 (7). However, the RMS amplitude and PPV are related mathematically, and the RMS amplitude of equipment is typically calculated from the PPV reference level. The RMS amplitude is approximately 70% of the PPV (8). Thus, either can be used for the description of vibration impacts.

While not universally accepted, vibration decibel notation (VdB) is another vibration notation developed and used by the FTA in their guidance manual to describe vibration levels, provide a

background of common vibration levels, and set vibration limits (7). Decibel notation (VdB) serves to reduce the range of numbers used to describe vibration levels and is used in this report to describe vibration levels.

As stated in the FTA guidance manual, 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**




** RMS Vibration Velocity Level in VdB relative to $10^{-6}$ inches/second*

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

# 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 (OPR). (9) 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 CODE

The State of California's noise insulation standards for all residential units are codified in the California Code of Regulations (CCR), Title 24, Building Standards Administrative Code, Chapter 12, Section 1206.4. These noise standards are applied to new construction in California that contain dwelling units or sleeping units, such as residential and hotel or motel uses, for controlling interior noise levels resulting from exterior noise sources. For new buildings, the acceptable interior noise limit is 45 dBA CNEL in habitable rooms (10).

## 3.3 CITY OF MONROVIA GENERAL PLAN NOISE ELEMENT

The City of Monrovia has adopted a Noise Element of the General Plan to control and abate environmental noise and to protect the citizens of the City of Monrovia from excessive exposure to noise. (11) The Noise Element identifies the City of Monrovia policy on allowable exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads. In addition, the Noise Element identifies a noise control plan to minimize the impacts of excessive noise levels throughout the community and establishes noise level requirements for all land uses. To protect City of Monrovia residents from excessive noise, the Noise Element contains seven programs related to the control of noise, with the following programs applicable to the Project:

- Program No. 1: The City will continue to implement and enforce the City of Monrovia's noise ordinance for the control of unnecessary and unwanted noises.
- Program No. 3: The City may implement a noise zoning code, defining compatible land usage requirements based on the guidelines of Figure 2. The City would require an analysis of whether or not the proposed development would be in compliance with this code. If the development falls in the CNEL or Ldn range above that indicated for the normally acceptable category, noise control design steps must be included in the project plans.
- Program No. 6: Future projects within the City will reflect a consciousness on the part of the City regarding the reduction of unnecessary noise near noise-sensitive areas such as residences, schools, parks, hospitals, libraries, and convalescent homes.

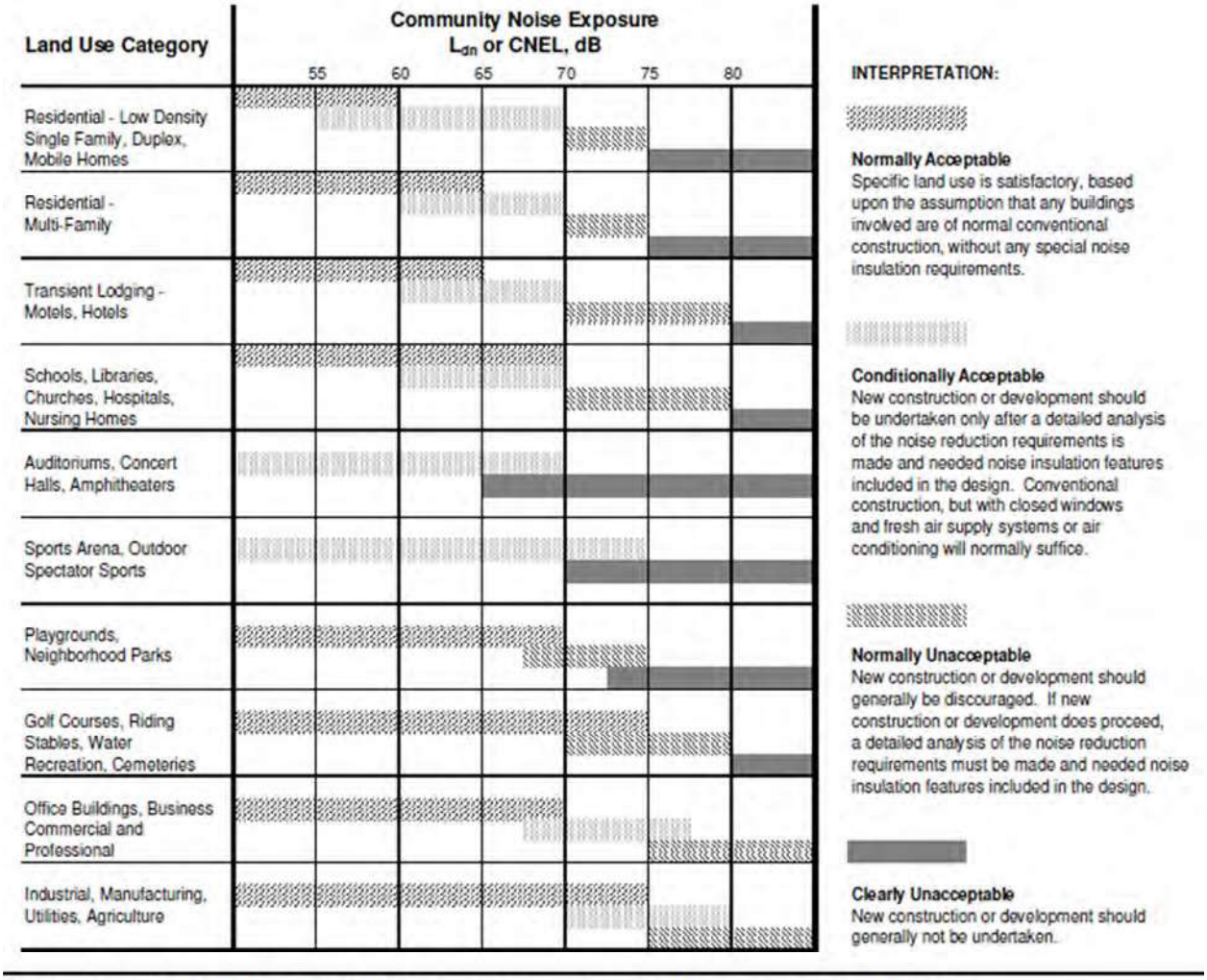
### 3.3.1 LAND USE COMPATIBILITY GUIDELINES

The noise criteria identified in the City of Monrovia Noise Element (Figure 2) are guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown on Exhibit 3-A, provides the city with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels. The *Land Use Compatibility for Guidelines* matrix describes categories of compatibility and not specific noise standards. The 701 S. Myrtle Avenue land use is considered *normally acceptable* with unmitigated exterior noise levels of less than 60 dBA CNEL. For *conditionally acceptable* exterior noise levels, approaching 70 dBA CNEL for residential land uses, *new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice*. (11)

### 3.3.2 CITY OF MONROVIA STATIONARY NOISE STANDARDS

The City of Monrovia has set hourly average $L_{eq}$ exterior noise limits to control unnecessary, excessive, and annoying noise in residential areas, pursuant to Monrovia Municipal Code (MMC) Chapter 9.44. Per MMC Section 9.44.040[A], no person shall create or allow the creation of noise on any property occupied for residential purposes, without regard to zoning classification, which causes the noise level to exceed the actual measured median ($L_{50}$) base ambient noise level or the presumed ambient noise level provided in Table 3-1. (12) Pursuant to MMC Section 9.44.060, these standards cannot be exceeded by 5 dBA for a cumulative period of more than 15 minutes in any hour, or the standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour, or the standard plus 15 dBA for a cumulative period of more than 1 minute in any hour, or the standard plus 20 dBA for any period of time. Additionally, pursuant to MMC Section 9.44.070, these "standards shall be decreased by five dBA for any source of noise which emits impulsive sound." (12) The City of Monrovia Municipal Code Noise Section is included in Appendix 3.1.

**EXHIBIT 3-A: LAND USE COMPATIBILITY GUIDELINES**




Source: *State of California General Plan Guidelines.* Governor's Office of Planning and Research, 1998.

**TABLE 3-1: MONROVIA ALLOWABLE NOISE LEVELS AT RESIDENTIAL PROPERTIES**

| Receiving Land Use | Time Period | Base Ambient Noise Level (dBA $L_{eq}$)[1] | Exterior Noise Standards (dBA)[2] | | | |
|---|---|---|---|---|---|---|
| | | | $L_{25}$ (15 mins) | $L_8$ (5 mins) | $L_2$ (1 min) | $L_{max}$ (<1 min) |
| Residential | Daytime | 55 | 60 | 65 | 70 | 75 |
| | Nighttime | 50 | 55 | 60 | 65 | 70 |

[1] Section 9.44.040[A] base ambient noise level of the City of Monrovia Municipal Code.
[2] Noise levels shall not exceed for the duration periods specified in Section 9.44.060 City of Monrovia Municipal Code. The percent noise level is the level exceeded "n" percent of the time during the measurement period. $L_{25}$ is the noise level exceeded 25% of the time. "Daytime" = 7:00 a.m. to 9:00 p.m.; "Nighttime" = 9:00 p.m. to 7:00 a.m.

The percentile noise descriptors are provided to ensure that the duration of the noise source is fully considered. However, due to the relatively constant intensity of the Project operational

activities, the median ($L_{50}$) or average ($L_{eq}$) noise level metrics best describe the roof-mounted air conditioning units and trash enclosure activity. In addition, the $L_{eq}$ noise level metric accounts for noise fluctuations over time by averaging the louder and quieter events and giving more weight to the louder events. In addition, due to the mathematical relationship between the median ($L_{50}$) and the mean ($L_{eq}$), the $L_{eq}$ will always be larger than or equal to the $L_{50}$. The more variable the noise becomes, the larger the $L_{eq}$ becomes in comparison to the $L_{50}$. Therefore, this noise analysis conservatively relies on the average $L_{eq}$ sound level limits to describe the Project operational noise levels.

## 3.3 CONSTRUCTION NOISE STANDARDS

To address noise impacts associated with construction or demolition work, the City of Monrovia has established limits to the hours of operation. MMC Section 9.44.080(F) indicates that noise associated with any construction activity is considered exempt from noise limitations pursuant to MMC Chapter 9.44 between the hours of 7:00 a.m. and 7:00 p.m. during the weekdays and 9:00 a.m. and 6:00 p.m. on weekends and holidays. (12) Neither the City's General Plan nor Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes. Therefore, a numerical construction threshold based on the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for the analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA $L_{eq}$ as a reasonable threshold for noise-sensitive residential land use. (7)

## 3.4 CONSTRUCTION VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures, and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment, such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. (7) To analyze vibration impacts originating from the operation and construction of the 701 S. Myrtle Avenue, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of Monrovia does not identify specific vibration level limits. The FTA *Transit Noise and Vibration Impact Assessment Manual* general vibration assessment methodology provides guidelines for the maximum-acceptable infrequent event vibration criteria for different types of land uses. These guidelines, shown in Table 3-2, allow for 80 VdB from infrequent events for daytime residential uses in buildings where people normally sleep. (13)

**TABLE 3-2: GROUND-BORNE VIBRATION IMPACT CRITERIA FOR GENERAL VIBRATION ASSESSMENT**

| Land Use Category | GBV Impact Levels | | |
|---|---|---|---|
| | Frequent Event | Occasional Event | Infrequent Event |
| Category 1: Buildings where vibration would interfere with interior operations | 65 VdB | 65 VdB | 65 VdB |
| Category 2: Residences and buildings where people normally sleep. | 72 VdB | 75 VdB | 80 VdB |
| Category 3: Institutional land uses with primarily daytime use. | 75 VdB | 78 VdB | 83 VdB |

This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. For equipment that is more sensitive, a Detailed Vibration Analysis must be performed

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# 4 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at six locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 4-A shows the Project site and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, September 20, 2023. Appendix 5.1 includes study area photos.

## 4.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. 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 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. (14)

## 4.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close as possible to the nearest sensitive receiver locations, described in Section 6, to assess the existing ambient hourly noise levels surrounding the Project site. The existing noise level measurements describe the Project baseline conditions and are used to calculate the Project-related noise level contribution or increases at the nearest noise-sensitive receiver locations. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every 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.” (2) Further, FTA guidance states “that 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.” (7)

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. (7) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise

source. Receivers represent the location of noise-sensitive areas and are used to estimate the impact of future noise levels. 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.

## 4.3 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 4-1 identifies the hourly daytime (7:00 a.m. to 9:00 p.m.) and nighttime (9:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix 4.2 provides a summary of the existing hourly ambient noise levels.

**TABLE 4-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS**

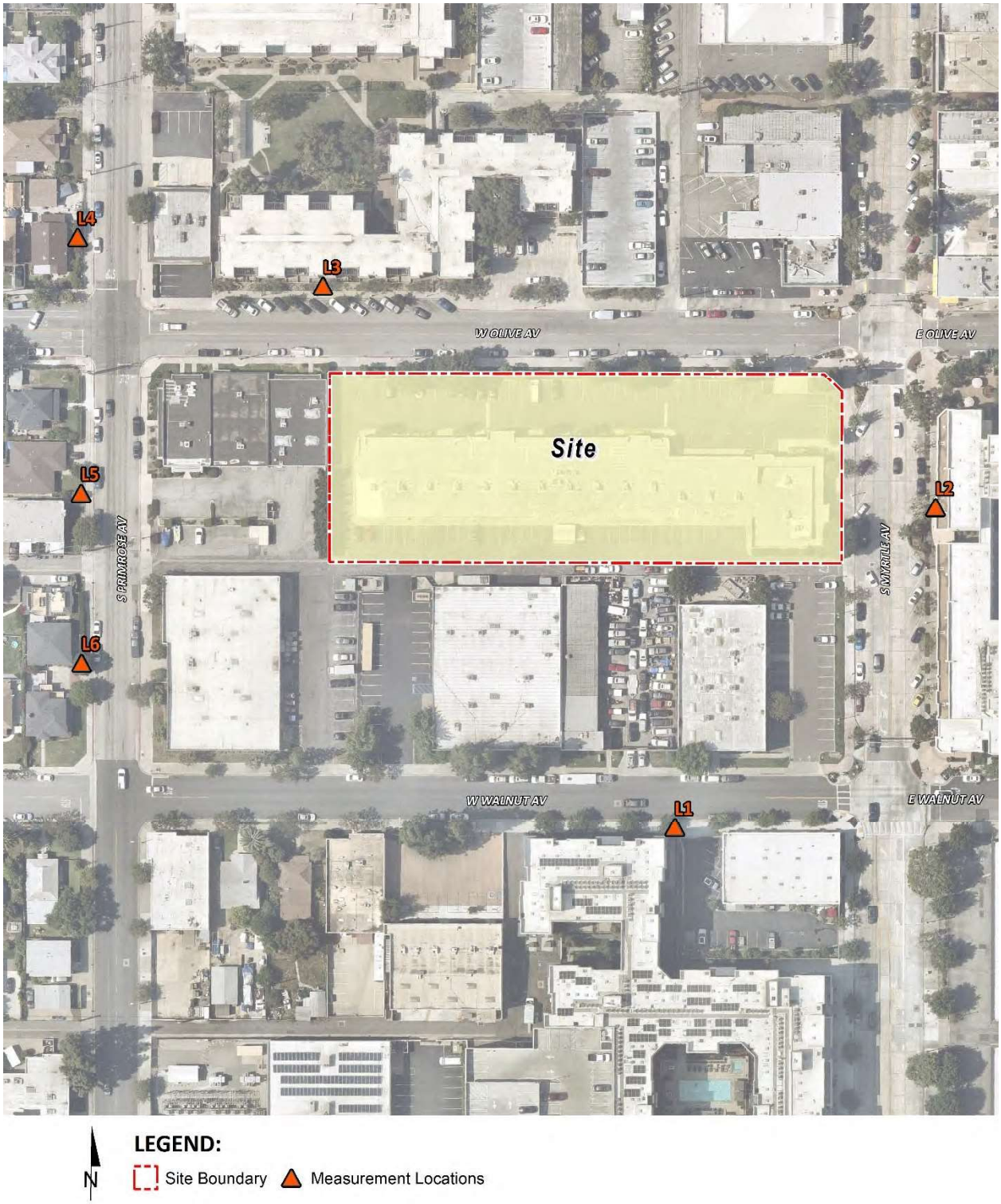
| Location[1] | Description | Land Use | Distance (in feet) | Energy Average Noise Level (dBA $L_{eq}$)[2] | |
|---|---|---|---|---|---|
| | | | | Daytime | Nighttime |
| L1 | Located South of the site near 120 W Walnut Ave | Multiple-family Residential | 215' | 57.3 | 49.7 |
| L2 | Located East of the site near 700 S Myrtle Ave | Multiple-family Residential | 80' | 62.8 | 57.7 |
| L3 | Located North of the site near 125 W Olive Ave | Multiple-family Residential | 131' | 57.0 | 46.8 |
| L4 | Located Northwest of the site near 201 W Olive Ave | Single-family Residential | 245' | 57.9 | 49.8 |
| L5 | Located West of the site near 703 S Primrose Ave | Single-family Residential | 210' | 54.0 | 47.0 |
| L6 | Located Southwest of the site 201 W Walnut Ave | Single-family Residential | 215' | 54.4 | 47.3 |

[1] See Exhibit 5-A for the noise level measurement locations conducted on September 20, 2023.
[2] Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.
"Daytime" = 7:00 a.m. to 9:00 p.m.; "Nighttime" = 9:00 p.m. to 7:00 a.m.

Table 4-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 4.2 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 nearby surface

streets. This includes the automobile and heavy truck activities on study area roadway segments near the noise level measurement locations.

**EXHIBIT 4-A: NOISE MEASUREMENT LOCATIONS**



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# 5 SENSITIVE RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown in Exhibit 6-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, outpatient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Six receiver locations in the vicinity of the Project site were identified. All distances are measured from the Project site boundary to the outdoor living areas (e.g., private backyards) or at the building façade, whichever is closer to the Project site. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 4.2. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise analysis will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the Project boundary to each receiver location.

R1: Location R1 represents an existing noise-sensitive residence at 120 W. Walnut Ave., approximately 235 feet south of the Project site. Receiver R1 is placed in the private outdoor living area (balcony) nearest the Project site. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents an existing noise-sensitive residence at 700 S. Myrtle Ave., approximately 80 feet east of the Project site. Since no private outdoor living areas face the Project site, Receiver R2 is placed at the building façade nearest the Project site. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents an existing noise-sensitive residence at 125 W. Olive Ave., approximately 85 feet north of the Project site. Receiver R3 is placed in the private outdoor living area (balcony) nearest the Project site. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R4: Location R4 represents an existing noise-sensitive residence at 201 W. Olive Ave., approximately 260 feet northwest of the Project site. Receiver R4 is placed in the private outdoor living areas (backyards) facing the Project site. A 24-hour noise

measurement was taken near this location, L4, to describe the existing ambient noise environment.

R5: Location R5 represents an existing noise-sensitive residence at 703 S. Primrose Ave., approximately 246 feet west of the Project site. Receiver R5 is placed in the private outdoor living areas (backyards) facing the Project site. A 24-hour noise measurement was taken near this location, L5, to describe the existing ambient noise environment.

R6: Location R6 represents an existing noise-sensitive residence at 201 W. Walnut Ave., approximately 231 feet west of the Project site. Receiver R6 is placed in the private outdoor living areas (backyards) facing the Project site. A 24-hour noise measurement was taken near this location, L6, to describe the existing ambient noise environment.

## EXHIBIT 5-A: RECEIVER LOCATIONS



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# 6 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) 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; or,

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, exposing people residing or working in the project area to excessive noise levels

## 6.1 NOISE LEVEL INCREASES (THRESHOLD A)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline 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.* (15) 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) (16) 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 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 ($L_{eq}$).

The FICON guidance provides an established source of criteria to assess the impacts of substantial permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the

underlying without Project noise levels for noise-sensitive uses. These levels of increase and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (7) and Caltrans (17 p. 2_48).

### 6.1.1 TRANSPORTATION SOURCES (SUBSTANTIAL PERMANENT NOISE LEVEL INCREASE)

The FICON criteria are based on long-term, or permanent noise level increases and are appropriate for assessing the evaluation of transportation noise using the dBA CNEL metric, consistent with the City of Monrovia General Plan Noise Element, which evaluates traffic noise using dBA CNEL. Therefore, if the existing noise level is less than 60 dBA CNEL, a 5 dBA CNEL or greater increase will be considered significant; if the existing noise level is 60 to 65 dBA CNEL, a 3 dBA CNEL or greater increase will be considered significant; and if the existing noise level is greater than 65 dBA CNEL, a 1.5 dBA CNEL or greater increase will be considered significant.

### 6.1.2 NON-TRANSPORTATION SOURCES (SUBSTANTIAL PERMANENT NOISE LEVEL INCREASE)

Similar to the transportation source noise analysis, since the on-site stationary noise source would also represent a permanent noise source, the FICON increase criteria are used for the evaluation of stationary noise sources using the dBA $L_{eq}$ metric, consistent with the City of Monrovia Noise Ordinance, which evaluates stationary noise sources dBA $L_{eq}$. Therefore, if the existing noise level is less than 60 dBA $L_{eq}$, a 5 dBA $L_{eq}$ or greater increase will be considered significant; if the existing noise level is 60 to 65 dBA $L_{eq}$, a 3 dBA $L^{eq}$ or greater increase will be considered significant; and if the existing noise level is greater than 65 dBA $L_{eq}$, a 1.5 dBA $L_{eq}$ or greater increase will be considered significant. Additionally, since stationary noise sources may include different characteristics from transportation noise sources, exceeding the City noise ordinance limits at residential properties will also have a significant impact.

### 6.1.3 CONSTRUCTION NOISE (SUBSTANTIAL TEMPORARY NOISE LEVEL INCREASE)

To control the noise-generating construction activities, the temporary noise level increases over the existing ambient conditions must be considered under CEQA Significance Threshold A. Therefore, the Caltrans *Traffic Noise Analysis Protocol* 12 dBA $L_{eq}$ *substantial* noise level increase threshold is used in this analysis to assess temporary noise level increases. (18) In California, a substantial noise increase is considered to occur when the project's predicted noise level exceeds the existing noise level by 12 dBA or more. The use of 12 dB was established in California many years ago and is based on the concept that a 10 dB increase is generally perceived as a doubling of loudness. (2 pp. 3-2) Therefore, if the Project-related construction noise levels generate a temporary noise level increase above the existing ambient noise levels of up to 12 dBA $L_{eq}$, then the Project construction noise level increases will be considered a potentially significant impact.

However, since an increase of 12 dBA could result in noise levels over 85 dBA $L_{eq}$, which the California Occupational Safety and Health Administration (CalOSHA) identifies as a potentially hazardous noise level, the increase should not be allowed to result in an absolute noise level greater than 80 dBA $L_{eq}$ at any residence, which is consistent with the FTA recommendations.

**THEREFORE, IF THE PROJECT-RELATED CONSTRUCTION NOISE LEVELS GENERATE A TEMPORARY NOISE**

**LEVEL INCREASE OVER THE EXISTING DAYTIME AMBIENT NOISE LEVELS IN EXCESS OF 12 DBA $L_{EQ}$, OR EXCEED 80 DBA $L_{EQ}$, THEN THE PROJECT CONSTRUCTION NOISE LEVEL INCREASES WILL BE CONSIDERED A *SIGNIFICANT* IMPACT.**

## 6.2 VIBRATION (THRESHOLD B)

Since the Project does not include any substantial sources of operational vibration activities commonly associated with heavy truck activities, the vibration analysis is limited to an evaluation of the construction vibration. As described in Section 3.4, the vibration impacts originating from the construction of 701 S. Myrtle Avenue, vibration-generating activities are appropriately evaluated by the thresholds of significance outlined in the FTA *Transit Noise and Vibration Impact Assessment Manual* (7). These guidelines identify the maximum acceptable continuous vibration building damage threshold of 80 VdB for "older residential structures" which is used in this noise analysis to assess potential impacts due to Project construction vibration levels.

## 6.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

The Project site is not located within two miles of an airport or airstrip. The nearest airport is the San Gabriel Airport located approximately 3.9 miles southwest of the Project site, and the nearest major airport is the Burbank Airport located roughly 16 miles west of the Project site. Thus, the Project would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Appendix G to the CEQA Guidelines, Noise Threshold C.

## 6.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 6-1 shows the significance criteria summary matrix that includes the allowable criteria used to identify potentially significant incremental noise level increases.

**TABLE 6-1: SIGNIFICANCE CRITERIA SUMMARY**

| Analysis | Receiving Land Use | Condition(s) | Significance Criteria | |
|---|---|---|---|---|
| | | | Daytime | Nighttime |
| On-Site | Noise-Sensitive[1] | See Exhibit 3-A | See Exhibit 3-A | |
| Off-Site | Noise-Sensitive[2] | 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 | |
| Operational | Residential | Noise Level Threshold[3] | 55 dBA $L_{eq}$ | 50 dBA $L_{eq}$ |
| | | if ambient is < 60 dBA $L_{eq}$ | ≥ 5 dBA $L_{eq}$ Project increase | |
| | | if ambient is 60 - 65 dBA $L_{eq}$ | ≥ 3 dBA $L_{eq}$ Project increase | |
| | | if ambient is > 65 dBA $L_{eq}$ | ≥ 1.5 dBA $L_{eq}$ Project increase | |
| Construction | Noise-Sensitive | Construction activity is considered exempt between the hours of 7:00 a.m. and 7:00 p.m., during the weekdays and 9:00 a.m. and 6:00 p.m[4] | | |
| | | Noise Level Threshold[5] | 80 dBA $L_{eq}$ | n/a |
| | | Noise Level Increase | ≥ 12 dBA $L_{eq}$ | n/a |
| | | Vibration Level Threshold[5] | 80 VdB | n/a |

[1] City of Monrovia General Plan.
[2] FICON, 1992.
[3] City of Monrovia Municipal Code, Section 9.44.040 (Appendix 3.1).
[4] City of Monrovia Municipal Code, Section 9.44.080[F] (Appendix 3.1).
[5] Federal Transit Administration, Transit Noise and Vibration Impact Assessment.
"Daytime" = 7:00 a.m. - 9:00 p.m.; "Nighttime" = 9:00 p.m. - 7:00 a.m., "PPV" = Peak Particle Velocity

# 7 METHODS AND PROCEDURES

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

## 7.1 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. (19) 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. (20) 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.

## 7.2 ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

The on-site roadway parameters, including the average daily traffic (ADT) volumes used for this study, are presented in Table 7-1. Based on the City of Monrovia General Plan Circulation Element Map, S. Myrtle Avenue is classified as a collector, and W. Olive Avenue is a local roadway (21). Future average daily traffic volumes, shown in Table 7-5, were obtained from the 701 S. Myrtle Avenue Focused Traffic Analysis prepared by Urban Crossroads. (22) The vehicle speed is based on the posted speed limits for West Olive Avenue and South Myrtle Avenue. Soft site conditions were used to analyze the traffic noise impacts within the Project study area which account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Research conducted by Caltrans has shown that, due to the mix of ground types in actual situations, assuming a hard site condition over-predicted traffic noise levels, and assuming soft site conditions is more appropriate for the application of the FHWA traffic noise prediction model (20) (23).

Table 7-2 presents the time-of-day vehicle splits by vehicle type and roadway classification, and Table 7-3 presents the total traffic flow distributions (vehicle mixes) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobiles, medium trucks, and heavy trucks for input into the FHWA Model based on roadway types. The vehicle splits are shown in Tables 7-2 and 7-3 are reported as a percentage of the overall percentage.

**TABLE 7-1: ON-SITE ROADWAY PARAMETERS**

| Roadway | Lanes | Classification[1] | Design Capacity (ADT)[2] | Speeds (MPH)[3] | Site Conditions |
|---|---|---|---|---|---|
| W. Olive Avenue | 2 | Local | 4,000 | 25 | Soft |
| S. Myrtle Avenue | 2 | Collector | 12,000 | 25 | Soft |

[1] City of Monrovia General Plan Circulation Element.
[2] HCM Capacity Methodology
[3] Speed limits

**TABLE 7-2: TIME OF DAY VEHICLE SPLITS**

| Vehicle Type | Time of Day Splits[1] | | | Total of Time of Day Splits |
|---|---|---|---|---|
| | Daytime | Evening | Nighttime | |
| Autos | 71.41% | 9.91% | 18.68% | 100.00% |
| Medium Trucks | 90.48% | 1.59% | 7.94% | 100.00% |
| Heavy Trucks | 76.50% | 6.32% | 17.18% | 100.00% |

[1] Based on the November 2, 2023, 24-hour directional vehicle classification count collected on S. Myrtle Avenue south of W. Olive Avenue (701 S. Myrtle Focused Traffic Analysis, Urban Crossroads, Inc.)
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

**TABLE 7-3: DISTRIBUTION OF TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)**

| Classification | Total % Traffic Flow[1] | | | Total |
|---|---|---|---|---|
| | Autos | Medium Trucks | Heavy Trucks | |
| All Segments | 94.86% | 0.20% | 4.94% | 100.00% |

[1] Based on the November 2, 2023, 24-hour directional vehicle classification count collected on S. Myrtle Avenue south of W. Olive Avenue (701 S. Myrtle Focused Traffic Analysis, Urban Crossroads, Inc.). Vehicle mix percentage values rounded to the nearest one-hundredth.

To predict the future noise environment at the Project buildings and within the private outdoor use areas (patios/balconies), coordinate information was collected to identify the noise transmission path between the noise source and receiver. The site plan is used to identify the relationship between the roadway centerline and the centerline distance to the building façade. The first-floor exterior noise level receivers were assumed to be located five feet above the ground elevation. Second-floor receivers were assumed to be located 14 feet above the ground elevation, third-floor receivers were assumed to be located 23 feet above the ground elevation, fourth-floor receivers were assumed to be located 32 feet above the ground elevation, and fifth-floor receivers were assumed to be located 41 feet above the ground elevation.

## 7.3 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 7-4 identifies the twelve off-site study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Monrovia General Plan Circulation Element, and the posted vehicle speeds. Consistent with the

Focused Traffic Analysis prepared by Urban Crossroads, Inc. for the Project, (22) the off-site traffic noise analysis includes the following traffic scenarios. Urban Crossroads, Inc. collected additional traffic counts in 2025 to verify previous traffic counts. Urban Crossroads found that the ADTs on roadways within the study area had experienced very little growth, which did not affect the traffic analysis or the traffic noise levels predicted in this analysis.

- Existing (2023) with Project
- Existing (2023) without Project
- Opening Year Cumulative (2027) without Project
- Opening Year Cumulative (2027) with Project

The average daily traffic (ADT) volumes used for this study are presented in Table 7-5. Based on the 701 S. Myrtle Avenue Focused Traffic Analysis, the Project is anticipated to generate a total of 1,238 trips per day. (22) Table 7-2 and Table 7-3 provide the time of day (daytime, evening, and nighttime) vehicle splits used for calculating CNEL values.

**TABLE 7-4: OFF-SITE ROADWAY PARAMETERS**

| ID | Roadway | Segment | Classification[2] | Centerline Distance to Receiving Land Use (Feet)[3] | Vehicle Speed (mph) |
|---|---|---|---|---|---|
| 1 | W. Olive Ave. | w/o S. Primrose Ave. | Local | 30 | 25 |
| 2 | W. Olive Ave. | e/o S. Primrose Ave. | Local | 30 | 25 |
| 3 | W. Olive Ave. | e/o S. Myrtle Ave. | Collector | 42 | 25 |
| 4 | W. Walnut Ave. | w/o S. Primrose Ave. | Local | 30 | 25 |
| 5 | W. Walnut Ave. | e/o S. Primrose Ave. | Local | 30 | 25 |
| 6 | W. Walnut Ave. | e/o S. Myrtle Ave. | Local | 30 | 25 |
| 7 | S. Primrose Ave. | n/o W. Olive Ave. | Local | 30 | 25 |
| 8 | S. Primrose Ave. | s/o W. Olive Ave. | Local | 30 | 25 |
| 9 | S. Primrose Ave. | s/o W. Walnut Ave. | Local | 30 | 25 |
| 10 | S. Myrtle Ave. | n/o W. Olive Ave. | Collector | 42 | 25 |
| 11 | S. Myrtle Ave. | s/o W. Olive Ave. | Collector | 42 | 25 |
| 12 | S. Myrtle Ave. | s/o W. Walnut Ave. | Collector | 42 | 25 |

[1] Based on a review of existing aerial imagery. Noise-sensitive uses are limited to existing residential land uses.
[2] City of Monrovia General Circulation Element.
[3] Based upon the right-of-way distances for each roadway classification provided in the City of Monrovia General Plan Circulation Element.

**TABLE 7-5: AVERAGE DAILY TRAFFIC VOLUMES**

| ID | Roadway | Segment | Existing (2023) | | Opening Year Cumulative (2027) | |
|---|---|---|---|---|---|---|
| | | | Without Project | With Project | Without Project | With Project |
| 1 | W. Olive Ave. | w/o S. Primrose Ave. | 1,263 | 1,263 | 1,337 | 1,337 |
| 2 | W. Olive Ave. | e/o S. Primrose Ave. | 1,776 | 1,986 | 2,007 | 2,217 |
| 3 | W. Olive Ave. | e/o S. Myrtle Ave. | 1,539 | 1,581 | 1,613 | 1,655 |
| 4 | W. Walnut Ave. | w/o S. Primrose Ave. | 526 | 526 | 548 | 548 |
| 5 | W. Walnut Ave. | e/o S. Primrose Ave. | 1,460 | 1,460 | 1,519 | 1,519 |
| 6 | W. Walnut Ave. | e/o S. Myrtle Ave. | 1,184 | 1,184 | 1,232 | 1,232 |
| 7 | S. Primrose Ave. | n/o W. Olive Ave. | 4,420 | 4,462 | 4,709 | 4,751 |
| 8 | S. Primrose Ave. | s/o W. Olive Ave. | 4,170 | 4,338 | 4,407 | 4,575 |
| 9 | S. Primrose Ave. | s/o W. Walnut Ave. | 4,485 | 4,653 | 4,734 | 4,902 |
| 10 | S. Myrtle Ave. | n/o W. Olive Ave. | 8,353 | 8,437 | 9,975 | 10,059 |
| 11 | S. Myrtle Ave. | s/o W. Olive Ave. | 9,037 | 9,497 | 10,873 | 11,333 |
| 12 | S. Myrtle Ave. | s/o W. Walnut Ave. | 9,563 | 10,023 | 11,420 | 11,880 |

[1] 701 S. Myrtle Ave Traffic Analysis, Urban Crossroads, Inc. 2024

## 7.4 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental 24-hour dBA CNEL traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. 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 CNEL 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 the 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 7-6 through 7-9 present a summary of the exterior dBA CNEL traffic noise levels. Twelve roadway segments are analyzed in each of the following scenarios: Existing (2023) without and with the Project and Opening Year Cumulative (2027) without and with the Project. Appendix 7.1 includes a summary of the dBA CNEL traffic noise level contours for each of the traffic scenarios.

**TABLE 7-6: EXISTING (2023) WITHOUT PROJECT NOISE CONTOURS**

| ID | Road | Segment | Receiving Land Use[1] | CNEL at Nearest Receiving Land Use (dBA)[2] | Distance to Contour from Centerline (Feet) | | |
|---|---|---|---|---|---|---|---|
| | | | | | 65 dBA CNEL | 60 dBA CNEL | 55 dBA CNEL |
| 1 | W. Olive Ave. | w/o S. Primrose Ave. | Sensitive | 60.2 | RW | 31 | 67 |
| 2 | W. Olive Ave. | e/o S. Primrose Ave. | Sensitive | 61.7 | RW | 39 | 84 |
| 3 | W. Olive Ave. | e/o S. Myrtle Ave. | Sensitive | 58.8 | RW | RW | 76 |
| 4 | W. Walnut Ave. | w/o S. Primrose Ave. | Sensitive | 56.4 | RW | RW | 37 |
| 5 | W. Walnut Ave. | e/o S. Primrose Ave. | Sensitive | 60.8 | RW | 34 | 74 |
| 6 | W. Walnut Ave. | e/o S. Myrtle Ave. | Sensitive | 59.9 | RW | 30 | 64 |
| 7 | S. Primrose Ave. | n/o W. Olive Ave. | Sensitive | 65.7 | 33 | 71 | 154 |
| 8 | S. Primrose Ave. | s/o W. Olive Ave. | Sensitive | 65.4 | 32 | 69 | 148 |
| 9 | S. Primrose Ave. | s/o W. Walnut Ave. | Sensitive | 65.7 | 33 | 72 | 155 |
| 10 | S. Myrtle Ave. | n/o W. Olive Ave. | Sensitive | 66.2 | 50 | 108 | 234 |
| 11 | S. Myrtle Ave. | s/o W. Olive Ave. | Sensitive | 66.5 | 53 | 114 | 246 |
| 12 | S. Myrtle Ave. | s/o W. Walnut Ave. | Sensitive | 66.8 | 55 | 119 | 256 |

[1] Based on a review of existing aerial imagery. Noise-sensitive uses are limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = The location of the respective noise contour that falls within the right-of-way of the road.

**TABLE 7-7: EXISTING (2023) WITH PROJECT NOISE CONTOURS**

| ID | Road | Segment | Receiving Land Use[1] | CNEL at Nearest Receiving Land Use (dBA)[2] | Distance to Contour from Centerline (Feet) | | |
|---|---|---|---|---|---|---|---|
| | | | | | 65 dBA CNEL | 60 dBA CNEL | 55 dBA CNEL |
| 1 | W. Olive Ave. | w/o S. Primrose Ave. | Sensitive | 60.2 | RW | 31 | 67 |
| 2 | W. Olive Ave. | e/o S. Primrose Ave. | Sensitive | 62.2 | RW | 42 | 90 |
| 3 | W. Olive Ave. | e/o S. Myrtle Ave. | Sensitive | 59.0 | RW | RW | 77 |
| 4 | W. Walnut Ave. | w/o S. Primrose Ave. | Sensitive | 56.4 | RW | RW | 37 |
| 5 | W. Walnut Ave. | e/o S. Primrose Ave. | Sensitive | 60.8 | RW | 34 | 74 |
| 6 | W. Walnut Ave. | e/o S. Myrtle Ave. | Sensitive | 59.9 | RW | 30 | 64 |
| 7 | S. Primrose Ave. | n/o W. Olive Ave. | Sensitive | 65.7 | 33 | 72 | 155 |
| 8 | S. Primrose Ave. | s/o W. Olive Ave. | Sensitive | 65.6 | 33 | 71 | 152 |
| 9 | S. Primrose Ave. | s/o W. Walnut Ave. | Sensitive | 65.9 | 34 | 74 | 159 |
| 10 | S. Myrtle Ave. | n/o W. Olive Ave. | Sensitive | 66.2 | 51 | 109 | 235 |
| 11 | S. Myrtle Ave. | s/o W. Olive Ave. | Sensitive | 66.7 | 55 | 118 | 255 |
| 12 | S. Myrtle Ave. | s/o W. Walnut Ave. | Sensitive | 67.0 | 57 | 122 | 264 |

[1] Based on a review of existing aerial imagery. Noise-sensitive uses are limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = The location of the respective noise contour that falls within the right-of-way of the road.

