Barker Business Park

(DPR 23-00022, SPA 23-05321, TTM 23-05322)

NOISE AND VIBRATION ANALYSIS

CITY OF PERRIS

PREPARED BY:

Bill Lawson, PE, INCE
blawson@urbanxroads.com
(949) 584-3148

SEPTEMBER 4, 2024

16163-02 NA

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
LUCP	Land Use Compatibility Plan
MARB/IPA	March Air Reserve Base/Inland Port Airport
mph	Miles per hour
OPR	Office of Planning and Research
PVCCSP	Perris Valley Commerce Center Specific Plan
PPV	Peak particle velocity
Project	Barker Business Park
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this Noise and Vibration Analysis to determine the potential noise and vibration impacts and the necessary mitigation measures, if any, for the proposed Barker Business Park development ("Project"). The Project would develop a currently vacant site with two separate but complementary uses providing rental, lease, sale, and maintenance of trailers and heavy equipment. The proposed Project site is located northeast of the Interstate 215 (I-215)/Placentia Avenue interchange within the Perris Valley Commerce Center Specific Plan (PVCCSP) planning area of the City of Perris. This study has been prepared to satisfy applicable City of Perris standards and thresholds of significance based on guidance provided by Appendix G of the Guidelines for Implementation of the California Environmental Quality Act (State CEQA Guidelines). (1)

The results of this Barker Business Park Noise and Vibration Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Significance Findings	
	Unmitigated	**Mitigated**
Off-Site Traffic Noise	*Less Than Significant*	-
Operational Noise	*Less Than Significant*	-
Construction Noise	*Less Than Significant*	-
Construction Vibration	*Less Than Significant*	-

[1] Although Project construction noise and vibration impacts will be less than significant, the Project is required to comply with mitigation measures (MM) Noise 1 through MM Noise 4 from the PVCC Specific Plan Environmental Impact Report.

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1 INTRODUCTION

This Noise and Vibration Analysis has been completed to determine the noise impacts associated with the development of the Barker Business Park ("Project"). This noise and vibration 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 future exterior noise environment, potential off-site traffic impacts, the Project-related long-term stationary-source operational noise, and Project-related short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed Barker Business Park is located northeast of the Interstate 215 (I-215)/Placentia Avenue interchange, between Walnut Avenue to the north and Placentia Avenue to the south within the City of Perris' *Perris Valley Commerce Center Specific Plan* (PVCCSP) planning area as shown on Exhibit 1-A. The Project site comprises two parcels (APNs 305-050-055 and 305-050-051) bisected by East Frontage Road. The March Air Reserve Base/Inland Port Airport (MARB/IPA) is located approximately 2.5 miles north of the Project site boundary.

The Project site is currently undeveloped. According to the PVCCSP, the Project site is designated 'Business Professional Office' and 'Potential Basin Area.' The city has determined that the Project uses are conditionally permitted at the site subject to City Conditional Use Permit (CUP) requirements. The Applicant has completed the requisite CUP application package, and requested approval of the CUP is a Project Discretionary Action. Communication from the Riverside County Flood Control and Water Conservation District (RCFCWCD) indicates that the Project site is no longer needed for drainage detention purposes. The 'Potential Basin Area' land use designation is therefore no longer applicable to the Project site.

1.2 PROJECT DESCRIPTION

The Project would develop a currently vacant site with two separate but complementary uses providing rental, lease, sale, and maintenance of trailers and heavy equipment. The Project Development Concept apportions the site into 3 lots, to be developed as summarized below.

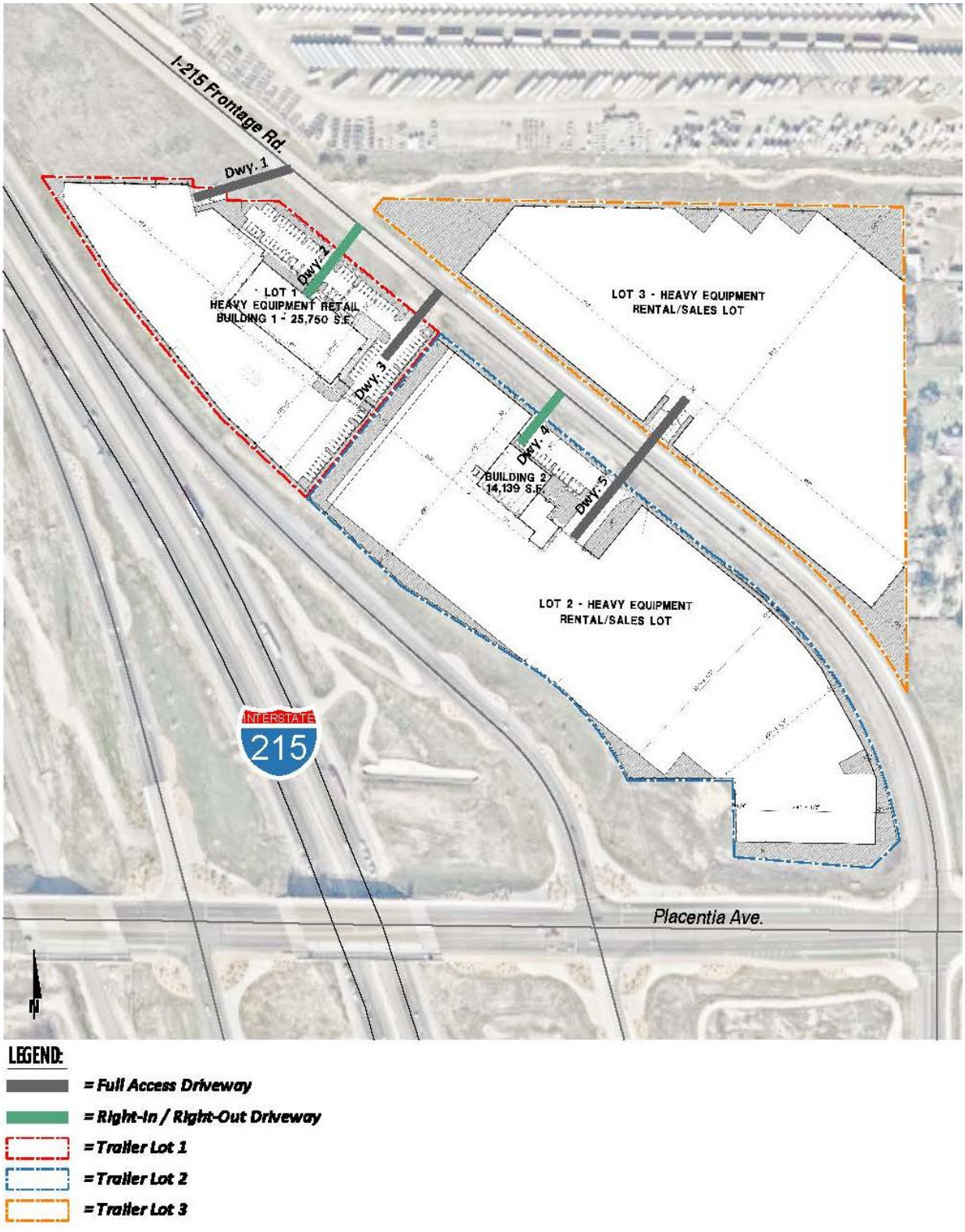
- Lot 1, approximately 5.0 acres, is located in the northwest portion of the Project site, and south of E. Frontage Road would serve Tenant 2. Lot 1 would be developed with a 25,750-square-foot building, employee parking areas (80 stalls), and landscaping (approximately 15% or 32,680-square-feet). The proposed building would accommodate vehicle/heavy equipment maintenance activities and supporting office/administrative functions. Access to Lot 1 would be provided by three driveways onto adjacent [I-15] E. Frontage Road.
    - Driveway 1 will serve Lot 1 trucks and passenger cars and will allow for full access (no turn restrictions).
    - Driveway 2 would serve Lot 1 passenger cars only and will be restricted to right-in/right-out access only.
    - Driveway 3 will serve Lot 1 trucks only and will allow for full access.