**TABLE 7-8: OPENING YEAR CUMULATIVE (2027) WITHOUT PROJECT NOISE CONTOURS**

| ID | Road | Segment | Receiving Land Use[1] | CNEL at Nearest Receiving Land Use (dBA)[2] | Distance to Contour from Centerline (Feet) | | |
|---|---|---|---|---|---|---|---|
| | | | | | 65 dBA CNEL | 60 dBA CNEL | 55 dBA CNEL |
| 1 | W. Olive Ave. | w/o S. Primrose Ave. | Sensitive | 60.5 | RW | 32 | 69 |
| 2 | W. Olive Ave. | e/o S. Primrose Ave. | Sensitive | 62.2 | RW | 42 | 91 |
| 3 | W. Olive Ave. | e/o S. Myrtle Ave. | Sensitive | 59.0 | RW | RW | 78 |
| 4 | W. Walnut Ave. | w/o S. Primrose Ave. | Sensitive | 56.6 | RW | RW | 38 |
| 5 | W. Walnut Ave. | e/o S. Primrose Ave. | Sensitive | 61.0 | RW | 35 | 76 |
| 6 | W. Walnut Ave. | e/o S. Myrtle Ave. | Sensitive | 60.1 | RW | 30 | 66 |
| 7 | S. Primrose Ave. | n/o W. Olive Ave. | Sensitive | 65.9 | 35 | 75 | 161 |
| 8 | S. Primrose Ave. | s/o W. Olive Ave. | Sensitive | 65.6 | 33 | 71 | 154 |
| 9 | S. Primrose Ave. | s/o W. Walnut Ave. | Sensitive | 65.9 | 35 | 75 | 161 |
| 10 | S. Myrtle Ave. | n/o W. Olive Ave. | Sensitive | 67.0 | 57 | 122 | 263 |
| 11 | S. Myrtle Ave. | s/o W. Olive Ave. | Sensitive | 67.3 | 60 | 129 | 279 |
| 12 | S. Myrtle Ave. | s/o W. Walnut Ave. | Sensitive | 67.5 | 62 | 134 | 288 |

[1] Based on a review of existing aerial imagery. Noise-sensitive uses are limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = The location of the respective noise contour that falls within the right-of-way of the road.

**TABLE 7-9: OPENING YEAR CUMULATIVE (2027) WITH PROJECT NOISE CONTOURS**

| ID | Road | Segment | Receiving Land Use[1] | CNEL at Nearest Receiving Land Use (dBA)[2] | Distance to Contour from Centerline (Feet) | | |
|---|---|---|---|---|---|---|---|
| | | | | | 65 dBA CNEL | 60 dBA CNEL | 55 dBA CNEL |
| 1 | W. Olive Ave. | w/o S. Primrose Ave. | Sensitive | 60.5 | RW | 32 | 69 |
| 2 | W. Olive Ave. | e/o S. Primrose Ave. | Sensitive | 62.7 | RW | 45 | 97 |
| 3 | W. Olive Ave. | e/o S. Myrtle Ave. | Sensitive | 59.2 | RW | RW | 79 |
| 4 | W. Walnut Ave. | w/o S. Primrose Ave. | Sensitive | 56.6 | RW | RW | 38 |
| 5 | W. Walnut Ave. | e/o S. Primrose Ave. | Sensitive | 61.0 | RW | 35 | 76 |
| 6 | W. Walnut Ave. | e/o S. Myrtle Ave. | Sensitive | 60.1 | RW | 30 | 66 |
| 7 | S. Primrose Ave. | n/o W. Olive Ave. | Sensitive | 66.0 | 35 | 75 | 161 |
| 8 | S. Primrose Ave. | s/o W. Olive Ave. | Sensitive | 65.8 | 34 | 73 | 157 |
| 9 | S. Primrose Ave. | s/o W. Walnut Ave. | Sensitive | 66.1 | 36 | 77 | 165 |
| 10 | S. Myrtle Ave. | n/o W. Olive Ave. | Sensitive | 67.0 | 57 | 123 | 265 |
| 11 | S. Myrtle Ave. | s/o W. Olive Ave. | Sensitive | 67.5 | 62 | 133 | 286 |
| 12 | S. Myrtle Ave. | s/o W. Walnut Ave. | Sensitive | 67.7 | 64 | 137 | 296 |

[1] Based on a review of existing aerial imagery. Noise-sensitive uses are limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = The location of the respective noise contour that falls within the right-of-way of the road.

## 7.5 CADNAA NOISE PREDICTION MODEL

To fully describe and analyze the exterior operational and construction noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels. Using the ISO 9613 protocol, CadnaA calculates the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of the noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613 protocol, the CadnaA noise prediction model relies on the reference sound power level ($L_w$) to describe individual noise sources. While sound pressure levels (e.g., $L_{eq}$) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels ($L_w$) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The noise level calculations provided in this noise analysis account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the noise analysis to account for mixed ground representing a combination of hard and soft surfaces.

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# 8 ON-SITE TRAFFIC NOISE IMPACTS

An on-site exterior noise analysis has been completed to determine the noise exposure levels that would result from adjacent transportation noise sources to the noise-sensitive residential land use and to identify potential noise abatement measures that would achieve acceptable Project exterior and interior noise levels. The primary source of transportation noise affecting the Project site is anticipated to be from West Olive Avenue and South Myrtle Avenue.

## 8.1 ON-SITE EXTERIOR NOISE ANALYSIS

Using the FHWA traffic noise prediction model and the parameters outlined in Tables 7-1 to 7-3, the expected future exterior noise levels for private outdoor living areas were calculated. Table 8-1 presents a summary of future exterior noise levels in the private outdoor living areas (balconies/patios) within the Project. The on-site traffic noise level impacts indicate that the private outdoor living areas adjacent to West Olive Avenue and South Myrtle Avenue will experience unmitigated exterior noise levels ranging from 61.1 to 67.4 dBA CNEL. The on-site traffic noise analysis calculations are provided in Appendix 8.1. This noise analysis shows that the Project will satisfy the City of Monrovia "normally acceptable" exterior noise level standards for multi-family residential land uses at locations along the northern building façade facing W. Olive Avenue. However, second, third, and fourth-floor units facing S. Myrtle Avenue would be exposed to "conditionally compatible" noise conditions, requiring that new construction or development conduct a "detailed noise analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice." (11) Therefore, the following interior noise analysis has been completed to demonstrate the "needed noise insulation features are included in the design."

**TABLE 8-1: EXTERIOR NOISE LEVELS (CNEL)**

| Location | Roadway | Unmitigated Noise Level 1st Floor (dBA CNEL)[1] | Unmitigated Noise Level 2nd Floor (dBA CNEL)[1] | Unmitigated Noise Level 3rd Floor (dBA CNEL)[1] | Unmitigated Noise Level 4th Floor (dBA CNEL)[1] | Unmitigated Noise Level 5th Floor (dBA CNEL)[1] |
|---|---|---|---|---|---|---|
| Northern Building Façade | W. Olive Avenue | 65.0 | 64.8 | 64.1 | 63.1 | 61.1 |
| Eastern Building Façade | S. Myrtle Avenue | -- | 67.4 | 67.0 | 66.4 | 65.0 |

[1] Exterior noise level calculations are included in Appendix 8.1.

## 8.2 ON-SITE INTERIOR NOISE ANALYSIS

The future noise levels were calculated at the building façades to ensure that the interior noise levels comply with the City of Monrovia 45 dBA CNEL interior noise standards.

### 8.2.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building façade and the noise reduction of the structure. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." (7) (24) 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] exterior wall/roof assembles free of cut outs or openings; and [4] mechanical ventilation/air conditioning.

### 8.2.2 INTERIOR NOISE LEVEL ASSESSMENT

Table 8-2 shows that the units facing Olive Avenue will experience future unmitigated noise levels of 65.0 dBA CNEL at the first-floor building façades and the private outdoor use spaces. Table 8-3 shows that the second-floor units facing West Olive Avenue and South Myrtle Avenue will experience future unmitigated exterior noise levels ranging from 64.8 to 67.4 dBA CNEL at the building façade, with interior noise levels ranging from 39.8 to 42.4 CNEL. Table 8-4 shows that the third-floor units facing West Olive Avenue and South Myrtle Avenue will experience future unmitigated exterior noise levels ranging from 64.1 to 67.0 dBA CNEL at the building façade, with interior noise levels ranging from 39.1 to 42.0 CNEL. Table 8-5 shows that the fourth-floor units facing West Olive Avenue and South Myrtle Avenue will experience future unmitigated exterior noise levels ranging from 63.1 to 66.4 dBA CNEL at the building façade, with interior noise levels ranging from 38.1 to 41.4 CNEL. Table 8-6 shows that the fifth-floor units facing West Olive Avenue and South Myrtle Avenue will experience future unmitigated exterior noise levels ranging from 61.1 to 65.0 dBA CNEL at the building façade, with interior noise levels ranging from 36.1 to 40.0 CNEL.

The interior noise level analysis shows that the City of Monrovia 45 dBA CNEL with windows closed interior noise standards can be satisfied at all locations using standard construction and standard windows with a minimum STC rating of 27. As analyzed in this report, the Project will provide air conditioning for all units. Therefore, the interior noise analysis shows that with the provided air conditioning, the Project will satisfy the City of Monrovia 45 dBA CNEL windows closed interior noise level standards for residential development.

**TABLE 8-2: FIRST-FLOOR INTERIOR NOISE IMPACTS (CNEL)**

| Location | Roadway | Noise Level at Façade[1] | Required Interior NR[2] | Estimated Interior NR[3] | Upgraded Windows[4] | Interior Noise Level[5] | Threshold | Threshold Exceeded? |
|---|---|---|---|---|---|---|---|---|
| Northern Building Façade | W. Olive Avenue | 65.0 | 20.0 | 25.0 | No | 40.0 | 45 | No |

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g., air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.
[3] Estimated minimum interior noise reduction.
[4] Does the required interior noise reduction trigger upgraded with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
"NR" = Noise reduction

**TABLE 8-3: SECOND-FLOOR INTERIOR NOISE IMPACTS (CNEL)**

| Location | Roadway | Noise Level at Façade[1] | Required Interior NR[2] | Estimated Interior NR[3] | Upgraded Windows[4] | Interior Noise Level[5] | Threshold | Threshold Exceeded? |
|---|---|---|---|---|---|---|---|---|
| Northern Building Façade | W. Olive Avenue | 64.8 | 19.8 | 25.0 | No | 39.8 | 45.0 | No |
| Eastern Building Façade | S. Myrtle Avenue | 67.4 | 22.4 | 25.0 | No | 42.4 | 45.0 | No |

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g., air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.
[3] Estimated minimum interior noise reduction.
[4] Does the required interior noise reduction trigger upgraded with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
"NR" = Noise reduction

**TABLE 8-4: THIRD-FLOOR INTERIOR NOISE IMPACTS (CNEL)**

| Location | Roadway | Noise Level at Façade[1] | Required Interior NR[2] | Estimated Interior NR[3] | Upgraded Windows[4] | Interior Noise Level[5] | Threshold | Threshold Exceeded? |
|---|---|---|---|---|---|---|---|---|
| Northern Building Façade | W. Olive Avenue | 64.1 | 19.1 | 25.0 | No | 39.1 | 45.0 | No |
| Eastern Building Façade | S. Myrtle Avenue | 67.0 | 22.0 | 25.0 | No | 42.0 | 45.0 | No |

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g., air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.
[3] Estimated minimum interior noise reduction.
[4] Does the required interior noise reduction trigger upgraded with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
"NR" = Noise reduction

**TABLE 8-5: FOURTH-FLOOR INTERIOR NOISE IMPACTS (CNEL)**

| Location | Roadway | Noise Level at Façade[1] | Required Interior NR[2] | Estimated Interior NR[3] | Upgraded Windows[4] | Interior Noise Level[5] | Threshold | Threshold Exceeded? |
|---|---|---|---|---|---|---|---|---|
| Northern Building Façade | W. Olive Avenue | 63.1 | 18.1 | 25.0 | No | 38.1 | 45.0 | No |
| Eastern Building Façade | S. Myrtle Avenue | 66.4 | 21.4 | 25.0 | No | 41.4 | 45.0 | No |

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g., air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.
[3] Estimated minimum interior noise reduction.
[4] Does the required interior noise reduction trigger upgraded with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
"NR" = Noise reduction

**TABLE 8-6: FIFTH-FLOOR INTERIOR NOISE IMPACTS (CNEL)**

| Location | Roadway | Noise Level at Façade[1] | Required Interior NR[2] | Estimated Interior NR[3] | Upgraded Windows[4] | Interior Noise Level[5] | Threshold | Threshold Exceeded? |
|---|---|---|---|---|---|---|---|---|
| Northern Building Façade | W. Olive Avenue | 61.1 | 16.1 | 25.0 | No | 36.1 | 45.0 | No |
| Eastern Building Façade | S. Myrtle Avenue | 65.0 | 20.0 | 25.0 | No | 40.0 | 45.0 | No |

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g., air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.
[3] Estimated minimum interior noise reduction.
[4] Does the required interior noise reduction trigger upgraded with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
"NR" = Noise reduction

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# 9 OFF-SITE TRANSPORTATION NOISE IMPACTS

As described in Section 4.1, the off-site traffic noise impacts are evaluated based on noise level increases resulting from the Project. 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. To assess the off-site transportation CNEL noise level impacts associated with the development of the proposed Project, noise contours were developed for each of the project scenarios outlined in the 701 S. Myrtle Avenue Focused Traffic Analysis prepared by Urban Crossroads, Inc. (22) Noise contour boundaries represent equal levels of noise exposure and are measured in CNEL from the center of the roadway.

## 9.2 EXISTING (2023) PROJECT TRAFFIC NOISE LEVELS

Table 7-6 shows the Existing (2023) CNEL noise levels without Project conditions. The Existing (2023) without Project exterior noise levels are expected to range from 56.4 to 66.8 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-7 shows that the Existing (2023) with Project conditions will range from 56.4 to 67.0 dBA CNEL. Table 9-1 shows that the Project off-site traffic noise level increases will range from less than 0.1 to 0.5 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic.

## 9.3 OPENING YEAR CUMULATIVE (2027) TRAFFIC NOISE LEVEL INCREASES

Tables 7-8 and 7-9 present the Opening Year Cumulative (2027) conditions CNEL noise levels, without accounting for any noise attenuation features such as noise barriers or topography. Table 9-3 shows the Opening Year Cumulative 2027 without Project noise levels are expected to range from 56.6 to 67.5 dBA CNEL. Table 9-2 shows the Opening Year Cumulative (2027), with Project noise level will range from 56.6 to 67.7 dBA CNEL. Table 9-6 shows that the Project's contribution to cumulative off-site traffic noise level increases would range from less than 0.1 to 0.5 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic. Therefore, impacts would be considered a *less than significant* and *not cumulatively considerable*.

**TABLE 9-5: EXISTING (2023) WITH PROJECT TRAFFIC NOISE INCREASES**

| ID | Road | Segment | Receiving Land Use[1] | CNEL at Receiving Land Use (dBA)[2] | | | Incremental Noise Level Increase Threshold[3] | |
|---|---|---|---|---|---|---|---|---|
| | | | | No Project | With Project | Project Addition | Significance Thresholds | Exceeded? |
| 1 | W. Olive Ave. | w/o S. Primrose Ave. | Sensitive | 60.2 | 60.2 | 0.0 | 3.0 | No |
| 2 | W. Olive Ave. | e/o S. Primrose Ave. | Sensitive | 61.7 | 62.2 | 0.5 | 3.0 | No |
| 3 | W. Olive Ave. | e/o S. Myrtle Ave. | Sensitive | 58.8 | 59.0 | 0.2 | 5.0 | No |
| 4 | W. Walnut Ave. | w/o S. Primrose Ave. | Sensitive | 56.4 | 56.4 | 0.0 | 5.0 | No |
| 5 | W. Walnut Ave. | e/o S. Primrose Ave. | Sensitive | 60.8 | 60.8 | 0.0 | 3.0 | No |
| 6 | W. Walnut Ave. | e/o S. Myrtle Ave. | Sensitive | 59.9 | 59.9 | 0.0 | 5.0 | No |
| 7 | S. Primrose Ave. | n/o W. Olive Ave. | Sensitive | 65.7 | 65.7 | 0.0 | 1.5 | No |
| 8 | S. Primrose Ave. | s/o W. Olive Ave. | Sensitive | 65.4 | 65.6 | 0.2 | 1.5 | No |
| 9 | S. Primrose Ave. | s/o W. Walnut Ave. | Sensitive | 65.7 | 65.9 | 0.2 | 1.5 | No |
| 10 | S. Myrtle Ave. | n/o W. Olive Ave. | Sensitive | 66.2 | 66.2 | 0.0 | 1.5 | No |
| 11 | S. Myrtle Ave. | s/o W. Olive Ave. | Sensitive | 66.5 | 66.7 | 0.2 | 1.5 | No |
| 12 | S. Myrtle Ave. | s/o W. Walnut Ave. | Sensitive | 66.8 | 67.0 | 0.2 | 1.5 | No |

[1] Based on a review of existing aerial imagery. Noise-sensitive uses are limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

**TABLE 9-6: OPENING YEAR CUMULATIVE (2027) WITH PROJECT TRAFFIC NOISE INCREASES**

| ID | Road | Segment | Receiving Land Use[1] | CNEL at Receiving Land Use (dBA)[2] | | | Incremental Noise Level Increase Threshold[3] | |
|---|---|---|---|---|---|---|---|---|
| | | | | No Project | With Project | Project Addition | Significance Thresholds | Exceeded? |
| 1 | W. Olive Ave. | w/o S. Primrose Ave. | Sensitive | 60.5 | 60.5 | 0.0 | 3.0 | No |
| 2 | W. Olive Ave. | e/o S. Primrose Ave. | Sensitive | 62.2 | 62.7 | 0.5 | 3.0 | No |
| 3 | W. Olive Ave. | e/o S. Myrtle Ave. | Sensitive | 59.0 | 59.2 | 0.2 | 5.0 | No |
| 4 | W. Walnut Ave. | w/o S. Primrose Ave. | Sensitive | 56.6 | 56.6 | 0.0 | 5.0 | No |
| 5 | W. Walnut Ave. | e/o S. Primrose Ave. | Sensitive | 61.0 | 61.0 | 0.0 | 3.0 | No |
| 6 | W. Walnut Ave. | e/o S. Myrtle Ave. | Sensitive | 60.1 | 60.1 | 0.0 | 3.0 | No |
| 7 | S. Primrose Ave. | n/o W. Olive Ave. | Sensitive | 65.9 | 66.0 | 0.1 | 1.5 | No |
| 8 | S. Primrose Ave. | s/o W. Olive Ave. | Sensitive | 65.6 | 65.8 | 0.2 | 1.5 | No |
| 9 | S. Primrose Ave. | s/o W. Walnut Ave. | Sensitive | 65.9 | 66.1 | 0.2 | 1.5 | No |
| 10 | S. Myrtle Ave. | n/o W. Olive Ave. | Sensitive | 67.0 | 67.0 | 0.0 | 1.5 | No |
| 11 | S. Myrtle Ave. | s/o W. Olive Ave. | Sensitive | 67.3 | 67.5 | 0.2 | 1.5 | No |
| 12 | S. Myrtle Ave. | s/o W. Walnut Ave. | Sensitive | 67.5 | 67.7 | 0.2 | 1.5 | No |

[1] Based on a review of existing aerial imagery. Noise-sensitive uses are limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

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# 10 OPERATIONAL NOISE IMPACTS

The Project is considered a noise-sensitive receiving land use and is not expected to include any specific type of operational noise levels beyond those typically associated with residential land uses in the Project study area. Additionally, Section 21085 of the California Public Resources Code states in part, "…for residential projects, the effects of noise generated by project occupants and their guests on human beings is not a significant effect on the environment." (25) A review of the legislative record indicates the author's intent for Section 21085 was to "remove the potential for litigants to challenge residential development based on the speculation that the new residents will create unwanted noises. It would also reestablish existing precedent that minor and intermittent noise nuisances, such as from unamplified human voices, be addressed through local nuisance ordinances and not via CEQA. Consequently, activities solely associated with occupants and quests, such as the swimming pool/spa activities, dog park activities, and outdoor activities in common spaces, are not considered part of this operational noise analysis for CEQA." Based on the intent of the author of Section 21085, the operational noise sources are limited to the mechanical and non-verbal noise sources that occur onsite, including roof-mounted air conditioning units and trash enclosure activity.

Therefore, this section analyzes the potential operational noise impacts at the nearby receiver locations, identified in Section 5, resulting from the operation of roof-mounted air conditioning units and trash enclosure activity. Exhibit 10-A identifies the noise source locations used to assess the equivalent Leq operational noise levels.

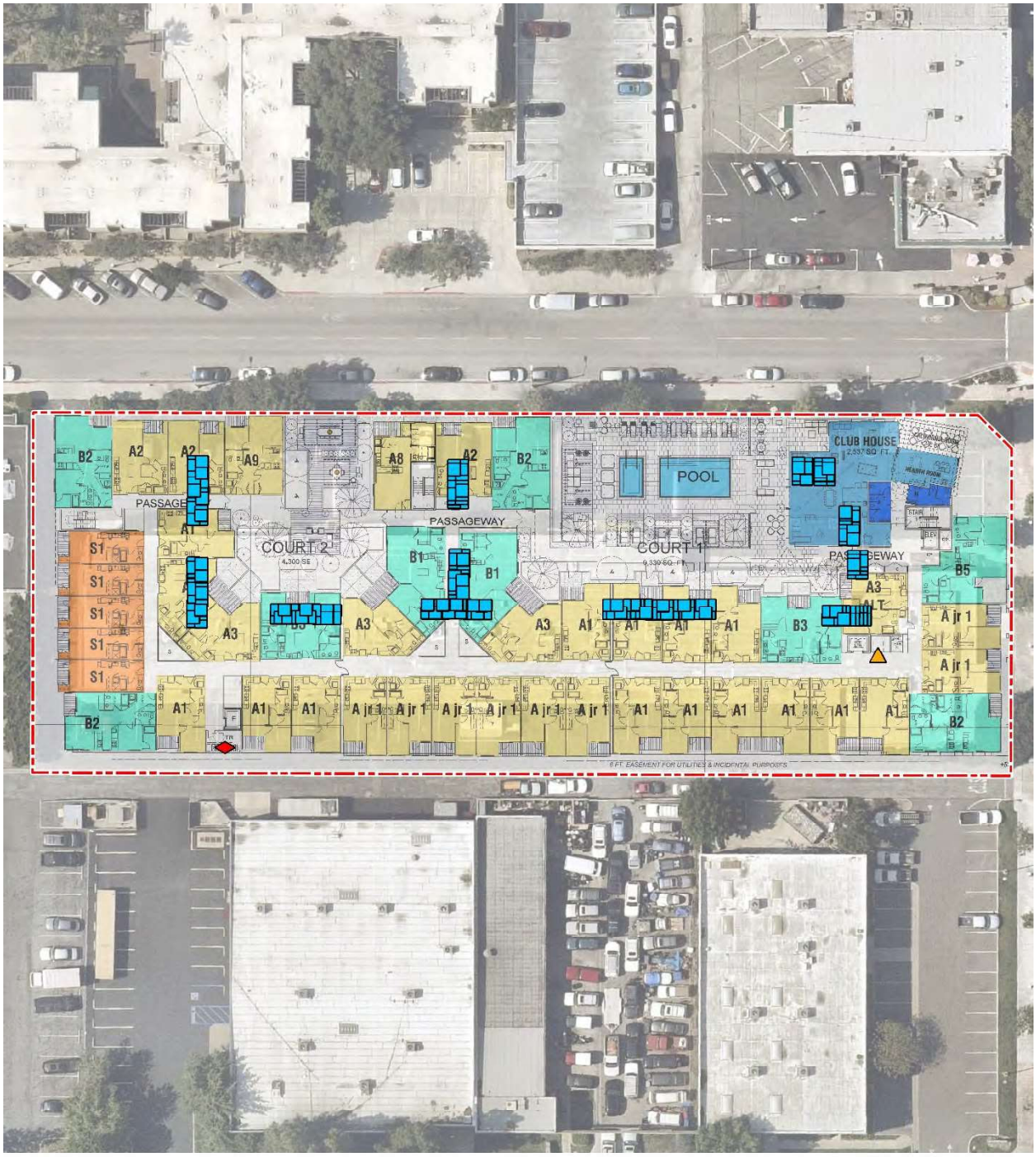
## 10.1 OPERATIONAL NOISE SOURCES

The proposed development is considered a noise-sensitive receiving land use and is not expected to include any operational noise source activities that would impact existing residential land uses. Operational noise sources associated with residential development are generally limited to Project construction and maintenance. However, to assess the potential operational noise source activities from the Project, this section analyzes the noise impacts resulting from the operation associated with the planned roof-mounted air conditioning units and trash enclosure activity.

## 10.2 REFERENCE NOISE LEVELS

To estimate the operational noise impacts, reference noise level measurements were collected from similar types of sources to represent the noise levels expected with the development of the Project. While sound pressure levels (e.g., $L_{eq}$) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels ($L_w$) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment. The reference Project operational sound power levels are summarized in Table 10-1.

## EXHIBIT 10-A: OPERATIONAL NOISE SOURCE LOCATIONS




N

**LEGEND:**

Air Conditioning Unit  Air Handeling Unit  Trash Enclosure Activity

### 10.2.1 HEATING, AIR CONDITIONING, AND VENTILATION UNITS

To assess the noise levels created by the heating, air conditioning, and ventilation (HVAC) units, reference noise levels were taken from equipment specifications for a 3- to 5-ton residential packaged air conditioning unit (Carrier 24SCA5) and an air handling unit (AHU) capable of circulating air at 75,300 cubic feet per (CFM) minute. The manufacturer's specifications for the Carrier 24SCA5 are included in Appendix 10.1, and the manufacturer's sound level ratings for the AHU are included in Appendix 10.2. At a uniform reference distance of 50 feet, the Carrier 24SCA5 units would generate a reference noise level of 44.4 dBA $L_{eq}$. At a uniform reference distance of 50 feet, the AHU would generate a reference noise level of 52.1 dBA $L_{eq}$. All HVAC units were modeled 3 feet above the roof level, operating 45 minutes per hour during the daytime and 30 minutes at nighttime, which represents the typical maximum operating time for properly sized ventilation systems.

**TABLE 10-1: REFERENCE NOISE LEVELS**

| Noise Source | Noise Source Height (Feet) | Min./Hour[4] | | Reference Noise Level @ 50 feet (dBA $L_{eq}$) | Sound Power Level (dBA) |
|---|---|---|---|---|---|
| | | Day | Night | | |
| Air Conditioning Units[1] | 3' | 45 | 30 | 44.4 | 76.0 |
| Air Handling Unit[2] | 3' | 45 | 30 | 57.6 | 89.2 |
| Trash Enclosure Activity[3] | 8' | 10 | 10 | 57.3 | 88.9 |

[1] Carrier 48VGB24 3-ton model packaged air conditioning unit, Appendix 10.1.
[2] Air-Hunt AHU 75,300 CFM, Appendix 10.2.
[3] As measured by Urban Crossroads, Inc.
[4] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:01 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:00 a.m.

### 10.2.2 TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with trash enclosure activity, Urban Crossroads collected a reference noise level measurement at an existing trash enclosure containing two dumpster bins. The trash enclosure noise levels describe metal gates opening and closing, metal scraping against the concrete floor sounds, dumpster movement on metal wheels, and trash dropping into the metal dumpster. The reference noise levels describe trash enclosure noise activities when the trash is dropped into an empty metal dumpster, as would occur at the Project site. The measured reference noise level at the uniform 50-foot reference distance is 57.3 dBA $L_{eq}$ for the trash enclosure activity. The reference noise level describes the expected noise source activities associated with the trash enclosures for the proposed building. Based on the observed activities, typical trash enclosure activities are estimated to occur for 10 minutes per hour.

## 10.3 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

Table 10-2 shows the Project operational noise levels during the daytime and nighttime hours. The daytime hourly noise levels at the off-site receiver locations are expected to range from 38.2

to 44.5 dBA $L_{eq}$. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 36.2 to 42.5 dBA $L_{eq}$. Appendix 10.2 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

**TABLE 10-2: OPERATIONAL NOISE LEVEL COMPLIANCE**

| Receiver Location[1] | Project Operational Noise Levels (dBA $L_{eq}$)[2] | | Noise Level Standards (dBA $L_{eq}$)[3] | | Noise Level Standards Exceeded?[4] | |
|---|---|---|---|---|---|---|
| | Daytime | Nighttime | Daytime | Nighttime | Daytime | Nighttime |
| R1 | 42.0 | 40.2 | 55.0 | 50.0 | No | No |
| R2 | 44.5 | 42.5 | 55.0 | 50.0 | No | No |
| R3 | 41.9 | 39.9 | 55.0 | 50.0 | No | No |
| R4 | 38.3 | 36.3 | 55.0 | 50.0 | No | No |
| R5 | 38.2 | 36.3 | 55.0 | 50.0 | No | No |
| R6 | 38.9 | 37.2 | 55.0 | 50.0 | No | No |

[1] See Exhibit 9-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 10-1 and 10-2.
[3]City of Monrovia Municipal Code, Section 9.44.040 (Appendix 3.1)
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

## 10.4 PROJECT OPERATIONAL NOISE LEVEL INCREASES

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise level measurements for the nearest receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (2) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

Where "SPL1," "SPL2," etc., are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented in Tables 10-2.

As indicated in Tables 10-3 and 10-4, the Project will generate unmitigated daytime and nighttime operational noise level increases ranging from 0.1 to 0.8 dBA $L_{eq}$ at the nearest receiver locations. In effect, the amount to which a given noise level increase is considered acceptable is reduced based on existing ambient noise conditions. Based on the operational noise level increase significance criteria presented in Section 4, the Project-related operational noise level increases will not exceed the operational noise level increase criteria at the nearest sensitive receiver locations, and the impact will be *less than significant.*

**TABLE 10-3: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES**

| Receiver Location[1] | Total Project Operational Noise Level (dBA $L_{eq}$)[2] | Measurement Location[3] | Reference Ambient Noise Levels (dBA $L_{eq}$)[4] | Combined Project and Ambient (dBA $L_{eq}$)[5] | Project Increase[6] | Increase Criteria | Increase Criteria Exceeded? |
|---|---|---|---|---|---|---|---|
| R1 | 42.0 | L1 | 57.3 | 57.4 | 0.1 | 5.0 | No |
| R2 | 44.5 | L2 | 62.8 | 62.9 | 0.1 | 3.0 | No |
| R3 | 41.9 | L3 | 57.0 | 57.1 | 0.1 | 5.0 | No |
| R4 | 38.3 | L4 | 57.9 | 57.9 | 0.0 | 5.0 | No |
| R5 | 38.2 | L5 | 54.0 | 54.1 | 0.1 | 5.0 | No |
| R6 | 38.9 | L6 | 54.6 | 54.7 | 0.1 | 5.0 | No |

[1] See Exhibit 10-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown in Table 10-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4]. Observed daytime ambient noise levels as shown in Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.

**TABLE 10-4: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES**

| Receiver Location[1] | Total Project Operational Noise Level (dBA $L_{eq}$)[2] | Measurement Location[3] | Reference Ambient Noise Levels (dBA $L_{eq}$)[4] | Combined Project and Ambient (dBA $L_{eq}$)[5] | Project Increase[6] | Increase Criteria | Increase Criteria Exceeded? |
|---|---|---|---|---|---|---|---|
| R1 | 40.2 | L1 | 49.7 | 50.2 | 0.5 | 5.0 | No |
| R2 | 42.5 | L2 | 57.7 | 57.8 | 0.1 | 5.0 | No |
| R3 | 39.9 | L3 | 46.8 | 47.6 | 0.8 | 5.0 | No |
| R4 | 36.3 | L4 | 49.8 | 50.0 | 0.2 | 5.0 | No |
| R5 | 36.3 | L5 | 47.0 | 47.4 | 0.4 | 5.0 | No |
| R6 | 37.2 | L6 | 47.3 | 47.7 | 0.4 | 5.0 | No |

[1] See Exhibit 10-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown in Table 10-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown in Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.

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# 11 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 5-A shows the nearest sensitive receiver locations previously described in Section 6 in relationship to the Project site, which represents the boundary of all construction activities. Section 9.44.080(F) of the City of Monrovia Municipal Code states that construction activities are exempted from the noise ordinance if conducted between the hours of 7:00 a.m. to 7:00 p.m. on weekdays and 9:00 a.m. to 6:00 p.m. on weekends and holidays.

In addition, since the City of Monrovia has not established a numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes, a numerical construction threshold based on Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual is used for analysis of daytime construction impacts. The FTA considers a daytime exterior construction noise level of 80 dBA $L_{eq}$ as a reasonable threshold for noise-sensitive residential land use. (7)

## 11.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that, when combined, can reach high levels. The number and mix of construction equipment are expected to occur in the following stages:

- Demolition
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

## 11.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (26) The RCNM equipment database provides a comprehensive list of the noise-generating characteristics of specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation. Table 11-1 provides a summary of the loudest equipment modeled per phase.

**TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS**

| Construction Stage | Reference Construction Equipmnet[1] | Reference Noise Level @ 50 Feet (dBA $L_{eq}$) | Highest Reference Noise Level (dBA $L_{eq}$) | Reference Power Level (dBA $L_w$) |
|---|---|---|---|---|
| Demolition | Concrete Saw | 83.0 | 86.1 | 117.7 |
| | Jack Hammer | 82.0 | | |
| | Chain Saw | 77.0 | | |
| Site Preparation | Dozer | 78.0 | 82.9 | 114.5 |
| | Scraper | 80.0 | | |
| | Front End Loader | 75.0 | | |
| Grading | Vibratory Roller | 73.0 | 82.7 | 114.3 |
| | Grader | 81.0 | | |
| | Compactor (ground) | 76.0 | | |
| Building Construction | Rough Terrain Forklift | 79.0 | 82.1 | 113.7 |
| | Generator | 78.0 | | |
| | Crane | 73.0 | | |
| Paving | Paver | 74.0 | 77.8 | 109.4 |
| | Dump Truck | 72.0 | | |
| | Roller | 73.0 | | |
| Architectural Coating | Man Lift | 68.0 | 76.4 | 108.0 |
| | Compressor (air) | 74.0 | | |
| | Pickup Truck | 71.0 | | |

[1] FHWA Road Construction Noise Model, 2006.

## 11.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. For construction noise assessment, construction equipment can be considered to operate in two modes: stationary and mobile. As defined, stationary equipment operates in a single location for one or more days at a time, with either fixed-power operation (e.g., pumps, generators, and compressors) or variable-power operation (e.g., pile drivers, rock drills, and pavement breakers). Mobile equipment moves around the construction site with power applied in a cyclic fashion, such as bulldozers, graders, and loaders (FTA 2018). The FTA and FHWA recommend noise impacts from stationary equipment be assessed from the center of the equipment location, while noise impacts from mobile construction equipment should be assessed using three pieces operating at full power and from the center of the equipment activity area (e.g., construction site). Thus, to assess a more realistic and reasonable construction scenario while accounting for the dynamic nature of construction activities, this Project construction noise analysis models the equipment combination with the highest reference combined level as a moving point within the construction area (Project site boundary). Construction impacts are based on the highest noise level calculated at each receiver location. As shown in Table 11-2, the construction noise levels are expected to range from 52.2 to 71.0 dBA $L_{eq}$, and the highest construction levels (during grading) are expected to range from 62.6 to

71.0 dBA $L_{eq}$ at the nearby receiver locations. Appendix 11.1 includes the detailed CadnaA construction noise model inputs.

**TABLE 11-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY**

| Receiver Location[1] | Construction Noise Levels (dBA $L_{eq}$) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Demolition | Site Preparation | Grading | Building Construction | Paving | Architectural Coating | Highest Levels[2] |
| R1 | 65.5 | 62.3 | 62.1 | 61.5 | 57.2 | 55.8 | 65.5 |
| R2 | 69.9 | 66.7 | 66.5 | 65.9 | 61.6 | 60.2 | 69.9 |
| R3 | 71.0 | 67.8 | 67.6 | 67.0 | 62.7 | 61.3 | 71.0 |
| R4 | 62.6 | 59.4 | 59.2 | 58.6 | 54.3 | 52.9 | 62.6 |
| R5 | 63.5 | 60.3 | 60.1 | 59.5 | 55.2 | 53.8 | 63.5 |
| R6 | 63.4 | 60.2 | 60.0 | 59.4 | 55.1 | 53.7 | 63.4 |

[1] Noise receiver locations are shown on Exhibit 11-A.
[2] Construction noise level calculations based on distance from the construction activity, which is measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 11.1.

## 11.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at the nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA $L_{eq}$ is used as a threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will satisfy the daytime 80 dBA $L_{eq}$ significance threshold during Project construction activities, as shown in Table 11-3. Therefore, the noise impacts due to Project construction noise are considered less than significant at all receiver locations.

**TABLE 11-3: CONSTRUCTION NOISE LEVEL COMPLIANCE**

| Receiver Location[1] | Construction Noise Levels (dBA $L_{eq}$) | | | |
|---|---|---|---|---|
| | Highest Construction Noise Levels[2] | Land Use | Threshold[3] | Threshold Exceeded?[4] |
| R1 | 65.5 | Residential | 80 | No |
| R2 | 69.9 | Residential | 80 | No |
| R3 | 71.0 | Residential | 80 | No |
| R4 | 62.6 | Residential | 80 | No |
| R5 | 63.5 | Residential | 80 | No |
| R6 | 63.4 | Residential | 80 | No |

[1] Noise receiver locations are shown on Exhibit 11-A.
[2] Highest construction noise level operating at the Project site boundary to nearby receiver locations (Table 11-2).
[3] Federal Transit Authority, 2018.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

## 11.5 TEMPORARY CONSTRUCTION NOISE LEVEL INCREASES

To describe the temporary Project construction noise level contributions to the existing ambient noise environment, the Project construction noise levels were combined with the existing ambient noise levels measurements at the nearest off-site receiver locations. The difference between the combined Project-construction and ambient noise levels is used to describe the construction noise level contributions. Temporary noise level increases that would be experienced at sensitive receiver locations when the Project construction-source noise is added to the ambient daytime conditions are presented in Table 11-4. Based on the Caltrans substantial noise level increase criteria, a temporary noise level increase of 12 dBA is considered a potentially significant impact. (18)

As indicated in Table 11-4, the Project will contribute construction noise increases ranging from 5.9 to 14.1 dBA $L_{eq}$ during the daytime hours at the nearest receiver locations. The unmitigated construction noise analysis shows that the nearest receiver locations will exceed Caltrans *substantial* 12 dBA $L_{eq}$ noise level increase significance threshold during Project construction activities. Therefore, mitigation has been included that will reduce the temporary increase to less than significant levels.

**TABLE 11-4: DAYTIME CONSTRUCTION NOISE LEVEL INCREASES – UNMITIGATED**

| Receiver Location[1] | Total Project Construction Noise Level[2] | Measurement Location[3] | Reference Ambient Noise Levels[4] | Combined Project and Ambient[5] | Project Increase[6] | Increase Criteria | Increase Criteria Exceeded? |
|---|---|---|---|---|---|---|---|
| R1 | 65.4 | L1 | 57.3 | 66.0 | 8.7 | 12 | No |
| R2 | 69.8 | L2 | 62.8 | 70.6 | 7.8 | 12 | No |
| R3 | 70.9 | L3 | 57.0 | 71.1 | 14.1 | 12 | **Yes** |
| R4 | 62.5 | L4 | 57.9 | 63.8 | 5.9 | 12 | No |
| R5 | 63.4 | L5 | 54.0 | 63.9 | 9.9 | 12 | No |
| R6 | 63.3 | L6 | 54.6 | 63.8 | 9.2 | 12 | No |

[1] Construction noise source and receiver locations are shown in Exhibit 5-A.
[2] Total Project daytime construction noise levels as shown in Table 11-2.
[3] Reference noise level measurement locations as shown in Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown in Table 5-1.
[5] Represents the combined ambient conditions plus the Project construction activities.
[6] The noise level increase expected with the addition of the proposed Project construction activities.

## 11.6 TEMPORARY CONSTRUCTION NOISE LEVEL INCREASE MITIGATION

Though construction noise is temporary and intermittent and will not present any long-term impacts, based on the preceding analysis, the Project would result in substantial temporary noise level increases greater than 12 dBA $L_{eq}$ at receiver R-3. However, the creation of a barrier on the north side of the Project site would result in increases greater than 12 dBA $L_{eq}$ to the west at R5. Thus, the temporary barrier was extended to the west as shown in Exhibit ES-A. Therefore, the following project construction noise mitigation measures shall be provided.

**NOI-1**: To reduce construction noise at the surrounding residences, the contractor shall install an 8-foot-high temporary noise barrier at the eastern, northern, and western Project site boundary

for the duration of construction activities. The limits of the noise barrier are shown in Exhibit ES-2. The noise control barrier shall include the following:

- The noise control barriers must present a solid face from top to bottom.
- The noise barriers shall be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired.
- The temporary noise barrier shall be constructed using one of the following materials with no decorative cutouts or line-of-sight openings between shielded areas and the noise source:
  - Masonry block;
  - Glass (1/4-inch-thick), or other transparent material with sufficient weight per square foot;
  - Earthen berm;
  - Any combination of these construction materials

**TABLE 11-5: DAYTIME CONSTRUCTION NOISE LEVEL INCREASES – MITIGATED**

| Receiver Location[1] | Total Project Construction Noise Level[2] | Measurement Location[3] | Reference Ambient Noise Levels[4] | Combined Project and Ambient[5] | Project Increase[6] | Increase Criteria | Increase Criteria Exceeded? |
|---|---|---|---|---|---|---|---|
| R1 | 68.4 | L1 | 57.3 | 68.7 | 11.4 | 12 | No |
| R2 | 72.8 | L2 | 62.8 | 73.2 | 10.4 | 12 | No |
| R3 | 67.9 | L3 | 57.0 | 68.2 | 11.2 | 12 | No |
| R4 | 60.6 | L4 | 57.9 | 62.5 | 4.6 | 12 | No |
| R5 | 61.3 | L5 | 54.0 | 62.0 | 8.0 | 12 | No |
| R6 | 62.9 | L6 | 54.6 | 63.5 | 8.9 | 12 | No |

[1] Construction noise source and receiver locations are shown in Exhibit 11-A.
[2] Total Project daytime construction noise levels as shown in Table 11-2.
[3] Reference noise level measurement locations as shown in Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown in Table 5-1.
[5] Represents the combined ambient conditions plus the Project construction activities.
[6] The noise level increase expected with the addition of the proposed Project construction activities.

## 11.7 OFF-SITE CONSTRUCTION TRAFFIC

Construction truck trips would occur throughout the construction period and would be associated with hauling soil from the Project site, and delivering building materials, supplies, and concrete to the Project Site. Based on the Project air quality analysis, construction traffic is estimated to generate a maximum of approximately 40 worker vehicle trips, 4 vendor trips, and approximately 57 haul truck trips per day during the grading phase. (27) While building construction would have a greater number of total trips, there would be no haul trucks associated with building construction. Trucks generate substantially greater noise levels than passenger cars; thus, grading is considered the worst-case from a noise assessment perspective.

As discussed in the traffic analysis, Project haul trucks (e.g., trucks hauling dirt) would be required to use City-approved haul truck routes. (22) Myrtle Avenue is a City of Monrovia designated truck

route, Olive Avenue is not a designated truck route. (28) Therefore, it is anticipated all haul truck traffic will access the site via S. Myrtle Avenue, which, as shown in Table 6-5, has existing ADT volumes ranging from 8,353 to 9,563. Accounting for the increase in construction traffic, including haul vehicles, the Project is anticipated to result in a short-term construction traffic noise level increase of 0.5 CNEL. This increase is considered "barely perceptible" and therefore, the noise impacts due to Project's off-site construction traffic noise are considered *less than significant*. Off-site traffic noise calculations are included in Appendix 11.2.

## 11.8 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 typical construction activities occurring within the Project site were estimated using data published by the Federal Transit Administration (FTA). (7)

As discussed in Chapter 3, vibration from roadways is typically not an issue unless the roadways are rough and have broken pavement, potholes, or other discontinuous surfaces. The roadways surrounding the Project site and in the area appear well-maintained, and vibrations from haul trucks would not be noticeable to surrounding residents. However, while vehicular traffic is rarely perceptible, construction 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 in Table 11-6.

**TABLE 11-6: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT PPV (IN/SEC)**

| Equipment | VdB at 25 feet |
|---|---|
| Small bulldozer | 58 |
| Jackhammer | 79 |
| Loaded Trucks | 86 |
| Large bulldozer | 87 |
| Vibratory Roller | 94 |

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by the FTA. To calculate the vibration of equipment at a distance, the FTA provides the following equation VdB:

$$VdB_{Distance} = L_{vref} - 30\log(D/25)$$

Where:
$VdB_{Distance}$ = the VdB adjusted for distance
$L_{vref}$ = the source reference VdB at 25 feet
D = distance from the equipment to the receiver, in feet

Using the vibration source level of construction equipment provided in Table 11-4 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 11-7 presents the expected Project-related vibration levels at the nearby receiver locations. At distances ranging from 80 to 260 feet from the Project construction activities, construction vibration velocity levels are estimated to range from 63 VdB to 79 VdB and will not exceed the City of Monrovia applicable threshold of 80 VdB at off-site receivers, as shown in Table 11-7. Therefore, the Project-related vibration impacts are considered *less than significant*.

**TABLE 11-7: PROJECT CONSTRUCTION VIBRATION LEVELS – UNMITIGATED**

| Receiver Location[1] | Distance to Const. Activity (Feet)[2] | Typical Construction Vibration Levels PPV (in/sec)[3] | | | | | | Thresholds VdB[4] | Thresholds Exceeded?[5] |
|---|---|---|---|---|---|---|---|---|---|
| | | Small bulldozer | Jack-hammer | Loaded Trucks | Large Bulldozer | Vibratory Roller | Highest Vibration Level | | |
| R1 | 235' | 29 | 50 | 57 | 58 | 65 | 65 | 80 | No |
| R2 | 80' | 43 | 64 | 71 | 72 | 79 | 79 | 80 | No |
| R3 | 85' | 42 | 63 | 70 | 71 | 78 | 78 | 80 | No |
| R4 | 260' | 27 | 48 | 55 | 56 | 63 | 63 | 80 | No |
| R5 | 246' | 28 | 49 | 56 | 57 | 64 | 64 | 80 | No |
| R6 | 231' | 29 | 50 | 57 | 58 | 65 | 65 | 80 | No |

[1] Construction receiver locations are shown on Exhibit 11-A.
[2] Distance from receiver location to Project construction boundary.
[3] Based on the Vibration Source Levels of Construction Equipment (Table 11-4).
[4] FTA Transit Noise and Vibration Impact Assessment Manual maximum acceptable vibration criteria as shown on Table 4-1
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

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# 12 REFERENCES


1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **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.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* June, 1995.
5. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
6. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
7. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual, FTA Report No. 0123.* September 2018.
8. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.
9. **Office of Planning and Research.** *State of California General Plan Guidelines.* October 2017.
10. **State of California.** California Code of Regulations, Title 24, Part 2, Volume 1, Chapter 12, Section 1206.4, Allowable Interior Noise Level. *ICC Digital Coes.* [Online] 2019. https://codes.iccsafe.org/content/CABCV12019/chapter-12-interior-environment.
11. **City of Monrovia.** *General Plan Noise Element.* June 12 2002.
12. **Monrovia, City of.** City of Monrovia. *Municipal Code, Chapter 9.44 Noise.* [Online] American Legal Publishing.
13. **Southern California Association of Governments.** 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy. [Online] September 2020. https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal-plan_0.pdf?1606001176.
14. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
15. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
16. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
17. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
18. —. *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects.* May 2011.
19. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.

20. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.

21. **Monrovia, City of.** *City of Monrovia Circualtion Element of the Monrovia General Plan.* 2012.

22. **Urban Crossroads, Inc.** *701 S. Myrtle Focused Traffic Analysis.* 2025.

23. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.

24. **U.S. Federal Highway Administration.** *Highway Traffic Noise: Analysis and Abatement Guidance.* 2011. FHWA-HEP-10-025.

25. **State of California.** California Public Resources Code, Section 21085. [Online] https://leginfo.legislature.ca.gov/faces/codesTOCSelected.xhtml?tocCode=PRC&tocTitle=+Public+Resources+Code+-+PRC.

26. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *FHWA Roadway Construction Noise Model.* January, 2006.

27. **Urban Crossroads, Inc.** *701 S. Myrtle Air Quality Analysis.* 2025.

28. **Monrovia, City of.** City of Monrovia. *Title 10, Chapter 10.24 Truck Routes.* [Online] [Cited: March 28, 2024.] https://codelibrary.amlegal.com/codes/monrovia/latest/monrovia_ca/0-0-0-66097.

# 13 CERTIFICATION

The contents of this noise analysis report represent an accurate depiction of the noise environment and impacts associated with the 701 S. Myrtle Avenue Project. The information contained in this noise analysis report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (619) 788-1971.

William Maddux, INCE
Senior Associate
URBAN CROSSROADS, INC.
(619) 788-1971
bmaddux@urbanxroads.com

### EDUCATION

Bachelor of Science in Urban and Regional Planning
California Polytechnic State University, Pomona • June 2000

### PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
APA – American Planning Association
AWMA – Air and Waste Management Association
INCE – Institute of Noise Control Engineers - Member

### PROFESSIONAL CERTIFICATIONS

Approved Acoustical Consultant • County of San Diego
FHWA Traffic Noise Model of Training • November 2004
CadnaA Basic and Advanced Training Certificate • October 2008.

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# APPENDIX 3.1:

# CITY OF MONROVIA MUNICIPAL CODE

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# CHAPTER 9.44

# NOISE

Sections:


9.44.010 Declaration of policy.

9.44.020 Definitions.

9.44.030 General prohibition.

9.44.040 Allowable noise levels.

9.44.050 Noise level measurements.

9.44.060 Permitted increases in noise levels.

9.44.070 Impulsive sound.

9.44.080 Exemptions.

9.44.090 Radios, television sets, and similar devices

9.44.100 Violations.


## § 9.44.010 DECLARATION OF POLICY.

To control unnecessary, excessive and annoying noise and vibration in residential areas, it is the policy of the city to prohibit such noise and vibration generated from or by all sources as specified in this chapter. It shall be the policy of the city to maintain quiet in those residential areas that exhibit low noise levels and to implement programs aimed at reducing noise in those residential areas within the city where noise levels are above acceptable values. It is determined that certain noise levels and vibration are detrimental to the public health, welfare and safety, and are contrary to public interest. Creating, maintaining, causing or allowing to be created, caused or maintained, any noise or vibration in a manner prohibited by or not in conformity with the provisions of this chapter is declared to be a public nuisance and shall be punishable as such.

(`83 Code, § 9.44.010) (Ord. 85-5 § 1 (part), 1985)

## § 9.44.020 DEFINITIONS.

With the intent of carrying out the purpose of this chapter, the words, phrases and terms included in this section shall be deemed to have the meaning ascribed to them:

***A-WEIGHTED SOUND LEVEL.*** The sound level in decibels as measured on a sound level meter using the “A” weighting network. The level so read is designated dB(A) or dBA.

***AMBIENT NOISE LEVEL.*** The composite of noise from all sources near and far, excluding intrusive noise.

***CONSTRUCTION.*** Any site preparation, assembly, erection, substantial repair, alteration or similar action.

***DECIBEL.*** A unit for measuring the amplitude of a sound equal to 20 times the logarithm to the base ten of the ratio of the pressure of the sound measured to the references pressure, which is 20 micropascals.

***DEMOLITION.*** Any dismantling, intentional destruction or removal of structures, utilities, public or private, right-of-way surfaces or similar property.

***EMERGENCY WORK.*** Any work performed for the purpose of preventing or alleviating physical trauma or property damage threatened or caused by an emergency.

***IMPULSIVE SOUND.*** A sound of high intensity, short duration, usually less than one second, with an abrupt onset and rapid decay.

***INTRUSIVE NOISE.*** An alleged offensive noise which intrudes over and above the existing ambient noise on the property where the noise is received.

***PERSON.*** Any individual, partnership, joint venture or corporation.

***REAL PROPERTY BOUNDARY.*** An imaginary line along the ground surface and its vertical extension, which separates the real property owned by one person from that owned by another person.

***SOUND LEVEL METER.*** An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement of sound levels, which meets or exceeds the requirements pertinent for type S2A meters in American National Standards Institute Specifications for sound level meters, S14-1971, or the most recent revision thereof.

(`83 Code, § 9.44.020) (Ord. 85-5 § 1 (part), 1985)

## § 9.44.030 GENERAL PROHIBITION.

(A) Notwithstanding any other provision of this chapter, and in addition thereto, it shall be unlawful for any person to wilfully make, generate or continue, or cause to be made, generated or continued, any loud, unnecessary, or unusual noise which unreasonably disturbs the peace and quiet of any neighborhood or which causes any discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area.

(B) The factors which shall be considered in determining whether a violation of the provisions of this section exists shall include, but not be limited to, the following:

(1) The volume of the noise;

(2) The intensity of the noise;

(3) Whether the nature of the noise is usual or unusual;

(4) Whether the origin of the noise is natural or unnatural;

(5) The volume and intensity of the background noise, if any;

(6) The proximity of the noise to residential sleeping facilities;

(7) The nature of the zoning of the area from which the noise emanates;

(8) The density of inhabitation of the area from which the noise emanates;

(9) The time of day or night the noise occurs;

(10) The duration of the noise;

(11) Whether the noise is recurrent, intermittent, or constant;

(12) Whether the noise is produced by commercial or noncommercial activity;

(13) Whether the noise is a consequence or expected result of an otherwise lawful use.

(`83 Code, § 9.44.030) (Ord. 85-5 § 1 (part), 1985; Ord. 2003-12 § 1, 2003)

## § 9.44.040 ALLOWABLE NOISE LEVELS.

(A) The noise standards imposed by this section shall apply to all properties in the city occupied for residential purposes, without regard to zoning classification. Except as otherwise allowed in this chapter, no person shall create or allow the creation of noise on any such residential property which causes the noise level to exceed the actual measured median ambient noise level, or the following presumed ambient noise level, whichever is greater:

| *Time* | *Allowable Noise Level—dBA* |
|---|---|
| 7:00 a.m. to 9:00 p.m. | 55 |
| 9:00 p.m. to 7:00 a.m. | 50 |

(B) If the intruding noise source is continuous and cannot be reasonably discontinued for sufficient time in which the ambient noise level can be determined, the presumed ambient noise level shall be used.

(`83 Code, § 9.44.040) (Ord. 85-5 § 1 (part), 1985)

## § 9.44.050 NOISE LEVEL MEASUREMENTS.

Utilizing the “A” weighting scale of the sound level meter-and the “slow” meter response (“fast” response for impulsive-type sounds), the noise level shall be measured at the street or any point on the property where the noise is received. In general, the microphone shall be located four feet above the ground and five feet from the nearest structure or wall. In those cases where another elevation is deemed appropriate, it shall be utilized.

(`83 Code, § 9.44.050) (Ord. 85-5 § 1 (part), 1985)

## § 9.44.060 PERMITTED INCREASES IN NOISE LEVELS.

Increases in noise levels prescribed in § 9.44.040 are permitted in accordance with the following:

| *Permitted Increase dBA* | *Duration of Increase Permitted (in minutes/per hour)* |
|---|---|
| 5 | 15 |
| 10 | 5 |
| 15 | 1 |
| 20 | less than one minute |

(`83 Code, § 9.44.060) (Ord. 85-5 § 1 (part), 1985)

## § 9.44.070 IMPULSIVE SOUND.

Noise standards set in this chapter shall be decreased by five dBA for any noise source which emits an impulsive sound.

(`83 Code, § 9.44.070) (Ord. 85-5 § 1 (part), 1985)

## § 9.44.080 EXEMPTIONS.

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

(A) The emission of sound for the purpose of alerting persons to the existence of an emergency or the emission of sound in the performance of emergency work;

(B) Activities of the federal, state or local jurisdiction while performing governmental duties;

(C) Activities conducted on public playgrounds and public or private school grounds, including but not limited to school athletic and school entertainment events;

(D) The handling of boxes, crates, containers, garbage cans or other similar objects between the hours of 7:00 a.m. and 7:00 p.m.;

(E) The operation of any mechanically powered saw, sander, drill, grinder, lawn or garden tool or similar tool between 7:00 a.m. and 7:00 p.m. on weekdays and the hours of 10:00 a.m. and 10:00 p.m. on weekends and holidays;

(F) Construction or demolition work conducted between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and the hours of 9:00 a.m. and 6:00 p.m. on weekends and holidays;

(G) Any activity to the extent regulation thereof has been preempted by state or federal law.

(`83 Code, § 9.44.080) (Ord. 85-5 § 1 (part), 1985; Ord. 88-31 § 1, 1989)

## § 9.44.090 RADIOS, TELEVISION SETS, AND SIMILAR DEVICES.

(A) It shall be unlawful for any person within any residential zone of the city to use or operate any radio receiving set, musical instrument, stereo system, entertainment system, television set, or other machine or device for the producing or reproducing of sound or any device by which voice, music, or any other sound is generated, between the hours of 10:00 p.m. and 7:00 a.m. of the following day, in such a manner as to disturb the peace, quiet, and comfort of neighboring residents or any reasonable person of normal sensitiveness residing in the area.

(B) Any noise exceeding the ambient noise level at the property line of any property, or, if a condominium or apartment house, within any adjoining unit by more than five decibels shall be deemed to be prima facie evidence, although not the exclusive evidence, of a violation of the provisions of this section.

(Ord. 2003-12 § 3, 2003)

## § 9.44.100 VIOLATIONS.

(A) Violations of this chapter shall be punishable as either an infraction or a misdemeanor at the discretion of the City Prosecutor, as specified in Chapter 1.16 of this code.

(B) Each day any violation of this chapter occurs or is allowed to continue shall constitute a separate offense.

(`83 Code, § 9.44.090) (Ord. 85-5 § 1 (part), 1985; Ord. 2003-12 § 2, 2003)

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# APPENDIX 5.1:

# STUDY AREA PHOTOS

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## 15287 - 701 S. Myrtle Avenue

15287_L1_East
34, 8' 37.500000"118, 0' 6.020000"



15287_L1_North
34, 8' 37.480000"118, 0' 6.020000"



15287_L1_South
34, 8' 37.510000"118, 0' 6.020000"

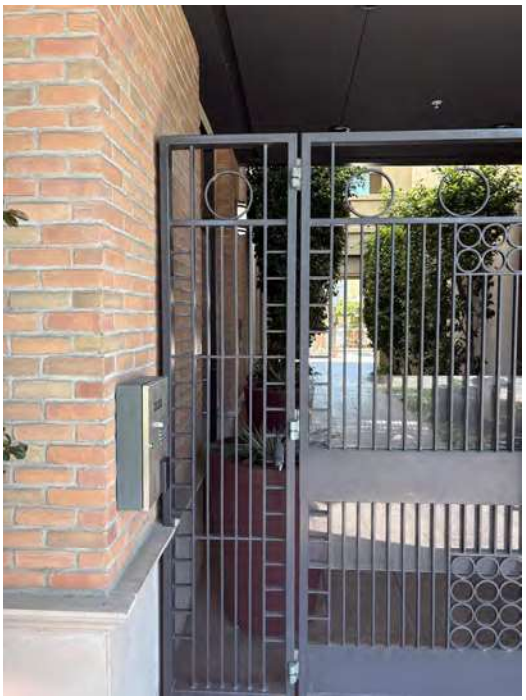


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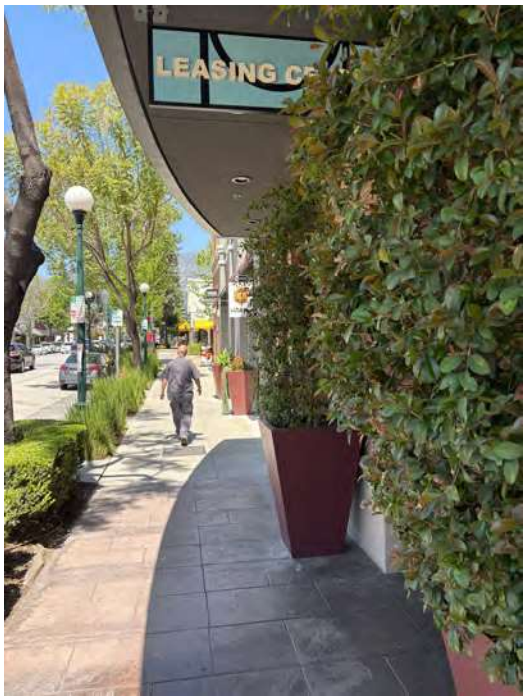


## 15287 - 701 S. Myrtle Avenue

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15287_L2_North
34, 8' 39.980000"118, 0' 3.020000"




15287_L2_South



15287_L2_West
34, 8' 39.960000"118, 0' 2.970000"



## 15287 - 701 S. Myrtle Avenue

15287_L3_East
34, 8' 42.000000"118, 0' 6.890000"



15287_L3_North
34, 8' 42.030000"118, 0' 6.890000"



15287_L3_South
34, 8' 41.970000"118, 0' 6.870000"



15287_L3_West
34, 8' 41.930000"118, 0' 6.890000"



## 15287 - 701 S. Myrtle Avenue

15287_L4_East
34, 8' 42.100000"118, 0' 11.400000"



15287_L4_North
34, 8' 42.060000"118, 0' 11.340000"



15287_L4_South




15287_L4_West
34, 8' 42.150000"118, 0' 11.400000"



## 15287 - 701 S. Myrtle Avenue

15287_L5_East



15287_L5_North
34, 8' 40.530000"118, 0' 11.260000"



15287_L5_South
34, 8' 40.550000"118, 0' 11.320000"



15287_L5_West
34, 8' 40.570000"118, 0' 11.290000"



## 15287 - 701 S. Myrtle Avenue

15287_L6_East
34, 8' 39.090000"118, 0' 11.400000"



15287_L6_North
34, 8' 39.090000"118, 0' 11.400000"



15287_L6_South
34, 8' 39.090000"118, 0' 11.400000"



15287_L6_West
34, 8' 39.090000"118, 0' 11.400000"



# APPENDIX 5.2:

# NOISE LEVEL MEASUREMENT WORKSHEETS

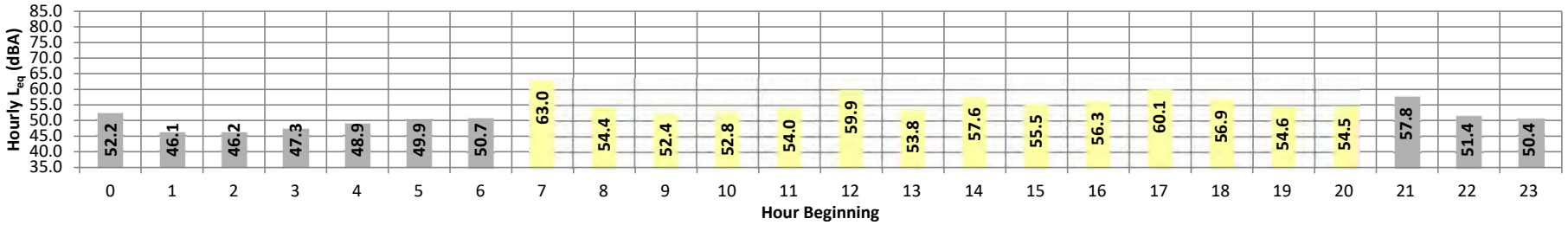
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## 24-Hour Noise Level Measurement Summary

*Date:* Wednesday, September 20, 2023 *Location:* L1 - Located South of the site near 120 W Walnut Ave *Meter:* Piccolo II *JN:* 15287

*Project:* 701 S. Myrtle Ave. *Source:* *Analyst:* Z. Ibrahim

***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 | 52.2 | 63.3 | 47.9 | 62.8 | 62.0 | 58.0 | 54.7 | 50.5 | 49.1 | 48.2 | 48.1 | 48.0 | 52.2 | 10.0 | 62.2 |
| | 1 | 46.1 | 48.4 | 45.4 | 48.0 | 47.6 | 46.9 | 46.6 | 46.3 | 46.0 | 45.7 | 45.6 | 45.5 | 46.1 | 10.0 | 56.1 |
| | 2 | 46.2 | 47.5 | 45.6 | 47.4 | 47.2 | 46.9 | 46.7 | 46.3 | 46.1 | 45.9 | 45.8 | 45.7 | 46.2 | 10.0 | 56.2 |
| | 3 | 47.3 | 54.6 | 46.0 | 54.1 | 53.1 | 50.2 | 48.5 | 46.8 | 46.5 | 46.2 | 46.2 | 46.1 | 47.3 | 10.0 | 57.3 |
| | 4 | 48.9 | 52.5 | 47.8 | 52.3 | 51.9 | 50.9 | 50.2 | 49.0 | 48.6 | 48.1 | 48.0 | 47.8 | 48.9 | 10.0 | 58.9 |
| | 5 | 49.9 | 57.6 | 47.9 | 57.0 | 56.4 | 54.5 | 52.3 | 49.2 | 48.7 | 48.1 | 48.1 | 47.9 | 49.9 | 10.0 | 59.9 |
| | 6 | 50.7 | 58.1 | 48.2 | 57.4 | 56.4 | 54.6 | 53.3 | 50.6 | 49.6 | 48.6 | 48.4 | 48.3 | 50.7 | 10.0 | 60.7 |
| Day | 7 | 63.0 | 73.7 | 48.8 | 73.1 | 72.7 | 71.6 | 69.5 | 59.4 | 53.0 | 49.5 | 49.1 | 48.9 | 63.0 | 0.0 | 63.0 |
| | 8 | 54.4 | 61.9 | 50.5 | 61.5 | 61.1 | 59.3 | 57.8 | 54.0 | 52.8 | 51.1 | 51.0 | 50.6 | 54.4 | 0.0 | 54.4 |
| | 9 | 52.4 | 59.0 | 49.5 | 58.3 | 57.4 | 55.7 | 54.9 | 53.0 | 51.2 | 50.0 | 49.8 | 49.6 | 52.4 | 0.0 | 52.4 |
| | 10 | 52.8 | 57.5 | 50.1 | 57.1 | 56.6 | 55.6 | 54.9 | 53.4 | 52.2 | 50.6 | 50.4 | 50.2 | 52.8 | 0.0 | 52.8 |
| | 11 | 54.0 | 61.8 | 49.6 | 61.3 | 60.6 | 58.9 | 57.7 | 53.8 | 52.5 | 50.3 | 50.1 | 49.7 | 54.0 | 0.0 | 54.0 |
| | 12 | 59.9 | 69.8 | 49.4 | 69.5 | 69.0 | 68.1 | 66.9 | 55.6 | 53.4 | 50.3 | 49.8 | 49.5 | 59.9 | 0.0 | 59.9 |
| | 13 | 53.8 | 58.5 | 51.4 | 58.0 | 57.4 | 56.5 | 55.9 | 54.3 | 53.1 | 52.0 | 51.7 | 51.5 | 53.8 | 0.0 | 53.8 |
| | 14 | 57.6 | 64.1 | 52.6 | 63.7 | 63.4 | 62.4 | 61.5 | 58.5 | 55.4 | 53.2 | 52.9 | 52.7 | 57.6 | 0.0 | 57.6 |
| | 15 | 55.5 | 62.0 | 52.2 | 61.6 | 61.1 | 59.4 | 58.3 | 55.7 | 54.6 | 52.7 | 52.5 | 52.3 | 55.5 | 0.0 | 55.5 |
| | 16 | 56.3 | 66.0 | 52.9 | 65.0 | 63.7 | 60.5 | 58.6 | 55.8 | 54.6 | 53.4 | 53.2 | 53.0 | 56.3 | 0.0 | 56.3 |
| | 17 | 60.1 | 69.4 | 52.8 | 69.0 | 68.6 | 67.8 | 66.5 | 57.8 | 55.6 | 53.5 | 53.2 | 52.9 | 60.1 | 0.0 | 60.1 |
| | 18 | 56.9 | 67.0 | 52.2 | 66.6 | 65.9 | 63.4 | 60.1 | 55.6 | 53.9 | 52.7 | 52.5 | 52.3 | 56.9 | 0.0 | 56.9 |
| | 19 | 54.6 | 58.9 | 51.9 | 58.6 | 58.2 | 57.4 | 56.8 | 55.3 | 53.9 | 52.3 | 52.1 | 51.9 | 54.6 | 5.0 | 59.6 |
| | 20 | 54.5 | 61.0 | 51.4 | 60.4 | 59.8 | 58.0 | 57.0 | 55.1 | 53.7 | 51.8 | 51.6 | 51.4 | 54.5 | 5.0 | 59.5 |
| Night | 21 | 57.8 | 66.4 | 51.0 | 66.2 | 65.6 | 64.5 | 63.7 | 57.3 | 52.4 | 51.4 | 51.2 | 51.1 | 57.8 | 5.0 | 62.8 |
| | 22 | 51.4 | 56.8 | 49.5 | 56.3 | 55.7 | 54.2 | 53.2 | 51.5 | 50.8 | 49.9 | 49.7 | 49.6 | 51.4 | 10.0 | 61.4 |
| | 23 | 50.4 | 58.0 | 48.5 | 57.4 | 56.4 | 53.9 | 52.2 | 49.9 | 49.4 | 48.8 | 48.7 | 48.6 | 50.4 | 10.0 | 60.4 |

| Timeframe | Hour | $L_{eq}$ | $L_{max}$ | $L_{min}$ | L1% | L2% | L5% | L8% | L25% | L50% | L90% | L95% | L99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Day | Min | 52.4 | 57.5 | 48.8 | 57.1 | 56.6 | 55.6 | 54.9 | 53.0 | 51.2 | 49.5 | 49.1 | 48.9 |
| | Max | 63.0 | 73.7 | 52.9 | 73.1 | 72.7 | 71.6 | 69.5 | 59.4 | 55.6 | 53.5 | 53.2 | 53.0 |
| Energy Average | | 57.3 | Average: | | 63.3 | 62.8 | 61.3 | 60.0 | 55.6 | 53.5 | 51.7 | 51.4 | 51.2 |
| Night | Min | 46.1 | 47.5 | 45.4 | 47.4 | 47.2 | 46.9 | 46.6 | 46.3 | 46.0 | 45.7 | 45.6 | 45.5 |
| | Max | 57.8 | 66.4 | 51.0 | 66.2 | 65.6 | 64.5 | 63.7 | 57.3 | 52.4 | 51.4 | 51.2 | 51.1 |
| Energy Average | | 49.7 | Average: | | 54.7 | 54.1 | 52.2 | 50.8 | 48.9 | 48.3 | 47.7 | 47.6 | 47.5 |

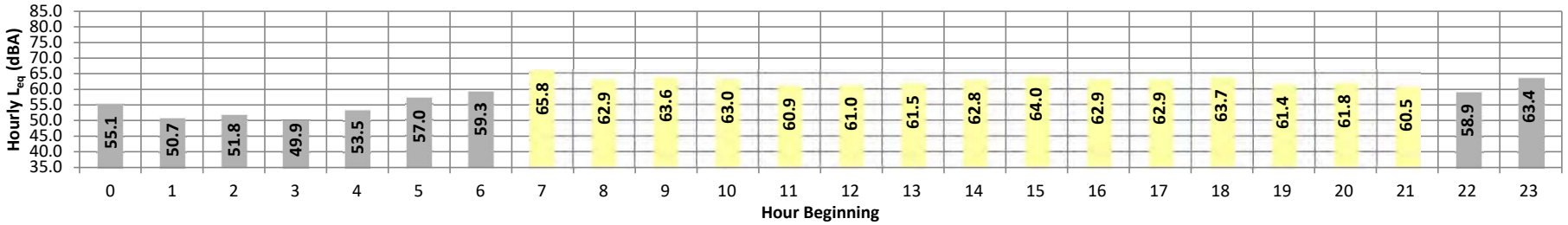
| 24-Hour CNEL | Leq (dBA) Daytime (7am-9pm) | Leq (dBA) Nighttime (9pm-7am) |
|---|---|---|
| **59.0** | **57.3** | **49.7** |

## 24-Hour Noise Level Measurement Summary

*Date:* Wednesday, September 20, 2023 | *Location:* L2 - Located East of the site near 700 S Myrtle Ave | *Meter:* Piccolo II | *JN:* 15287

*Project:* 701 S. Myrtle Ave. | *Source:* | *Analyst:* Z. Ibrahim

***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 | 65.7 | 43.0 | 65.3 | 64.7 | 63.2 | 61.3 | 52.7 | 46.3 | 43.5 | 43.3 | 43.1 | 55.1 | 10.0 | 65.1 |
| | 1 | 50.7 | 61.3 | 39.7 | 60.8 | 60.2 | 58.9 | 57.1 | 47.8 | 42.1 | 40.0 | 40.0 | 39.8 | 50.7 | 10.0 | 60.7 |
| | 2 | 51.8 | 62.7 | 40.3 | 62.3 | 61.7 | 60.5 | 58.6 | 46.5 | 41.8 | 40.6 | 40.5 | 40.4 | 51.8 | 10.0 | 61.8 |
| | 3 | 49.9 | 60.5 | 39.9 | 59.9 | 59.4 | 57.7 | 55.9 | 47.9 | 42.4 | 40.3 | 40.2 | 40.0 | 49.9 | 10.0 | 59.9 |
| | 4 | 53.5 | 63.4 | 44.2 | 62.9 | 62.4 | 61.1 | 59.5 | 51.9 | 48.6 | 44.7 | 44.5 | 44.3 | 53.5 | 10.0 | 63.5 |
| | 5 | 57.0 | 67.1 | 45.5 | 66.7 | 66.2 | 64.6 | 62.9 | 55.9 | 50.2 | 46.1 | 45.8 | 45.6 | 57.0 | 10.0 | 67.0 |
| | 6 | 59.3 | 68.1 | 47.4 | 67.6 | 67.1 | 65.8 | 64.7 | 60.1 | 54.7 | 48.5 | 47.9 | 47.6 | 59.3 | 10.0 | 69.3 |
| Day | 7 | 65.8 | 74.4 | 51.9 | 73.7 | 73.2 | 71.8 | 70.9 | 67.2 | 61.3 | 54.1 | 53.0 | 52.1 | 65.8 | 0.0 | 65.8 |
| | 8 | 62.9 | 71.0 | 50.4 | 70.5 | 70.2 | 69.1 | 67.9 | 63.9 | 59.2 | 52.8 | 51.5 | 50.5 | 62.9 | 0.0 | 62.9 |
| | 9 | 63.6 | 70.4 | 58.2 | 69.9 | 69.3 | 68.1 | 67.2 | 64.5 | 61.9 | 59.0 | 58.6 | 58.3 | 63.6 | 0.0 | 63.6 |
| | 10 | 63.0 | 72.3 | 50.0 | 71.8 | 71.1 | 69.3 | 67.9 | 63.4 | 59.6 | 52.5 | 51.2 | 50.2 | 63.0 | 0.0 | 63.0 |
| | 11 | 60.9 | 69.1 | 50.6 | 68.2 | 67.3 | 65.9 | 65.2 | 62.5 | 58.5 | 52.2 | 51.3 | 50.8 | 60.9 | 0.0 | 60.9 |
| | 12 | 61.0 | 68.7 | 51.8 | 68.2 | 67.8 | 66.3 | 65.2 | 62.0 | 59.0 | 53.6 | 52.7 | 52.0 | 61.0 | 0.0 | 61.0 |
| | 13 | 61.5 | 68.6 | 52.3 | 68.3 | 67.9 | 66.7 | 65.8 | 62.6 | 59.5 | 53.9 | 53.2 | 52.5 | 61.5 | 0.0 | 61.5 |
| | 14 | 62.8 | 73.3 | 51.8 | 72.6 | 71.6 | 68.8 | 66.5 | 63.2 | 59.6 | 53.6 | 52.8 | 51.9 | 62.8 | 0.0 | 62.8 |
| | 15 | 64.0 | 74.4 | 51.6 | 73.8 | 72.9 | 70.6 | 68.7 | 64.0 | 59.9 | 53.5 | 52.8 | 51.9 | 64.0 | 0.0 | 64.0 |
| | 16 | 62.9 | 71.3 | 52.6 | 70.8 | 70.1 | 68.5 | 67.4 | 63.9 | 60.1 | 54.4 | 53.5 | 52.8 | 62.9 | 0.0 | 62.9 |
| | 17 | 62.9 | 72.1 | 52.4 | 71.5 | 70.8 | 68.6 | 67.0 | 63.4 | 60.2 | 54.3 | 53.5 | 52.5 | 62.9 | 0.0 | 62.9 |
| | 18 | 63.7 | 74.9 | 51.6 | 74.1 | 73.1 | 70.3 | 67.9 | 63.2 | 59.9 | 53.6 | 52.6 | 51.8 | 63.7 | 0.0 | 63.7 |
| | 19 | 61.4 | 69.2 | 51.1 | 68.9 | 68.5 | 67.3 | 65.8 | 62.2 | 58.8 | 52.5 | 51.8 | 51.2 | 61.4 | 5.0 | 66.4 |
| | 20 | 61.8 | 70.4 | 49.6 | 70.0 | 69.4 | 68.1 | 66.8 | 62.9 | 58.3 | 51.5 | 50.5 | 49.8 | 61.8 | 5.0 | 66.8 |
| | 21 | 60.5 | 68.6 | 48.0 | 68.1 | 67.8 | 66.7 | 65.4 | 61.8 | 57.0 | 49.8 | 48.9 | 48.2 | 60.5 | 5.0 | 65.5 |
| Night | 22 | 58.9 | 68.9 | 46.1 | 68.3 | 67.6 | 65.6 | 64.4 | 58.8 | 53.7 | 47.2 | 46.7 | 46.3 | 58.9 | 10.0 | 68.9 |
| | 23 | 63.4 | 77.8 | 44.3 | 76.8 | 75.5 | 70.9 | 66.8 | 56.9 | 50.5 | 45.1 | 44.8 | 44.4 | 63.4 | 10.0 | 73.4 |

| Timeframe | Hour | $L_{eq}$ | $L_{max}$ | $L_{min}$ | L1% | L2% | L5% | L8% | L25% | L50% | L90% | L95% | L99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Day | Min | 60.5 | 68.6 | 48.0 | 68.1 | 67.3 | 65.9 | 65.2 | 61.8 | 57.0 | 49.8 | 48.9 | 48.2 |
| | Max | 65.8 | 74.9 | 58.2 | 74.1 | 73.2 | 71.8 | 70.9 | 67.2 | 61.9 | 59.0 | 58.6 | 58.3 |
| Energy Average | | 62.8 | Average: | | 70.7 | 70.1 | 68.4 | 67.0 | 63.4 | 59.5 | 53.4 | 52.5 | 51.8 |
| Night | Min | 49.9 | 60.5 | 39.7 | 59.9 | 59.4 | 57.7 | 55.9 | 46.5 | 41.8 | 40.0 | 40.0 | 39.8 |
| | Max | 63.4 | 77.8 | 47.4 | 76.8 | 75.5 | 70.9 | 66.8 | 60.1 | 54.7 | 48.5 | 47.9 | 47.6 |
| Energy Average | | 57.7 | Average: | | 65.6 | 65.0 | 63.1 | 61.3 | 53.2 | 47.8 | 44.0 | 43.7 | 43.5 |