- Lot 2, approximately 10.3 acres, is located in the southeast portion of the Project site and south of E. Frontage Road would serve Tenant 1. Lot 2 would be developed with a 14,139 -square-foot building, heavy equipment and trailer holding/display lot, employee parking area (15 stalls) and landscaping (approximately 15.5% or 69,947-square-feet). The proposed building would accommodate vehicle/heavy equipment maintenance activities and supporting administrative functions. Access to Lot 2 would be provided by two driveways onto adjacent E. Frontage Road.
    - Driveway 4 will serve Lot 2 passenger cars only and will be restricted to right-in/right-out access only.
    - Driveway 5 will serve Lot 2 trucks and will allow for full access.
- Lot 3, approximately 9.6 acres, is located in the northern portion of the Project site, and north of E. Frontage Road would serve Tenant 1. Lot 3 would be developed as a heavy equipment/trailer display lot that would support operations of the Lot 2 tenant (Tenant 1). Access to Lot 3 would be provided by one driveway onto adjacent E. Frontage Road.
    - Driveway 5 will serve Lot 3 trucks and will allow for full access.

The Project is anticipated to be constructed in a single phase with an anticipated Opening Year of 2026. Exhibit 1-B identifies the preliminary site plan for the proposed Project. The on-site Project-related noise sources are expected to include: heavy equipment maintenance activity, equipment storage/display, truck movements, roof-top air conditioning units, trash enclosure activity, and parking lot vehicle movements. This noise analysis is intended to describe noise level impacts associated with the expected typical operational activities at the Project site. The Project will be open and operational Monday through Friday, from 7:00 a.m. to 6:00 p.m. with no nighttime Project activity.

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN



2 FUNDAMENTALS

For consistency with the PVCCSP EIR, the following noise fundamentals discussion was taken from the EIR, Section 4.9 Noise, Page 4.9-2: (3)

The PVCCSP EIR defines noise *as unwanted or objectionable sound. The effect of noise on people can include general annoyance, interference with speech communication, sleep disturbance and, in the extreme, hearing impairment. The unit of measurement used to describe a noise level is the decibel (dB). However, since the human ear is not equally sensitive to all frequencies within the sound spectrum, the "A-weighted" noise scale, which weights the frequencies to which humans are sensitive, is used for measurements. Noise levels using A-weighted measurements are written dB(A) or dBA. Decibels are measured on a logarithmic scale which quantifies sound intensity in a manner that is similar to the Richter scale used for earthquake magnitudes. In the case of noise, a doubling of the energy from a noise source, such as the doubling of a traffic volume, would increase the noise level by 3 dBA; a halving of the energy would result in a 3 dBA decrease.*

The PVCCSP EIR further states that *average noise levels over a period of minutes or hours are usually expressed as dB L_{eq} or the equivalent noise level for that period of time. For example, $L_{eq(3)}$ would represent a three hour average. When no time-period is specified, a one-hour average is assumed. Noise standards for land use compatibility are stated in terms of the Community Noise Equivalent Level (CNEL) and the Day-Night Average Noise Level (Ldn). CNEL is a 24-hour weighted average measure of community noise. The computation of CNEL adds 5 dBA to the average hourly noise levels between 7 p.m. and 10 p.m. (evening hours), and 10 dBA to the average hourly noise levels between 10p.m. to 7 a.m. (nighttime hours). This weighting accounts for the increased human sensitivity to noise in the evening and nighttime hours. Ldn is a very similar 24-hour weighted average which weighs only the nighttime hours and not the evening hours. CNEL is normally about 1 dB higher than Ldn for typical traffic and other community noise levels.*

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3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (4) The purpose of the Noise and Safety 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 GREEN BUILDING STANDARDS CODE

The State of California's Green Building Standards Code (CALGreen) contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (5) These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other areas where noise contours are not readily available. If the development falls within an airport or freeway 65 dBA CNEL noise contour, the combined sound transmission class (STC) rating of the wall and roof-ceiling assemblies shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level of 50 dBA L_{eq} in occupied areas during any hour of operation (Section 5.507.4.2). As outlined below in Section 3.8, the Project site is not located within the 65 CNEL noise contour of March Air Reserve Base/Inland Port Airport (MARB/IPA).

3.3 CITY OF PERRIS GENERAL PLAN NOISE ELEMENT

The City of Perris has adopted a Noise Element of the General Plan (6) to control and abate environmental noise, and to protect the citizens of Perris from excessive exposure to noise. The Noise Element specifies the maximum allowable unmitigated 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 noise polices and implementation measures designed to protect, create, and maintain an environment free from noise that may jeopardize the health or welfare of sensitive receptors, or degrade quality of life.

The noise standards identified in the City of Perris General Plan are guidelines to evaluate the acceptability of the transportation related noise level impacts. These standards are based on the Governor's Office of Planning and Research (OPR) and are used to assess the long-term traffic noise impacts on land use. According to the City's Land Use Compatibility for Community Noise Exposure (Exhibit N-1), noise-sensitive land uses such as single-family residences are *normally acceptable* with exterior noise levels below 60 dBA CNEL and *conditionally acceptable* with noise levels below 65 dBA CNEL. Commercial uses are *normally acceptable* with exterior noise levels below 65 dBA CNEL and *conditionally acceptable* with noise levels below 75 dBA CNEL and *normally unacceptable* with exterior noise level above 75 dBA CNEL. Industrial uses are considered *normally acceptable* with exterior noise levels of up to 70 dBA CNEL, and *conditionally acceptable* with exterior noise levels between 70 to 80 dBA CNEL. (6)

3.4 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Barker Business Park, operational noise such as the expected heavy equipment maintenance activity, equipment storage/display, truck movements, roof-top air conditioning units, trash enclosure activity, and parking lot vehicle movements are typically evaluated against standards established under a City's Municipal Code. The City of Perris Municipal Code, Chapter 7.34 *Noise Control*, Section 7.34.040, establishes the permissible noise level at any point on the property line of the affected residential receivers. Therefore, for residential properties, the exterior noise level shall not exceed a maximum noise level of 80 dBA L_{max} during daytime hours (7:01 a.m. to 10:00 p.m.) and shall not exceed a maximum noise level of 60 dBA L_{max} during the nighttime hours (10:01 p.m. to 7:00 a.m.), as shown on Table 3-1. (7) Chapter 7.34 *Noise Control* of the City of Perris Municipal Code is included in Appendix 3.1.

Additional exterior noise level standards are identified in the City of Perris General Plan Noise Element Implementation Measure V.A.1 which requires that new industrial facilities and large-scale commercial facilities within 160 feet of the property line of existing noise-sensitive land uses must demonstrate compliance with a 60 dBA CNEL exterior noise level standard. Table 3-1 shows the Municipal Code and General Plan standards used in this analysis to evaluate the potential operational noise levels from the Project.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Jurisdiction	Land Use	Time Period	Noise Level Standard (dBA)
City of Perris	Residential[1]	Daytime (7:01 a.m. - 10:00 p.m.)	80 dBA L_{max}
		Nighttime (10:01 p.m. - 7:00 a.m.)	60 dBA L_{max}
	Within 160 Feet of PL[2]	24-Hours	60 dBA CNEL

[1] City of Perris Municipal Code, Sections 7.34.040 & 7.34.050 (Appendix 3.1).
[2] City of Perris General Plan Noise Element, Implementation Measure V.A.1 for new industrial facilities and large-scale commercial facilities within 160 feet of the property line of existing noise-sensitive land uses.