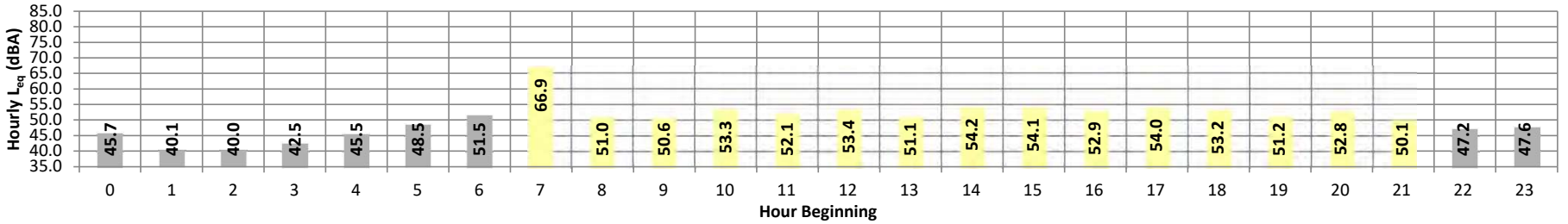
| 24-Hour CNEL | Leq (dBA) Daytime (7am-9pm) | Leq (dBA) Nighttime (9pm-7am) |
|---|---|---|
| 65.7 | 62.8 | 57.7 |

## 24-Hour Noise Level Measurement Summary

*Date:* Wednesday, September 20, 2023 *Location:* L3 - Located North of the site near 125 W Olive Ave *Meter:* Piccolo II *JN:* 15287

*Project:* 701 S. Myrtle Ave. *Source:* *Analyst:* Z. Ibrahim

***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 | 45.7 | 52.7 | 41.9 | 52.3 | 51.7 | 50.4 | 49.4 | 45.9 | 43.9 | 42.4 | 42.2 | 42.0 | 45.7 | 10.0 | 55.7 |
| | 1 | 40.1 | 44.9 | 38.6 | 44.6 | 44.2 | 43.1 | 42.0 | 40.0 | 39.4 | 38.8 | 38.8 | 38.6 | 40.1 | 10.0 | 50.1 |
| | 2 | 40.0 | 46.0 | 38.2 | 45.6 | 45.1 | 43.8 | 42.4 | 39.8 | 39.0 | 38.5 | 38.4 | 38.2 | 40.0 | 10.0 | 50.0 |
| | 3 | 42.5 | 48.7 | 40.0 | 48.2 | 47.6 | 46.5 | 45.4 | 42.6 | 41.4 | 40.4 | 40.3 | 40.1 | 42.5 | 10.0 | 52.5 |
| | 4 | 45.5 | 55.0 | 43.0 | 53.6 | 50.4 | 48.5 | 47.5 | 45.5 | 44.1 | 43.4 | 43.2 | 43.1 | 45.5 | 10.0 | 55.5 |
| | 5 | 48.5 | 58.1 | 43.5 | 57.4 | 56.6 | 54.5 | 52.3 | 48.2 | 45.5 | 43.9 | 43.8 | 43.6 | 48.5 | 10.0 | 58.5 |
| | 6 | 51.5 | 61.0 | 45.8 | 60.1 | 59.2 | 57.3 | 55.9 | 51.2 | 48.7 | 46.3 | 46.1 | 45.9 | 51.5 | 10.0 | 61.5 |
| Day | 7 | 66.9 | 81.9 | 45.5 | 81.2 | 79.5 | 73.6 | 67.8 | 61.7 | 51.2 | 46.8 | 46.2 | 45.7 | 66.9 | 0.0 | 66.9 |
| | 8 | 51.0 | 59.2 | 43.3 | 58.9 | 58.4 | 56.8 | 55.7 | 51.5 | 48.3 | 44.3 | 43.9 | 43.4 | 51.0 | 0.0 | 51.0 |
| | 9 | 50.6 | 59.2 | 44.5 | 58.7 | 58.0 | 56.2 | 54.9 | 50.8 | 47.9 | 45.4 | 45.1 | 44.7 | 50.6 | 0.0 | 50.6 |
| | 10 | 53.3 | 63.2 | 45.3 | 62.8 | 62.2 | 59.3 | 57.6 | 53.2 | 49.8 | 46.4 | 46.0 | 45.4 | 53.3 | 0.0 | 53.3 |
| | 11 | 52.1 | 61.7 | 44.7 | 61.2 | 60.5 | 58.3 | 56.6 | 51.7 | 48.6 | 45.7 | 45.3 | 44.9 | 52.1 | 0.0 | 52.1 |
| | 12 | 53.4 | 63.6 | 45.4 | 63.1 | 62.7 | 60.1 | 57.7 | 52.5 | 49.7 | 46.4 | 46.0 | 45.5 | 53.4 | 0.0 | 53.4 |
| | 13 | 51.1 | 58.8 | 46.3 | 58.1 | 57.4 | 56.0 | 55.1 | 51.7 | 49.1 | 47.0 | 46.7 | 46.4 | 51.1 | 0.0 | 51.1 |
| | 14 | 54.2 | 62.7 | 47.4 | 62.2 | 61.6 | 59.9 | 58.8 | 54.5 | 51.5 | 48.3 | 47.9 | 47.5 | 54.2 | 0.0 | 54.2 |
| | 15 | 54.1 | 62.4 | 48.0 | 61.8 | 61.2 | 59.6 | 58.5 | 54.4 | 51.1 | 48.8 | 48.4 | 48.1 | 54.1 | 0.0 | 54.1 |
| | 16 | 52.9 | 63.0 | 46.8 | 61.5 | 60.0 | 57.8 | 56.4 | 53.3 | 50.9 | 47.8 | 47.4 | 46.9 | 52.9 | 0.0 | 52.9 |
| | 17 | 54.0 | 61.9 | 47.5 | 61.2 | 60.6 | 59.5 | 58.4 | 54.7 | 51.5 | 48.4 | 48.0 | 47.6 | 54.0 | 0.0 | 54.0 |
| | 18 | 53.2 | 62.4 | 47.4 | 61.7 | 60.9 | 58.9 | 57.0 | 53.0 | 50.5 | 48.2 | 47.9 | 47.5 | 53.2 | 0.0 | 53.2 |
| | 19 | 51.2 | 58.8 | 46.1 | 58.4 | 58.0 | 56.8 | 55.6 | 51.5 | 48.7 | 46.7 | 46.5 | 46.2 | 51.2 | 5.0 | 56.2 |
| | 20 | 52.8 | 62.9 | 45.6 | 62.4 | 61.8 | 59.4 | 57.7 | 51.3 | 48.7 | 46.3 | 46.0 | 45.7 | 52.8 | 5.0 | 57.8 |
| | 21 | 50.1 | 58.4 | 44.0 | 58.0 | 57.5 | 56.6 | 55.4 | 49.9 | 46.2 | 44.4 | 44.2 | 44.0 | 50.1 | 5.0 | 55.1 |
| Night | 22 | 47.2 | 55.9 | 43.0 | 55.4 | 54.7 | 52.9 | 51.0 | 46.6 | 44.9 | 43.4 | 43.2 | 43.0 | 47.2 | 10.0 | 57.2 |
| | 23 | 47.6 | 58.9 | 41.6 | 58.5 | 57.7 | 54.6 | 51.9 | 45.1 | 43.2 | 42.0 | 41.9 | 41.7 | 47.6 | 10.0 | 57.6 |

| Timeframe | Hour | $L_{eq}$ | $L_{max}$ | $L_{min}$ | L1% | L2% | L5% | L8% | L25% | L50% | L90% | L95% | L99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Day | Min | 50.1 | 58.4 | 43.3 | 58.0 | 57.4 | 56.0 | 54.9 | 49.9 | 46.2 | 44.3 | 43.9 | 43.4 |
| | Max | 66.9 | 81.9 | 48.0 | 81.2 | 79.5 | 73.6 | 67.8 | 61.7 | 51.5 | 48.8 | 48.4 | 48.1 |
| Energy Average | | 57.0 | Average: | | 62.1 | 61.4 | 59.3 | 57.5 | 53.0 | 49.6 | 46.7 | 46.4 | 46.0 |
| Night | Min | 40.0 | 44.9 | 38.2 | 44.6 | 44.2 | 43.1 | 42.0 | 39.8 | 39.0 | 38.5 | 38.4 | 38.2 |
| | Max | 51.5 | 61.0 | 45.8 | 60.1 | 59.2 | 57.3 | 55.9 | 51.2 | 48.7 | 46.3 | 46.1 | 45.9 |
| Energy Average | | 46.8 | Average: | | 52.9 | 51.9 | 50.2 | 48.7 | 45.0 | 43.3 | 42.1 | 42.0 | 41.8 |

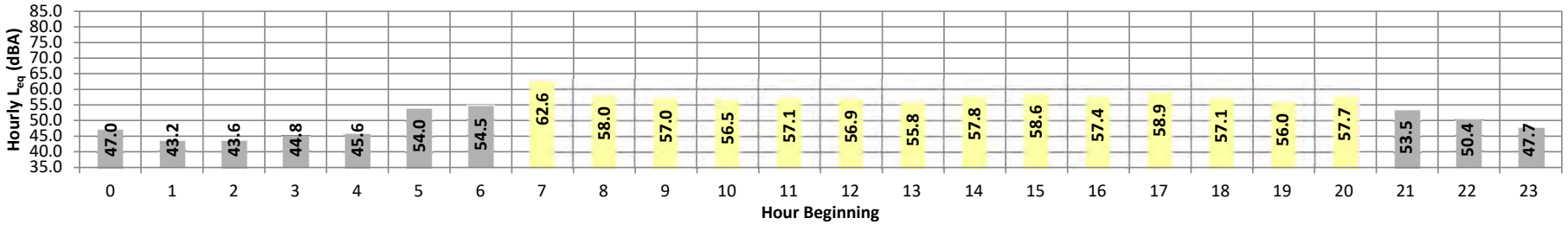
| 24-Hour CNEL | Leq (dBA) Daytime (7am-9pm) | Leq (dBA) Nighttime (9pm-7am) |
|---|---|---|
| 57.2 | 57.0 | 46.8 |

## 24-Hour Noise Level Measurement Summary

*Date:* Wednesday, September 20, 2023 *Location:* L4 - Located Northwest of the site near 201 W Olive Ave *Meter:* Piccolo II *JN:* 15287

*Project:* 701 S. Myrtle Ave. *Source:* *Analyst:* Z. Ibrahim

*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 | 47.0 | 57.9 | 41.7 | 57.4 | 56.7 | 53.8 | 50.3 | 44.6 | 43.4 | 42.3 | 42.1 | 41.8 | 47.0 | 10.0 | 57.0 |
| | 1 | 43.2 | 50.6 | 41.5 | 50.2 | 49.6 | 47.1 | 45.2 | 42.6 | 42.1 | 41.6 | 41.6 | 41.5 | 43.2 | 10.0 | 53.2 |
| | 2 | 43.6 | 49.7 | 42.3 | 49.5 | 49.1 | 46.8 | 45.3 | 43.1 | 42.8 | 42.5 | 42.4 | 42.3 | 43.6 | 10.0 | 53.6 |
| | 3 | 44.8 | 54.9 | 40.3 | 54.6 | 53.9 | 51.6 | 49.0 | 42.5 | 41.2 | 40.6 | 40.5 | 40.4 | 44.8 | 10.0 | 54.8 |
| | 4 | 45.6 | 51.5 | 43.9 | 51.3 | 50.8 | 48.5 | 47.1 | 45.5 | 45.0 | 44.3 | 44.2 | 44.0 | 45.6 | 10.0 | 55.6 |
| | 5 | 54.0 | 68.7 | 45.5 | 67.0 | 65.7 | 60.1 | 56.0 | 49.8 | 47.0 | 45.9 | 45.7 | 45.5 | 54.0 | 10.0 | 64.0 |
| | 6 | 54.5 | 65.6 | 43.4 | 65.3 | 64.7 | 62.2 | 59.9 | 52.2 | 47.3 | 44.0 | 43.8 | 43.5 | 54.5 | 10.0 | 64.5 |
| Day | 7 | 62.6 | 73.1 | 46.3 | 72.7 | 72.1 | 69.7 | 68.2 | 62.0 | 55.8 | 48.1 | 47.2 | 46.4 | 62.6 | 0.0 | 62.6 |
| | 8 | 58.0 | 67.9 | 46.4 | 67.5 | 67.0 | 65.1 | 63.6 | 57.3 | 52.6 | 47.6 | 47.0 | 46.6 | 58.0 | 0.0 | 58.0 |
| | 9 | 57.0 | 68.8 | 44.1 | 68.3 | 67.4 | 64.5 | 62.2 | 55.0 | 49.2 | 45.1 | 44.6 | 44.2 | 57.0 | 0.0 | 57.0 |
| | 10 | 56.5 | 67.5 | 44.5 | 67.1 | 66.2 | 63.7 | 62.1 | 55.4 | 49.8 | 45.4 | 44.9 | 44.6 | 56.5 | 0.0 | 56.5 |
| | 11 | 57.1 | 67.4 | 44.7 | 67.0 | 66.4 | 64.4 | 62.7 | 56.2 | 50.8 | 45.9 | 45.3 | 44.8 | 57.1 | 0.0 | 57.1 |
| | 12 | 56.9 | 67.4 | 44.8 | 67.1 | 66.4 | 64.0 | 62.2 | 56.1 | 51.0 | 45.9 | 45.4 | 44.9 | 56.9 | 0.0 | 56.9 |
| | 13 | 55.8 | 66.6 | 46.1 | 66.2 | 65.4 | 62.6 | 60.9 | 54.9 | 50.2 | 46.8 | 46.6 | 46.2 | 55.8 | 0.0 | 55.8 |
| | 14 | 57.8 | 69.7 | 47.7 | 69.1 | 67.9 | 64.7 | 62.6 | 56.2 | 51.5 | 48.5 | 48.2 | 47.9 | 57.8 | 0.0 | 57.8 |
| | 15 | 58.6 | 70.2 | 47.8 | 69.2 | 68.1 | 65.4 | 63.7 | 57.4 | 52.6 | 48.6 | 48.2 | 47.9 | 58.6 | 0.0 | 58.6 |
| | 16 | 57.4 | 67.1 | 49.1 | 66.8 | 66.1 | 64.0 | 62.3 | 57.0 | 52.8 | 49.9 | 49.6 | 49.2 | 57.4 | 0.0 | 57.4 |
| | 17 | 58.9 | 70.3 | 48.8 | 69.8 | 69.1 | 65.8 | 63.6 | 57.4 | 52.9 | 49.7 | 49.3 | 48.9 | 58.9 | 0.0 | 58.9 |
| | 18 | 57.1 | 67.3 | 48.7 | 66.8 | 66.1 | 63.7 | 62.1 | 56.4 | 52.4 | 49.4 | 49.1 | 48.8 | 57.1 | 0.0 | 57.1 |
| | 19 | 56.0 | 65.9 | 47.8 | 65.5 | 65.0 | 62.7 | 61.1 | 55.4 | 50.8 | 48.4 | 48.1 | 47.9 | 56.0 | 5.0 | 61.0 |
| | 20 | 57.7 | 70.2 | 46.9 | 69.8 | 69.0 | 64.9 | 62.3 | 54.3 | 50.3 | 47.6 | 47.3 | 47.0 | 57.7 | 5.0 | 62.7 |
| Night | 21 | 53.5 | 64.6 | 45.0 | 64.2 | 63.6 | 61.1 | 59.1 | 50.4 | 46.9 | 45.5 | 45.3 | 45.1 | 53.5 | 5.0 | 58.5 |
| | 22 | 50.4 | 60.8 | 44.5 | 60.5 | 59.9 | 57.0 | 54.8 | 48.5 | 46.2 | 45.0 | 44.8 | 44.6 | 50.4 | 10.0 | 60.4 |
| | 23 | 47.7 | 57.5 | 43.5 | 57.1 | 56.6 | 54.0 | 51.8 | 45.6 | 44.6 | 43.9 | 43.7 | 43.6 | 47.7 | 10.0 | 57.7 |

| Timeframe | Hour | $L_{eq}$ | $L_{max}$ | $L_{min}$ | L1% | L2% | L5% | L8% | L25% | L50% | L90% | L95% | L99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Day | Min | 55.8 | 65.9 | 44.1 | 65.5 | 65.0 | 62.6 | 60.9 | 54.3 | 49.2 | 45.1 | 44.6 | 44.2 |
| | Max | 62.6 | 73.1 | 49.1 | 72.7 | 72.1 | 69.7 | 68.2 | 62.0 | 55.8 | 49.9 | 49.6 | 49.2 |
| Energy Average | | 57.9 | Average: | | 67.8 | 67.1 | 64.4 | 62.6 | 56.1 | 51.3 | 47.5 | 47.1 | 46.7 |
| Night | Min | 43.2 | 49.7 | 40.3 | 49.5 | 49.1 | 46.8 | 45.2 | 42.5 | 41.2 | 40.6 | 40.5 | 40.4 |
| | Max | 54.5 | 68.7 | 45.5 | 67.0 | 65.7 | 62.2 | 59.9 | 52.2 | 47.3 | 45.9 | 45.7 | 45.5 |
| Energy Average | | 49.8 | Average: | | 57.0 | 56.3 | 53.5 | 51.0 | 46.0 | 44.4 | 43.3 | 43.2 | 43.0 |

| 24-Hour CNEL | Leq (dBA) Daytime (7am-9pm) | Leq (dBA) Nighttime (9pm-7am) |
|---|---|---|
| 59.3 | 57.9 | 49.8 |





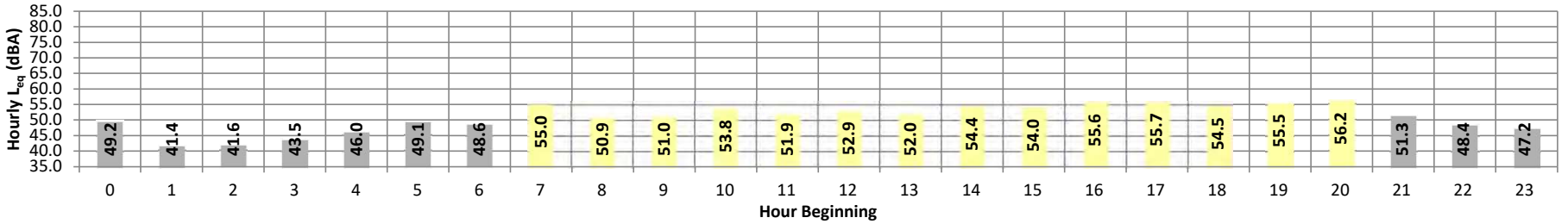
URBAN CROSSROADS

## 24-Hour Noise Level Measurement Summary

*Date:* Wednesday, September 20, 2023 *Location:* L5 - Located West of the site near 703 S Primrose Ave *Meter:* Piccolo II *JN:* 15287

*Project:* 701 S. Myrtle Ave. *Source:* *Analyst:* Z. Ibrahim

***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 | 49.2 | 61.6 | 42.5 | 60.8 | 59.7 | 55.9 | 53.2 | 46.8 | 43.9 | 42.8 | 42.7 | 42.5 | 49.2 | 10.0 | 59.2 |
| | 1 | 41.4 | 44.8 | 40.5 | 44.5 | 44.0 | 42.9 | 42.2 | 41.4 | 41.1 | 40.7 | 40.7 | 40.6 | 41.4 | 10.0 | 51.4 |
| | 2 | 41.6 | 44.1 | 40.8 | 43.9 | 43.5 | 42.8 | 42.3 | 41.6 | 41.4 | 41.0 | 41.0 | 40.9 | 41.6 | 10.0 | 51.6 |
| | 3 | 43.5 | 53.5 | 40.2 | 52.7 | 51.8 | 48.7 | 46.4 | 42.2 | 41.3 | 40.5 | 40.4 | 40.3 | 43.5 | 10.0 | 53.5 |
| | 4 | 46.0 | 50.8 | 44.3 | 50.5 | 50.1 | 48.8 | 48.1 | 46.0 | 45.4 | 44.7 | 44.6 | 44.4 | 46.0 | 10.0 | 56.0 |
| | 5 | 49.1 | 58.5 | 45.8 | 57.9 | 57.2 | 54.5 | 52.5 | 47.9 | 46.9 | 46.2 | 46.1 | 45.9 | 49.1 | 10.0 | 59.1 |
| | 6 | 48.6 | 58.4 | 43.2 | 57.8 | 56.9 | 54.7 | 53.2 | 47.7 | 45.1 | 43.6 | 43.5 | 43.2 | 48.6 | 10.0 | 58.6 |
| Day | 7 | 55.0 | 66.2 | 44.1 | 65.7 | 64.8 | 62.0 | 60.0 | 53.8 | 49.1 | 45.0 | 44.6 | 44.2 | 55.0 | 0.0 | 55.0 |
| | 8 | 50.9 | 60.2 | 42.5 | 59.7 | 59.0 | 57.2 | 55.9 | 50.7 | 46.8 | 43.3 | 42.9 | 42.6 | 50.9 | 0.0 | 50.9 |
| | 9 | 51.0 | 61.7 | 44.3 | 61.1 | 60.3 | 57.3 | 55.0 | 49.9 | 47.3 | 45.0 | 44.8 | 44.4 | 51.0 | 0.0 | 51.0 |
| | 10 | 53.8 | 65.7 | 45.4 | 64.8 | 63.6 | 60.1 | 57.9 | 52.6 | 49.0 | 46.1 | 45.8 | 45.5 | 53.8 | 0.0 | 53.8 |
| | 11 | 51.9 | 60.8 | 45.5 | 60.4 | 59.7 | 57.9 | 56.6 | 51.8 | 48.7 | 46.2 | 45.8 | 45.6 | 51.9 | 0.0 | 51.9 |
| | 12 | 52.9 | 62.3 | 45.6 | 61.8 | 61.0 | 58.7 | 57.1 | 52.9 | 50.1 | 46.6 | 46.2 | 45.8 | 52.9 | 0.0 | 52.9 |
| | 13 | 52.0 | 61.1 | 46.5 | 60.6 | 59.9 | 57.7 | 56.0 | 51.7 | 49.3 | 47.1 | 46.9 | 46.6 | 52.0 | 0.0 | 52.0 |
| | 14 | 54.4 | 63.4 | 48.9 | 63.0 | 62.4 | 60.3 | 58.5 | 53.9 | 51.7 | 49.6 | 49.3 | 49.0 | 54.4 | 0.0 | 54.4 |
| | 15 | 54.0 | 62.8 | 49.2 | 62.0 | 61.0 | 58.9 | 57.8 | 54.2 | 51.8 | 49.8 | 49.5 | 49.3 | 54.0 | 0.0 | 54.0 |
| | 16 | 55.6 | 64.9 | 50.2 | 64.2 | 63.5 | 61.3 | 59.4 | 55.6 | 52.8 | 50.9 | 50.6 | 50.3 | 55.6 | 0.0 | 55.6 |
| | 17 | 55.7 | 63.6 | 50.4 | 63.1 | 62.6 | 60.6 | 59.4 | 56.1 | 53.5 | 51.3 | 51.0 | 50.6 | 55.7 | 0.0 | 55.7 |
| | 18 | 54.5 | 64.6 | 50.2 | 63.6 | 61.3 | 59.2 | 58.0 | 54.2 | 52.4 | 50.7 | 50.5 | 50.3 | 54.5 | 0.0 | 54.5 |
| | 19 | 55.5 | 63.9 | 49.4 | 63.6 | 63.4 | 62.5 | 61.7 | 53.9 | 51.8 | 49.9 | 49.7 | 49.5 | 55.5 | 5.0 | 60.5 |
| | 20 | 56.2 | 66.0 | 48.5 | 65.7 | 65.0 | 62.8 | 61.6 | 55.3 | 51.3 | 49.1 | 48.8 | 48.6 | 56.2 | 5.0 | 61.2 |
| Night | 21 | 51.3 | 58.6 | 47.9 | 58.2 | 57.5 | 55.4 | 54.4 | 51.4 | 49.4 | 48.3 | 48.1 | 48.0 | 51.3 | 5.0 | 56.3 |
| | 22 | 48.4 | 55.8 | 45.5 | 55.3 | 54.5 | 52.5 | 51.3 | 48.2 | 47.0 | 46.0 | 45.8 | 45.6 | 48.4 | 10.0 | 58.4 |
| | 23 | 47.2 | 54.7 | 44.3 | 54.3 | 53.9 | 52.4 | 50.5 | 46.6 | 45.7 | 44.7 | 44.5 | 44.3 | 47.2 | 10.0 | 57.2 |

| Timeframe | Hour | $L_{eq}$ | $L_{max}$ | $L_{min}$ | L1% | L2% | L5% | L8% | L25% | L50% | L90% | L95% | L99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Day | Min | 50.9 | 60.2 | 42.5 | 59.7 | 59.0 | 57.2 | 55.0 | 49.9 | 46.8 | 43.3 | 42.9 | 42.6 |
| | Max | 56.2 | 66.2 | 50.4 | 65.7 | 65.0 | 62.8 | 61.7 | 56.1 | 53.5 | 51.3 | 51.0 | 50.6 |
| Energy Average | | 54.0 | Average: | | 62.5 | 61.7 | 59.5 | 57.9 | 53.2 | 50.3 | 47.9 | 47.6 | 47.4 |
| Night | Min | 41.4 | 44.1 | 40.2 | 43.9 | 43.5 | 42.8 | 42.2 | 41.4 | 41.1 | 40.5 | 40.4 | 40.3 |
| | Max | 51.3 | 61.6 | 47.9 | 60.8 | 59.7 | 55.9 | 54.4 | 51.4 | 49.4 | 48.3 | 48.1 | 48.0 |
| Energy Average | | 47.0 | Average: | | 53.1 | 52.4 | 50.4 | 48.9 | 45.4 | 44.2 | 43.4 | 43.2 | 43.1 |

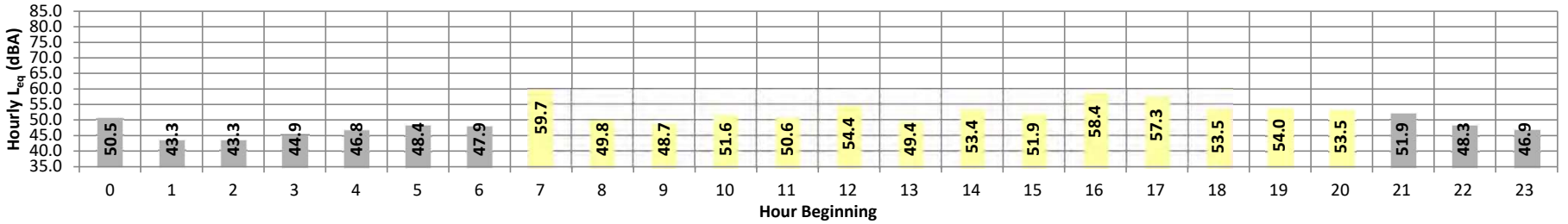
| 24-Hour CNEL | Leq (dBA) Daytime (7am-9pm) | Leq (dBA) Nighttime (9pm-7am) |
|---|---|---|
| **56.3** | **54.0** | **47.0** |

## 24-Hour Noise Level Measurement Summary

*Date:* Wednesday, September 20, 2023 *Location:* L6 - Located Southwest of the site 201 W Walnut Ave *Meter:* Piccolo II *JN:* 15287

*Project:* 701 S. Myrtle Ave. *Source:* *Analyst:* Z. Ibrahim

***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 | 50.5 | 62.8 | 44.0 | 62.5 | 61.4 | 57.1 | 53.2 | 47.2 | 45.2 | 44.4 | 44.3 | 44.1 | 50.5 | 10.0 | 60.5 |
| | 1 | 43.3 | 46.1 | 42.8 | 45.9 | 45.6 | 44.7 | 44.1 | 43.3 | 43.1 | 42.9 | 42.9 | 42.8 | 43.3 | 10.0 | 53.3 |
| | 2 | 43.3 | 45.1 | 42.9 | 44.9 | 44.6 | 44.0 | 43.7 | 43.3 | 43.2 | 43.0 | 43.0 | 42.9 | 43.3 | 10.0 | 53.3 |
| | 3 | 44.9 | 52.8 | 43.0 | 52.4 | 51.4 | 49.4 | 48.2 | 43.7 | 43.3 | 43.1 | 43.0 | 43.0 | 44.9 | 10.0 | 54.9 |
| | 4 | 46.8 | 51.2 | 45.5 | 50.8 | 50.0 | 48.6 | 47.9 | 46.9 | 46.4 | 45.9 | 45.8 | 45.6 | 46.8 | 10.0 | 56.8 |
| | 5 | 48.4 | 55.1 | 46.3 | 54.6 | 54.0 | 52.1 | 50.7 | 48.2 | 47.3 | 46.6 | 46.5 | 46.3 | 48.4 | 10.0 | 58.4 |
| | 6 | 47.9 | 57.6 | 43.6 | 56.6 | 55.5 | 52.7 | 51.3 | 47.7 | 45.5 | 44.0 | 43.8 | 43.7 | 47.9 | 10.0 | 57.9 |
| Day | 7 | 59.7 | 73.6 | 45.5 | 72.6 | 70.9 | 65.7 | 63.1 | 57.5 | 51.0 | 46.6 | 46.1 | 45.6 | 59.7 | 0.0 | 59.7 |
| | 8 | 49.8 | 60.4 | 43.1 | 59.0 | 58.1 | 55.4 | 53.5 | 49.5 | 47.0 | 44.0 | 43.6 | 43.2 | 49.8 | 0.0 | 49.8 |
| | 9 | 48.7 | 56.5 | 43.3 | 55.9 | 55.2 | 53.4 | 52.4 | 49.3 | 46.9 | 44.2 | 43.8 | 43.4 | 48.7 | 0.0 | 48.7 |
| | 10 | 51.6 | 62.0 | 44.7 | 61.0 | 59.8 | 57.1 | 55.6 | 51.6 | 48.3 | 45.7 | 45.4 | 44.9 | 51.6 | 0.0 | 51.6 |
| | 11 | 50.6 | 62.4 | 44.2 | 61.3 | 59.8 | 55.5 | 54.1 | 49.8 | 47.5 | 44.9 | 44.6 | 44.3 | 50.6 | 0.0 | 50.6 |
| | 12 | 54.4 | 67.7 | 43.6 | 66.5 | 65.0 | 60.6 | 58.0 | 52.7 | 48.4 | 44.6 | 44.1 | 43.7 | 54.4 | 0.0 | 54.4 |
| | 13 | 49.4 | 58.0 | 45.1 | 57.1 | 56.1 | 54.0 | 52.7 | 49.7 | 47.8 | 45.7 | 45.4 | 45.2 | 49.4 | 0.0 | 49.4 |
| | 14 | 53.4 | 60.8 | 47.7 | 60.4 | 59.9 | 58.5 | 57.3 | 54.0 | 51.5 | 48.5 | 48.2 | 47.8 | 53.4 | 0.0 | 53.4 |
| | 15 | 51.9 | 59.4 | 47.6 | 58.7 | 58.0 | 56.5 | 55.5 | 52.3 | 50.2 | 48.2 | 47.9 | 47.7 | 51.9 | 0.0 | 51.9 |
| | 16 | 58.4 | 72.2 | 49.1 | 70.6 | 68.9 | 64.6 | 62.0 | 56.0 | 52.6 | 49.9 | 49.6 | 49.2 | 58.4 | 0.0 | 58.4 |
| | 17 | 57.3 | 65.7 | 50.5 | 64.9 | 64.0 | 62.5 | 61.4 | 57.9 | 55.1 | 51.5 | 51.2 | 50.7 | 57.3 | 0.0 | 57.3 |
| | 18 | 53.5 | 63.2 | 49.3 | 61.9 | 60.6 | 58.6 | 57.3 | 53.0 | 51.4 | 49.9 | 49.7 | 49.4 | 53.5 | 0.0 | 53.5 |
| | 19 | 54.0 | 60.0 | 49.0 | 59.6 | 59.3 | 58.7 | 58.3 | 55.2 | 50.9 | 49.5 | 49.3 | 49.1 | 54.0 | 5.0 | 59.0 |
| | 20 | 53.5 | 60.6 | 48.0 | 60.2 | 59.7 | 58.5 | 57.4 | 54.4 | 51.4 | 48.5 | 48.3 | 48.0 | 53.5 | 5.0 | 58.5 |
| Night | 21 | 51.9 | 62.4 | 47.7 | 61.3 | 59.8 | 56.4 | 54.8 | 52.1 | 49.4 | 48.1 | 48.0 | 47.8 | 51.9 | 5.0 | 56.9 |
| | 22 | 48.3 | 55.3 | 46.0 | 54.7 | 54.0 | 51.8 | 50.5 | 48.2 | 47.3 | 46.4 | 46.2 | 46.0 | 48.3 | 10.0 | 58.3 |
| | 23 | 46.9 | 53.5 | 44.9 | 52.9 | 51.9 | 49.6 | 48.7 | 46.8 | 46.1 | 45.3 | 45.1 | 44.9 | 46.9 | 10.0 | 56.9 |

| Timeframe | Hour | $L_{eq}$ | $L_{max}$ | $L_{min}$ | L1% | L2% | L5% | L8% | L25% | L50% | L90% | L95% | L99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Day | Min | 48.7 | 56.5 | 43.1 | 55.9 | 55.2 | 53.4 | 52.4 | 49.3 | 46.9 | 44.0 | 43.6 | 43.2 |
| | Max | 59.7 | 73.6 | 50.5 | 72.6 | 70.9 | 65.7 | 63.1 | 57.9 | 55.1 | 51.5 | 51.2 | 50.7 |
| Energy Average | | 54.4 | Average: | | 62.1 | 61.0 | 58.4 | 56.9 | 53.0 | 50.0 | 47.3 | 47.0 | 46.7 |
| Night | Min | 43.3 | 45.1 | 42.8 | 44.9 | 44.6 | 44.0 | 43.7 | 43.3 | 43.1 | 42.9 | 42.9 | 42.8 |
| | Max | 51.9 | 62.8 | 47.7 | 62.5 | 61.4 | 57.1 | 54.8 | 52.1 | 49.4 | 48.1 | 48.0 | 47.8 |
| Energy Average | | 47.3 | Average: | | 52.8 | 52.1 | 50.0 | 48.7 | 46.1 | 45.3 | 44.6 | 44.5 | 44.4 |

| 24-Hour CNEL | Leq (dBA) Daytime (7am-9pm) | Leq (dBA) Nighttime (9pm-7am) |
|---|---|---|
| 56.3 | 54.4 | 47.3 |





URBAN CROSSROADS

# APPENDIX 7APPENDIX 7.1:

# OFF-SITE OPERATIONAL TRAFFIC NOISE LEVEL CALCULATIONS

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## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* W Olive Ave
*Road Segment:* w/o S Primrose Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,263 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 126 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -8.50 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -35.26 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -21.33 | 3.32 | -1.20 | *-5.77* | 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:* | 52.3 | 50.0 | 47.5 | 45.5 | 52.8 | 53.1 |
| *Medium Trucks:* | 37.7 | 36.5 | 24.9 | 27.1 | 36.2 | 36.3 |
| *Heavy Trucks:* | 58.8 | 56.8 | 52.0 | 51.6 | 59.0 | 59.2 |
| *Vehicle Noise:* | 59.7 | 57.7 | 53.3 | 52.5 | 60.0 | 60.2 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 6 | 14 | 30 | 64 |
| *CNEL:* | 7 | 14 | 31 | 67 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* W Olive Ave
*Road Segment:* e/o S Primrose Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,776 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 178 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -7.02 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -33.78 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -19.85 | 3.32 | -1.20 | *-5.77* | 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:* | 53.8 | 51.5 | 49.0 | 47.0 | 54.3 | 54.6 |
| *Medium Trucks:* | 39.1 | 37.9 | 26.4 | 28.6 | 37.7 | 37.8 |
| *Heavy Trucks:* | 60.2 | 58.3 | 53.5 | 53.1 | 60.5 | 60.7 |
| *Vehicle Noise:* | 61.2 | 59.2 | 54.8 | 54.0 | 61.4 | 61.7 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 8 | 17 | 37 | 81 |
| *CNEL:* | 8 | 18 | 39 | 84 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* W Olive Ave
*Road Segment:* e/o S Myrtle Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,539 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 154 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -7.64 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -34.40 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -20.48 | 1.08 | -1.20 | *-5.53* | 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:* | 50.9 | 48.7 | 46.1 | 44.1 | 51.4 | 51.8 |
| *Medium Trucks:* | 36.3 | 35.1 | 23.5 | 25.7 | 34.8 | 34.9 |
| *Heavy Trucks:* | 57.4 | 55.4 | 50.6 | 50.2 | 57.6 | 57.9 |
| *Vehicle Noise:* | 58.3 | 56.3 | 51.9 | 51.2 | 58.6 | 58.8 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 7 | 16 | 34 | 73 |
| *CNEL:* | 8 | 16 | 35 | 76 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* W Walnut Ave
*Road Segment:* w/o S Primrose Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 526 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 53 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -12.30 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -39.06 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -25.14 | 3.32 | -1.20 | *-5.77* | 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:* | 48.5 | 46.2 | 43.7 | 41.7 | 49.0 | 49.3 |
| *Medium Trucks:* | 33.9 | 32.7 | 21.1 | 23.3 | 32.4 | 32.5 |
| *Heavy Trucks:* | 55.0 | 53.0 | 48.2 | 47.8 | 55.2 | 55.4 |
| *Vehicle Noise:* | 55.9 | 53.9 | 49.5 | 48.7 | 56.2 | 56.4 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 4 | 8 | 17 | 36 |
| *CNEL:* | 4 | 8 | 17 | 37 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* W Walnut Ave
*Road Segment:* e/o S Primrose Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,460 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 146 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -7.87 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -34.63 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -20.70 | 3.32 | -1.20 | *-5.77* | 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:* | 52.9 | 50.7 | 48.1 | 46.1 | 53.4 | 53.7 |
| *Medium Trucks:* | 38.3 | 37.1 | 25.5 | 27.8 | 36.8 | 36.9 |
| *Heavy Trucks:* | 59.4 | 57.4 | 52.6 | 52.2 | 59.6 | 59.9 |
| *Vehicle Noise:* | 60.3 | 58.3 | 54.0 | 53.2 | 60.6 | 60.8 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 7 | 15 | 33 | 71 |
| *CNEL:* | 7 | 16 | 34 | 74 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* W Walnut Ave
*Road Segment:* e/o S Myrtle Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,184 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 118 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -8.78 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -35.54 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -21.61 | 3.32 | -1.20 | *-5.77* | 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:* | 52.0 | 49.8 | 47.2 | 45.2 | 52.5 | 52.8 |
| *Medium Trucks:* | 37.4 | 36.2 | 24.6 | 26.8 | 35.9 | 36.0 |
| *Heavy Trucks:* | 58.5 | 56.5 | 51.7 | 51.3 | 58.7 | 59.0 |
| *Vehicle Noise:* | 59.4 | 57.4 | 53.0 | 52.3 | 59.7 | 59.9 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 6 | 13 | 29 | 62 |
| *CNEL:* | 6 | 14 | 30 | 64 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* S Primrose Ave
*Road Segment:* n/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,420 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 442 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -3.06 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -29.82 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -15.89 | 3.32 | -1.20 | *-5.77* | 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:* | 57.7 | 55.5 | 52.9 | 50.9 | 58.2 | 58.6 |
| *Medium Trucks:* | 43.1 | 41.9 | 30.3 | 32.6 | 41.7 | 41.7 |
| *Heavy Trucks:* | 64.2 | 62.2 | 57.4 | 57.0 | 64.5 | 64.7 |
| *Vehicle Noise:* | 65.1 | 63.1 | 58.8 | 58.0 | 65.4 | 65.7 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 15 | 32 | 69 | 148 |
| *CNEL:* | 15 | 33 | 71 | 154 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* S Primrose Ave
*Road Segment:* s/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,170 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 417 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -3.31 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -30.07 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -16.15 | 3.32 | -1.20 | *-5.77* | 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:* | 57.5 | 55.2 | 52.7 | 50.7 | 58.0 | 58.3 |
| *Medium Trucks:* | 42.9 | 41.6 | 30.1 | 32.3 | 41.4 | 41.5 |
| *Heavy Trucks:* | 63.9 | 62.0 | 57.2 | 56.8 | 64.2 | 64.4 |
| *Vehicle Noise:* | 64.9 | 62.9 | 58.5 | 57.7 | 65.2 | 65.4 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 14 | 31 | 66 | 143 |
| *CNEL:* | 15 | 32 | 69 | 148 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* S Primrose Ave
*Road Segment:* s/o W Walnut Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,485 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 449 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -3.00 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -29.76 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -15.83 | 3.32 | -1.20 | *-5.77* | 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:* | 57.8 | 55.5 | 53.0 | 51.0 | 58.3 | 58.6 |
| *Medium Trucks:* | 43.2 | 42.0 | 30.4 | 32.6 | 41.7 | 41.8 |
| *Heavy Trucks:* | 64.3 | 62.3 | 57.5 | 57.1 | 64.5 | 64.8 |
| *Vehicle Noise:* | 65.2 | 63.2 | 58.8 | 58.0 | 65.5 | 65.7 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 15 | 32 | 69 | 150 |
| *CNEL:* | 16 | 33 | 72 | 155 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* S Myrtle Ave
*Road Segment:* n/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 8,353 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 835 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -0.30 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -27.06 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -13.13 | 1.08 | -1.20 | *-5.53* | 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:* | 58.3 | 56.0 | 53.5 | 51.5 | 58.8 | 59.1 |
| *Medium Trucks:* | 43.6 | 42.4 | 30.9 | 33.1 | 42.2 | 42.3 |
| *Heavy Trucks:* | 64.7 | 62.8 | 58.0 | 57.5 | 65.0 | 65.2 |
| *Vehicle Noise:* | 65.6 | 63.6 | 59.3 | 58.5 | 65.9 | 66.2 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 22 | 48 | 104 | 225 |
| *CNEL:* | 23 | 50 | 108 | 234 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* S Myrtle Ave
*Road Segment:* s/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 9,037 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 904 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | 0.05 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -26.71 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -12.79 | 1.08 | -1.20 | *-5.53* | 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:* | 58.6 | 56.4 | 53.8 | 51.8 | 59.1 | 59.4 |
| *Medium Trucks:* | 44.0 | 42.8 | 31.2 | 33.4 | 42.5 | 42.6 |
| *Heavy Trucks:* | 65.1 | 63.1 | 58.3 | 57.9 | 65.3 | 65.6 |
| *Vehicle Noise:* | 66.0 | 64.0 | 59.6 | 58.8 | 66.3 | 66.5 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 24 | 51 | 110 | 237 |
| *CNEL:* | 25 | 53 | 114 | 246 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* S Myrtle Ave
*Road Segment:* s/o W Walnut Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 9,563 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 956 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | 0.29 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -26.47 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -12.54 | 1.08 | -1.20 | *-5.53* | 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:* | 58.9 | 56.6 | 54.1 | 52.1 | 59.4 | 59.7 |
| *Medium Trucks:* | 44.2 | 43.0 | 31.5 | 33.7 | 42.8 | 42.9 |
| *Heavy Trucks:* | 65.3 | 63.4 | 58.5 | 58.1 | 65.6 | 65.8 |
| *Vehicle Noise:* | 66.2 | 64.2 | 59.9 | 59.1 | 66.5 | 66.8 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 25 | 53 | 114 | 246 |
| *CNEL:* | 26 | 55 | 119 | 256 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* E+P
*Road Name:* W Olive Ave
*Road Segment:* w/o S Primrose Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,263 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 126 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -8.50 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -35.26 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -21.33 | 3.32 | -1.20 | *-5.77* | 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:* | 52.3 | 50.0 | 47.5 | 45.5 | 52.8 | 53.1 |
| *Medium Trucks:* | 37.7 | 36.5 | 24.9 | 27.1 | 36.2 | 36.3 |
| *Heavy Trucks:* | 58.8 | 56.8 | 52.0 | 51.6 | 59.0 | 59.2 |
| *Vehicle Noise:* | 59.7 | 57.7 | 53.3 | 52.5 | 60.0 | 60.2 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 6 | 14 | 30 | 64 |
| *CNEL:* | 7 | 14 | 31 | 67 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* E+P
*Road Name:* W Olive Ave
*Road Segment:* e/o S Primrose Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,986 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 199 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -6.53 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -33.30 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -19.37 | 3.32 | -1.20 | *-5.77* | 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:* | 54.3 | 52.0 | 49.5 | 47.4 | 54.7 | 55.1 |
| *Medium Trucks:* | 39.6 | 38.4 | 26.9 | 29.1 | 38.2 | 38.3 |
| *Heavy Trucks:* | 60.7 | 58.8 | 54.0 | 53.5 | 61.0 | 61.2 |
| *Vehicle Noise:* | 61.6 | 59.6 | 55.3 | 54.5 | 61.9 | 62.2 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 9 | 19 | 40 | 87 |
| *CNEL:* | 9 | 19 | 42 | 90 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* E+P
*Road Name:* W Olive Ave
*Road Segment:* e/o S Myrtle Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,581 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 158 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -7.52 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -34.29 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -20.36 | 1.08 | -1.20 | *-5.53* | 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:* | 51.1 | 48.8 | 46.3 | 44.2 | 51.5 | 51.9 |
| *Medium Trucks:* | 36.4 | 35.2 | 23.6 | 25.9 | 34.9 | 35.0 |
| *Heavy Trucks:* | 57.5 | 55.5 | 50.7 | 50.3 | 57.8 | 58.0 |
| *Vehicle Noise:* | 58.4 | 56.4 | 52.1 | 51.3 | 58.7 | 59.0 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 7 | 16 | 34 | 74 |
| *CNEL:* | 8 | 17 | 36 | 77 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* E+P
*Road Name:* W Walnut Ave
*Road Segment:* w/o S Primrose Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 526 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 53 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -12.30 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -39.06 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -25.14 | 3.32 | -1.20 | *-5.77* | 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:* | 48.5 | 46.2 | 43.7 | 41.7 | 49.0 | 49.3 |
| *Medium Trucks:* | 33.9 | 32.7 | 21.1 | 23.3 | 32.4 | 32.5 |
| *Heavy Trucks:* | 55.0 | 53.0 | 48.2 | 47.8 | 55.2 | 55.4 |
| *Vehicle Noise:* | 55.9 | 53.9 | 49.5 | 48.7 | 56.2 | 56.4 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 4 | 8 | 17 | 36 |
| *CNEL:* | 4 | 8 | 17 | 37 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* E+P
*Road Name:* W Walnut Ave
*Road Segment:* e/o S Primrose Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,460 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 146 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -7.87 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -34.63 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -20.70 | 3.32 | -1.20 | *-5.77* | 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:* | 52.9 | 50.7 | 48.1 | 46.1 | 53.4 | 53.7 |
| *Medium Trucks:* | 38.3 | 37.1 | 25.5 | 27.8 | 36.8 | 36.9 |
| *Heavy Trucks:* | 59.4 | 57.4 | 52.6 | 52.2 | 59.6 | 59.9 |
| *Vehicle Noise:* | 60.3 | 58.3 | 54.0 | 53.2 | 60.6 | 60.8 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 7 | 15 | 33 | 71 |
| *CNEL:* | 7 | 16 | 34 | 74 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* E+P
*Road Name:* W Walnut Ave
*Road Segment:* e/o S Myrtle Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,184 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 118 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -8.78 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -35.54 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -21.61 | 3.32 | -1.20 | *-5.77* | 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:* | 52.0 | 49.8 | 47.2 | 45.2 | 52.5 | 52.8 |
| *Medium Trucks:* | 37.4 | 36.2 | 24.6 | 26.8 | 35.9 | 36.0 |
| *Heavy Trucks:* | 58.5 | 56.5 | 51.7 | 51.3 | 58.7 | 59.0 |
| *Vehicle Noise:* | 59.4 | 57.4 | 53.0 | 52.3 | 59.7 | 59.9 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 6 | 13 | 29 | 62 |
| *CNEL:* | 6 | 14 | 30 | 64 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* E+P
*Road Name:* S Primrose Ave
*Road Segment:* n/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,462 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 446 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -3.02 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -29.78 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -15.85 | 3.32 | -1.20 | *-5.77* | 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:* | 57.8 | 55.5 | 53.0 | 51.0 | 58.3 | 58.6 |
| *Medium Trucks:* | 43.1 | 41.9 | 30.4 | 32.6 | 41.7 | 41.8 |
| *Heavy Trucks:* | 64.2 | 62.3 | 57.5 | 57.1 | 64.5 | 64.7 |
| *Vehicle Noise:* | 65.2 | 63.2 | 58.8 | 58.0 | 65.4 | 65.7 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 15 | 32 | 69 | 149 |
| *CNEL:* | 15 | 33 | 72 | 155 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* E+P
*Road Name:* S Primrose Ave
*Road Segment:* s/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,338 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 434 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -3.14 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -29.90 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -15.97 | 3.32 | -1.20 | *-5.77* | 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:* | 57.7 | 55.4 | 52.8 | 50.8 | 58.1 | 58.5 |
| *Medium Trucks:* | 43.0 | 41.8 | 30.3 | 32.5 | 41.6 | 41.7 |
| *Heavy Trucks:* | 64.1 | 62.2 | 57.4 | 56.9 | 64.4 | 64.6 |
| *Vehicle Noise:* | 65.0 | 63.0 | 58.7 | 57.9 | 65.3 | 65.6 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 15 | 32 | 68 | 146 |
| *CNEL:* | 15 | 33 | 71 | 152 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* E+P
*Road Name:* S Primrose Ave
*Road Segment:* s/o W Walnut Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,653 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 465 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -2.84 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -29.60 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -15.67 | 3.32 | -1.20 | *-5.77* | 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:* | 58.0 | 55.7 | 53.2 | 51.1 | 58.4 | 58.8 |
| *Medium Trucks:* | 43.3 | 42.1 | 30.6 | 32.8 | 41.9 | 42.0 |
| *Heavy Trucks:* | 64.4 | 62.5 | 57.7 | 57.2 | 64.7 | 64.9 |
| *Vehicle Noise:* | 65.3 | 63.3 | 59.0 | 58.2 | 65.6 | 65.9 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 15 | 33 | 71 | 153 |
| *CNEL:* | 16 | 34 | 74 | 159 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* E+P
*Road Name:* S Myrtle Ave
*Road Segment:* n/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 8,437 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 844 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -0.25 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -27.01 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -13.09 | 1.08 | -1.20 | *-5.53* | 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:* | 58.3 | 56.1 | 53.5 | 51.5 | 58.8 | 59.2 |
| *Medium Trucks:* | 43.7 | 42.5 | 30.9 | 33.1 | 42.2 | 42.3 |
| *Heavy Trucks:* | 64.8 | 62.8 | 58.0 | 57.6 | 65.0 | 65.3 |
| *Vehicle Noise:* | 65.7 | 63.7 | 59.3 | 58.5 | 66.0 | 66.2 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 23 | 49 | 105 | 226 |
| *CNEL:* | 24 | 51 | 109 | 235 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* E+P
*Road Name:* S Myrtle Ave
*Road Segment:* s/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 9,497 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 950 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | 0.26 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -26.50 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -12.57 | 1.08 | -1.20 | *-5.53* | 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:* | 58.8 | 56.6 | 54.0 | 52.0 | 59.3 | 59.7 |
| *Medium Trucks:* | 44.2 | 43.0 | 31.4 | 33.6 | 42.7 | 42.8 |
| *Heavy Trucks:* | 65.3 | 63.3 | 58.5 | 58.1 | 65.5 | 65.8 |
| *Vehicle Noise:* | 66.2 | 64.2 | 59.8 | 59.1 | 66.5 | 66.7 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 25 | 53 | 114 | 245 |
| *CNEL:* | 25 | 55 | 118 | 255 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* E+P
*Road Name:* S Myrtle Ave
*Road Segment:* s/o W Walnut Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 10,023 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 1,002 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | 0.50 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -26.26 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -12.34 | 1.08 | -1.20 | *-5.53* | 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:* | 59.1 | 56.8 | 54.3 | 52.3 | 59.6 | 59.9 |
| *Medium Trucks:* | 44.4 | 43.2 | 31.7 | 33.9 | 43.0 | 43.1 |
| *Heavy Trucks:* | 65.5 | 63.6 | 58.8 | 58.3 | 65.8 | 66.0 |
| *Vehicle Noise:* | 66.4 | 64.4 | 60.1 | 59.3 | 66.7 | 67.0 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 25 | 55 | 118 | 254 |
| *CNEL:* | 26 | 57 | 122 | 264 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY NP
*Road Name:* W Olive Ave
*Road Segment:* w/o S Primrose Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,337 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 134 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -8.25 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -35.01 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -21.09 | 3.32 | -1.20 | *-5.77* | 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:* | 52.5 | 50.3 | 47.7 | 45.7 | 53.0 | 53.4 |
| *Medium Trucks:* | 37.9 | 36.7 | 25.2 | 27.4 | 36.5 | 36.5 |
| *Heavy Trucks:* | 59.0 | 57.1 | 52.2 | 51.8 | 59.3 | 59.5 |
| *Vehicle Noise:* | 59.9 | 57.9 | 53.6 | 52.8 | 60.2 | 60.5 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 7 | 14 | 31 | 67 |
| *CNEL:* | 7 | 15 | 32 | 69 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY NP
*Road Name:* W Olive Ave
*Road Segment:* e/o S Primrose Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 2,007 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 201 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -6.49 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -33.25 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -19.32 | 3.32 | -1.20 | *-5.77* | 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:* | 54.3 | 52.1 | 49.5 | 47.5 | 54.8 | 55.1 |
| *Medium Trucks:* | 39.7 | 38.5 | 26.9 | 29.1 | 38.2 | 38.3 |
| *Heavy Trucks:* | 60.8 | 58.8 | 54.0 | 53.6 | 61.0 | 61.3 |
| *Vehicle Noise:* | 61.7 | 59.7 | 55.3 | 54.5 | 62.0 | 62.2 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 9 | 19 | 41 | 88 |
| *CNEL:* | 9 | 20 | 42 | 91 |

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## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY NP
*Road Name:* W Olive Ave
*Road Segment:* e/o S Myrtle Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,613 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 161 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -7.44 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -34.20 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -20.27 | 1.08 | -1.20 | *-5.53* | 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:* | 51.2 | 48.9 | 46.3 | 44.3 | 51.6 | 52.0 |
| *Medium Trucks:* | 36.5 | 35.3 | 23.7 | 25.9 | 35.0 | 35.1 |
| *Heavy Trucks:* | 57.6 | 55.6 | 50.8 | 50.4 | 57.8 | 58.1 |
| *Vehicle Noise:* | 58.5 | 56.5 | 52.2 | 51.4 | 58.8 | 59.0 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 8 | 16 | 35 | 75 |
| *CNEL:* | 8 | 17 | 36 | 78 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY NP
*Road Name:* W Walnut Ave
*Road Segment:* w/o S Primrose Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 548 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 55 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -12.13 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -38.89 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -24.96 | 3.32 | -1.20 | *-5.77* | 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:* | 48.7 | 46.4 | 43.9 | 41.8 | 49.2 | 49.5 |
| *Medium Trucks:* | 34.0 | 32.8 | 21.3 | 23.5 | 32.6 | 32.7 |
| *Heavy Trucks:* | 55.1 | 53.2 | 48.4 | 47.9 | 55.4 | 55.6 |
| *Vehicle Noise:* | 56.0 | 54.0 | 49.7 | 48.9 | 56.3 | 56.6 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 4 | 8 | 17 | 37 |
| *CNEL:* | 4 | 8 | 18 | 38 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY NP
*Road Name:* W Walnut Ave
*Road Segment:* e/o S Primrose Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,519 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 152 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -7.70 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -34.46 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -20.53 | 3.32 | -1.20 | *-5.77* | 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:* | 53.1 | 50.8 | 48.3 | 46.3 | 53.6 | 53.9 |
| *Medium Trucks:* | 38.5 | 37.3 | 25.7 | 27.9 | 37.0 | 37.1 |
| *Heavy Trucks:* | 59.6 | 57.6 | 52.8 | 52.4 | 59.8 | 60.0 |
| *Vehicle Noise:* | 60.5 | 58.5 | 54.1 | 53.3 | 60.8 | 61.0 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 7 | 16 | 34 | 73 |
| *CNEL:* | 8 | 16 | 35 | 76 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY NP
*Road Name:* W Walnut Ave
*Road Segment:* e/o S Myrtle Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,232 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 123 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -8.61 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -35.37 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -21.44 | 3.32 | -1.20 | *-5.77* | 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:* | 52.2 | 49.9 | 47.4 | 45.4 | 52.7 | 53.0 |
| *Medium Trucks:* | 37.6 | 36.4 | 24.8 | 27.0 | 36.1 | 36.2 |
| *Heavy Trucks:* | 58.7 | 56.7 | 51.9 | 51.5 | 58.9 | 59.1 |
| *Vehicle Noise:* | 59.6 | 57.6 | 53.2 | 52.4 | 59.9 | 60.1 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 6 | 14 | 29 | 63 |
| *CNEL:* | 7 | 14 | 30 | 66 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY NP
*Road Name:* S Primrose Ave
*Road Segment:* n/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,709 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 471 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -2.78 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -29.55 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -15.62 | 3.32 | -1.20 | *-5.77* | 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:* | 58.0 | 55.8 | 53.2 | 51.2 | 58.5 | 58.8 |
| *Medium Trucks:* | 43.4 | 42.2 | 30.6 | 32.8 | 41.9 | 42.0 |
| *Heavy Trucks:* | 64.5 | 62.5 | 57.7 | 57.3 | 64.7 | 65.0 |
| *Vehicle Noise:* | 65.4 | 63.4 | 59.0 | 58.3 | 65.7 | 65.9 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 15 | 33 | 72 | 155 |
| *CNEL:* | 16 | 35 | 75 | 161 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY NP
*Road Name:* S Primrose Ave
*Road Segment:* s/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,407 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 441 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -3.07 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -29.83 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -15.91 | 3.32 | -1.20 | *-5.77* | 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:* | 57.7 | 55.5 | 52.9 | 50.9 | 58.2 | 58.5 |
| *Medium Trucks:* | 43.1 | 41.9 | 30.3 | 32.5 | 41.6 | 41.7 |
| *Heavy Trucks:* | 64.2 | 62.2 | 57.4 | 57.0 | 64.4 | 64.7 |
| *Vehicle Noise:* | 65.1 | 63.1 | 58.7 | 58.0 | 65.4 | 65.6 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 15 | 32 | 69 | 148 |
| *CNEL:* | 15 | 33 | 71 | 154 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY NP
*Road Name:* S Primrose Ave
*Road Segment:* s/o W Walnut Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,734 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 473 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -2.76 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -29.52 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -15.60 | 3.32 | -1.20 | *-5.77* | 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:* | 58.0 | 55.8 | 53.2 | 51.2 | 58.5 | 58.9 |
| *Medium Trucks:* | 43.4 | 42.2 | 30.6 | 32.9 | 42.0 | 42.0 |
| *Heavy Trucks:* | 64.5 | 62.5 | 57.7 | 57.3 | 64.8 | 65.0 |
| *Vehicle Noise:* | 65.4 | 63.4 | 59.1 | 58.3 | 65.7 | 65.9 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 16 | 33 | 72 | 155 |
| *CNEL:* | 16 | 35 | 75 | 161 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY NP
*Road Name:* S Myrtle Ave
*Road Segment:* n/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 9,975 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 997 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | 0.48 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -26.29 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -12.36 | 1.08 | -1.20 | *-5.53* | 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:* | 59.1 | 56.8 | 54.3 | 52.2 | 59.5 | 59.9 |
| *Medium Trucks:* | 44.4 | 43.2 | 31.6 | 33.9 | 42.9 | 43.0 |
| *Heavy Trucks:* | 65.5 | 63.5 | 58.7 | 58.3 | 65.8 | 66.0 |
| *Vehicle Noise:* | 66.4 | 64.4 | 60.1 | 59.3 | 66.7 | 67.0 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 25 | 55 | 118 | 253 |
| *CNEL:* | 26 | 57 | 122 | 263 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY NP
*Road Name:* S Myrtle Ave
*Road Segment:* s/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 10,873 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 1,087 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | 0.85 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -25.91 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -11.98 | 1.08 | -1.20 | *-5.53* | 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:* | 59.4 | 57.2 | 54.6 | 52.6 | 59.9 | 60.3 |
| *Medium Trucks:* | 44.8 | 43.6 | 32.0 | 34.2 | 43.3 | 43.4 |
| *Heavy Trucks:* | 65.9 | 63.9 | 59.1 | 58.7 | 66.1 | 66.4 |
| *Vehicle Noise:* | 66.8 | 64.8 | 60.4 | 59.7 | 67.1 | 67.3 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 27 | 58 | 124 | 268 |
| *CNEL:* | 28 | 60 | 129 | 279 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY NP
*Road Name:* S Myrtle Ave
*Road Segment:* s/o W Walnut Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 11,420 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 1,142 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | 1.06 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -25.70 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -11.77 | 1.08 | -1.20 | *-5.53* | 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:* | 59.7 | 57.4 | 54.8 | 52.8 | 60.1 | 60.5 |
| *Medium Trucks:* | 45.0 | 43.8 | 32.2 | 34.4 | 43.5 | 43.6 |
| *Heavy Trucks:* | 66.1 | 64.1 | 59.3 | 58.9 | 66.3 | 66.6 |
| *Vehicle Noise:* | 67.0 | 65.0 | 60.7 | 59.9 | 67.3 | 67.5 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 28 | 60 | 129 | 277 |
| *CNEL:* | 29 | 62 | 134 | 288 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY WP
*Road Name:* W Olive Ave
*Road Segment:* w/o S Primrose Ave
*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,337 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 134 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -8.25 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -35.01 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -21.09 | 3.32 | -1.20 | *-5.77* | 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:* | 52.5 | 50.3 | 47.7 | 45.7 | 53.0 | 53.4 |
| *Medium Trucks:* | 37.9 | 36.7 | 25.2 | 27.4 | 36.5 | 36.5 |
| *Heavy Trucks:* | 59.0 | 57.1 | 52.2 | 51.8 | 59.3 | 59.5 |
| *Vehicle Noise:* | 59.9 | 57.9 | 53.6 | 52.8 | 60.2 | 60.5 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 7 | 14 | 31 | 67 |
| *CNEL:* | 7 | 15 | 32 | 69 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY WP
*Road Name:* W Olive Ave
*Road Segment:* e/o S Primrose Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 2,217 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 222 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -6.06 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -32.82 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -18.89 | 3.32 | -1.20 | *-5.77* | 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:* | 54.7 | 52.5 | 49.9 | 47.9 | 55.2 | 55.6 |
| *Medium Trucks:* | 40.1 | 38.9 | 27.4 | 29.6 | 38.7 | 38.7 |
| *Heavy Trucks:* | 61.2 | 59.3 | 54.4 | 54.0 | 61.5 | 61.7 |
| *Vehicle Noise:* | 62.1 | 60.1 | 55.8 | 55.0 | 62.4 | 62.7 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 9 | 20 | 43 | 94 |
| *CNEL:* | 10 | 21 | 45 | 97 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY WP
*Road Name:* W Olive Ave
*Road Segment:* e/o S Myrtle Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,655 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 166 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -7.32 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -34.09 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -20.16 | 1.08 | -1.20 | *-5.53* | 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:* | 51.3 | 49.0 | 46.5 | 44.4 | 51.7 | 52.1 |
| *Medium Trucks:* | 36.6 | 35.4 | 23.8 | 26.1 | 35.1 | 35.2 |
| *Heavy Trucks:* | 57.7 | 55.7 | 50.9 | 50.5 | 58.0 | 58.2 |
| *Vehicle Noise:* | 58.6 | 56.6 | 52.3 | 51.5 | 58.9 | 59.2 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 8 | 16 | 35 | 76 |
| *CNEL:* | 8 | 17 | 37 | 79 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY WP
*Road Name:* W Walnut Ave
*Road Segment:* w/o S Primrose Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 548 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 55 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -12.13 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -38.89 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -24.96 | 3.32 | -1.20 | *-5.77* | 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:* | 48.7 | 46.4 | 43.9 | 41.8 | 49.2 | 49.5 |
| *Medium Trucks:* | 34.0 | 32.8 | 21.3 | 23.5 | 32.6 | 32.7 |
| *Heavy Trucks:* | 55.1 | 53.2 | 48.4 | 47.9 | 55.4 | 55.6 |
| *Vehicle Noise:* | 56.0 | 54.0 | 49.7 | 48.9 | 56.3 | 56.6 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 4 | 8 | 17 | 37 |
| *CNEL:* | 4 | 8 | 18 | 38 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY WP
*Road Name:* W Walnut Ave
*Road Segment:* e/o S Primrose Ave
*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,519 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 152 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -7.70 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -34.46 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -20.53 | 3.32 | -1.20 | *-5.77* | 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:* | 53.1 | 50.8 | 48.3 | 46.3 | 53.6 | 53.9 |
| *Medium Trucks:* | 38.5 | 37.3 | 25.7 | 27.9 | 37.0 | 37.1 |
| *Heavy Trucks:* | 59.6 | 57.6 | 52.8 | 52.4 | 59.8 | 60.0 |
| *Vehicle Noise:* | 60.5 | 58.5 | 54.1 | 53.3 | 60.8 | 61.0 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 7 | 16 | 34 | 73 |
| *CNEL:* | 8 | 16 | 35 | 76 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY WP
*Road Name:* W Walnut Ave
*Road Segment:* e/o S Myrtle Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 1,232 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 123 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -8.61 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -35.37 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -21.44 | 3.32 | -1.20 | *-5.77* | 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:* | 52.2 | 49.9 | 47.4 | 45.4 | 52.7 | 53.0 |
| *Medium Trucks:* | 37.6 | 36.4 | 24.8 | 27.0 | 36.1 | 36.2 |
| *Heavy Trucks:* | 58.7 | 56.7 | 51.9 | 51.5 | 58.9 | 59.1 |
| *Vehicle Noise:* | 59.6 | 57.6 | 53.2 | 52.4 | 59.9 | 60.1 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 6 | 14 | 29 | 63 |
| *CNEL:* | 7 | 14 | 30 | 66 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY WP
*Road Name:* S Primrose Ave
*Road Segment:* n/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,751 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 475 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -2.75 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -29.51 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -15.58 | 3.32 | -1.20 | *-5.77* | 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:* | 58.1 | 55.8 | 53.2 | 51.2 | 58.5 | 58.9 |
| *Medium Trucks:* | 43.4 | 42.2 | 30.7 | 32.9 | 42.0 | 42.1 |
| *Heavy Trucks:* | 64.5 | 62.6 | 57.8 | 57.3 | 64.8 | 65.0 |
| *Vehicle Noise:* | 65.4 | 63.4 | 59.1 | 58.3 | 65.7 | 66.0 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 16 | 33 | 72 | 155 |
| *CNEL:* | 16 | 35 | 75 | 161 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY WP
*Road Name:* S Primrose Ave
*Road Segment:* s/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,575 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 458 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -2.91 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -29.67 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -15.74 | 3.32 | -1.20 | *-5.77* | 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:* | 57.9 | 55.6 | 53.1 | 51.1 | 58.4 | 58.7 |
| *Medium Trucks:* | 43.3 | 42.1 | 30.5 | 32.7 | 41.8 | 41.9 |
| *Heavy Trucks:* | 64.4 | 62.4 | 57.6 | 57.2 | 64.6 | 64.8 |
| *Vehicle Noise:* | 65.3 | 63.3 | 58.9 | 58.1 | 65.6 | 65.8 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 15 | 33 | 70 | 152 |
| *CNEL:* | 16 | 34 | 73 | 157 |

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## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY WP
*Road Name:* S Primrose Ave
*Road Segment:* s/o W Walnut Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,902 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 490 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 30.0 feet |
| *Centerline Dist. to Observer:* | 30.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 29.816 |
| *Medium Trucks:* | 29.518 |
| *Heavy Trucks:* | 29.547 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -2.61 | 3.26 | -1.20 | *-4.49* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -29.37 | 3.33 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -15.44 | 3.32 | -1.20 | *-5.77* | 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:* | 58.2 | 55.9 | 53.4 | 51.4 | 58.7 | 59.0 |
| *Medium Trucks:* | 43.6 | 42.4 | 30.8 | 33.0 | 42.1 | 42.2 |
| *Heavy Trucks:* | 64.7 | 62.7 | 57.9 | 57.5 | 64.9 | 65.1 |
| *Vehicle Noise:* | 65.6 | 63.6 | 59.2 | 58.4 | 65.9 | 66.1 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 16 | 34 | 74 | 159 |
| *CNEL:* | 16 | 36 | 77 | 165 |

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## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY WP
*Road Name:* S Myrtle Ave
*Road Segment:* n/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 10,059 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 1,006 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | 0.51 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -26.25 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -12.32 | 1.08 | -1.20 | *-5.53* | 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:* | 59.1 | 56.8 | 54.3 | 52.3 | 59.6 | 59.9 |
| *Medium Trucks:* | 44.4 | 43.2 | 31.7 | 33.9 | 43.0 | 43.1 |
| *Heavy Trucks:* | 65.5 | 63.6 | 58.8 | 58.3 | 65.8 | 66.0 |
| *Vehicle Noise:* | 66.5 | 64.4 | 60.1 | 59.3 | 66.7 | 67.0 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 25 | 55 | 118 | 255 |
| *CNEL:* | 26 | 57 | 123 | 265 |

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## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY WP
*Road Name:* S Myrtle Ave
*Road Segment:* s/o W Olive Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 11,333 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 1,133 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | 1.03 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -25.73 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -11.80 | 1.08 | -1.20 | *-5.53* | 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:* | 59.6 | 57.4 | 54.8 | 52.8 | 60.1 | 60.4 |
| *Medium Trucks:* | 45.0 | 43.7 | 32.2 | 34.4 | 43.5 | 43.6 |
| *Heavy Trucks:* | 66.1 | 64.1 | 59.3 | 58.9 | 66.3 | 66.5 |
| *Vehicle Noise:* | 67.0 | 65.0 | 60.6 | 59.8 | 67.3 | 67.5 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 28 | 59 | 128 | 276 |
| *CNEL:* | 29 | 62 | 133 | 286 |

Monday, May 13, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* OY WP
*Road Name:* S Myrtle Ave
*Road Segment:* s/o W Walnut Ave

*Project Name:* 701 S Myrtle Ave
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 11,880 vehicles |
| *Peak Hour Percentage:* | 10.00% |
| *Peak Hour Volume:* | 1,188 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | 1.23 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -25.53 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -11.60 | 1.08 | -1.20 | *-5.53* | 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:* | 59.8 | 57.6 | 55.0 | 53.0 | 60.3 | 60.6 |
| *Medium Trucks:* | 45.2 | 44.0 | 32.4 | 34.6 | 43.7 | 43.8 |
| *Heavy Trucks:* | 66.3 | 64.3 | 59.5 | 59.1 | 66.5 | 66.7 |
| *Vehicle Noise:* | 67.2 | 65.2 | 60.8 | 60.0 | 67.5 | 67.7 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 28 | 61 | 132 | 285 |
| *CNEL:* | 30 | 64 | 137 | 296 |

Monday, May 13, 2024

# APPENDIX 8.1:

# ON-SITE TRAFFIC NOISE CALCULATIONS

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## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

*Scenario:* Backyard No Wall
*Road Name:* W Olive Avenue
*Lot No:* Northern Building Façade

*Project Name:* 701 S. Myrtle
*Job Number:* 15287
*Analyst:* B. Maddux

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,000 vehicles |
| *Peak Hour Percentage:* | 8% |
| *Peak Hour Volume:* | 304 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 29.0 feet |
| *Centerline Dist. to Observer:* | 29.0 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 |
| *Barrier Elevation:* | 0.0 feet |
| *Road Grade:* | 1.0% |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 28.810 |
| *Medium Trucks:* | 28.501 |
| *Heavy Trucks:* | 28.531 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | -4.69 | 3.49 | -1.20 | *-4.47* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -31.45 | 3.56 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -17.52 | 3.55 | -1.20 | *-5.80* | 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:* | 57.0 | 56.0 | 53.4 | 51.4 | 58.7 | 59.0 |
| *Medium Trucks:* | 42.0 | 42.0 | 30.4 | 32.6 | 41.7 | 41.8 |
| *Heavy Trucks:* | 62.1 | 61.3 | 56.5 | 56.1 | 63.5 | 63.7 |
| *Vehicle Noise:* | 63.3 | 62.5 | 58.2 | 57.4 | 64.8 | 65.0 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 57.0 | 56.0 | 53.4 | 51.4 | 58.7 | 59.0 |
| *Medium Trucks:* | 42.0 | 42.0 | 30.4 | 32.6 | 41.7 | 41.8 |
| *Heavy Trucks:* | 62.1 | 61.3 | 56.5 | 56.1 | 63.5 | 63.7 |
| *Vehicle Noise:* | 63.3 | 62.5 | 58.2 | 57.4 | 64.8 | 65.0 |

| ***Centerline Distance to Noise Contour (in feet)*** | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *CNEL:* | 14 | 29 | 63 | 135 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

*Scenario:* Backyard No Wall
*Road Name:* S Myrtle Avenue
*Lot No:* Eastern Building Façade

*Project Name:* 701 S. Myrtle
*Job Number:* 15287
*Analyst:* B. Maddux

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 12,000 vehicles |
| *Peak Hour Percentage:* | 8% |
| *Peak Hour Volume:* | 912 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 41.0 feet |
| *Centerline Dist. to Observer:* | 41.0 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 |
| *Barrier Elevation:* | 0.0 feet |
| *Road Grade:* | 1.0% |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 40.866 |
| *Medium Trucks:* | 40.649 |
| *Heavy Trucks:* | 40.670 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | 0.09 | 1.21 | -1.20 | *-4.59* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -26.67 | 1.25 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -12.75 | 1.24 | -1.20 | *-5.54* | 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:* | 59.5 | 58.5 | 55.9 | 53.9 | 61.2 | 61.5 |
| *Medium Trucks:* | 44.5 | 44.4 | 32.9 | 35.1 | 44.2 | 44.3 |
| *Heavy Trucks:* | 64.5 | 63.8 | 59.0 | 58.5 | 66.0 | 66.2 |
| *Vehicle Noise:* | 65.8 | 64.9 | 60.7 | 59.8 | 67.3 | 67.5 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 59.5 | 58.5 | 55.9 | 53.9 | 61.2 | 61.5 |
| *Medium Trucks:* | 44.5 | 44.4 | 32.9 | 35.1 | 44.2 | 44.3 |
| *Heavy Trucks:* | 64.5 | 63.8 | 59.0 | 58.5 | 66.0 | 66.2 |
| *Vehicle Noise:* | 65.8 | 64.9 | 60.7 | 59.8 | 67.3 | 67.5 |

| ***Centerline Distance to Noise Contour (in feet)*** | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *CNEL:* | 28 | 60 | 130 | 280 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

*Scenario:* Backyard With Wall
*Road Name:* W Olive Avenue
*Lot No:* Northern Building Façade

*Project Name:* 701 S. Myrtle
*Job Number:* 15287
*Analyst:* B. Maddux

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,000 vehicles |
| *Peak Hour Percentage:* | 8% |
| *Peak Hour Volume:* | 304 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 29.0 feet |
| *Centerline Dist. to Observer:* | 29.0 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 |
| *Barrier Elevation:* | 0.0 feet |
| *Road Grade:* | 1.0% |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 28.810 |
| *Medium Trucks:* | 28.501 |
| *Heavy Trucks:* | 28.531 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | -4.69 | 3.49 | -1.20 | *-4.47* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -31.45 | 3.56 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -17.52 | 3.55 | -1.20 | *-5.80* | 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:* | 57.0 | 56.0 | 53.4 | 51.4 | 58.7 | 59.0 |
| *Medium Trucks:* | 42.0 | 42.0 | 30.4 | 32.6 | 41.7 | 41.8 |
| *Heavy Trucks:* | 62.1 | 61.3 | 56.5 | 56.1 | 63.5 | 63.7 |
| *Vehicle Noise:* | 63.3 | 62.5 | 58.2 | 57.4 | 64.8 | 65.0 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 57.0 | 56.0 | 53.4 | 51.4 | 58.7 | 59.0 |
| *Medium Trucks:* | 42.0 | 42.0 | 30.4 | 32.6 | 41.7 | 41.8 |
| *Heavy Trucks:* | 62.1 | 61.3 | 56.5 | 56.1 | 63.5 | 63.7 |
| *Vehicle Noise:* | 63.3 | 62.5 | 58.2 | 57.4 | 64.8 | 65.0 |

| ***Centerline Distance to Noise Contour (in feet)*** | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *CNEL:* | 14 | 29 | 63 | 135 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

| | | | |
|---|---|---|---|
| *Scenario:* | Backyard With Wall | *Project Name:* | 701 S. Myrtle |
| *Road Name:* | S Myrtle Avenue | *Job Number:* | 15287 |
| *Lot No:* | Eastern Building Façade | *Analyst:* | B. Maddux |

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | | |
|---|---|---|
| *Average Daily Traffic (Adt):* | 12,000 | vehicles |
| *Peak Hour Percentage:* | 8% | |
| *Peak Hour Volume:* | 912 | vehicles |
| *Vehicle Speed:* | 25 | mph |
| *Near/Far Lane Distance:* | 12 | feet |