3.5 CONSTRUCTION NOISE STANDARDS

To analyze noise impacts originating from the construction of the Barker Business Park site, noise from construction activities is typically evaluated against standards established under a City's Municipal Code. The City of Perris Municipal Code, Section 7.34.060, identifies the City's construction noise standards and permitted hours of construction activity (refer to Table 3-2). The City of Perris Municipal Code, Section 7.34.060, noise level standard of 80 dBA L_{max} applies to residential zones within the City of Perris. (7)

TABLE 3-2: CONSTRUCTION NOISE STANDARDS

Jurisdiction	Permitted Hours of Construction Activity	Construction Noise Level Standard
City of Perris[1]	7:00 a.m. to 7:00 p.m. on any day except Sundays and legal holidays (with the exception of Columbus Day and Washington's birthday).	80 dBA L_{max}

[1] City of Perris Municipal Code, Section 7.34.060 (Appendix 3.1).

3.6 CONSTRUCTION VIBRATION STANDARDS

According to the PVCCSP EIR, a major concern regarding construction vibration is building damage. Consequently, construction vibration is generally assessed in terms of peak particle velocity (PPV). The United States Department of Transportation Federal Transit Administration (FTA) has published guidance relative to vibration impacts. According to the FTA, buildings can be exposed to ground-borne vibration levels of 0.5 PPV without experiencing structural damage.

Although Project construction noise and vibration impacts will be *less than significant*, the Project is required to comply with the following construction-related mitigation measures (MM) from the PVCCSP EIR:

MM Noise 1 *During all project site excavation and grading on site, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturer's standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from*

the noise sensitive receptors nearest the project site.

MM Noise 2 *During construction, stationary construction equipment, stockpiling and vehicle staging areas would be placed a minimum of 446 feet away from the closest sensitive receptor.*

MM Noise 3 *No combustion-powered equipment, such as pumps or generators, shall be allowed to operate within 446 feet of any occupied residence unless the equipment is surrounded by a noise protection barrier.*

MM Noise 4 *Construction contractors of implementing development projects shall limit haul truck deliveries to the same hours specified for construction equipment. To the extent feasible, haul routes shall not pass sensitive land uses or residential dwellings.*

3.7 CITY OF PERRIS GOOD NEIGHBOR GUIDELINES (PERRIS GNG)

The City of Perris adopted the Good Neighbor Guidelines (Perris GNG) for Siting New and/or Modified Industrial Facilities in September 2022 that aim to balance economic growth, industrial development, and business success while implementing methods for the reduction of potential negative impacts on sensitive receptors. The City of Perris GNG goals and recommended policies formalize what is expected from industrial development, particularly those closer to sensitive receptors. The GNG policies that address noise and that are applicable to the Project include the following:

Goal 1 Protect the neighborhood characteristics of the urban, rural, and suburban communities.

Policy 1.3 When possible, locate driveways, loading docks, and internal circulation routes away from sensitive receptors.

Policy 1.4 Truck loading bays and drive aisles shall be designed to minimize truck noise.

Policy 1.6 If a public address (PA) system is being used in conjunction with a warehouse/distribution facility operation, the PA system shall be oriented away from sensitive receptors and the volume set at a level not readily audible past the property line.

Policy 1.16 Signs shall be installed at all truck exit driveways directing truck drivers to the truck route as indicated in the City approved Truck Routing Plan and State Highway System to minimize potential impacts on sensitive receptors.

Policy 1.19 Signs and drive aisle pavement markings shall clearly identify the onsite circulation pattern to minimize unnecessary on-site vehicular travel.

Goal 2 Minimize exposure of diesel emissions to neighbors that are situated in close proximity to the warehouse/distribution center.

Policy 2.3 Avoid locating exits and entries near sensitive receptors.

Policy 2.8 Truck operators with TRUs shall be required to utilize electric plug-in units when at loading docks.

Policy 2.11 Equipment operator of a TRU (Transportation Refrigeration Unit) shall not cause a TRU to operate while stationary unless the vehicle is lawfully parked and not within 500 feet of a school, unless the operator is actively engaged in the process of loading or unloading cargo or is waiting in a queue to load or unload for a period not to exceed 2 hours

Policy 2.13 Post signs requiring to turn off truck engines when not in use.

Goal 3 Eliminate diesel trucks from unnecessary traversing through residential neighborhoods.

Policy 3.1 The facility operator shall abide by the truck routing plans, consistent with the City of Perris Truck Route Plan.

Policy 3.3 Truck traffic shall be routed to impact the least number of sensitive receptors.

Goal 4 Provide Buffers between Warehouses and Sensitive Receptors

Policy 4.1 A separation of at least 300 feet shall be provided, as measured from the dock doors to the nearest property line of the sensitive receptor.

Policy 4.4 Loading areas shall be screened with a 14-foot-high decorative block wall, architecturally consistent with the building, and an 8-foot high berming in front of the wall to soften the view of the wall from the public right of way.

Policy 4.10 Require on-site signage for directional guidance to trucks entering and exiting the facility to minimize potential impacts on sensitive receptors.

Goal 6 Implement Construction Practice Requirements in Accordance with State Requirements to Limit Emissions and Noise Impacts from Building Demolition, Renovation, and New Construction

Policy 6.1 In addition to regular construction inspections conducted by City Departments, the applicant shall provide monthly reports to the City demonstrating compliance with all the construction related policies.

Policy 6.3 Construction contractor shall utilize construction equipment with properly operating and maintained mufflers, consistent with manufacturer's standards.

Policy 6.4 Construction contractors shall locate or park all stationary construction equipment away from sensitive receptors nearest the project site, to the extent practicable.

Policy 6.8 Prepare a construction traffic control plan prior to grading, detailing the locations of equipment staging areas material stockpiles, proposed road closures, and hours of construction operations to minimize impacts to sensitive receptors.

Policy 6.9 Minimize noise from construction activities.

Policy 6.12 Designate an area of the construction site where electric-powered construction vehicles and equipment can charge if the utility provider can feasibly provide temporary power for this purpose.

Goal 7 Ensure Compliance with the California Environmental Quality Act (CEQA) and State Environmental Agencies.

To satisfy Goal #3, it is expected the Project related trucks trips will be limited to approved City of Perris truck routes consistent with the Project truck trip distributions used in the Project traffic analysis. Section 10 of this study presents the construction noise and vibration analysis showing that the Project construction activities will not exceed the City of Perris requirements. In addition, this study has been prepared to satisfy Goal #7 by demonstrating compliance with the standards and thresholds of significance based on guidance provided by Appendix G of the Guidelines for Implementation of the California Environmental Quality Act (State CEQA Guidelines).

3.8 MARCH AIR RESERVE BASE/INLAND PORT AIRPORT (MARB/IPA)

The MARB/IPA runway is located approximately 2.5 miles north of the Project site. The *Riverside County Airport Land Use Compatibility Plan Policy Document* (RC ALUCP) includes the policies for determining the land use compatibility of the Project. Policy 4.1.5 *Noise Exposure for Other Land Uses* of the RC ALUCP requires that land uses demonstrate compatibility with the acceptable noise levels on Table 2B. Table 2B *Supporting Compatibility Criteria: Noise* matrix is shown on Exhibit 3-B and indicates that the Project's industrial land uses experience *clearly acceptable* exterior noise levels below 60 dBA CNEL. *Normally acceptable* noise levels for industrial land use range from 60 to 65 dBA CNEL. *Marginally acceptable* noise levels at industrial land uses range from 65 to 70 dBA CNEL. (8)

The 70, 65 and 60 dBA CNEL noise contour boundaries used to determine the potential aircraft-related noise impacts at the Project site are found on Figure 6-9 of the *March Air Reserve Base 2018 Final Air Installations Compatible Uses Zones Study* and are presented on Exhibit 3-B of this report. (9) Based on the 2018 noise level contours for MARB/IPA, the Project development area is located outside the 65 dBA CNEL noise level contour boundaries and the Project's industrial land use is considered *normally acceptable.*

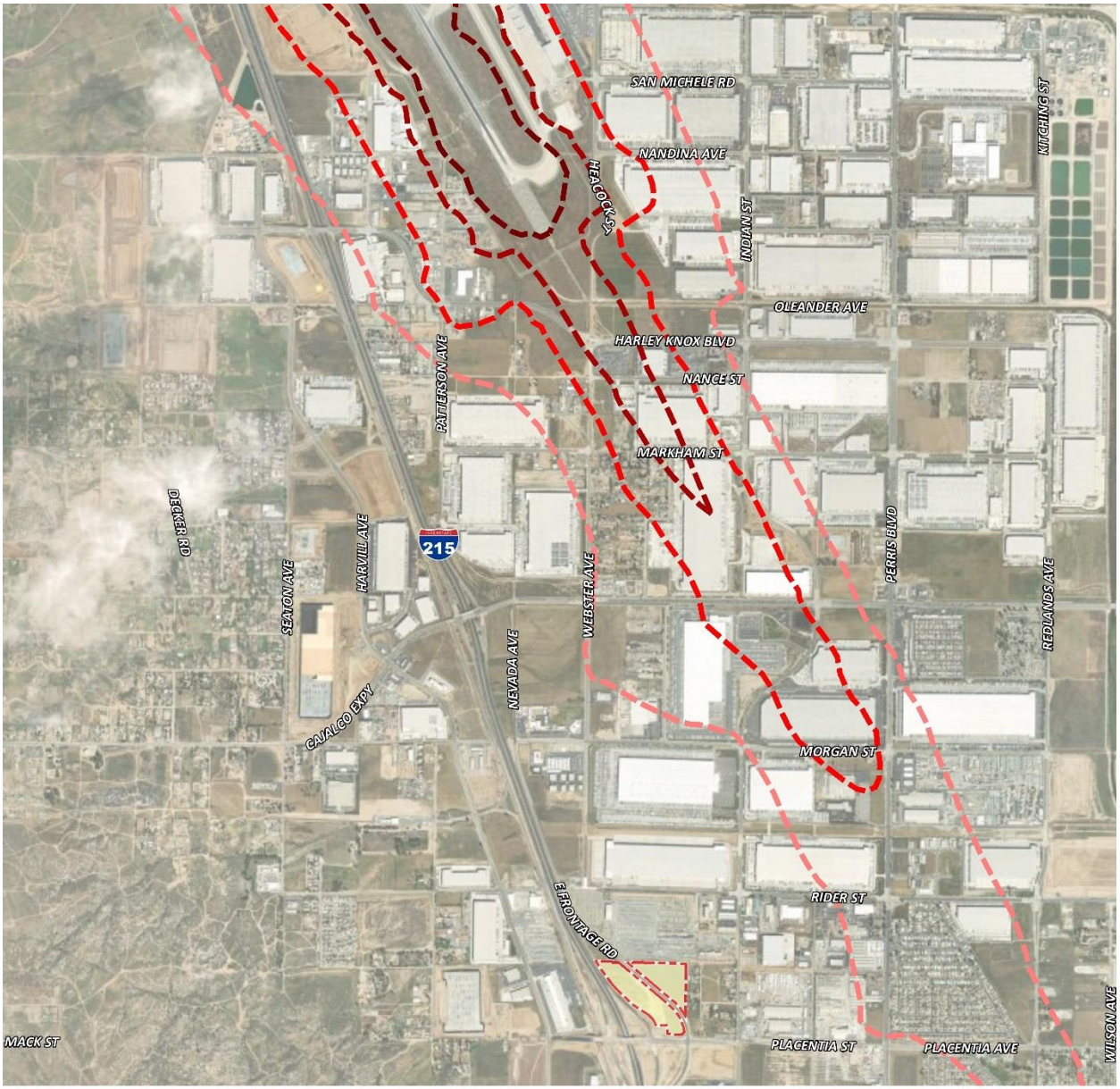
EXHIBIT 3-A: RC ALUCP SUPPORTING COMPATIBILITY CRITERIA: NOISE

Land Use Category	CNEL (dB) 50–55	55–60	60–65	65–70	70–75
Residential *					
single-family, nursing homes, mobile homes	++	o	–	– –	– –
multi-family, apartments, condominiums	++	+	o	– –	– –
Public					
schools, libraries, hospitals	+	o	–	– –	– –
churches, auditoriums, concert halls	+	o	o	–	– –
transportation, parking, cemeteries	++	++	++	+	o
Commercial and Industrial					
offices, retail trade	++	+	o	o	–
service commercial, wholesale trade, warehousing, light industrial	++	++	+	o	o
general manufacturing, utilities, extractive industry	++	++	++	+	+
Agricultural and Recreational					
cropland	++	++	++	++	+
livestock breeding	++	+	o	o	–
parks, playgrounds, zoos	++	+	+	o	–
golf courses, riding stables, water recreation	++	++	+	o	o
outdoor spectator sports	++	+	+	o	–
amphitheaters	+	o	–	– –	– –

Land Use Acceptability		Interpretation/Comments
++	*Clearly Acceptable*	The activities associated with the specified land use can be carried out with essentially no interference from the noise exposure.
+	*Normally Acceptable*	Noise is a factor to be considered in that slight interference with outdoor activities may occur. Conventional construction methods will eliminate most noise intrusions upon indoor activities.
o	*Marginally Acceptable*	The indicated noise exposure will cause moderate interference with outdoor activities and with indoor activities when windows are open. The land use is acceptable on the conditions that outdoor activities are minimal and construction features which provide sufficient noise attenuation are used (e.g., installation of air conditioning so that windows can be kept closed). Under other circumstances, the land use should be discouraged.
–	*Normally Unacceptable*	Noise will create substantial interference with both outdoor and indoor activities. Noise intrusion upon indoor activities can be mitigated by requiring special noise insulation construction. Land uses which have conventionally constructed structures and/or involve outdoor activities which would be disrupted by noise should generally be avoided.
– –	*Clearly Unacceptable*	Unacceptable noise intrusion upon land use activities will occur. Adequate structural noise insulation is not practical under most circumstances. The indicated land use should be avoided unless strong overriding factors prevail and it should be prohibited if outdoor activities are involved.

* Subtract 5 dB for low-activity outlying airports (Chiriaco Summit and Desert Center)

EXHIBIT 3-A: MARB/IPA FUTURE AIRPORT NOISE CONTOURS



Source: Figure 6-9 of the March Air Reserve Base 2018 Final Air Installations Compatible Uses Zones Study.

4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the State 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?

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

While the City of Perris General Plan Noise Element provides direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts, it does not define the levels at which increases are considered substantial for use under Guideline A. The CEQA Guidelines Appendix G Noise Guideline C applies to nearest public and private airports, if any, and the Project's land use compatibility.

4.1 CEQA THRESHOLDS NOT FURTHER ANALYZED

The closest airport which would require additional noise analysis under CEQA Appendix G threshold C is the MARB/IPA. As previously indicated in Section 3.8, the noise contour boundaries of MARB/IPA are presented on Exhibit 3-B of this report and shows that the Project's industrial land uses are considered *clearly acceptable* since the development area is located outside the 60 dBA CNEL contour. Therefore, the Project impacts are considered *less than significant,* and no further noise analysis is provided under CEQA Significance Criteria C.

4.2 NOISE SENSITIVE USE NOISE LEVEL INCREASES

As identified in the PVCCSP EIR, sensitive receivers are areas where humans are participating in activities that may be subject to the stress of significant interference from noise and often include residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, educational facilities, and libraries. Other receivers include office and industrial buildings, which are not considered as sensitive as single-family homes, but are still protected by City of Perris land use compatibility standards, as discussed below. Noise level increases at nearest receiver locations resulting from the Project are evaluated based on the PVCCSP EIR Thresholds described below at nearest sensitive receiver locations. Further, CEQA requires that consideration be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (10)

According to the PVCCSP EIR, *there is no official "industry standard" of determining significance of noise impacts. However, typically, a jurisdiction will identify either 3 dBA or 5 dBA increase as being the threshold because these levels represent varying levels of perceived noise increases.* The PVCCSP EIR indicates that a 5 dBA noise level increase is considered *discernable to most people in an exterior environment* when the resulting noise levels are below 60 dBA. Further, it identifies a 3 dBA increase threshold when the noise levels already exceed 60 dBA. In addition, according to the PVCCSP EIR, an increase of 5 dBA or more above without Project noise levels is considered a significant impact at all other sensitive land uses. (3) The City of Perris does not consider noise increases to non-noise-sensitive uses to be significant.