***Site Data***

| | | |
|---|---|---|
| ***Barrier Height:*** | **0.0** | **feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 | |
| *Centerline Dist. to Barrier:* | 41.0 | feet |
| *Centerline Dist. to Observer:* | 41.0 | 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 |
| *Barrier Elevation:* | 0.0 | feet |
| *Road Grade:* | 1.0% | |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 40.866 |
| *Medium Trucks:* | 40.649 |
| *Heavy Trucks:* | 40.670 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | 0.09 | 1.21 | -1.20 | *-4.59* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -26.67 | 1.25 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -12.75 | 1.24 | -1.20 | *-5.54* | 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:* | 59.5 | 58.5 | 55.9 | 53.9 | 61.2 | 61.5 |
| *Medium Trucks:* | 44.5 | 44.4 | 32.9 | 35.1 | 44.2 | 44.3 |
| *Heavy Trucks:* | 64.5 | 63.8 | 59.0 | 58.5 | 66.0 | 66.2 |
| *Vehicle Noise:* | 65.8 | 64.9 | 60.7 | 59.8 | 67.3 | 67.5 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 59.5 | 58.5 | 55.9 | 53.9 | 61.2 | 61.5 |
| *Medium Trucks:* | 44.5 | 44.4 | 32.9 | 35.1 | 44.2 | 44.3 |
| *Heavy Trucks:* | 64.5 | 63.8 | 59.0 | 58.5 | 66.0 | 66.2 |
| *Vehicle Noise:* | 65.8 | 64.9 | 60.7 | 59.8 | 67.3 | 67.5 |

| ***Centerline Distance to Noise Contour (in feet)*** | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *CNEL:* | 28 | 60 | 130 | 280 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

| | | | |
|---|---|---|---|
| *Scenario:* | First Floor With Wall | *Project Name:* | 701 S. Myrtle |
| *Road Name:* | W Olive Avenue | *Job Number:* | 15287 |
| *Lot No:* | Northern Building Façade | *Analyst:* | B. Maddux |

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | | |
|---|---|---|
| *Average Daily Traffic (Adt):* | 4,000 | vehicles |
| *Peak Hour Percentage:* | 8% | |
| *Peak Hour Volume:* | 304 | vehicles |
| *Vehicle Speed:* | 25 | mph |
| *Near/Far Lane Distance:* | 12 | feet |

***Site Data***

| | | |
|---|---|---|
| ***Barrier Height:*** | **0.0** | **feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 | |
| *Centerline Dist. to Barrier:* | 29.0 | feet |
| *Centerline Dist. to Observer:* | 29.0 | 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 |
| *Barrier Elevation:* | 0.0 | feet |
| *Road Grade:* | 1.0% | |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 28.810 |
| *Medium Trucks:* | 28.501 |
| *Heavy Trucks:* | 28.531 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | -4.69 | 3.49 | -1.20 | *-4.47* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -31.45 | 3.56 | -1.20 | *-4.86* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -17.52 | 3.55 | -1.20 | *-5.80* | 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:* | 57.0 | 56.0 | 53.4 | 51.4 | 58.7 | 59.0 |
| *Medium Trucks:* | 42.0 | 42.0 | 30.4 | 32.6 | 41.7 | 41.8 |
| *Heavy Trucks:* | 62.1 | 61.3 | 56.5 | 56.1 | 63.5 | 63.7 |
| *Vehicle Noise:* | 63.3 | 62.5 | 58.2 | 57.4 | 64.8 | 65.0 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 57.0 | 56.0 | 53.4 | 51.4 | 58.7 | 59.0 |
| *Medium Trucks:* | 42.0 | 42.0 | 30.4 | 32.6 | 41.7 | 41.8 |
| *Heavy Trucks:* | 62.1 | 61.3 | 56.5 | 56.1 | 63.5 | 63.7 |
| *Vehicle Noise:* | 63.3 | 62.5 | 58.2 | 57.4 | 64.8 | 65.0 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

| | | | |
|---|---|---|---|
| *Scenario:* | First Floor With Wall | *Project Name:* | 701 S. Myrtle |
| *Road Name:* | S Myrtle Avenue | *Job Number:* | 15287 |
| *Lot No:* | Eastern Building Façade | *Analyst:* | B. Maddux |

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | | |
|---|---|---|
| *Average Daily Traffic (Adt):* | 12,000 | vehicles |
| *Peak Hour Percentage:* | 8% | |
| *Peak Hour Volume:* | 912 | vehicles |
| *Vehicle Speed:* | 25 | mph |
| *Near/Far Lane Distance:* | 12 | feet |

***Site Data***

| | | |
|---|---|---|
| ***Barrier Height:*** | **0.0** | **feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 | |
| *Centerline Dist. to Barrier:* | 41.0 | feet |
| *Centerline Dist. to Observer:* | 41.0 | 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 |
| *Barrier Elevation:* | 0.0 | feet |
| *Road Grade:* | 1.0% | |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 40.866 |
| *Medium Trucks:* | 40.649 |
| *Heavy Trucks:* | 40.670 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | 0.09 | 1.21 | -1.20 | *-4.59* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -26.67 | 1.25 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -12.75 | 1.24 | -1.20 | *-5.54* | 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:* | 59.5 | 58.5 | 55.9 | 53.9 | 61.2 | 61.5 |
| *Medium Trucks:* | 44.5 | 44.4 | 32.9 | 35.1 | 44.2 | 44.3 |
| *Heavy Trucks:* | 64.5 | 63.8 | 59.0 | 58.5 | 66.0 | 66.2 |
| *Vehicle Noise:* | 65.8 | 64.9 | 60.7 | 59.8 | 67.3 | 67.5 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 59.5 | 58.5 | 55.9 | 53.9 | 61.2 | 61.5 |
| *Medium Trucks:* | 44.5 | 44.4 | 32.9 | 35.1 | 44.2 | 44.3 |
| *Heavy Trucks:* | 64.5 | 63.8 | 59.0 | 58.5 | 66.0 | 66.2 |
| *Vehicle Noise:* | 65.8 | 64.9 | 60.7 | 59.8 | 67.3 | 67.5 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

*Scenario:* Second Floor With Wall
*Road Name:* W Olive Avenue
*Lot No:* Northern Building Façade

*Project Name:* 701 S. Myrtle
*Job Number:* 15287
*Analyst:* B. Maddux

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 4,000 vehicles |
| *Peak Hour Percentage:* | 8% |
| *Peak Hour Volume:* | 304 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 29.0 feet |
| *Centerline Dist. to Observer:* | 29.0 feet |
| *Barrier Distance to Observer:* | 0.0 feet |
| *Observer Height (Above Pad):* | 14.0 feet |
| *Pad Elevation:* | 0.0 feet |
| *Road Elevation:* | 0.0 feet |
| *Barrier Elevation:* | 0.0 feet |
| *Road Grade:* | 1.0% |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 31.639 |
| *Medium Trucks:* | 30.691 |
| *Heavy Trucks:* | 28.999 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | -4.69 | 2.88 | -1.20 | *-10.56* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -31.45 | 3.08 | -1.20 | *-11.56* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -17.52 | 3.45 | -1.20 | *-14.16* | 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:* | 56.4 | 55.4 | 52.8 | 50.8 | 58.1 | 58.4 |
| *Medium Trucks:* | 41.5 | 41.5 | 30.0 | 32.2 | 41.3 | 41.3 |
| *Heavy Trucks:* | 62.0 | 61.2 | 56.4 | 56.0 | 63.4 | 63.6 |
| *Vehicle Noise:* | 63.1 | 62.2 | 58.0 | 57.1 | 64.6 | 64.8 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 56.4 | 55.4 | 52.8 | 50.8 | 58.1 | 58.4 |
| *Medium Trucks:* | 41.5 | 41.5 | 30.0 | 32.2 | 41.3 | 41.3 |
| *Heavy Trucks:* | 62.0 | 61.2 | 56.4 | 56.0 | 63.4 | 63.6 |
| *Vehicle Noise:* | 63.1 | 62.2 | 58.0 | 57.1 | 64.6 | 64.8 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

| | | | |
|---|---|---|---|
| *Scenario:* | Second Floor With Wall | *Project Name:* | 701 S. Myrtle |
| *Road Name:* | S Myrtle Avenue | *Job Number:* | 15287 |
| *Lot No:* | Eastern Building Façade | *Analyst:* | B. Maddux |

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | | |
|---|---|---|
| *Average Daily Traffic (Adt):* | 12,000 | vehicles |
| *Peak Hour Percentage:* | 8% | |
| *Peak Hour Volume:* | 912 | vehicles |
| *Vehicle Speed:* | 25 | mph |
| *Near/Far Lane Distance:* | 12 | feet |

***Site Data***

| | | |
|---|---|---|
| ***Barrier Height:*** | **0.0** | **feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 | |
| *Centerline Dist. to Barrier:* | 41.0 | feet |
| *Centerline Dist. to Observer:* | 41.0 | feet |
| *Barrier Distance to Observer:* | 0.0 | feet |
| *Observer Height (Above Pad):* | 14.0 | feet |
| *Pad Elevation:* | 0.0 | feet |
| *Road Elevation:* | 0.0 | feet |
| *Barrier Elevation:* | 0.0 | feet |
| *Road Grade:* | 1.0% | |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 42.907 |
| *Medium Trucks:* | 42.213 |
| *Heavy Trucks:* | 40.999 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | 0.09 | 0.89 | -1.20 | *-11.42* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -26.67 | 1.00 | -1.20 | *-12.16* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -12.75 | 1.19 | -1.20 | *-14.03* | 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:* | 59.2 | 58.2 | 55.6 | 53.6 | 60.9 | 61.2 |
| *Medium Trucks:* | 44.2 | 44.2 | 32.6 | 34.9 | 44.0 | 44.0 |
| *Heavy Trucks:* | 64.5 | 63.7 | 58.9 | 58.5 | 65.9 | 66.2 |
| *Vehicle Noise:* | 65.6 | 64.8 | 60.6 | 59.7 | 67.1 | 67.4 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 59.2 | 58.2 | 55.6 | 53.6 | 60.9 | 61.2 |
| *Medium Trucks:* | 44.2 | 44.2 | 32.6 | 34.9 | 44.0 | 44.0 |
| *Heavy Trucks:* | 64.5 | 63.7 | 58.9 | 58.5 | 65.9 | 66.2 |
| *Vehicle Noise:* | 65.6 | 64.8 | 60.6 | 59.7 | 67.1 | 67.4 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

| | | | |
|---|---|---|---|
| *Scenario:* | Third Floor With Wall | *Project Name:* | 701 S. Myrtle |
| *Road Name:* | W Olive Avenue | *Job Number:* | 15287 |
| *Lot No:* | Northern Building Façade | *Analyst:* | B. Maddux |

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | | |
|---|---|---|
| *Average Daily Traffic (Adt):* | 4,000 | vehicles |
| *Peak Hour Percentage:* | 8% | |
| *Peak Hour Volume:* | 304 | vehicles |
| *Vehicle Speed:* | 25 | mph |
| *Near/Far Lane Distance:* | 12 | feet |

***Site Data***

| | | |
|---|---|---|
| ***Barrier Height:*** | **0.0** | **feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 | |
| *Centerline Dist. to Barrier:* | 29.0 | feet |
| *Centerline Dist. to Observer:* | 29.0 | feet |
| *Barrier Distance to Observer:* | 0.0 | feet |
| *Observer Height (Above Pad):* | 23.0 | feet |
| *Pad Elevation:* | 0.0 | feet |
| *Road Elevation:* | 0.0 | feet |
| *Barrier Elevation:* | 0.0 | feet |
| *Road Grade:* | 1.0% | |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 36.524 |
| *Medium Trucks:* | 35.123 |
| *Heavy Trucks:* | 32.091 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | -4.69 | 1.94 | -1.20 | *-14.66* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -31.45 | 2.20 | -1.20 | *-16.10* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -17.52 | 2.79 | -1.20 | *-20.00* | 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:* | 55.5 | 54.4 | 51.9 | 49.9 | 57.2 | 57.5 |
| *Medium Trucks:* | 40.6 | 40.6 | 29.1 | 31.3 | 40.4 | 40.5 |
| *Heavy Trucks:* | 61.3 | 60.5 | 55.7 | 55.3 | 62.8 | 63.0 |
| *Vehicle Noise:* | 62.3 | 61.5 | 57.2 | 56.4 | 63.8 | 64.1 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 55.5 | 54.4 | 51.9 | 49.9 | 57.2 | 57.5 |
| *Medium Trucks:* | 40.6 | 40.6 | 29.1 | 31.3 | 40.4 | 40.5 |
| *Heavy Trucks:* | 61.3 | 60.5 | 55.7 | 55.3 | 62.8 | 63.0 |
| *Vehicle Noise:* | 62.3 | 61.5 | 57.2 | 56.4 | 63.8 | 64.1 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

| | | | |
|---|---|---|---|
| *Scenario:* | Third Floor With Wall | *Project Name:* | 701 S. Myrtle |
| *Road Name:* | S Myrtle Avenue | *Job Number:* | 15287 |
| *Lot No:* | Eastern Building Façade | *Analyst:* | B. Maddux |

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | | |
|---|---|---|
| *Average Daily Traffic (Adt):* | 12,000 | vehicles |
| *Peak Hour Percentage:* | 8% | |
| *Peak Hour Volume:* | 912 | vehicles |
| *Vehicle Speed:* | 25 | mph |
| *Near/Far Lane Distance:* | 12 | feet |

***Site Data***

| | | |
|---|---|---|
| ***Barrier Height:*** | **0.0** | **feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 | |
| *Centerline Dist. to Barrier:* | 41.0 | feet |
| *Centerline Dist. to Observer:* | 41.0 | feet |
| *Barrier Distance to Observer:* | 0.0 | feet |
| *Observer Height (Above Pad):* | 23.0 | feet |
| *Pad Elevation:* | 0.0 | feet |
| *Road Elevation:* | 0.0 | feet |
| *Barrier Elevation:* | 0.0 | feet |
| *Road Grade:* | 1.0% | |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 46.626 |
| *Medium Trucks:* | 45.537 |
| *Heavy Trucks:* | 43.241 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | 0.09 | 0.35 | -1.20 | *-16.62* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -26.67 | 0.51 | -1.20 | *-17.74* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -12.75 | 0.84 | -1.20 | *-20.66* | 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:* | 58.7 | 57.6 | 55.1 | 53.0 | 60.4 | 60.7 |
| *Medium Trucks:* | 43.7 | 43.7 | 32.2 | 34.4 | 43.5 | 43.5 |
| *Heavy Trucks:* | 64.1 | 63.4 | 58.6 | 58.1 | 65.6 | 65.8 |
| *Vehicle Noise:* | 65.3 | 64.4 | 60.2 | 59.3 | 66.7 | 67.0 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 58.7 | 57.6 | 55.1 | 53.0 | 60.4 | 60.7 |
| *Medium Trucks:* | 43.7 | 43.7 | 32.2 | 34.4 | 43.5 | 43.5 |
| *Heavy Trucks:* | 64.1 | 63.4 | 58.6 | 58.1 | 65.6 | 65.8 |
| *Vehicle Noise:* | 65.3 | 64.4 | 60.2 | 59.3 | 66.7 | 67.0 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

| | | | |
|---|---|---|---|
| *Scenario:* | Fourth Floor With Wall | *Project Name:* | 701 S. Myrtle |
| *Road Name:* | W Olive Avenue | *Job Number:* | 15287 |
| *Lot No:* | Northern Building Façade | *Analyst:* | B. Maddux |

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | | |
|---|---|---|
| *Average Daily Traffic (Adt):* | 4,000 | vehicles |
| *Peak Hour Percentage:* | 8% | |
| *Peak Hour Volume:* | 304 | vehicles |
| *Vehicle Speed:* | 25 | mph |
| *Near/Far Lane Distance:* | 12 | feet |

***Site Data***

| | | |
|---|---|---|
| ***Barrier Height:*** | **0.0** | **feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 | |
| *Centerline Dist. to Barrier:* | 29.0 | feet |
| *Centerline Dist. to Observer:* | 29.0 | feet |
| *Barrier Distance to Observer:* | 0.0 | feet |
| *Observer Height (Above Pad):* | 32.0 | feet |
| *Pad Elevation:* | 0.0 | feet |
| *Road Elevation:* | 0.0 | feet |
| *Barrier Elevation:* | 0.0 | feet |
| *Road Grade:* | 1.0% | |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 42.767 |
| *Medium Trucks:* | 41.076 |
| *Heavy Trucks:* | 37.158 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | -4.69 | 0.91 | -1.20 | *-17.43* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -31.45 | 1.18 | -1.20 | *-19.16* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -17.52 | 1.83 | -1.20 | *-23.92* | 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:* | 54.5 | 53.4 | 50.9 | 48.8 | 56.1 | 56.5 |
| *Medium Trucks:* | 39.6 | 39.6 | 28.1 | 30.3 | 39.4 | 39.4 |
| *Heavy Trucks:* | 60.4 | 59.6 | 54.8 | 54.4 | 61.8 | 62.0 |
| *Vehicle Noise:* | 61.4 | 60.6 | 56.3 | 55.4 | 62.9 | 63.1 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 54.5 | 53.4 | 50.9 | 48.8 | 56.1 | 56.5 |
| *Medium Trucks:* | 39.6 | 39.6 | 28.1 | 30.3 | 39.4 | 39.4 |
| *Heavy Trucks:* | 60.4 | 59.6 | 54.8 | 54.4 | 61.8 | 62.0 |
| *Vehicle Noise:* | 61.4 | 60.6 | 56.3 | 55.4 | 62.9 | 63.1 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

| | | | |
|---|---|---|---|
| *Scenario:* | Fourth Floor With Wall | *Project Name:* | 701 S. Myrtle |
| *Road Name:* | S Myrtle Avenue | *Job Number:* | 15287 |
| *Lot No:* | Eastern Building Façade | *Analyst:* | B. Maddux |

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | | |
|---|---|---|
| *Average Daily Traffic (Adt):* | 12,000 | vehicles |
| *Peak Hour Percentage:* | 8% | |
| *Peak Hour Volume:* | 912 | vehicles |
| *Vehicle Speed:* | 25 | mph |
| *Near/Far Lane Distance:* | 12 | feet |

***Site Data***

| | | |
|---|---|---|
| ***Barrier Height:*** | **0.0** | **feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 | |
| *Centerline Dist. to Barrier:* | 41.0 | feet |
| *Centerline Dist. to Observer:* | 41.0 | feet |
| *Barrier Distance to Observer:* | 0.0 | feet |
| *Observer Height (Above Pad):* | 32.0 | feet |
| *Pad Elevation:* | 0.0 | feet |
| *Road Elevation:* | 0.0 | feet |
| *Barrier Elevation:* | 0.0 | feet |
| *Road Grade:* | 1.0% | |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 51.662 |
| *Medium Trucks:* | 50.272 |
| *Heavy Trucks:* | 47.124 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | 0.09 | -0.32 | -1.20 | *-20.54* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -26.67 | -0.14 | -1.20 | *-21.95* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -12.75 | 0.28 | -1.20 | *-25.70* | 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:* | 58.0 | 56.9 | 54.4 | 52.4 | 59.7 | 60.0 |
| *Medium Trucks:* | 43.1 | 43.1 | 31.5 | 33.7 | 42.8 | 42.9 |
| *Heavy Trucks:* | 63.6 | 62.8 | 58.0 | 57.6 | 65.0 | 65.3 |
| *Vehicle Noise:* | 64.7 | 63.8 | 59.6 | 58.7 | 66.2 | 66.4 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 58.0 | 56.9 | 54.4 | 52.4 | 59.7 | 60.0 |
| *Medium Trucks:* | 43.1 | 43.1 | 31.5 | 33.7 | 42.8 | 42.9 |
| *Heavy Trucks:* | 63.6 | 62.8 | 58.0 | 57.6 | 65.0 | 65.3 |
| *Vehicle Noise:* | 64.7 | 63.8 | 59.6 | 58.7 | 66.2 | 66.4 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

| | | | |
|---|---|---|---|
| *Scenario:* | Fifth Floor With Wall | *Project Name:* | 701 S. Myrtle |
| *Road Name:* | W Olive Avenue | *Job Number:* | 15287 |
| *Lot No:* | Northern Building Façade | *Analyst:* | B. Maddux |

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | | |
|---|---|---|
| *Average Daily Traffic (Adt):* | 4,000 | vehicles |
| *Peak Hour Percentage:* | 8% | |
| *Peak Hour Volume:* | 304 | vehicles |
| *Vehicle Speed:* | 25 | mph |
| *Near/Far Lane Distance:* | 12 | feet |

***Site Data***

| | | |
|---|---|---|
| ***Barrier Height:*** | **0.0** | **feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 | |
| *Centerline Dist. to Barrier:* | 29.0 | feet |
| *Centerline Dist. to Observer:* | 29.0 | feet |
| *Barrier Distance to Observer:* | 0.0 | feet |
| *Observer Height (Above Pad):* | 41.0 | feet |
| *Pad Elevation:* | 0.0 | feet |
| *Road Elevation:* | 0.0 | feet |
| *Barrier Elevation:* | 0.0 | feet |
| *Road Grade:* | 1.0% | |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 49.860 |
| *Medium Trucks:* | 47.989 |
| *Heavy Trucks:* | 43.516 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | -4.69 | -0.09 | -1.20 | *-19.35* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -31.45 | 0.16 | -1.20 | *-21.26* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -17.52 | 0.80 | -1.20 | *-26.57* | 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:* | 53.5 | 52.4 | 49.9 | 47.8 | 55.1 | 55.5 |
| *Medium Trucks:* | 38.6 | 38.6 | 27.0 | 29.3 | 38.3 | 38.4 |
| *Heavy Trucks:* | 59.3 | 58.6 | 53.8 | 53.3 | 60.8 | 61.0 |
| *Vehicle Noise:* | 60.4 | 59.5 | 55.2 | 54.4 | 61.8 | 62.1 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 53.5 | 52.4 | 49.9 | 47.8 | 55.1 | 55.5 |
| *Medium Trucks:* | 38.6 | 38.6 | 27.0 | 29.3 | 38.3 | 38.4 |
| *Heavy Trucks:* | 59.3 | 58.6 | 53.8 | 53.3 | 60.8 | 61.0 |
| *Vehicle Noise:* | 60.4 | 59.5 | 55.2 | 54.4 | 61.8 | 62.1 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

| | | | |
|---|---|---|---|
| *Scenario:* | Fifth Floor With Wall | *Project Name:* | 701 S. Myrtle |
| *Road Name:* | S Myrtle Avenue | *Job Number:* | 15287 |
| *Lot No:* | Eastern Building Façade | *Analyst:* | B. Maddux |

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | | |
|---|---|---|
| *Average Daily Traffic (Adt):* | 12,000 | vehicles |
| *Peak Hour Percentage:* | 8% | |
| *Peak Hour Volume:* | 912 | vehicles |
| *Vehicle Speed:* | 25 | mph |
| *Near/Far Lane Distance:* | 12 | feet |

***Site Data***

| | | |
|---|---|---|
| ***Barrier Height:*** | **0.0** | **feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 | |
| *Centerline Dist. to Barrier:* | 41.0 | feet |
| *Centerline Dist. to Observer:* | 41.0 | feet |
| *Barrier Distance to Observer:* | 0.0 | feet |
| *Observer Height (Above Pad):* | 41.0 | feet |
| *Pad Elevation:* | 0.0 | feet |
| *Road Elevation:* | 0.0 | feet |
| *Barrier Elevation:* | 0.0 | feet |
| *Road Grade:* | 1.0% | |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 57.671 |
| *Medium Trucks:* | 56.062 |
| *Heavy Trucks:* | 52.284 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | 0.09 | -1.03 | -1.20 | *-23.50* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -26.67 | -0.85 | -1.20 | *-25.13* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -12.75 | -0.39 | -1.20 | *-29.50* | 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:* | 57.3 | 56.2 | 53.7 | 51.7 | 59.0 | 59.3 |
| *Medium Trucks:* | 42.4 | 42.4 | 30.8 | 33.0 | 42.1 | 42.2 |
| *Heavy Trucks:* | 62.9 | 62.1 | 57.3 | 56.9 | 64.3 | 64.6 |
| *Vehicle Noise:* | 64.0 | 63.2 | 58.9 | 58.0 | 65.5 | 65.7 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 57.3 | 56.2 | 53.7 | 51.7 | 59.0 | 59.3 |
| *Medium Trucks:* | 42.4 | 42.4 | 30.8 | 33.0 | 42.1 | 42.2 |
| *Heavy Trucks:* | 62.9 | 62.1 | 57.3 | 56.9 | 64.3 | 64.6 |
| *Vehicle Noise:* | 64.0 | 63.2 | 58.9 | 58.0 | 65.5 | 65.7 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

| | | | |
|---|---|---|---|
| *Scenario:* | Sixth Floor With Wall | *Project Name:* | 701 S. Myrtle |
| *Road Name:* | W Olive Avenue | *Job Number:* | 15287 |
| *Lot No:* | Northern Building Façade | *Analyst:* | B. Maddux |

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | | |
|---|---|---|
| *Average Daily Traffic (Adt):* | 4,000 | vehicles |
| *Peak Hour Percentage:* | 8% | |
| *Peak Hour Volume:* | 304 | vehicles |
| *Vehicle Speed:* | 25 | mph |
| *Near/Far Lane Distance:* | 12 | feet |

***Site Data***

| | | |
|---|---|---|
| ***Barrier Height:*** | **0.0** | **feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 | |
| *Centerline Dist. to Barrier:* | 29.0 | feet |
| *Centerline Dist. to Observer:* | 29.0 | feet |
| *Barrier Distance to Observer:* | 0.0 | feet |
| *Observer Height (Above Pad):* | 50.0 | feet |
| *Pad Elevation:* | 0.0 | feet |
| *Road Elevation:* | 0.0 | feet |
| *Barrier Elevation:* | 0.0 | feet |
| *Road Grade:* | 1.0% | |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 57.489 |
| *Medium Trucks:* | 55.503 |
| *Heavy Trucks:* | 50.680 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | -4.69 | -1.01 | -1.20 | *-20.74* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -31.45 | -0.78 | -1.20 | *-22.76* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -17.52 | -0.19 | -1.20 | *-28.42* | 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:* | 52.5 | 51.5 | 48.9 | 46.9 | 54.2 | 54.5 |
| *Medium Trucks:* | 37.7 | 37.6 | 26.1 | 28.3 | 37.4 | 37.5 |
| *Heavy Trucks:* | 58.3 | 57.6 | 52.8 | 52.3 | 59.8 | 60.0 |
| *Vehicle Noise:* | 59.4 | 58.6 | 54.3 | 53.4 | 60.9 | 61.1 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 52.5 | 51.5 | 48.9 | 46.9 | 54.2 | 54.5 |
| *Medium Trucks:* | 37.7 | 37.6 | 26.1 | 28.3 | 37.4 | 37.5 |
| *Heavy Trucks:* | 58.3 | 57.6 | 52.8 | 52.3 | 59.8 | 60.0 |
| *Vehicle Noise:* | 59.4 | 58.6 | 54.3 | 53.4 | 60.9 | 61.1 |

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

| | | | |
|---|---|---|---|
| *Scenario:* | Sixth Floor With Wall | *Project Name:* | 701 S. Myrtle |
| *Road Name:* | S Myrtle Avenue | *Job Number:* | 15287 |
| *Lot No:* | Eastern Building Façade | *Analyst:* | B. Maddux |

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | | |
|---|---|---|
| *Average Daily Traffic (Adt):* | 12,000 | vehicles |
| *Peak Hour Percentage:* | 8% | |
| *Peak Hour Volume:* | 912 | vehicles |
| *Vehicle Speed:* | 25 | mph |
| *Near/Far Lane Distance:* | 12 | feet |

***Site Data***

| | | |
|---|---|---|
| ***Barrier Height:*** | **0.0** | **feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 | |
| *Centerline Dist. to Barrier:* | 41.0 | feet |
| *Centerline Dist. to Observer:* | 41.0 | feet |
| *Barrier Distance to Observer:* | 0.0 | feet |
| *Observer Height (Above Pad):* | 50.0 | feet |
| *Pad Elevation:* | 0.0 | feet |
| *Road Elevation:* | 0.0 | feet |
| *Barrier Elevation:* | 0.0 | feet |
| *Road Grade:* | 1.0% | |

### 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 64.382 |
| *Medium Trucks:* | 62.615 |
| *Heavy Trucks:* | 58.382 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 59.44 | 0.09 | -1.75 | -1.20 | *-25.77* | 0.000 | 0.000 |
| *Medium Trucks:* | 71.09 | -26.67 | -1.57 | -1.20 | *-27.55* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.24 | -12.75 | -1.11 | -1.20 | *-32.37* | 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:* | 56.6 | 55.5 | 53.0 | 50.9 | 58.2 | 58.6 |
| *Medium Trucks:* | 41.6 | 41.6 | 30.1 | 32.3 | 41.4 | 41.5 |
| *Heavy Trucks:* | 62.2 | 61.4 | 56.6 | 56.2 | 63.6 | 63.9 |
| *Vehicle Noise:* | 63.3 | 62.4 | 58.2 | 57.3 | 64.8 | 65.0 |

***Mitigated Noise Levels (with Topo and barrier attenuation)***

| *VehicleType* | *Leq Peak Hour* | *Leq Day* | *Leq Evening* | *Leq Night* | *Ldn* | *CNEL* |
|---|---|---|---|---|---|---|
| *Autos:* | 56.6 | 55.5 | 53.0 | 50.9 | 58.2 | 58.6 |
| *Medium Trucks:* | 41.6 | 41.6 | 30.1 | 32.3 | 41.4 | 41.5 |
| *Heavy Trucks:* | 62.2 | 61.4 | 56.6 | 56.2 | 63.6 | 63.9 |
| *Vehicle Noise:* | 63.3 | 62.4 | 58.2 | 57.3 | 64.8 | 65.0 |

# APPENDIX 10.1:

# SAMPLE AIR CONDITIONER SPECIFICATION

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# 24SCA5
# Comfort™ Series Single-Stage Air Conditioner with Puron® Refrigerant
# 1-1/2 To 5 Tons

Carrier
Turn to the experts

# Product Data



This unit has been designed utilizing Carrier's Puron refrigerant. The environmentally sound refrigerant allows you to make a responsible decision in the protection of the earth's ozone layer.

**NOTE:** Ratings contained in this document are subject to change at any time. Always refer to the AHRI directory (www.ahridirectory.org) for the most up-to-date ratings information.

## Industry leading Features / Benefits

### Efficiency

- 13.8 - 16.0 SEER2 (14 - 16.5 SEER) / 11.2 – 13.0 EER2 (11.2 - 13.0 EER)
- Microtube Technology refrigeration system
- Indoor air quality accessories available

### Reliability

- Puron refrigerant - environmentally sound, won't deplete the ozone layer and low lifetime service cost.
- Scroll compressor
- Internal pressure relief valve
- Internal thermal overload
- Filter drier

### Durability

WeatherArmor™ Protection Package:

- Solid, durable sheet metal construction
- Dense wire coil guard

### Applications

- Long–line – up to 250 feet (76.20 m) total equivalent length, up to 200 feet (60.96 m) condenser above evaporator, or up to 80 ft. (24.4 m) evaporator above condenser (See Long Line Guide for more information.)
- Low ambient cooling (down to 0°F / -18°C ) with approved low ambient accessory kits.

## STANDARD FEATURES

| Features | 18 | 24 | 30 | 36 | 42 | 48 | 60 |
|---|---|---|---|---|---|---|---|
| Puron Refrigerant | X | X | X | X | X | X | X |
| SEER2 (Range depending on indoor combination) | 14.3 - 16 | 14.3 - 16 | 14.3 - 16 | 14.3 - 16 | 13.8 - 15 | 13.8 - 15 | 13.8 - 15 |
| Scroll Compressor | X | X | X | X | X | X | X |
| Field Installed Filter Drier | X | X | X | X | X | X | X |
| Front Seating Service Valves | X | X | X | X | X | X | X |
| Internal Pressure Relief Valve | X | X | X | X | X | X | X |
| Internal Thermal Overload | X | X | X | X | X | X | X |
| Long Line Capability | X | X | X | X | X | X | X |
| Low Ambient Capability with Kit | X | X | X | X | X | X | X |

## Model Number Nomenclature

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N | N | A | A | A/N | N | N | N | A/N | A/N | A/N | N |
| **2** | **4** | **S** | **C** | **A** | **5** | **1** | **8** | **W** | **0** | **0** | **3** |
| Product Series | | Design Type | Tier | Major Series | SEER2 | Cooling Capacity | | Region | Feature | Special Feature | Voltage |
| **24** = R-410A AC | | S = Single Stage AC | C = Comfort Series | A=Initial | 5 = 14.3 SEER2 | 1,000 Btuh (nominal) | | W = Standard SW AC | 0=Standard | 0=Standard | 3=208/230-1 |

## CATALOG ORDERING NUMBERS

| Size | Model Number |
|---|---|
| **18** | 24SCA518W003 |
| **24** | 24SCA524W003 |
| **30** | 24SCA530W003 |
| **36** | 24SCA536W003 |
| **42** | 24SCA542W003 |
| **48** | 24SCA548W003 |
| **60** | 24SCA560W003 |

## Physical Data

| UNIT SIZE | 18 | 24 | 30 | 36 | 42 | 48 | 60 |
|---|---|---|---|---|---|---|---|
| **Compressor Type** | Scroll | | | | | | |
| **REFRIGERANT** | Puron® (R-410A) | | | | | | |
| Control | TXV (Puron Hard Shutoff) | | | | | | |
| Factory Charge lb (kg)* | 4.70 (2.13) | 5.60 (2.54) | 6.60 (2.99) | 6.80 (3.08) | 8.10 (3.67) | 8.10 (3.67) | 10.10 (4.58) |
| **COND FAN** | Propeller Type, Direct Drive | | | | | | |
| Air Discharge | Vertical | | | | | | |
| Air Qty (CFM) | 2050 | 2600 | 2575 | 3700 | 3890 | 3890 | 4260 |
| Motor HP | 1/12 | 1/10 | 1/10 | 1/4 | 1/4 | 1/4 | 1/4 |
| Motor RPM | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 |
| **COND COIL** | | | | | | | |
| Face Area (Sq ft) | 11.5 | 14.7 | 19.4 | 21.5 | 17.2 | 17.2 | 21.5 |
| Fins per In. | 25 | 25 | 25 | 25 | 20 | 20 | 20 |
| Rows | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| Circuits | 3 | 4 | 5 | 6 | 8 | 8 | 9 |
| **VALVE CONNECT. (In. ID)** | | | | | | | |
| Vapor | 3/4 | 3/4 | 3/4 | 7/8 | 7/8 | 7/8 | 7/8 |
| Liquid | 3/8" | | | | | | |
| **REFRIGERANT TUBES* (In. OD)** | | | | | | | |
| Rated Vapor† | 3/4 | 3/4 | 3/4 | 7/8 | 7/8 | 7/8 | 1-1/8 |
| Rated Liquid Line‡ | 3/8" | | | | | | |

*.For 15 ft. lineset
†.Units are rated with 25 ft (7.6 m) of lineset length. See Vapor Line Sizing and Cooling Capacity Loss table when using other sizes and lengths of lineset.
‡.See Liquid Line Sizing For Cooling Only Systems with Puron Refrigerant tables.
"--" = Factory charge and required charge values are equal
**Note**: See unit Installation Instruction for proper installation.


Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

# REFRIGERANT PIPING LENGTH LIMITATIONS

## Liquid Line Sizing and Maximum Total Equivalent Lengths for Cooling Only Systems with Puron® Refrigerant:

The maximum allowable length of a residential split system depends on the liquid line diameter and vertical separation between indoor and outdoor units.

See Table below for liquid line sizing and maximum lengths :

**Table 1 – Maximum Total Equivalent Length* Outdoor Unit BELOW Indoor Unit**

| Size | Liquid Line Connection | Liquid Line Diam. w/ TXV | AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit BELOW Indoor Vertical Separation ft (m) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0-5 (0-1.5) | 6-10 (1.8-3.0) | 11-20 (3.4-6.1) | 21-30 (6.4-9.1) | 31-40 (9.4-12.2) | 41-50 (12.5-15.2) | 51-60 (15.5-18.3) | 61-70 (18.6-21.3) | 71-80 (21.6-24.4) |
| 18000 | 3/8 | 1/4 | 150 | 150 | 125 | 100 | 100 | 75 | -- | -- | -- |
| | | 5/16 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 225* | 150 |
| | | 3/8 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| 24000 | 3/8 | 1/4 | 75 | 75 | 75 | 50 | 50 | -- | -- | -- | -- |
| | | 5/16 | 250* | 250* | 250* | 250* | 250* | 225* | 175 | 125 | 100 |
| | | 3/8 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| 30000 | 3/8 | 1/4 | 30 | -- | -- | -- | -- | -- | -- | -- | -- |
| | | 5/16 | 175 | 225* | 200 | 175 | 125 | 100 | 75 | -- | -- |
| | | 3/8 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| 36000 | 3/8 | 5/16 | 175 | 150 | 150 | 100 | 100 | 100 | 75 | -- | -- |
| | | 3//8 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| 42000 | 3/8 | 5/16 | 125 | 100 | 100 | 75 | 75 | 50 | -- | -- | -- |
| | | 3/8 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 150 |
| 48000 | 3/8 | 3/8 | 250* | 250* | 250* | 250* | 250* | 250* | 230 | 160 | -- |
| 60000 | 3/8 | 3/8 | 250* | 250* | 250* | 225* | 190 | 150 | 110 | -- | -- |

*.Maximum actual length not to exceed 200 ft (61 m)
†.Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.
-- = outside acceptable range

**Table 2 – Maximum* Total Equivalent Length Outdoor Unit ABOVE Indoor Unit**

| Size | Liquid Line Connection | Liquid Line Diam. w/ TXV | AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit ABOVE Indoor Vertical Separation ft (m) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 25 (7.6) | 26-50 (7.9-15.2) | 51-75 (15.5-22.9) | 76-100 (23.2-30.5) | 101-125 (30.8-38.1) | 126-150 (38.4-45.7) | 151-175 (46.0-53.3) | 176-200 (53.6-61.0) |
| 18000 | 3/8 | 1/4 | 175 | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| | | 5/16 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| | | 3/8 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| 24000 | 3/8 | 1/4 | 100 | 125 | 175 | 200 | 225* | 250* | 250* | 250* |
| | | 5/16 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| | | 3/8 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| 30000 | 3/8 | 1/4 | 30 | -- | -- | -- | -- | -- | -- | -- |
| | | 5/16 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| | | 3/8 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| 36000 | 3/8 | 5/16 | 225* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| | | 3/8 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| 42000 | 3/8 | 5/16 | 175 | 200 | 250* | 250* | 250* | 250* | 250* | 250* |
| | | 3/8 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| 48000 | 3/8 | 3/8 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |
| 60000 | 3/8 | 3/8 | 250* | 250* | 250* | 250* | 250* | 250* | 250* | 250* |

*.Maximum actual length not to exceed 200 ft (61 m)
†.Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.
-- = Outside acceptable range


Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

**Table 3 – Refrigerant Charge Adjustments**

| Liquid Line Size | Puron Charge oz/ft (g/m) |
|---|---|
| 3/8 | 0.60 (17.74)<br>(Factory charge for lineset = 9 oz / 266.16 g) |
| 5/16 | 0.40 (11.83) |
| 1/4 | 0.27 (7.98) |

Units are factory charged for 15 ft (4.6 m) of 3/8" liquid line. The factory charge for 3/8" lineset 9 oz.(266.16 g). When using other length or diameter liquid lines, charge adjustments are required per the chart above.