4.3 SIGNIFICANCE CRITERIA SUMMARY

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

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic	Noise-Sensitive[1]	if resulting noise level is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if resulting noise level is > 60 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational	Noise-Sensitive[3]	At residential land use[2]	80 dBA L_{max}	60 dBA L_{max}
		within 160 Feet of noise-sensitive use[3]	60 dBA CNEL (exterior)	
		if resulting noise level is < 60 dBA L_{eq}[1]	≥ 5 dBA L_{eq} Project increase	
		if resulting noise level is > 60 dBA L_{eq}[1]	≥ 3 dBA L_{eq} Project increase	
Construction	Noise-Sensitive	At residential land use[4]	80 dBA L_{max}	
		Vibration Level Threshold[5]	0.5 PPV (in/sec)	

[1] PVCC SP EIR, Page 4.9-20.
[2] City of Perris Municipal Code, Section 7.34.040 (Appendix 3.1).
[3] City of Perris General Plan Noise Element, Implementation Measure V.A.1.
[4] City of Perris Municipal Code, Section 7.34.060 (Appendix 3.1).
[5] PVCC SP EIR, Page 4.9-27.
"Daytime" = 7:01 a.m. - 10:00 p.m.; "Nighttime" = 10:01 p.m. - 7:00 a.m.

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at four locations in the Project study area. The noise level measurement locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Tuesday, June 18, 2024. Appendix 5.1 includes study area photos.

5.1 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 equivalent 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. (11)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. 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*. (12) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (13)

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. (13) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels

and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the equivalent or the energy average hourly sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:01 a.m. to 10:00 p.m.) and nighttime (10:01 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix 5.2 provides a summary of the existing hourly ambient noise levels.

TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]	
		Daytime	Nighttime
L1	Located east of the site near the residence at 2958 Susan Ln	60.6	56.4
L2	Located east of the site near the residence at 2948 Susan Ln	59.4	55.3
L3	Located east of the site at the end of the Susan Ln cul-de-sac	60.6	60.4
L4	Located southeast of the site near the Val Verde Elementary School at 2656 Indian Av	64.4	61.8

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2. "Daytime" = 7:01 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:00 a.m.

Table 5-1 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 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

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6 TRAFFIC NOISE METHODS AND PROCEDURES

The following section outlines the methods and procedures used to estimate and analyze the future traffic noise environment. Consistent with the *Land Use Compatibility Criteria*, all transportation related noise levels are presented in terms of the 24-hour CNEL's. Unlike a simple arithmetic average noise level, CNEL represents the logarithmic summation of the equivalent hourly noise levels with evening and nighttime noise penalties recognizing that noise may have different impacts on people depending on when it occurs.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (14) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL) by vehicle type. REMEL represents the maximum sound level (L_{max}) of individual vehicle "pass by" events by vehicle type when measured at a "reference distance" of 50 feet from the center of the travel lane. In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (15) 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. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (16)

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site dBA CNEL transportation noise impacts. Table 6-1 identifies the 8 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 Perris General Plan Circulation Element, and the vehicle speeds. The ADT volumes used in this study area presented on Table 6-2 are based on the *Barker Business Park Traffic Analysis & VMT Analysis*, prepared by Urban Crossroads, Inc. for the following traffic scenarios (16):

- Existing (2024)
- Existing Plus Project (E+P)
- Existing Plus Ambient Growth Plus Cumulative (EAC) (2026)
- Existing Plus Ambient Growth Plus Cumulative Plus Project (EAPC) (2026)

The ADT volumes vary for each roadway segment based on the existing traffic volumes and the combination of project traffic distributions. This analysis relies on a comparative evaluation of the off-site traffic noise impacts at the boundary of the right-of-way of the receiving adjacent land use, without and with project ADT traffic volumes from the Project traffic analysis. Consistent with the TIA, the Project is anticipated to generate a net total of 642 two-way trips per day (actual vehicles) that includes 206 truck trips.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Classification[1]	Receiving Land Use[2]	Distance from Centerline to Receiving Land Use (Feet)[3]	Vehicle Speed (mph)
1	E. Frontage Rd.	n/o Rider St.	Collector	Non-Sensitive	33'	45
2	E. Frontage Rd.	s/o Rider St.	Collector	Non-Sensitive	33'	45
3	E. Frontage Rd.	n/o Placentia Av.	Collector	Sensitive	33'	45
4	E. Frontage Rd.	s/o Placentia Av.	Collector	Sensitive	33'	45
5	Rider St.	e/o E. Frontage Rd.	Secondary Arterial	Non-Sensitive	47'	45
6	Placentia Av.	w/o I-215 SB Ramps	Arterial	Non-Sensitive	64'	40
7	Placentia Av.	w/o E. Frontage Rd.	Arterial	Non-Sensitive	64'	40
8	Placentia Av.	e/o E. Frontage Rd.	Arterial	Non-Sensitive	64'	40

[1] Barker Business Park Traffic Analysis & VMT Analysis, Urban Crossroads, Inc.
[2] Based on a review of existing aerial imagery.
[3] Distance to receiving land use is based upon the right-of-way distances.

To quantify the off-site noise levels, the Project-related truck trips were added to the heavy truck category in the FHWA noise prediction model. The addition of the Project related truck trips increases the percentage of heavy trucks in the vehicle mix. This approach recognizes that the FHWA noise prediction model is significantly influenced by the number of heavy trucks in the vehicle mix. The unadjusted daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Barker Business Park Traffic Analysis & VMT Analysis*.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]			
			Existing (2024)		EAC (2026)	
			Without Project	With Project	Without Project	With Project
1	E. Frontage Rd.	n/o Rider St.	2,778	2,844	5,089	5,155
2	E. Frontage Rd.	s/o Rider St.	3,699	3,813	6,499	6,612
3	E. Frontage Rd.	n/o Placentia Av.	3,577	4,106	5,953	6,481
4	E. Frontage Rd.	s/o Placentia Av.	5,580	5,623	9,055	9,099
5	Rider St.	e/o E. Frontage Rd.	2,917	2,961	3,527	3,570
6	Placentia Av.	w/o I-215 SB Ramps	9,807	9,893	16,839	16,925
7	Placentia Av.	w/o E. Frontage Rd.	23,247	23,693	34,616	35,062
8	Placentia Av.	e/o E. Frontage Rd.	15,375	15,418	20,794	20,838

[1] Barker Business Park Traffic Analysis & VMT Analysis, Urban Crossroads, Inc.

Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits and the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios. Tables 6-4 to 6-5 show the with Project vehicle mix. Due to the added Project truck trips, the increase in Project traffic volumes and the distributions of trucks on the study area road segments, the percentage of autos, medium trucks and heavy trucks will vary for each of the traffic scenarios. This explains why the existing and future traffic volumes and vehicle mixes vary between seemingly identical study area roadway segments.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Time of Day	Vehicle Mix			Time of Day Split
	Autos	Medium Trucks	Heavy Trucks	
Daytime	66.68%	1.10%	2.59%	70.36%
Evening	10.84%	0.03%	0.14%	11.01%
Nighttime	17.75%	0.16%	0.71%	18.63%
Daily	95.27%	1.29%	3.44%	100.00%

[1] Based on the 24-hour directional vehicle classification count collected on Placentia Avenue between I-215 Northbound Ramps and I-215 Frontage Road (Barker Business Park 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 6-4: EXISTING WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	E. Frontage Rd.	n/o Rider St.	95.38%	1.26%	3.36%	100.00%
2	E. Frontage Rd.	s/o Rider St.	95.41%	1.25%	3.34%	100.00%
3	E. Frontage Rd.	n/o Placentia Av.	90.86%	3.17%	5.97%	100.00%
4	E. Frontage Rd.	s/o Placentia Av.	95.31%	1.28%	3.41%	100.00%
5	Rider St.	e/o E. Frontage Rd.	95.34%	1.27%	3.39%	100.00%
6	Placentia Av.	w/o I-215 SB Ramps	95.11%	1.36%	3.53%	100.00%
7	Placentia Av.	w/o E. Frontage Rd.	94.49%	1.62%	3.89%	100.00%
8	Placentia Av.	e/o E. Frontage Rd.	95.29%	1.28%	3.43%	100.00%

[1] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-5: EAC 2026 WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	E. Frontage Rd.	n/o Rider St.	95.33%	1.27%	3.40%	100.00%
2	E. Frontage Rd.	s/o Rider St.	95.35%	1.26%	3.38%	100.00%
3	E. Frontage Rd.	n/o Placentia Av.	92.48%	2.48%	5.04%	100.00%
4	E. Frontage Rd.	s/o Placentia Av.	95.30%	1.28%	3.42%	100.00%
5	Rider St.	e/o E. Frontage Rd.	95.33%	1.27%	3.40%	100.00%
6	Placentia Av.	w/o I-215 SB Ramps	95.18%	1.33%	3.50%	100.00%
7	Placentia Av.	w/o E. Frontage Rd.	94.75%	1.51%	3.75%	100.00%
8	Placentia Av.	e/o E. Frontage Rd.	95.28%	1.28%	3.43%	100.00%

[1] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

7 OFF-SITE TRAFFIC NOISE ANALYSIS

To assess the off-site transportation CNEL noise level impacts associated with the development of the proposed Project, noise contours were developed based on the *Barker Business Park Traffic Analysis & VMT Analysis* prepared by Urban Crossroads, Inc. (16) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

7.1 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 modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 through 7-4 present a summary of the exterior dBA CNEL traffic noise levels for each traffic condition. Appendix 7.1 includes a summary of the dBA CNEL traffic noise level contour worksheets for each of the traffic conditions.

TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	E. Frontage Rd.	n/o Rider St.	Non-Sensitive	67.2	56	122	262
2	E. Frontage Rd.	s/o Rider St.	Non-Sensitive	68.4	RW	111	240
3	E. Frontage Rd.	n/o Placentia Av.	Sensitive	68.3	RW	75	161
4	E. Frontage Rd.	s/o Placentia Av.	Sensitive	70.2	75	162	350
5	Rider St.	e/o E. Frontage Rd.	Non-Sensitive	66.4	75	161	347
6	Placentia Av.	w/o I-215 SB Ramps	Non-Sensitive	68.8	170	367	790
7	Placentia Av.	w/o E. Frontage Rd.	Non-Sensitive	72.6	166	358	770
8	Placentia Av.	e/o E. Frontage Rd.	Non-Sensitive	70.8	166	358	771

[1] Based on a review of existing aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-2: EXISTING WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	E. Frontage Rd.	n/o Rider St.	Non-Sensitive	67.2	RW	46	100
2	E. Frontage Rd.	s/o Rider St.	Non-Sensitive	68.5	RW	56	121
3	E. Frontage Rd.	n/o Placentia Av.	Sensitive	70.5	36	77	166
4	E. Frontage Rd.	s/o Placentia Av.	Sensitive	70.2	34	73	158
5	Rider St.	e/o E. Frontage Rd.	Non-Sensitive	66.4	RW	59	126
6	Placentia Av.	w/o I-215 SB Ramps	Non-Sensitive	68.9	RW	117	253
7	Placentia Av.	w/o E. Frontage Rd.	Non-Sensitive	73.0	102	219	473
8	Placentia Av.	e/o E. Frontage Rd.	Non-Sensitive	70.8	72	156	335

[1] Based on a review of existing aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-3: EAC (2026) WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	E. Frontage Rd.	n/o Rider St.	Non-Sensitive	69.8	RW	69	149
2	E. Frontage Rd.	s/o Rider St.	Non-Sensitive	70.9	38	81	175
3	E. Frontage Rd.	n/o Placentia Av.	Sensitive	70.5	36	77	165
4	E. Frontage Rd.	s/o Placentia Av.	Sensitive	72.3	47	101	218
5	Rider St.	e/o E. Frontage Rd.	Non-Sensitive	67.2	RW	66	143
6	Placentia Av.	w/o I-215 SB Ramps	Non-Sensitive	71.2	77	165	356
7	Placentia Av.	w/o E. Frontage Rd.	Non-Sensitive	74.3	124	267	576
8	Placentia Av.	e/o E. Frontage Rd.	Non-Sensitive	72.1	88	190	410

[1] Based on a review of existing aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-4: EAPC (2026) WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	E. Frontage Rd.	n/o Rider St.	Non-Sensitive	69.8	RW	69	149
2	E. Frontage Rd.	s/o Rider St.	Non-Sensitive	70.9	38	82	176
3	E. Frontage Rd.	n/o Placentia Av.	Sensitive	72.0	45	96	207
4	E. Frontage Rd.	s/o Placentia Av.	Sensitive	72.3	47	101	218
5	Rider St.	e/o E. Frontage Rd.	Non-Sensitive	67.3	RW	66	143
6	Placentia Av.	w/o I-215 SB Ramps	Non-Sensitive	71.2	78	167	360
7	Placentia Av.	w/o E. Frontage Rd.	Non-Sensitive	74.6	130	280	603
8	Placentia Av.	e/o E. Frontage Rd.	Non-Sensitive	72.1	88	190	410

[1] Based on a review of existing aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 EXISTING PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report to fully analyze all the existing traffic scenarios identified in the *Barker Business Park Traffic Analysis & VMT Analysis*. This condition is provided solely for informational purposes and will not occur, since the Project will not be fully developed and occupied under Existing conditions. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 66.4 to 72.6 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions will range from 66.4 to 73.0 dBA CNEL. Table 7-5 shows that the Project off-site traffic noise level impacts will range from 0.0 to 2.2 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 impacts due to unmitigated Project-related traffic noise levels.

TABLE 7-5: EXISTING WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Incremental Noise Level Increase Threshold[2]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	E. Frontage Rd.	n/o Rider St.	Non-Sensitive	67.2	67.2	0.0	n/a	No
2	E. Frontage Rd.	s/o Rider St.	Non-Sensitive	68.4	68.5	0.1	n/a	No
3	E. Frontage Rd.	n/o Placentia Av.	Sensitive	68.3	70.5	2.2	3	No
4	E. Frontage Rd.	s/o Placentia Av.	Sensitive	70.2	70.2	0.0	3	No
5	Rider St.	e/o E. Frontage Rd.	Non-Sensitive	66.4	66.4	0.0	n/a	No
6	Placentia Av.	w/o I-215 SB Ramps	Non-Sensitive	68.8	68.9	0.1	n/a	No
7	Placentia Av.	w/o E. Frontage Rd.	Non-Sensitive	72.6	73.0	0.4	n/a	No
8	Placentia Av.	e/o E. Frontage Rd.	Non-Sensitive	70.8	70.8	0.0	n/a	No

[1] Based on a review of existing aerial imagery.
[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. The City of Perris does not consider noise increases to non-noise-sensitive uses to be significant.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

7.3 EAC (2026) PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the Existing Plus Ambient Growth Plus Cumulative Projects (2026) without Project conditions CNEL noise levels. The Existing Plus Ambient Growth Plus Cumulative Projects (2026) without Project exterior noise levels are expected to range from 67.2 to 74.3 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the Existing Plus Ambient Growth Plus Cumulative Projects (2026) with Project conditions will range from 67.3 to 74.6 dBA CNEL. Table 7-6 shows that the Project off-site traffic noise level increases will range from 0.0 to 1.5 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 impacts due to unmitigated Project-related traffic noise levels.

TABLE 7-6: EAC (2026) WITH PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Incremental Noise Level Increase Threshold[2]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	E. Frontage Rd.	n/o Rider St.	Non-Sensitive	69.8	69.8	0.0	n/a	No
2	E. Frontage Rd.	s/o Rider St.	Non-Sensitive	70.9	70.9	0.0	n/a	No
3	E. Frontage Rd.	n/o Placentia Av.	Sensitive	70.5	72.0	1.5	3	No
4	E. Frontage Rd.	s/o Placentia Av.	Sensitive	72.3	72.3	0.0	3	No
5	Rider St.	e/o E. Frontage Rd.	Non-Sensitive	67.2	67.3	0.1	n/a	No
6	Placentia Av.	w/o I-215 SB Ramps	Non-Sensitive	71.2	71.2	0.0	n/a	No
7	Placentia Av.	w/o E. Frontage Rd.	Non-Sensitive	74.3	74.6	0.3	n/a	No
8	Placentia Av.	e/o E. Frontage Rd.	Non-Sensitive	72.1	72.1	0.0	n/a	No

[1] Based on a review of existing aerial imagery.
[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. The City of Perris does not consider noise increases to non-noise-sensitive uses to be significant.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

7.4 OFF-SITE CUMULATIVE TRAFFIC NOISE IMPACTS

Table 7-7 presents a summary of the cumulative and project incremental noise level increases for each of the study area roadway segments. The cumulative traffic noise analysis describes the future changes in noise levels in comparison to the existing baseline noise levels. As shown on Table 7-7 the overall increase in off-site traffic noise levels from the Existing (baseline) to future EAC 2026 with Project conditions ranges from 0.9 to 3.7 dBA CNEL. The Project increment shown on Table 7-7 represents the difference between the EAC 2026 without Project and the EAC 2026 with Project conditions is shown to range from 0.0 to 1.5 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 impacts due to the Project-related traffic. Therefore, the Project contributions to the off-site cumulative traffic noise levels are not *cumulatively considerable.*

TABLE 7-7: CUMULATIVE OFF-SITE TRAFFIC NOISE INCREASES

ID	Roadway	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA CNEL)[2]					Incremental Noise	
				Existing No Project (a)	EAC Without Project (b)	EAC With Project (c)	Cumulative Increase (c-a)	Cumulative Contribution (c-b)	Limit	Exceeded?[3]
1	E. Frontage Rd.	n/o Rider St.	Non-Sensitive	67.2	69.8	69.8	2.6	0.0	n/a	No
2	E. Frontage Rd.	s/o Rider St.	Non-Sensitive	68.4	70.9	70.9	2.5	0.0	n/a	No
3	E. Frontage Rd.	n/o Placentia Av.	Sensitive	68.3	70.5	72.0	3.7	1.5	3	No
4	E. Frontage Rd.	s/o Placentia Av.	Sensitive	70.2	72.3	72.3	2.1	0.0	3	No
5	Rider St.	e/o E. Frontage Rd.	Non-Sensitive	66.4	67.2	67.3	0.9	0.1	n/a	No
6	Placentia Av.	w/o I-215 SB Ramps	Non-Sensitive	68.8	71.2	71.2	2.4	0.0	n/a	No
7	Placentia Av.	w/o E. Frontage Rd.	Non-Sensitive	72.6	74.3	74.6	2.0	0.3	n/a	No
8	Placentia Av.	e/o E. Frontage Rd.	Non-Sensitive	70.8	72.1	72.1	1.3	0.0	n/a	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses 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)?

8 SENSITIVE RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following receiver locations, as shown on Exhibit 8-A, were identified as representative locations for analysis. As identified in the PVCCSP EIR, sensitive receivers are areas where humans are participating in activities that may be subject to the stress of significant interference from noise and often include residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, educational facilities, and libraries. Other receivers include office and industrial buildings, which are not considered as sensitive as single-family homes, but are still protected by City of Perris land use compatibility standards. To describe the potential off-site Project noise levels, five receiver locations in the vicinity of the Project site were identified. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study 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 the property line of each receiver location.

R1: Location R1 represents the property line of the existing residence east of the Project site at 2988 Susan Lane. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

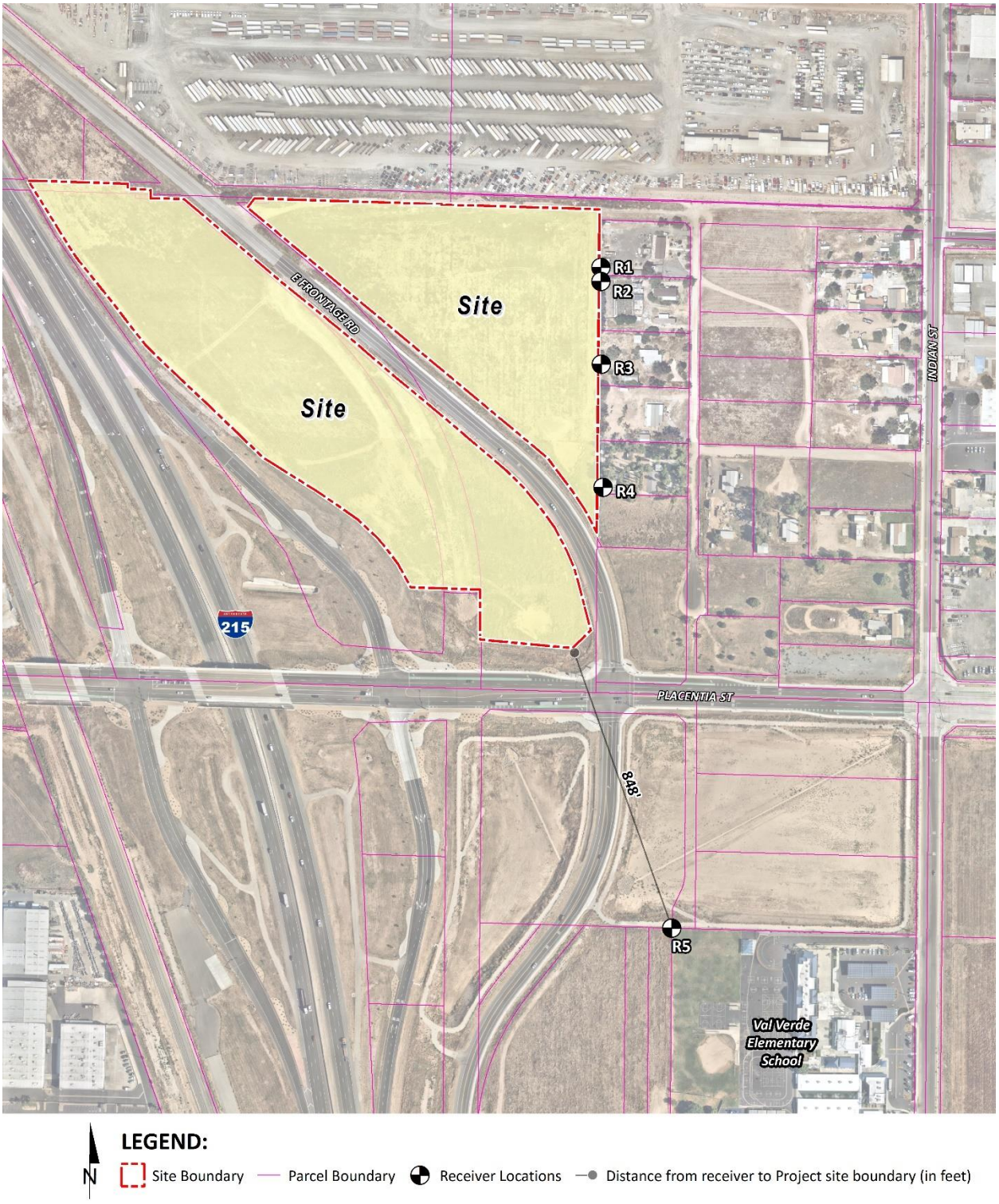
R2: Location R2 represents the property line of the existing residence east of the Project site at 2958 Susan Lane. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R3: Location R3 represents the property line of the existing residence east of the Project site at 2948 Susan Lane. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R4: Location R4 represents the property line of the existing residence east of the Project site at 2888 Susan Lane. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R5: Location R5 represents the property line of the existing Val Verde Elementary School located approximately 848 feet southeast of the Project site at 2656 Indian Avenue. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

EXHIBIT 8-A: SENSITIVE RECEIVER LOCATIONS



9 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 8, resulting from the operation of the proposed Barker Business Park Project. To conservatively describe the potential worst-case noise environment, Exhibit 9-A identifies the 41 individual noise sources used to assess the operational noise levels. Since the Project will be open Monday through Friday, from 7:00 a.m. to 6:00 p.m., the operational noise analysis is limited to daytime hours only with no Project nighttime activity.