## Charging Formula:

[(Lineset oz/ft X total length) – (factory charge for lineset)] = charge adjustment

**Example 1**: System has 15 ft of lineset* using existing 1/4" liquid line. What charge adjustment is required?

Formula:(.27 oz/ft X 15ft) – (9 oz) = (-4.95) oz.

Net result is to remove 4.95 oz of refrigerant from the system

**Example 2**: System has 45 ft of existing 5/16" liquid line. What is the charge adjustment?

Formula:(.40 oz/ft. X 45ft) – (9 oz.) = 9 oz.

Net result is to add 9 oz of refrigerant to the system

**NOTE:** Conditions must be favorable for charging by subcooling method. Indoor temperature must be 70°F to 80°F (21°C to 27°C), and outdoor temperature must be 70°F to 100°F (21°C to 38°C). If outside these conditions, adjust charge for long linesets by weigh-in method.

* When applicable. Refer to Physical Data Table in this PD and to the Installation Instructions for more information.

# Long Line Applications

An application is considered Long Line, when the refrigerant level in the system requires the use of accessories to maintain acceptable refrigerant management for systems reliability. See Accessory Usage Guideline table for required accessories. Defining a system as long line depends on the liquid line diameter, actual length of the tubing, and vertical separation between the indoor and outdoor units.

For Air Conditioner systems, the chart below shows when an application is considered Long Line.

**Table 4 – AC with Puron® Refrigerant Long Line Description ft (m) Beyond these lengths, a TXV is required**

| Total Length | Outdoor Unit Above or Below Indoor Unit |
|---|---|
| TXV required beyond 50 ft. (15.2 m) | TXV required beyond 20 ft. (6.1 m) |

**Table 5 – AC with Puron® Refrigerant Long Line Description ft (m) (Beyond these lengths, long line accessories are required)**

| Liquid Line Size | Units On Same Level | Outdoor Below Indoor | Outdoor Above Indoor |
|---|---|---|---|
| 1/4 + TXV | No accessories needed within allowed lengths | No accessories needed within allowed lengths | 175 (53.3) |
| 5/16 + TXV | 120 (36.6) | 50 (15.2) vertical or 120 (36.6) total | 120 (36.6) |
| 3/8 + TXV | 80 (24.4) | 35 (10.7) vertical or 80 (24.4) total | 80 (24.4) |

**Note**: See Residential Piping and Long Line Guideline for details



Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

# VAPOR LINE SIZING AND COOLING CAPACITY LOSS

Acceptable vapor line diameters provide adequate oil return to the compressor while avoiding excessive capacity loss. The suction line diameters shown in the chart below are acceptable for AC systems with **Puron®** refrigerant:

**Table 6 – Vapor Line Sizing and Cooling Capacity Losses — Puron® Refrigerant 1-Stage Air Conditioner Applications**

| Unit Nominal Size (Btuh) | Maximum Liquid Line Diameters (In. OD) | Vapor Line Diameters (In. OD) | Cooling Capacity Loss (%) Total Equivalent Line Length ft. (m) 1-Stage AC with Puron® | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 26-50 (7.9-15.2) | 51-80 (15.5-24.4) | 81-100 (24.7-30.5) | 101-125 (30.8-38.1) | 126-150 (38.4-45.7) | 151-175 (46.0-53.3) | 176-200 (53.6-61.0) | 201-225 (61.3-68.6) | 226-250 (68.9-76.2) |
| 18 | 3/8 | 1/2 | 1 | 2 | 3 | 5 | 6 | 7 | 8 | 9 | 11 |
| | | 5/8 | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 |
| | | 3/4 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 24 | 3/8 | 5/8 | 0 | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 5 |
| | | 3/4 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |
| | | 7/8 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 30 | 3/8 | 5/8 | 1 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 |
| | | 3/4 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 3 |
| | | 7/8 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 36 | 3/8 | 5/8 | 1 | 2 | 4 | 5 | 6 | 8 | 9 | 10 | 12 |
| | | 3/4 | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 |
| | | 7/8 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 |
| 42 | 3/8 | 3/4 | 0 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 6 |
| | | 7/8 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 3 |
| | | 1 1/8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 48 | 3/8 | 3/4 | 0 | 1 | 2 | 3 | 4 | 5 | 5 | 6 | 7 |
| | | 7/8 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 3 | 3 |
| | | 1 1/8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 60 | 3/8 | 3/4 | 1 | 2 | 4 | 5 | 6 | 7 | 9 | 10 | 11 |
| | | 7/8 | 0 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 5 |
| | | 1 1/8 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |

Applications in this area may be long line and may have height restrictions. See the Residential Piping and Long Line Guideline.



Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

# ACCESSORIES

| KIT NUMBER | KIT NAME | 18 | 24 | 30 | 36 | 42 | 48 | 60 |
|---|---|---|---|---|---|---|---|---|
| KSAFT0101AAA | FRZ THERM KIT | X | X | X | X | X | X | X |
| KAATD0101TDR | TIME DELAY KIT (90 second TDR) | X | X | X | X | X | X | X |
| KAATD0201TDR | TIME DELAY KIT (30 second TDR) | X | X | X | X | X | X | X |
| KSALA0301410 | LOW AMBIENT COOLING KIT | X | X | X | X | X | X | X |
| KSALA1001AAA | MOTORMASTER KIT | X | X | X | X | X | X | X |
| KSAHS2501AAA | HARD START KIT | X | X | X | X | X | X | X |
| KSACY0101AAA | CYCLE PROTR KIT | X | X | X | X | X | X | X |
| KSASF0201AAA | SPRT FEET KIT | X | X | X | X | X | X | X |
| KAALS0201LLS* | SOL VALVE KIT | X | X | X | X | X | X | X |
| KAAWS0101AAA | WINTER ST KIT | X | X | X | X | X | X | X |
| KAALP0401PUR | LOW PRESSURE SW KIT | X | X | X | X | X | X | X |
| KAAHI0501PUR | HIGH PRESSURE SW KIT | X | X | X | X | X | X | X |
| KAACH1701AAA | CRKC HTR KIT | X | X | X | X | | | |
| KAACH1601AAA | CRKC HTR KIT | | | | | X | X | X |
| KSATX0201PUR | TXV KIT (For use with copper coils) | X | X | X | | | | |
| KSATX0301PUR | TXV KIT (For use with copper coils) | | | | X | X | | |
| KSATX0401PUR | TXV KIT (For use with copper coils) | | | | | | X | X |
| KSBTX0201PUR | TXV KIT (For use with aluminum coils) | X | X | X | | | | |
| KSBTX0301PUR | TXV KIT (For use with aluminum coils) | | | | X | X | | |
| KSBTX0401PUR | TXV KIT (For use with aluminum coils) | | | | | | X | X |
| KSASH2301COP | SOUND BLKT KIT | X | X | X | X | | | |
| KSASH2401COP | SOUND BLKT KIT | | | | | X | X | X |

X = Accessory



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# ACCESSORY USAGE GUIDELINE

| ACCESSORY | REQUIRED FOR LOW-AMBIENT COOLING APPLICATIONS (Below 55°F/12.8°C) | REQUIRED FOR LONG LINE APPLICATIONS* | REQUIRED FOR SEA COAST APPLICATIONS (Within 2 miles/3.22 km) |
|---|---|---|---|
| Ball Bearing Fan Motor | Standard | Standard | Standard |
| Compressor Start Assist Capacitor and Relay | Yes | Yes | No |
| Crankcase Heater | Yes | Yes | No |
| Evaporator Freeze Thermostat | Yes | No | No |
| Hard Shut-Off TXV | Yes | Yes | Yes |
| Liquid Line Solenoid Valve | No | See Long Line Guideline | No |
| MotorMaster® Control or Low-ambient Pressure Switch | Yes | No | No |
| Support Feet | Recommended | No | Recommended |
| Winter Start Control | Yes† | No | No |

*.For tubing set lengths between 80 and 200 ft. (24 and 61 m) horizontal or 35 ft. (10.7 m) vertical differential (total equivalent length), refer to the Residential Split-System Long Line Application Guideline.
†.Required if Low Pressure Switch is factory or field installed.

## Accessory Description and Usage (Listed Alphabetically)

**1. Ball-Bearing Fan Motor**

A fan motor with ball bearings which permits speed reduction while maintaining bearing lubrication.

Usage Guideline:

Required on all units when MotorMaster® is used.

**2. Compressor Start Assist - Capacitor and Relay**

Start capacitor and relay gives a ”hard” boost to compressor motor at each start up.

Usage Guideline:

Required for single-phase scroll compressors in the following applications:

Long line

Low ambient cooling

Suggested for all compressors in areas with a history of low voltage problems.

**3. Crankcase Heater**

An electric resistance heater which mounts to the base of the compressor to keep the lubricant warm during off cycles. Improves compressor lubrication on restart and minimizes the chance of liquid slugging.

Usage Guideline:

Required in low ambient cooling applications.

Required in long line applications.

Suggested in all commercial applications.

**4. Cycle Protector**

The cycle protector is designed to prevent compressor short cycling. This control provides an approximate 5-minute delay after power to the compressor has been interrupted for any reason, including power outage, protector control trip, thermostat jiggling, or normal cycling.

**5. Evaporator Freeze Thermostat**

An SPST temperature-actuated switch that stops unit operation when evaporator reaches freeze-up conditions.

Usage Guideline:

Required when low ambient kit has been added.

**6. Low-Ambient Pressure Switch Kit**

A long life pressure switch which is mounted to outdoor unit service valve. It is designed to cycle the outdoor fan motor in order to maintain head pressure within normal operating limits (approximately 100 psig to 225 psig). The control will maintain working head pressure at low-ambient temperatures down to 0°F (-18°C) when properly installed and also using wind baffles. Instructions provided in accessory kit.

Usage Guideline:

A Low-Ambient Pressure Switch or MotorMaster® Low-Ambient Controller must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).

**7. MotorMaster® Low-Ambient Controller**

A fan-speed control device activated by a temperature sensor, designed to control condenser fan motor speed in response to the saturated, condensing temperature during operation in cooling mode only. For outdoor temperatures down to –10°F/–23.3°C), it maintains condensing temperature at 100°F ±10°F (37.8°C ±5.5°C).

Usage Guideline:

A MotorMaster® Low Ambient Controller or Low-Ambient Pressure Switch must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).

Suggested for all commercial applications.

**8. Outdoor Air Temperature Sensor**

This device enables the thermostat to display the outdoor temperature. This device is also required to enable special thermostat features such as auxiliary heat lock out.

Usage Guideline:

Suggested for use with compatible Carrier thermostats.

**9. Sound Hood**

Wraparound sound reducing cover for the compressor. Reduces the sound level of the compressor.

Usage Guideline:

Suggested when unit is installed closer than 15 ft (4.57 m) to quiet areas, bedrooms, etc.

Suggested when unit is installed between two houses less than 10 ft (3 m) apart.


Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

## Accessory Description and Usage (Listed Alphabetically) Continued

**10. Support Feet**

Four or five stick-on plastic feet that raise the unit 4 in. (101.6 mm) above the mounting pad. This allows sand, dirt, and other debris to be flushed from the unit base, minimizing corrosion.

Usage Guideline:

Suggested in the following applications:

Coastal installations.

Windy areas or where debris is normally circulating.

Rooftop installations.

For improved sound ratings.

**11. Thermostatic Expansion Valve (TXV)**

A modulating flow-control valve which meters refrigerant liquid flow rate into the evaporator in response to the superheat of the refrigerant gas leaving the evaporator.

Kit includes valve, adapter tubes, and external equalizer tube. Hard shut off types are available.

Usage Guideline:

Required to achieve AHRI ratings in certain equipment combinations. Refer to combination ratings.

Hard shut off TXV or LLS required in air conditioner long line applications.

Required for use on all zoning systems.

**12. Time-Delay Relay**

An SPST delay relay which briefly continues operation of indoor blower motor to provide additional cooling after the compressor cycles off.

**NOTE:** Most indoor unit controls include this feature. For those that do not, use the guideline below.

Usage Guideline:

For improved efficiency ratings for certain combinations of indoor and outdoor units. Refer to AHRI Directory of Certified Product Performance (AHRI Directory).

When a Time-Delay Relay (TDR) is called for in the AHRI Directory, use a 30 second TDR for MicroChannel Indoor units and use a 90 second TDR for Round Tube Plate Fin Indoor units.

**13. Winter Start Control**

This control is designed to alleviate nuisance opening of the low-pressure switch by bypassing it for the first 3 minutes of operation.



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## AHRI RATINGS

For AHRI ratings certificates, please refer to the AHRI directory www.ahridirectory.org
Additional ratings and system combinations can be accessed via the Ratings Database here: www.MyCarrierRatings.com

## Electrical Data

| UNIT SIZE | V/PH | OPER VOLTS* | | COMPR | | FAN | MCA | MAX FUSE† or CKT BRK AMPS |
|---|---|---|---|---|---|---|---|---|
| | | MAX | MIN | LRA | RLA | FLA | | |
| 18 | 208/230/1 | 253 | 197 | 42.6 | 8.8 | 0.4 | 11.4 | 20.0 |
| 24 | | | | 49.7 | 9.3 | 0.6 | 12.2 | 20.0 |
| 30 | | | | 71.3 | 11.7 | 0.6 | 15.2 | 25.0 |
| 36 | | | | 80.1 | 12.2 | 1.4 | 16.7 | 25.0 |
| 42 | | | | 120.0 | 25.0 | 1.52 | 32.8 | 50.0 |
| 48 | | | | 120.0 | 25.0 | 1.52 | 32.8 | 50.0 |
| 60 | | | | 150.0 | 25.6 | 1.40 | 33.4 | 50.0 |

*.Permissible limits of the voltage range at which the unit will operate satisfactorily
†.Time-Delay fuse.

**FLA-** Full Load Amps
**LRA -** Locked Rotor Amps
**MCA-** Minimum Circuit Amps
**RLA-** Rated Load Amps
**NOTE**:Control circuit is 24V on all units and requires external power source. Copper wire must be used from service disconnect to unit.
All motors/compressors contain internal overload protection.
Complies with requirements of ASHRAE Standards 90.1

## A–Weighted Sound Power (dBA) without sound shield

| UNIT SIZE | STANDARD RATING | TYPICAL OCTAVE BAND SPECTRUM (without tone adjustment) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 18 | 75 | 67.0 | 67.3 | 66.9 | 67.1 | 65.1 | 63.1 | 57.5 |
| 24 | 73 | 66.5 | 66.9 | 68.7 | 71.0 | 63.6 | 60.4 | 58.5 |
| 30 | 73 | 66.0 | 66.6 | 67.7 | 67.4 | 62.4 | 60.1 | 53.5 |
| 36 | 75 | 68.9 | 70.0 | 70.1 | 67.0 | 63.6 | 60.8 | 55.6 |
| 42 | 76 | 73.0 | 73.4 | 70.5 | 69.7 | 64.9 | 64.1 | 59.3 |
| 48 | 76 | 73.0 | 73.4 | 70.5 | 69.7 | 64.9 | 64.1 | 59.3 |
| 60 | 75 | 69.7 | 73.1 | 70.0 | 70.2 | 64.0 | 61.9 | 62.4 |

## A–Weighted Sound Power (dBA) with sound shield

| UNIT SIZE | STANDARD RATING | TYPICAL OCTAVE BAND SPECTRUM (without tone adjustment) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 18 | 75 | 65.5 | 67.2 | 66.8 | 66.7 | 63.9 | 61.4 | 56.1 |
| 24 | 73 | 66.5 | 67.3 | 68.7 | 69.3 | 62.5 | 59.7 | 56.9 |
| 30 | 72 | 67.0 | 66.3 | 67.8 | 66.1 | 61.4 | 58.7 | 52.2 |
| 36 | 75 | 70.1 | 69.9 | 70.7 | 66.7 | 63.0 | 60.2 | 54.4 |
| 42 | 74 | 74.4 | 72.7 | 70.3 | 69.6 | 64.4 | 62.8 | 56.7 |
| 48 | 74 | 74.4 | 72.7 | 70.3 | 69.6 | 64.4 | 62.8 | 56.7 |
| 60 | 73 | 71.0 | 72.0 | 69.9 | 69.0 | 62.4 | 59.6 | 58.8 |

**NOTE**: Tested in compliance with AHRI 270 but not listed with AHRI.

## Charging Subcooling (TXV-Type Expansion Device)

| UNIT SIZE | REQUIRED SUBCOOLING (F) | Indoor |
|---|---|---|
| 18 | 7 | TXV |
| 24 | 9 | |
| 30 | 10 | |
| 36 | 8 | |
| 42 | 10 | |
| 48 | 10 | |
| 60 | 14 | |


Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

# DIMENSIONS

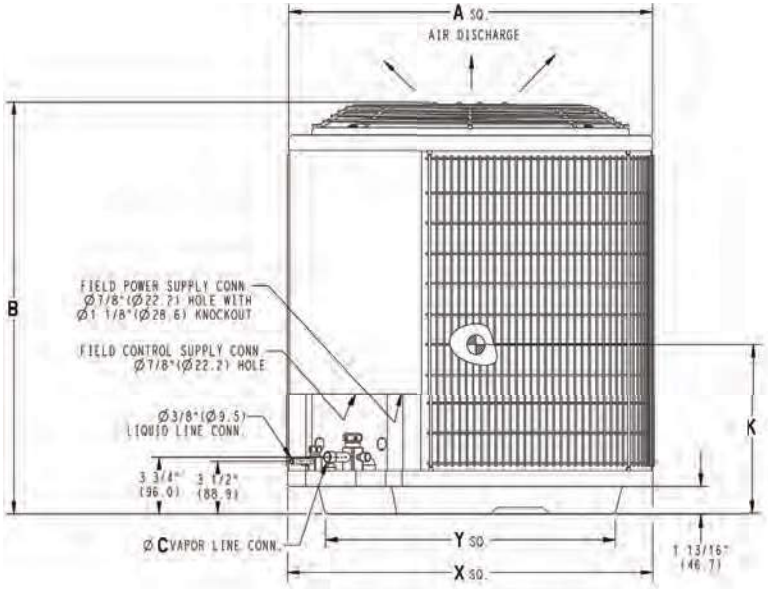
| UNIT | SERIES | ELECTRICAL CHARACTERISTICS | | | | A | | B | | C | | D | | E | | F | | G | | H | | I | | J | | K | | OPERATING WEIGHT | | SHIPPING WEIGHT | | SHIPPING LENGTH / WIDTH (Sq.) | | SHIPPING HEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | INCH | MM | INCH | MM | INCH | MM | INCH | MM | INCH | MM | INCH | MM | INCH | MM | INCH | MM | INCH | MM | INCH | MM | INCH | MM | Lbs | Kgs | Lbs | Kgs | INCH | MM | INCH | MM |
| 24SCA518W*0 | 0 | Y | N | N | N | 25 3/4 | 654.0 | 28 11/16 | 728.7 | 3/4 | 19.1 | 4 7/16 | 113.0 | 21 1/4 | 539.9 | 9 1/8 | 231.3 | 5/16 | 7.9 | 3 | 76.2 | 12 1/2 | 317.5 | 12 1/2 | 317.5 | 14 1/2 | 368.3 | 113 | 51.3 | 126 | 57.2 | 28 3/4 | 730.0 | 33 15/16 | 862.1 |
| 24SCA524W*0 | 0 | Y | N | N | N | 25 3/4 | 654.0 | 35 1/2 | 901.4 | 3/4 | 19.1 | 4 7/16 | 113.0 | 21 1/4 | 539.9 | 9 1/8 | 231.3 | 5/16 | 7.9 | 3 | 76.2 | 12 | 304.8 | 14 | 355.6 | 18 | 457.2 | 123 | 55.8 | 137 | 62.1 | 28 3/4 | 730.0 | 40 3/4 | 1034.8 |
| 24SCA530W*0 | 0 | Y | N | N | N | 31 3/16 | 792.5 | 35 1/2 | 901.4 | 3/4 | 19.1 | 6 9/16 | 166.1 | 24 11/16 | 626.3 | 9 1/8 | 231.3 | 5/16 | 7.9 | 3 | 76.2 | 15 | 381.0 | 15 | 381.0 | 16 1/2 | 419.1 | 144 | 65.3 | 162 | 73.5 | 34 1/4 | 870.0 | 40 3/4 | 1034.3 |
| 24SCA536W*0 | 0 | Y | N | N | N | 31 3/16 | 792.5 | 38 7/8 | 987.8 | 7/8 | 22.2 | 6 9/16 | 166.1 | 24 11/16 | 626.3 | 9 1/8 | 231.3 | 5/16 | 7.9 | 3 | 76.2 | 15 | 381.0 | 15 | 381.0 | 18 1/2 | 469.9 | 151 | 68.5 | 169 | 76.7 | 34 1/4 | 870.0 | 44 1/8 | 1120.7 |
| 24SCA542W*0 | 0 | Y | N | N | N | 31 3/16 | 792.5 | 32 1/16 | 815.1 | 7/8 | 22.2 | 6 9/16 | 166.1 | 24 11/16 | 626.3 | 9 1/8 | 231.3 | 5/16 | 7.9 | 3 | 76.2 | 15 | 381.0 | 14 1/2 | 368.3 | 14 1/2 | 368.3 | 182 | 82.6 | 199 | 90.3 | 34 1/4 | 870.0 | 37 5/16 | 947.9 |
| 24SCA548W*0 | 0 | Y | N | N | N | 31 3/16 | 792.5 | 32 1/16 | 815.1 | 7/8 | 22.2 | 6 9/16 | 166.1 | 24 11/16 | 626.3 | 9 1/8 | 231.3 | 5/16 | 7.9 | 3 | 76.2 | 15 | 381.0 | 14 1/2 | 368.3 | 14 1/2 | 368.3 | 182 | 82.6 | 199 | 90.3 | 34 1/4 | 870.0 | 37 5/16 | 947.9 |
| 24SCA560W*0 | 0 | Y | N | N | N | 31 3/16 | 792.5 | 38 7/8 | 987.8 | 7/8 | 22.2 | 6 9/16 | 166.1 | 24 11/16 | 626.3 | 9 1/8 | 231.3 | 5/16 | 7.9 | 3 | 76.2 | 16 | 406.4 | 15 | 381.0 | 18 1/4 | 463.6 | 196 | 88.9 | 215 | 97.5 | 34 1/4 | 870.0 | 44 1/8 | 1120.7 |

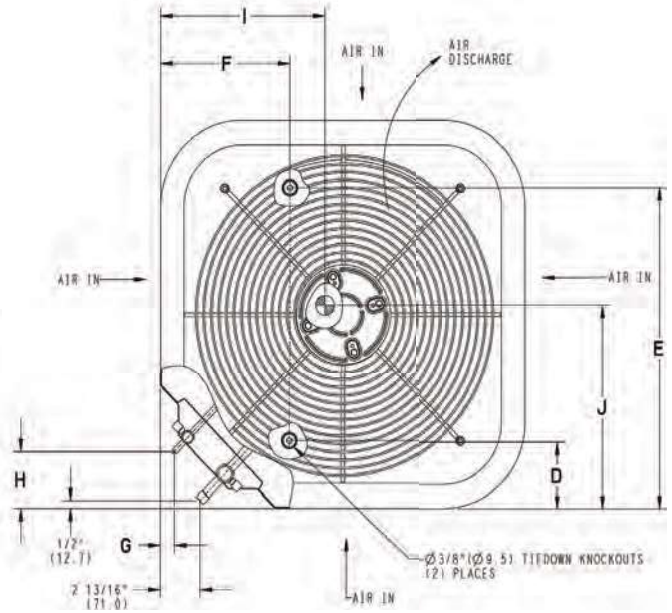
| 208-230-1-60 | 208/230-3-60 | 460-3-60 | 575-3-60 |
|---|---|---|---|

Y=YES
N=NO

NOTES:

1. CENTER OF GRAVITY .




| UNIT SIZE | "X" MINIMUM GROUND MOUNTING PAD APPLICATION DIMENSIONS | | "Y" MINIMUM ROOF-TOP MOUNTING PAD APPLICATION DIMENSIONS | |
|---|---|---|---|---|
| - | 23 1/8 | 587.3 | 17 7/8 | 454.6 |
| 18,24 | 25 3/4 | 654.0 | 20 7/16 | 518.5 |
| 30,36,42,48,60 | 31 3/16 | 792.5 | 22 15/16 | 583.2 |
| - | 35 | 889.0 | 26 3/4 | 679.7 |

NOTE: ALL DIMENSIONS IN INCH (MM)

U.S. ECCN: Not Subject to Regulation (N.S.R.)

SD5685-4 (1) REV. A

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

# APPENDIX 10.2:

## SAMPLE AIR HANDLER SPECIFICATION

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## MECHANICAL EQUIPMENT SOUND DATA SCHEDULE

| UNIT NO. | MANUFACTURER | LOCATION | EQUIPMENT TYPE | NOISE TYPE | dB ATTENUATION BY OCTAVE BAND | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| AHU B1<br>75,300 CFM | HUNTAIR | LEVEL B1 | OUTSIDE AIR | INLET | 99 | 100 | 101 | 98 | 92 | 92 | 88 | 82 |
| | | | RELIEF AIR | OUTLET | 96 | 98 | 103 | 98 | 93 | 94 | 89 | 80 |
| | | | RETURN FANS | INLET | 102 | 101 | 99 | 96 | 90 | 87 | 86 | 81 |
| | | | SUPPLY FANS | OUTLET | 93 | 90 | 96 | 94 | 88 | 85 | 85 | 79 |
| | | | AIR HANDLING UNIT | CABINET RADIATED | 81 | 73 | 71 | 73 | 62 | 54 | 52 | 45 |

# APPENDIX 10.3:

# OPERATIONAL NOISE CALCULATIONS

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# 15287 - 701 S Myrtle Ave

**CadnaA Noise Prediction Model:** 15287-03_Operation.cna
**Date:** 21.05.25
**Analyst:** B. Maddux

## Calculation Configuration

| Configuration | |
|---|---|
| **Parameter** | **Value** |
| General | |
| Max. Error (dB) | 0.00 |
| Max. Search Radius (ft) | 6561.70 |
| Min. Dist Src to Rcvr | 0.00 |
| Partition | |
| Raster Factor | 0.50 |
| Max. Length of Section (ft) | 3280.80 |
| Min. Length of Section (ft) | 3.30 |
| Min. Length of Section (%) | 0.00 |
| Proj. Line Sources | On |
| Proj. Area Sources | On |
| Ref. Time | |
| Daytime Penalty (dB) | 0.00 |
| Recr. Time Penalty (dB) | 5.00 |
| Night-time Penalty (dB) | 10.00 |
| DTM | |
| Standard Height (m) | 0.00 |
| Model of Terrain | Triangulation |
| Reflection | |
| max. Order of Reflection | 2 |
| Search Radius Src | 328.08 |
| Search Radius Rcvr | 328.08 |
| Max. Distance Source - Rcvr | 3280.84 3280.84 |
| Min. Distance Rvcr - Reflector | 3.28 3.28 |
| Min. Distance Source - Reflector | 0.33 |
| Industrial (ISO 9613 (1996)) | |
| Lateral Diffraction | some Obj |
| Obst. within Area Src do not shield | On |
| Screening | Incl. Ground Att. over Barrier |
| | Dz with limit (20/25) |
| Barrier Coefficients C1,2,3 | 3.0 20.0 0.0 |
| Temperature (°F) | 50 |
| rel. Humidity (%) | 70 |
| Ground Absorption G | 0.50 |
| Wind Speed for Dir. (mph) | 6.7 |
| Roads (TNM) | |
| Railways (FTA/FRA) | |
| Aircraft (???) | |
| Strictly acc. to AzB | |

## Receiver Noise Levels

| Name | M. | ID | Level Lr | | | Limit. Value | | | Land Use | | | Height | | Coordinates | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Night | CNEL | Day | Night | CNEL | Type | Auto | Noise Type | | | X | Y | Z |
| | | | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | | | | (ft) | | (ft) | (ft) | (ft) |
| R1 | | R1 | 42.0 | 40.2 | 46.7 | 0.0 | 0.0 | 0.0 | | x | Total | 5.00 | a | 6031604.39 | 2364227.66 | 5.00 |
| R2 | | R2 | 44.4 | 42.4 | 49.0 | 0.0 | 0.0 | 0.0 | | x | Total | 5.00 | a | 6031901.61 | 2364524.19 | 5.00 |
| R3 | | R3 | 41.9 | 40.0 | 46.5 | 0.0 | 0.0 | 0.0 | | x | Total | 5.00 | a | 6031509.94 | 2364709.60 | 5.00 |
| R4 | | R4 | 38.3 | 36.3 | 42.9 | 0.0 | 0.0 | 0.0 | | x | Total | 5.00 | a | 6031159.94 | 2364756.70 | 5.00 |
| R5 | | R5 | 38.2 | 36.3 | 42.8 | 0.0 | 0.0 | 0.0 | | x | Total | 5.00 | a | 6031138.13 | 2364572.53 | 5.00 |
| R6 | | R6 | 38.9 | 37.2 | 43.7 | 0.0 | 0.0 | 0.0 | | x | Total | 5.00 | a | 6031155.20 | 2364427.84 | 5.00 |

## Point Source(s)

| Name | M. | ID | Result. PWL | | | Lw / Li | | | Operating Time | | | Height | | Coordinates | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Evening | Night | Type | Value | norm. | Day | Special | Night | | | X | Y | Z |
| | | | (dBA) | (dBA) | (dBA) | | | dB(A) | (min) | (min) | (min) | (ft) | | (ft) | (ft) | (ft) |
| AC001 | | AC001 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031756.24 | 2364535.40 | 58.50 |
| AC002 | | AC002 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031756.17 | 2364531.83 | 58.50 |
| AC003 | | AC003 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031754.43 | 2364535.33 | 58.50 |
| AC004 | | AC004 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031754.47 | 2364531.86 | 58.50 |
| AC005 | | AC005 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031752.76 | 2364535.40 | 58.50 |
| AC006 | | AC006 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031752.70 | 2364531.86 | 58.50 |
| AC007 | | AC007 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031751.06 | 2364535.37 | 58.50 |
| AC008 | | AC008 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031750.96 | 2364531.83 | 58.50 |
| AC009 | | AC009 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031749.33 | 2364535.40 | 58.50 |
| AC010 | | AC010 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031749.26 | 2364531.83 | 58.50 |
| AC011 | | AC011 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031746.86 | 2364535.44 | 58.50 |
| AC012 | | AC012 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031741.58 | 2364531.86 | 58.50 |
| AC013 | | AC013 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031743.32 | 2364531.90 | 58.50 |
| AC014 | | AC014 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031739.88 | 2364531.86 | 58.50 |

| Name | M. | ID | Result. PWL | | | Lw / Li | | | Operating Time | | | Height | | Coordinates | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Evening | Night | Type | Value | norm. | Day | Special | Night | | | X | Y | Z |
| | | | (dBA) | (dBA) | (dBA) | | | dB(A) | (min) | (min) | (min) | (ft) | | (ft) | (ft) | (ft) |
| AC015 | | AC015 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031741.69 | 2364535.40 | 58.50 |
| AC016 | | AC016 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031739.95 | 2364535.44 | 58.50 |
| AC017 | | AC017 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031745.06 | 2364535.37 | 58.50 |
| AC018 | | AC018 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031745.09 | 2364531.90 | 58.50 |
| AC019 | | AC019 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031743.39 | 2364535.44 | 58.50 |
| AC020 | | AC020 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031746.79 | 2364531.86 | 58.50 |
| AC021 | | AC021 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031681.51 | 2364538.30 | 58.50 |
| AC022 | | AC022 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031679.70 | 2364534.76 | 58.50 |
| AC023 | | AC023 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031683.14 | 2364534.79 | 58.50 |
| AC024 | | AC024 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031681.41 | 2364534.76 | 58.50 |
| AC025 | | AC025 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031684.88 | 2364538.26 | 58.50 |
| AC026 | | AC026 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031686.61 | 2364534.76 | 58.50 |
| AC027 | | AC027 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031686.68 | 2364538.33 | 58.50 |
| AC028 | | AC028 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031679.77 | 2364538.33 | 58.50 |
| AC029 | | AC029 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031683.21 | 2364538.33 | 58.50 |
| AC030 | | AC030 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031684.91 | 2364534.79 | 58.50 |
| AC031 | | AC031 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031675.36 | 2364534.68 | 58.50 |
| AC032 | | AC032 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031677.14 | 2364538.22 | 58.50 |
| AC033 | | AC033 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031673.66 | 2364538.22 | 58.50 |
| AC034 | | AC034 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031671.96 | 2364538.19 | 58.50 |
| AC035 | | AC035 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031671.86 | 2364534.65 | 58.50 |
| AC036 | | AC036 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031673.59 | 2364534.68 | 58.50 |
| AC037 | | AC037 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031670.16 | 2364534.65 | 58.50 |
| AC038 | | AC038 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031670.23 | 2364538.22 | 58.50 |
| AC039 | | AC039 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031677.07 | 2364534.65 | 58.50 |
| AC040 | | AC040 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031675.33 | 2364538.15 | 58.50 |
| AC041 | | AC041 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031664.22 | 2364538.12 | 58.50 |
| AC042 | | AC042 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031662.42 | 2364534.54 | 58.50 |
| AC043 | | AC043 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031660.79 | 2364538.12 | 58.50 |
| AC044 | | AC044 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031662.52 | 2364538.08 | 58.50 |
| AC045 | | AC045 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031664.15 | 2364534.57 | 58.50 |
| AC046 | | AC046 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031660.72 | 2364534.54 | 58.50 |
| AC047 | | AC047 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031665.92 | 2364534.57 | 58.50 |
| AC048 | | AC048 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031667.70 | 2364538.12 | 58.50 |
| AC049 | | AC049 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031667.63 | 2364534.54 | 58.50 |
| AC050 | | AC050 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031665.89 | 2364538.05 | 58.50 |
| AC051 | | AC051 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031651.35 | 2364538.44 | 58.50 |
| AC052 | | AC052 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031656.45 | 2364538.37 | 58.50 |
| AC053 | | AC053 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031658.25 | 2364538.44 | 58.50 |
| AC054 | | AC054 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031652.98 | 2364534.86 | 58.50 |
| AC055 | | AC055 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031654.71 | 2364534.90 | 58.50 |
| AC056 | | AC056 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031654.78 | 2364538.44 | 58.50 |
| AC057 | | AC057 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031651.28 | 2364534.86 | 58.50 |
| AC058 | | AC058 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031656.48 | 2364534.90 | 58.50 |
| AC059 | | AC059 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031653.08 | 2364538.41 | 58.50 |
| AC060 | | AC060 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031658.19 | 2364534.86 | 58.50 |
| AC061 | | AC061 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031641.73 | 2364534.76 | 58.50 |
| AC062 | | AC062 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031643.53 | 2364538.30 | 58.50 |
| AC063 | | AC063 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031645.16 | 2364534.79 | 58.50 |
| AC064 | | AC064 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031648.64 | 2364534.76 | 58.50 |
| AC065 | | AC065 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031646.90 | 2364538.26 | 58.50 |
| AC066 | | AC066 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031648.71 | 2364538.33 | 58.50 |
| AC067 | | AC067 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031643.43 | 2364534.76 | 58.50 |
| AC068 | | AC068 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031641.80 | 2364538.33 | 58.50 |
| AC069 | | AC069 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031646.94 | 2364534.79 | 58.50 |
| AC070 | | AC070 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031645.23 | 2364538.33 | 58.50 |
| AC071 | | AC071 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031571.83 | 2364538.49 | 58.50 |
| AC072 | | AC072 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031576.94 | 2364534.95 | 58.50 |
| AC073 | | AC073 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031579.47 | 2364534.63 | 58.50 |
| AC074 | | AC074 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031584.67 | 2364534.66 | 58.50 |
| AC075 | | AC075 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031573.46 | 2364534.99 | 58.50 |
| AC076 | | AC076 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031577.00 | 2364538.53 | 58.50 |
| AC077 | | AC077 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031565.69 | 2364534.88 | 58.50 |
| AC078 | | AC078 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031571.73 | 2364534.95 | 58.50 |
| AC079 | | AC079 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031570.10 | 2364538.53 | 58.50 |
| AC080 | | AC080 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031581.17 | 2364534.63 | 58.50 |
| AC081 | | AC081 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031562.28 | 2364538.38 | 58.50 |
| AC082 | | AC082 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031562.18 | 2364534.84 | 58.50 |
| AC083 | | AC083 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031586.38 | 2364534.63 | 58.50 |
| AC084 | | AC084 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031582.90 | 2364534.66 | 58.50 |
| AC085 | | AC085 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031584.64 | 2364538.13 | 58.50 |
| AC086 | | AC086 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031567.39 | 2364534.84 | 58.50 |
| AC087 | | AC087 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031582.97 | 2364538.20 | 58.50 |
| AC088 | | AC088 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031565.65 | 2364538.35 | 58.50 |
| AC089 | | AC089 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031575.23 | 2364534.99 | 58.50 |
| AC090 | | AC090 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031563.98 | 2364538.42 | 58.50 |
| AC091 | | AC091 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031560.48 | 2364534.84 | 58.50 |

| Name | M. | ID | Result. PWL | | | Lw / Li | | | Operating Time | | | Height | | Coordinates | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Evening | Night | Type | Value | norm. | Day | Special | Night | | | X | Y | Z |
| | | | (dBA) | (dBA) | (dBA) | | | dB(A) | (min) | (min) | (min) | (ft) | | (ft) | (ft) | (ft) |
| AC092 | | AC092 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031579.54 | 2364538.20 | 58.50 |
| AC093 | | AC093 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031563.91 | 2364534.88 | 58.50 |
| AC094 | | AC094 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031560.55 | 2364538.42 | 58.50 |
| AC095 | | AC095 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031581.27 | 2364538.17 | 58.50 |
| AC096 | | AC096 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031575.20 | 2364538.46 | 58.50 |
| AC097 | | AC097 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031570.03 | 2364534.95 | 58.50 |
| AC098 | | AC098 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031573.53 | 2364538.53 | 58.50 |
| AC099 | | AC099 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031567.46 | 2364538.42 | 58.50 |
| AC100 | | AC100 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031586.45 | 2364538.20 | 58.50 |
| AC101 | | AC101 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031498.27 | 2364536.18 | 58.50 |
| AC102 | | AC102 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031517.26 | 2364535.96 | 58.50 |
| AC103 | | AC103 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031513.78 | 2364532.46 | 58.50 |
| AC104 | | AC104 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031519.06 | 2364536.03 | 58.50 |
| AC105 | | AC105 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031506.08 | 2364532.82 | 58.50 |
| AC106 | | AC106 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031513.89 | 2364536.00 | 58.50 |
| AC107 | | AC107 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031494.90 | 2364536.21 | 58.50 |
| AC108 | | AC108 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031493.09 | 2364532.67 | 58.50 |
| AC109 | | AC109 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031509.55 | 2364532.78 | 58.50 |
| AC110 | | AC110 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031507.82 | 2364536.29 | 58.50 |
| AC111 | | AC111 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031512.08 | 2364532.46 | 58.50 |
| AC112 | | AC112 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031509.62 | 2364536.36 | 58.50 |
| AC113 | | AC113 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031504.45 | 2364536.32 | 58.50 |
| AC114 | | AC114 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031500.00 | 2364532.67 | 58.50 |
| AC115 | | AC115 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031493.16 | 2364536.25 | 58.50 |
| AC116 | | AC116 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031496.53 | 2364532.71 | 58.50 |
| AC117 | | AC117 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031494.80 | 2364532.67 | 58.50 |
| AC118 | | AC118 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031502.71 | 2364536.36 | 58.50 |
| AC119 | | AC119 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031512.15 | 2364536.03 | 58.50 |
| AC120 | | AC120 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031515.59 | 2364536.03 | 58.50 |
| AC121 | | AC121 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031500.07 | 2364536.25 | 58.50 |
| AC122 | | AC122 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031517.29 | 2364532.49 | 58.50 |
| AC123 | | AC123 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031498.30 | 2364532.71 | 58.50 |
| AC124 | | AC124 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031518.99 | 2364532.46 | 58.50 |
| AC125 | | AC125 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031496.60 | 2364536.25 | 58.50 |
| AC126 | | AC126 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031515.52 | 2364532.49 | 58.50 |
| AC127 | | AC127 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031507.85 | 2364532.82 | 58.50 |
| AC128 | | AC128 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031502.64 | 2364532.78 | 58.50 |
| AC129 | | AC129 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031504.34 | 2364532.78 | 58.50 |
| AC130 | | AC130 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031506.15 | 2364536.36 | 58.50 |
| AC131 | | AC131 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.82 | 2364550.03 | 58.50 |
| AC132 | | AC132 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.64 | 2364534.51 | 58.50 |
| AC133 | | AC133 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.60 | 2364531.04 | 58.50 |
| AC134 | | AC134 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.82 | 2364556.94 | 58.50 |
| AC135 | | AC135 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.60 | 2364536.25 | 58.50 |
| AC136 | | AC136 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.86 | 2364551.73 | 58.50 |
| AC137 | | AC137 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.93 | 2364547.39 | 58.50 |
| AC138 | | AC138 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.96 | 2364543.95 | 58.50 |
| AC139 | | AC139 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.11 | 2364532.78 | 58.50 |
| AC140 | | AC140 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.18 | 2364530.97 | 58.50 |
| AC141 | | AC141 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.40 | 2364553.43 | 58.50 |
| AC142 | | AC142 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.93 | 2364540.48 | 58.50 |
| AC143 | | AC143 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.18 | 2364537.88 | 58.50 |
| AC144 | | AC144 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.36 | 2364555.13 | 58.50 |
| AC145 | | AC145 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.18 | 2364534.44 | 58.50 |
| AC146 | | AC146 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.51 | 2364547.32 | 58.50 |
| AC147 | | AC147 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.86 | 2364553.50 | 58.50 |
| AC148 | | AC148 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.40 | 2364549.96 | 58.50 |
| AC149 | | AC149 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.60 | 2364537.95 | 58.50 |
| AC150 | | AC150 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.96 | 2364542.18 | 58.50 |
| AC151 | | AC151 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.64 | 2364532.74 | 58.50 |
| AC152 | | AC152 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.44 | 2364542.22 | 58.50 |
| AC153 | | AC153 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.93 | 2364545.69 | 58.50 |
| AC154 | | AC154 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.50 | 2364540.41 | 58.50 |
| AC155 | | AC155 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.82 | 2364555.24 | 58.50 |
| AC156 | | AC156 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.33 | 2364551.77 | 58.50 |
| AC157 | | AC157 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.14 | 2364536.14 | 58.50 |
| AC158 | | AC158 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.47 | 2364545.58 | 58.50 |
| AC159 | | AC159 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.40 | 2364556.87 | 58.50 |
| AC160 | | AC160 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.50 | 2364543.88 | 58.50 |
| AC161 | | AC161 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.64 | 2364591.24 | 58.50 |
| AC162 | | AC162 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.57 | 2364595.62 | 58.50 |
| AC163 | | AC163 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.81 | 2364578.40 | 58.50 |
| AC164 | | AC164 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031456.10 | 2364586.14 | 58.50 |
| AC165 | | AC165 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031456.03 | 2364597.39 | 58.50 |
| AC166 | | AC166 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.81 | 2364580.17 | 58.50 |
| AC167 | | AC167 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031456.03 | 2364599.16 | 58.50 |
| AC168 | | AC168 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.32 | 2364581.80 | 58.50 |

| Name | M. | ID | Result. PWL | | | Lw / Li | | | Operating Time | | | Height | | Coordinates | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Evening | Night | Type | Value | norm. | Day | Special | Night | | | X | Y | Z |
| | | | (dBA) | (dBA) | (dBA) | | | dB(A) | (min) | (min) | (min) | (ft) | | (ft) | (ft) | (ft) |
| AC169 | | AC169 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031456.00 | 2364602.60 | 58.50 |
| AC170 | | AC170 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.68 | 2364589.54 | 58.50 |
| AC171 | | AC171 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.35 | 2364583.54 | 58.50 |
| AC172 | | AC172 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031456.00 | 2364600.90 | 58.50 |
| AC173 | | AC173 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031456.14 | 2364587.84 | 58.50 |
| AC174 | | AC174 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.35 | 2364576.63 | 58.50 |
| AC175 | | AC175 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.54 | 2364600.79 | 58.50 |
| AC176 | | AC176 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.57 | 2364599.09 | 58.50 |
| AC177 | | AC177 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031456.10 | 2364591.35 | 58.50 |
| AC178 | | AC178 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.68 | 2364592.98 | 58.50 |
| AC179 | | AC179 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.78 | 2364583.61 | 58.50 |
| AC180 | | AC180 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.57 | 2364602.53 | 58.50 |
| AC181 | | AC181 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.78 | 2364581.91 | 58.50 |
| AC182 | | AC182 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.99 | 2364595.69 | 58.50 |
| AC183 | | AC183 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031455.77 | 2364576.70 | 58.50 |
| AC184 | | AC184 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.35 | 2364580.10 | 58.50 |
| AC185 | | AC185 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031456.10 | 2364593.05 | 58.50 |
| AC186 | | AC186 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.50 | 2364597.43 | 58.50 |
| AC187 | | AC187 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.61 | 2364587.88 | 58.50 |
| AC188 | | AC188 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.68 | 2364586.07 | 58.50 |
| AC189 | | AC189 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031456.14 | 2364589.61 | 58.50 |
| AC190 | | AC190 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031459.28 | 2364578.44 | 58.50 |
| AC191 | | AC191 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031576.27 | 2364547.54 | 58.50 |
| AC192 | | AC192 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031576.60 | 2364560.42 | 58.50 |
| AC193 | | AC193 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031573.05 | 2364555.28 | 58.50 |
| AC194 | | AC194 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.69 | 2364549.35 | 58.50 |
| AC195 | | AC195 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031576.60 | 2364553.51 | 58.50 |
| AC196 | | AC196 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.69 | 2364544.14 | 58.50 |
| AC197 | | AC197 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031576.27 | 2364550.98 | 58.50 |
| AC198 | | AC198 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031573.02 | 2364553.58 | 58.50 |
| AC199 | | AC199 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031576.53 | 2364555.32 | 58.50 |
| AC200 | | AC200 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.69 | 2364551.05 | 58.50 |
| AC201 | | AC201 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031573.06 | 2364557.05 | 58.50 |
| AC202 | | AC202 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.73 | 2364545.84 | 58.50 |
| AC203 | | AC203 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031573.02 | 2364560.49 | 58.50 |
| AC204 | | AC204 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.73 | 2364547.61 | 58.50 |
| AC205 | | AC205 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031573.02 | 2364558.79 | 58.50 |
| AC206 | | AC206 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031576.60 | 2364556.98 | 58.50 |
| AC207 | | AC207 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031576.20 | 2364545.88 | 58.50 |
| AC208 | | AC208 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031576.56 | 2364558.68 | 58.50 |
| AC209 | | AC209 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031576.24 | 2364549.24 | 58.50 |
| AC210 | | AC210 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031576.27 | 2364544.07 | 58.50 |
| AC211 | | AC211 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.39 | 2364597.43 | 58.50 |
| AC212 | | AC212 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031575.86 | 2364595.70 | 58.50 |
| AC213 | | AC213 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.36 | 2364593.96 | 58.50 |
| AC214 | | AC214 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031575.94 | 2364600.80 | 58.50 |
| AC215 | | AC215 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031575.93 | 2364597.36 | 58.50 |
| AC216 | | AC216 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.39 | 2364595.66 | 58.50 |
| AC217 | | AC217 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031575.90 | 2364599.07 | 58.50 |
| AC218 | | AC218 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031575.93 | 2364593.89 | 58.50 |
| AC219 | | AC219 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.36 | 2364600.87 | 58.50 |
| AC220 | | AC220 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.36 | 2364599.17 | 58.50 |
| AC221 | | AC221 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031751.22 | 2364553.00 | 58.50 |
| AC222 | | AC222 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031754.79 | 2364559.84 | 58.50 |
| AC223 | | AC223 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031754.79 | 2364552.93 | 58.50 |
| AC224 | | AC224 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031754.72 | 2364554.74 | 58.50 |
| AC225 | | AC225 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031754.79 | 2364556.41 | 58.50 |
| AC226 | | AC226 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031751.22 | 2364559.91 | 58.50 |
| AC227 | | AC227 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031751.25 | 2364554.70 | 58.50 |
| AC228 | | AC228 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031754.76 | 2364558.11 | 58.50 |
| AC229 | | AC229 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031751.22 | 2364558.21 | 58.50 |
| AC230 | | AC230 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031751.25 | 2364556.48 | 58.50 |
| AC231 | | AC231 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031736.36 | 2364601.58 | 58.50 |
| AC232 | | AC232 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031739.93 | 2364594.60 | 58.50 |
| AC233 | | AC233 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031739.93 | 2364598.07 | 58.50 |
| AC234 | | AC234 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031739.86 | 2364596.41 | 58.50 |
| AC235 | | AC235 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031736.36 | 2364594.67 | 58.50 |
| AC236 | | AC236 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031736.36 | 2364599.88 | 58.50 |
| AC237 | | AC237 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031736.39 | 2364596.37 | 58.50 |
| AC238 | | AC238 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031739.93 | 2364601.51 | 58.50 |
| AC239 | | AC239 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031736.39 | 2364598.14 | 58.50 |
| AC240 | | AC240 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031739.90 | 2364599.77 | 58.50 |
| AC241 | | AC241 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031730.06 | 2364598.29 | 58.50 |
| AC242 | | AC242 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031729.99 | 2364596.62 | 58.50 |
| AC243 | | AC243 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031726.51 | 2364598.36 | 58.50 |
| AC244 | | AC244 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031726.48 | 2364594.89 | 58.50 |
| AC245 | | AC245 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031730.06 | 2364601.73 | 58.50 |

| Name | M. | ID | Result. PWL | | | Lw / Li | | | Operating Time | | | Height | | Coordinates | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Evening | Night | Type | Value | norm. | Day | Special | Night | | | X | Y | Z |
| | | | (dBA) | (dBA) | (dBA) | | | dB(A) | (min) | (min) | (min) | (ft) | | (ft) | (ft) | (ft) |
| AC246 | | AC246 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031726.51 | 2364596.59 | 58.50 |
| AC247 | | AC247 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031730.06 | 2364594.82 | 58.50 |
| AC248 | | AC248 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031730.02 | 2364599.99 | 58.50 |
| AC249 | | AC249 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031726.48 | 2364601.80 | 58.50 |
| AC250 | | AC250 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031726.48 | 2364600.10 | 58.50 |
| AC251 | | AC251 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.40 | 2364589.63 | 58.50 |
| AC252 | | AC252 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031575.98 | 2364584.35 | 58.50 |
| AC253 | | AC253 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.40 | 2364591.33 | 58.50 |
| AC254 | | AC254 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031575.98 | 2364591.26 | 58.50 |
| AC255 | | AC255 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.40 | 2364584.42 | 58.50 |
| AC256 | | AC256 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.43 | 2364586.12 | 58.50 |
| AC257 | | AC257 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031575.91 | 2364586.15 | 58.50 |
| AC258 | | AC258 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031572.43 | 2364587.89 | 58.50 |
| AC259 | | AC259 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031575.98 | 2364587.82 | 58.50 |
| AC260 | | AC260 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031575.94 | 2364589.52 | 58.50 |
| AC261 | | AC261 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031751.08 | 2364574.70 | 58.50 |
| AC262 | | AC262 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031747.61 | 2364576.44 | 58.50 |
| AC263 | | AC263 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031751.15 | 2364576.37 | 58.50 |
| AC264 | | AC264 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031751.15 | 2364579.81 | 58.50 |
| AC265 | | AC265 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031751.15 | 2364572.90 | 58.50 |
| AC266 | | AC266 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031751.11 | 2364578.07 | 58.50 |
| AC267 | | AC267 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031747.57 | 2364578.18 | 58.50 |
| AC268 | | AC268 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031747.61 | 2364574.67 | 58.50 |
| AC269 | | AC269 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031747.57 | 2364572.97 | 58.50 |
| AC270 | | AC270 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031747.57 | 2364579.88 | 58.50 |
| AC271 | | AC271 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031747.40 | 2364567.76 | 58.50 |
| AC272 | | AC272 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031750.90 | 2364569.50 | 58.50 |
| AC273 | | AC273 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031747.43 | 2364571.23 | 58.50 |
| AC274 | | AC274 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031747.43 | 2364569.46 | 58.50 |
| AC275 | | AC275 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031750.97 | 2364571.16 | 58.50 |
| AC276 | | AC276 | 76.0 | 76.0 | 76.0 | Lw | 76 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031750.97 | 2364567.69 | 58.50 |
| TRASH2 | | TRASH2 | 88.9 | 88.9 | 88.9 | Lw | 88.9 | | 140.00 | 0.00 | 100.00 | 8.00 | r | 6031482.94 | 2364469.81 | 8.00 |
| AHU1 | | AHU1 | 82.9 | 82.9 | 82.9 | Lw | 82.9 | | 630.00 | 0.00 | 300.00 | 3.00 | g | 6031716.98 | 2364518.59 | 58.50 |

## Line Source(s)

| Name | M. | ID | Result. PWL | | | Result. PWL' | | | Lw / Li | | | Operating Time | | | Moving Pt. Src | | | | Height |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Evening | Night | Day | Evening | Night | Type | Value | norm. | Day | Special | Night | Number | | | Speed | |
| | | | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | | | dB(A) | (min) | (min) | (min) | Day | Evening | Night | (mph) | (ft) |

| Name | ID | Height | | Coordinates | | | |
|---|---|---|---|---|---|---|---|
| | | Begin | End | x | y | z | Ground |
| | | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) |

## Area Source(s)

| Name | M. | ID | Result. PWL | | | Result. PWL'' | | | Lw / Li | | | Operating Time | | | Height |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Evening | Night | Day | Evening | Night | Type | Value | norm. | Day | Special | Night | (ft) |
| | | | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | | | dB(A) | (min) | (min) | (min) | |

| Name | ID | Height | | Coordinates | | | |
|---|---|---|---|---|---|---|---|
| | | Begin | End | x | y | z | Ground |
| | | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) |

## Barrier(s)

| Name | Sel. | M. | ID | Absorption | | Z-Ext. | Cantilever | | Height | | Coordinates | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | left | right | | horz. | vert. | Begin | End | x | y | z | Ground |
| | | | | | | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) |

## Building(s)

| Name | Sel. | M. | ID | RB | Residents | Absorption | Height | | Coordinates | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Begin | | x | y | z | Ground |
| | | | | | | | (ft) | | (ft) | (ft) | (ft) | (ft) |
| Podium Level | | | Podium1 | x | 0 | | 15.00 | a | 6031393.44 | 2364624.54 | 15.00 | 0.00 |
| | | | | | | | | | 6031770.71 | 2364623.06 | 15.00 | 0.00 |
| | | | | | | | | | 6031801.72 | 2364616.42 | 15.00 | 0.00 |
| | | | | | | | | | 6031793.23 | 2364578.77 | 15.00 | 0.00 |
| | | | | | | | | | 6031820.18 | 2364578.03 | 15.00 | 0.00 |
| | | | | | | | | | 6031820.55 | 2364520.44 | 15.00 | 0.00 |
| | | | | | | | | | 6031816.86 | 2364520.44 | 15.00 | 0.00 |
| | | | | | | | | | 6031816.49 | 2364471.34 | 15.00 | 0.00 |
| | | | | | | | | | 6031398.24 | 2364471.71 | 15.00 | 0.00 |
| | | | | | | | | | 6031397.13 | 2364499.40 | 15.00 | 0.00 |
| | | | | | | | | | 6031394.55 | 2364499.77 | 15.00 | 0.00 |
| BUILDING | | | BUILDING00002 | x | 0 | | 40.50 | g | 6031421.12 | 2364621.96 | 55.50 | 0.00 |

| Name | Sel. | M. | ID | RB | Residents | Absorption | Height | Coordinates | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Begin | x | y | z | Ground |
| | | | | | | | (ft) | (ft) | (ft) | (ft) | (ft) |
| | | | | | | | | 6031507.88 | 2364621.22 | 55.50 | 0.00 |
| | | | | | | | | 6031507.88 | 2364596.49 | 55.50 | 0.00 |
| | | | | | | | | 6031482.77 | 2364595.38 | 55.50 | 0.00 |
| | | | | | | | | 6031482.03 | 2364571.01 | 55.50 | 0.00 |
| | | | | | | | | 6031492.37 | 2364561.79 | 55.50 | 0.00 |
| | | | | | | | | 6031538.15 | 2364562.89 | 55.50 | 0.00 |
| | | | | | | | | 6031549.59 | 2364571.38 | 55.50 | 0.00 |
| | | | | | | | | 6031549.59 | 2364589.10 | 55.50 | 0.00 |
| | | | | | | | | 6031545.16 | 2364588.36 | 55.50 | 0.00 |
| | | | | | | | | 6031545.53 | 2364621.96 | 55.50 | 0.00 |
| | | | | | | | | 6031611.61 | 2364621.96 | 55.50 | 0.00 |
| | | | | | | | | 6031612.35 | 2364596.49 | 55.50 | 0.00 |
| | | | | | | | | 6031606.44 | 2364596.49 | 55.50 | 0.00 |
| | | | | | | | | 6031606.07 | 2364584.30 | 55.50 | 0.00 |
| | | | | | | | | 6031599.79 | 2364585.41 | 55.50 | 0.00 |
| | | | | | | | | 6031599.06 | 2364570.64 | 55.50 | 0.00 |
| | | | | | | | | 6031609.39 | 2364560.31 | 55.50 | 0.00 |
| | | | | | | | | 6031624.89 | 2364562.61 | 55.50 | 0.00 |
| | | | | | | | | 6031625.64 | 2364566.95 | 55.50 | 0.00 |
| | | | | | | | | 6031685.07 | 2364566.95 | 55.50 | 0.00 |
| | | | | | | | | 6031684.70 | 2364562.89 | 55.50 | 0.00 |
| | | | | | | | | 6031694.67 | 2364562.89 | 55.50 | 0.00 |
| | | | | | | | | 6031727.52 | 2364563.26 | 55.50 | 0.00 |
| | | | | | | | | 6031728.26 | 2364581.35 | 55.50 | 0.00 |
| | | | | | | | | 6031703.16 | 2364581.35 | 55.50 | 0.00 |
| | | | | | | | | 6031703.53 | 2364621.22 | 55.50 | 0.00 |
| | | | | | | | | 6031741.18 | 2364622.33 | 55.50 | 0.00 |
| | | | | | | | | 6031738.96 | 2364606.08 | 55.50 | 0.00 |
| | | | | | | | | 6031767.39 | 2364599.44 | 55.50 | 0.00 |
| | | | | | | | | 6031767.39 | 2364575.81 | 55.50 | 0.00 |
| | | | | | | | | 6031755.58 | 2364575.81 | 55.50 | 0.00 |
| | | | | | | | | 6031755.58 | 2364563.26 | 55.50 | 0.00 |
| | | | | | | | | 6031759.27 | 2364563.26 | 55.50 | 0.00 |
| | | | | | | | | 6031759.64 | 2364549.23 | 55.50 | 0.00 |
| | | | | | | | | 6031765.54 | 2364549.97 | 55.50 | 0.00 |
| | | | | | | | | 6031766.28 | 2364538.16 | 55.50 | 0.00 |
| | | | | | | | | 6031769.60 | 2364537.79 | 55.50 | 0.00 |
| | | | | | | | | 6031768.87 | 2364502.35 | 55.50 | 0.00 |
| | | | | | | | | 6031422.97 | 2364502.35 | 55.50 | 0.00 |
| | | | | | | | | 6031424.45 | 2364587.26 | 55.50 | 0.00 |
| | | | | | | | | 6031420.76 | 2364586.89 | 55.50 | 0.00 |

## Ground Absorption(s)

| Name | Sel. | M. | ID | G | Coordinates | |
|---|---|---|---|---|---|---|
| | | | | | x | y |
| | | | | | (ft) | (ft) |

## Contour(s)

| Name | Sel. | M. | ID | OnlyPts | Height | | Coordinates | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Begin | End | x | y | z |
| | | | | | (ft) | (ft) | (ft) | (ft) | (ft) |

## Vertical Area Source(s)

| Name | ID | Height | | Coordinates | | | |
|---|---|---|---|---|---|---|---|
| | | Begin | End | x | y | z | Ground |
| | | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) |

## Rail

| Name | Sel. | M. | ID | Lw' | | Train Class | Correct. | Vmax |
|---|---|---|---|---|---|---|---|---|
| | | | | Day | Night | | Track | |
| | | | | (dBA) | (dBA) | | (dB) | (km(mph) |

## Sound Level Spectra

| Name | ID | Type | Oktave Spectrum (dB) | | | | | | | | | | | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Weight. | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | A | lin | |

## Roads

| Name | Sel. | M. | ID | Lme | | | Count Data | | exact Count Data | | | | | | Speed Limit | | SCS | Surface | | Gradient | Mult. Reflection | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Day | Evening | Night | DTV | Str.class. | M | | | p (%) | | | Auto | Truck | Dist. | Dstro | Type | | Drefl | Hbuild | Dist. |
| | | | | (dBA) | (dBA) | (dBA) | | | Day | Evening | Night | Day | Evening | Night | (mph) | (mph) | | (dB) | | (%) | (dB) | (ft) | (ft) |

## RoadsGeo

| Name | Height | | Coordinates | | | | Dist | LSlope |
|---|---|---|---|---|---|---|---|---|
| | Begin | End | x | y | z | Ground | (ft) | (%) |
| | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | | |

# APPENDIX 11.1:

# ON-SITE CONSTRUCTION NOISE CALCULATIONS

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# 15287 - 701 S Myrtle Ave

**CadnaA Noise Prediction Model:** 15287-03_Construction.cna
**Date:** 26.06.24
**Analyst:** B. Maddux

## Calculation Configuration

| Configuration | |
|---|---|
| **Parameter** | **Value** |
| General | |
| Max. Error (dB) | 0.00 |
| Max. Search Radius (#(Unit,LEN)) | 2000.01 |
| Min. Dist Src to Rcvr | 0.00 |
| Partition | |
| Raster Factor | 0.50 |
| Max. Length of Section (#(Unit,LEN)) | 999.99 |
| Min. Length of Section (#(Unit,LEN)) | 1.01 |
| Min. Length of Section (%) | 0.00 |
| Proj. Line Sources | On |
| Proj. Area Sources | On |
| Ref. Time | |
| Daytime Penalty (dB) | 0.00 |
| Recr. Time Penalty (dB) | 5.00 |
| Night-time Penalty (dB) | 10.00 |
| DTM | |
| Standard Height (m) | 0.00 |
| Model of Terrain | Triangulation |
| Reflection | |
| max. Order of Reflection | 2 |
| Search Radius Src | 100.00 |
| Search Radius Rcvr | 100.00 |
| Max. Distance Source - Rcvr | 1000.00 1000.00 |
| Min. Distance Rvcr - Reflector | 1.00 1.00 |
| Min. Distance Source - Reflector | 0.10 |
| Industrial (ISO 9613) | |
| Lateral Diffraction | some Obj |
| Obst. within Area Src do not shield | On |
| Screening | Incl. Ground Att. over Barrier |
| | Dz with limit (20/25) |
| Barrier Coefficients C1,2,3 | 3.0 20.0 0.0 |
| Temperature (#(Unit,TEMP)) | 10 |
| rel. Humidity (%) | 70 |
| Ground Absorption G | 0.50 |
| Wind Speed for Dir. (#(Unit,SPEED)) | 3.0 |
| Roads (TNM) | |
| Railways (FTA/FRA) | |
| Aircraft (???) | |
| Strictly acc. to AzB | |

## Receiver Noise Levels

| Name | M. | ID | Level Lr | | | Limit. Value | | | Land Use | | | Height | | Coordinates | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Night | CNEL | Day | Night | CNEL | Type | Auto | Noise Type | | | X | Y | Z |
| | | | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | | | | (ft) | | (ft) | (ft) | (ft) |
| R1 | | R1 | 59.6 | -40.4 | 56.6 | 0.0 | 0.0 | 0.0 | | x | Total | 5.00 | a | 6031604.39 | 2364227.66 | 5.00 |
| R2 | | R2 | 65.0 | -35.0 | 62.0 | 0.0 | 0.0 | 0.0 | | x | Total | 5.00 | a | 6031901.61 | 2364524.19 | 5.00 |
| R3 | | R3 | 66.0 | -34.0 | 63.0 | 0.0 | 0.0 | 0.0 | | x | Total | 5.00 | a | 6031509.94 | 2364709.60 | 5.00 |
| R4 | | R4 | 56.2 | -43.8 | 53.2 | 0.0 | 0.0 | 0.0 | | x | Total | 5.00 | a | 6031159.94 | 2364756.70 | 5.00 |
| R5 | | R5 | 57.3 | -42.7 | 54.3 | 0.0 | 0.0 | 0.0 | | x | Total | 5.00 | a | 6031138.13 | 2364572.53 | 5.00 |
| R6 | | R6 | 57.3 | -42.7 | 54.2 | 0.0 | 0.0 | 0.0 | | x | Total | 5.00 | a | 6031155.20 | 2364427.84 | 5.00 |

## Point Source(s)

| Name | M. | ID | Result. PWL | | | Lw / Li | | | Operating Time | | | Height | | Coordinates | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Evening | Night | Type | Value | norm. | Day | Special | Night | | | X | Y | Z |
| | | | (dBA) | (dBA) | (dBA) | | | dB(A) | (min) | (min) | (min) | (ft) | | (ft) | (ft) | (ft) |

## Line Source(s)

| Name | M. | ID | Result. PWL | | | Result. PWL' | | | Lw / Li | | | Operating Time | | | Moving Pt. Src | | | | Height | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Evening | Night | Day | Evening | Night | Type | Value | norm. | Day | Special | Night | Number | | | Speed | | |
| | | | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | | | dB(A) | (min) | (min) | (min) | Day | Evening | Night | (mph) | (ft) | |

| Name | ID | Height | | Coordinates | | | |
|---|---|---|---|---|---|---|---|
| | | Begin | End | x | y | z | Ground |
| | | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) |

## Area Source(s)

| Name | M. | ID | Result. PWL | | | Result. PWL'' | | | Lw / Li | | | Operating Time | | | Height | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Evening | Night | Day | Evening | Night | Type | Value | norm. | Day | Special | Night | (ft) | |
| | | | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | | | dB(A) | (min) | (min) | (min) | | |
| ConstructionArea | | CA01 | 116.6 | 16.6 | 16.6 | 78.4 | -21.6 | -21.6 | PWL-Pt | 116.6 | | | | | 0 | a |

| Name | ID | Height | | | Coordinates | | | |
|---|---|---|---|---|---|---|---|---|
| | | Begin | | End | x | y | z | Ground |
| | | (ft) | | (ft) | (ft) | (ft) | (ft) | (ft) |
| ConstructionArea | CA01 | 0.00 | a | | 6031821.48 | 2364461.95 | 0.00 | 0.00 |
| | | | | | 6031683.95 | 2364462.38 | 0.00 | 0.00 |
| | | | | | 6031383.88 | 2364463.34 | 0.00 | 0.00 |
| | | | | | 6031384.12 | 2364624.46 | 0.00 | 0.00 |
| | | | | | 6031684.18 | 2364623.69 | 0.00 | 0.00 |
| | | | | | 6031806.71 | 2364623.27 | 0.00 | 0.00 |
| | | | | | 6031821.91 | 2364608.42 | 0.00 | 0.00 |

## Barrier(s)

| Name | Sel. | M. | ID | Absorption | | Z-Ext. | Cantilever | | Height | | Coordinates | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | left | right | | horz. | vert. | Begin | End | x | y | z | Ground |
| | | | | | | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) |

## Building(s)

| Name | Sel. | M. | ID | RB | Residents | Absorption | Height | Coordinates | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Begin | x | y | z | Ground | |
| | | | | | | | (ft) | (ft) | (ft) | (ft) | (ft) | |

## Ground Absorption(s)

| Name | Sel. | M. | ID | G | Coordinates | |
|---|---|---|---|---|---|---|
| | | | | | x | y |
| | | | | | (ft) | (ft) |

## Contour(s)

| Name | Sel. | M. | ID | OnlyPts | Height | | Coordinates | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Begin | End | x | y | z |
| | | | | | (ft) | (ft) | (ft) | (ft) | (ft) |

## Vertical Area Source(s)

| Name | ID | Height | | Coordinates | | | |
|---|---|---|---|---|---|---|---|
| | | Begin | End | x | y | z | Ground |
| | | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) |

## Rail

| Name | Sel. | M. | ID | Lw' | | Train Class | Correct. | Vmax |
|---|---|---|---|---|---|---|---|---|
| | | | | Day | Night | | Track | |
| | | | | (dBA) | (dBA) | | (dB) | (km(mph) |

## Sound Level Spectra

| Name | ID | Type | Oktave Spectrum (dB) | | | | | | | | | | | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Weight. | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | A | lin | |

## Roads

| Name | Sel. | M. | ID | Lme | | | Count Data | | exact Count Data | | | | | | Speed Limit | | SCS | Surface | | Gradient | Mult. Reflection | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Day | Evening | Night | DTV | Str.class. | M | | | p (%) | | | Auto | Truck | Dist. | Dstro | Type | | Drefl | Hbuild | Dist. |
| | | | | (dBA) | (dBA) | (dBA) | | | Day | Evening | Night | Day | Evening | Night | (mph) | (mph) | | (dB) | | (%) | (dB) | (ft) | (ft) |

## RoadsGeo

| Name | Height | | | Coordinates | | | | Dist | LSlope |
|---|---|---|---|---|---|---|---|---|---|
| | Begin | | End | x | y | z | Ground | (ft) | (%) |
| | (ft) | | (ft) | (ft) | (ft) | (ft) | (ft) | | |

# APPENDIX 11.2:

# OFF-SITE CONSTRUCTION TRAFFIC NOISE CALCULATIONS

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## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* S Myrtle Ave
*Road Segment:* n/o W Olive Ave
*Project Name:* 701 S Myrtle
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 8,353 vehicles |
| *Peak Hour Percentage:* | 8.25% |
| *Peak Hour Volume:* | 689 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -1.13 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -27.89 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -13.96 | 1.08 | -1.20 | *-5.53* | 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:* | 57.5 | 56.0 | 53.5 | 51.5 | 58.8 | 59.1 |
| *Medium Trucks:* | 42.8 | 42.4 | 30.9 | 33.1 | 42.2 | 42.3 |
| *Heavy Trucks:* | 63.9 | 62.8 | 58.0 | 57.5 | 65.0 | 65.2 |
| *Vehicle Noise:* | 64.8 | 63.6 | 59.3 | 58.5 | 65.9 | 66.2 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 22 | 48 | 104 | 225 |
| *CNEL:* | 23 | 50 | 108 | 234 |

Monday, April 1, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* S Myrtle Ave
*Road Segment:* s/o W Olive Ave

*Project Name:* 701 S Myrtle
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 9,037 vehicles |
| *Peak Hour Percentage:* | 8.25% |
| *Peak Hour Volume:* | 746 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -0.79 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -27.55 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -13.62 | 1.08 | -1.20 | *-5.53* | 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:* | 57.8 | 56.4 | 53.8 | 51.8 | 59.1 | 59.4 |
| *Medium Trucks:* | 43.1 | 42.8 | 31.2 | 33.4 | 42.5 | 42.6 |
| *Heavy Trucks:* | 64.2 | 63.1 | 58.3 | 57.9 | 65.3 | 65.6 |
| *Vehicle Noise:* | 65.1 | 64.0 | 59.6 | 58.8 | 66.3 | 66.5 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 24 | 51 | 110 | 237 |
| *CNEL:* | 25 | 53 | 114 | 246 |

Monday, April 1, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing
*Road Name:* S Myrtle Ave
*Road Segment:* s/o W Walnut Ave

*Project Name:* 701 S Myrtle
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 9,563 vehicles |
| *Peak Hour Percentage:* | 8.25% |
| *Peak Hour Volume:* | 789 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 71.4% | 9.9% | 18.7% | 94.86% |
| *Medium Trucks:* | 90.9% | 1.6% | 7.9% | 0.20% |
| *Heavy Trucks:* | 76.5% | 6.3% | 17.2% | 4.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -0.54 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -27.30 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -13.38 | 1.08 | -1.20 | *-5.53* | 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:* | 58.0 | 56.6 | 54.1 | 52.1 | 59.4 | 59.7 |
| *Medium Trucks:* | 43.4 | 43.0 | 31.5 | 33.7 | 42.8 | 42.9 |
| *Heavy Trucks:* | 64.5 | 63.4 | 58.5 | 58.1 | 65.6 | 65.8 |
| *Vehicle Noise:* | 65.4 | 64.2 | 59.9 | 59.1 | 66.5 | 66.8 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 25 | 53 | 114 | 246 |
| *CNEL:* | 26 | 55 | 119 | 256 |

Monday, April 1, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing + Grading
*Road Name:* S Myrtle Ave
*Road Segment:* n/o W Olive Ave
*Project Name:* 701 S. Myrtle
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 8,482 vehicles |
| *Peak Hour Percentage:* | 8.25% |
| *Peak Hour Volume:* | 700 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 77.5% | 12.9% | 9.6% | 96.49% |
| *Medium Trucks:* | 84.8% | 4.9% | 10.3% | 1.85% |
| *Heavy Trucks:* | 86.5% | 2.7% | 10.8% | 6.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -0.99 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -18.16 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -12.42 | 1.08 | -1.20 | *-5.53* | 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:* | 57.6 | 56.5 | 54.8 | 48.7 | 57.3 | 57.9 |
| *Medium Trucks:* | 52.5 | 51.8 | 45.5 | 43.9 | 52.4 | 52.6 |
| *Heavy Trucks:* | 65.4 | 64.8 | 55.8 | 57.1 | 65.4 | 65.5 |
| *Vehicle Noise:* | 66.3 | 65.6 | 58.6 | 57.8 | 66.2 | 66.4 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 24 | 51 | 109 | 235 |
| *CNEL:* | 24 | 52 | 113 | 243 |

Monday, April 1, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing + Grading
*Road Name:* S Myrtle Ave
*Road Segment:* s/o W Olive Ave

*Project Name:* 701 S. Myrtle
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 9,166 vehicles |
| *Peak Hour Percentage:* | 8.25% |
| *Peak Hour Volume:* | 756 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 77.5% | 12.9% | 9.6% | 96.49% |
| *Medium Trucks:* | 84.8% | 4.9% | 10.3% | 1.85% |
| *Heavy Trucks:* | 86.5% | 2.7% | 10.8% | 6.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -0.65 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -17.83 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -12.08 | 1.08 | -1.20 | *-5.53* | 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:* | 57.9 | 56.9 | 55.1 | 49.0 | 57.7 | 58.3 |
| *Medium Trucks:* | 52.9 | 52.2 | 45.8 | 44.3 | 52.7 | 53.0 |
| *Heavy Trucks:* | 65.8 | 65.2 | 56.1 | 57.4 | 65.8 | 65.9 |
| *Vehicle Noise:* | 66.6 | 66.0 | 58.9 | 58.2 | 66.6 | 66.8 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 25 | 53 | 115 | 248 |
| *CNEL:* | 26 | 55 | 119 | 255 |

Monday, April 1, 2024

## FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

*Scenario:* Existing + Grading
*Road Name:* S Myrtle Ave
*Road Segment:* s/o W Walnut Ave

*Project Name:* 701 S. Myrtle
*Job Number:* 15287

### SITE SPECIFIC INPUT DATA

***Highway Data***

| | |
|---|---|
| *Average Daily Traffic (Adt):* | 9,692 vehicles |
| *Peak Hour Percentage:* | 8.25% |
| *Peak Hour Volume:* | 800 vehicles |
| *Vehicle Speed:* | 25 mph |
| *Near/Far Lane Distance:* | 12 feet |

***Site Data***

| | |
|---|---|
| ***Barrier Height:*** | **0.0 feet** |
| *Barrier Type (0-Wall, 1-Berm):* | 0.0 |
| *Centerline Dist. to Barrier:* | 42.0 feet |
| *Centerline Dist. to Observer:* | 42.0 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:* | 77.5% | 12.9% | 9.6% | 96.49% |
| *Medium Trucks:* | 84.8% | 4.9% | 10.3% | 1.85% |
| *Heavy Trucks:* | 86.5% | 2.7% | 10.8% | 6.94% |

***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:* | 41.869 |
| *Medium Trucks:* | 41.657 |
| *Heavy Trucks:* | 41.678 |

***FHWA Noise Model Calculations***

| *VehicleType* | *REMEL* | *Traffic Flow* | *Distance* | *Finite Road* | *Fresnel* | *Barrier Atten* | *Berm Atten* |
|---|---|---|---|---|---|---|---|
| *Autos:* | 58.73 | -0.41 | 1.05 | -1.20 | *-4.60* | 0.000 | 0.000 |
| *Medium Trucks:* | 70.80 | -17.58 | 1.09 | -1.20 | *-4.87* | 0.000 | 0.000 |
| *Heavy Trucks:* | 77.97 | -11.84 | 1.08 | -1.20 | *-5.53* | 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:* | 58.2 | 57.1 | 55.3 | 49.3 | 57.9 | 58.5 |
| *Medium Trucks:* | 53.1 | 52.4 | 46.1 | 44.5 | 53.0 | 53.2 |
| *Heavy Trucks:* | 66.0 | 65.4 | 56.4 | 57.6 | 66.0 | 66.1 |
| *Vehicle Noise:* | 66.9 | 66.2 | 59.1 | 58.4 | 66.8 | 67.0 |

***Centerline Distance to Noise Contour (in feet)***

| | *70 dBA* | *65 dBA* | *60 dBA* | *55 dBA* |
|---|---|---|---|---|
| *Ldn:* | 26 | 55 | 119 | 257 |
| *CNEL:* | 27 | 57 | 123 | 265 |

Monday, April 1, 2024