9.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical of daytime activities at the Project site. The on-site Project-related noise sources are expected to include: heavy equipment maintenance activity, equipment storage/display, truck movements, roof-top air conditioning units, trash enclosure activity, and parking lot vehicle movements.

9.2 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 9-1 used to estimate the Project operational noise impacts. Table 9-1 presents both the average hourly L_{eq} and the maximum permissible L_{max} reference noise levels. The average hour L_{eq} noise levels are used to calculate the 24-hour noise levels necessary to demonstrate compliance with the City of Perris 60 dBA CNEL exterior noise level standard for new industrial and large commercial facilities within 160 feet of the property line of existing noise-sensitive land uses. In addition, the average hourly L_{eq} noise levels are used to describe the Project related operational noise level increases.

The L_{max} reference noise levels shown on Table 9-1 are used to estimate the Project's maximum permissible exterior noise level consistent with the City's L_{max} noise level standards. It is important to note that the following projected noise levels present a conservative analysis of the noise environment with the heavy equipment maintenance activity, equipment storage/display, truck movements, roof-top air conditioning units, trash enclosure activity, and parking lot vehicle movements all operating continuously. These sources of noise activity will likely vary throughout the day.

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS

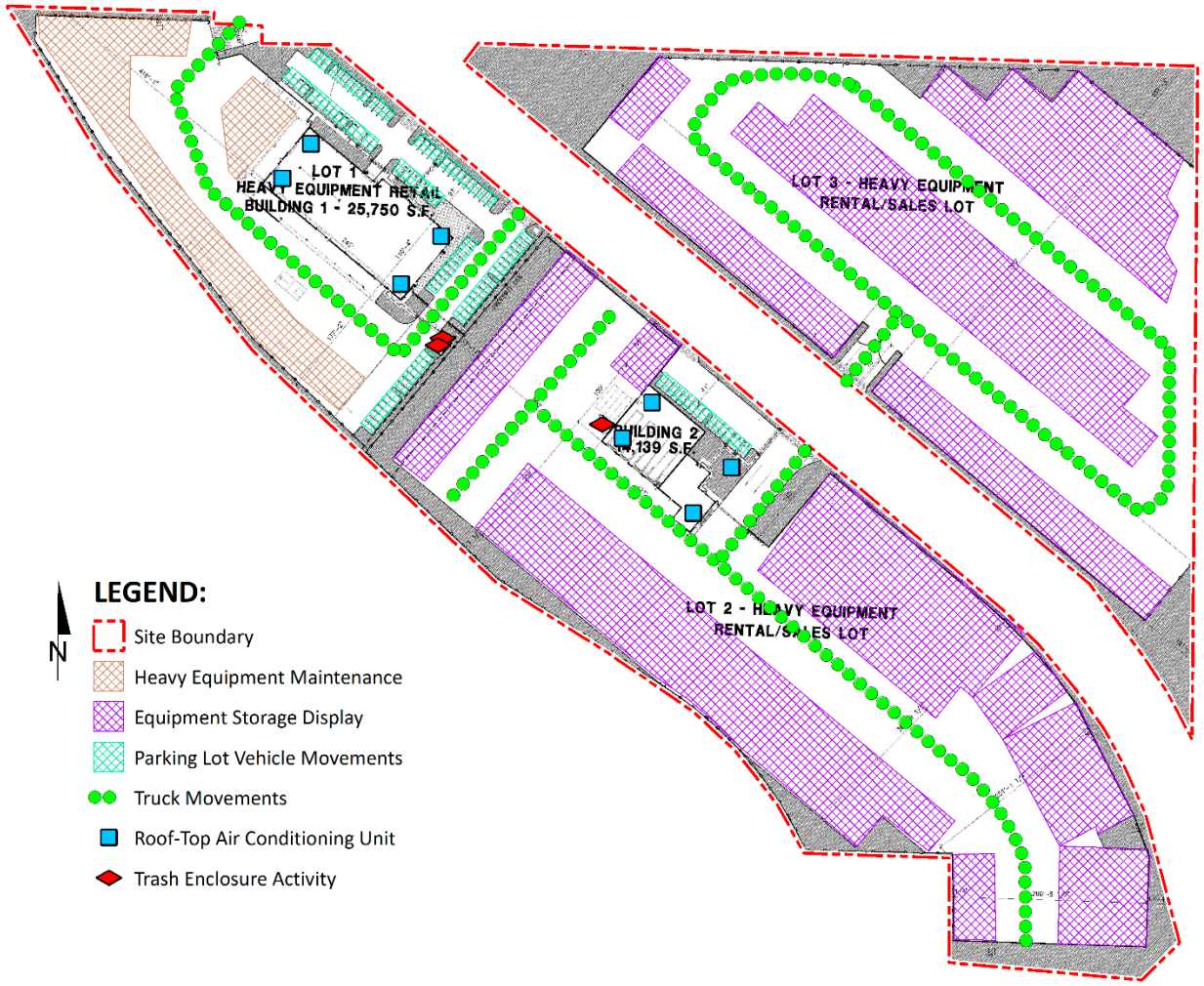


TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Ref. Distance (Feet)	Noise Source Height (Feet)	Min./Hour[2]		Reference Noise Level (dBA L_{eq})		Reference Noise Level (dBA L_{max})	
			Day	Night	@ Ref. Dist.	@ 50 Feet	@ Ref. Dist.	@ 50 Feet
Heavy Equipment Maintenance	10'	8'	60	0	78.4	64.4	88.8	74.8
Equipment Storage/Display	30'	8'	60	0	67.2	62.8	75.6	71.2
Truck Movements	20'	8'	60	0	64.0	58.0	79.1	73.1
Roof-Top Air Conditioning Units	5'	5'	39	0	77.2	57.2	77.7	57.7
Trash Enclosure Activity	8'	5'	60	0	72.7	56.8	87.0	71.1
Parking Lot Vehicle Movements	10'	5'	60	0	66.6	52.6	70.2	56.2

[1] As measured by Urban Crossroads, Inc.
[2] 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.

9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements from similar types of activities presented in this section were collected using a Larson Davis LxT Type 1 precisions sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. 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. (11)

9.2.2 HEAVY EQUIPMENT MAINTENANCE

To represent the potential noise level impacts associated with the Project's Fleet Maintenance activities, a reference noise level measurement was collected at an existing fleet maintenance facility. The fleet maintenance building is used to service tractor trailer trucks as well as other heavy operating equipment. The reference noise level measurement describes a heavy equipment maintenance facility with 15 service bays and includes vehicles entering and exiting the service bays, heavy equipment activities inside the service bays and fleet maintenance staff performing a variety of maintenance services in the area. It is expected that the same type of services will take place within the proposed heavy vehicle maintenance building at the Project site. Using the uniform reference distance of 50 feet, the heavy equipment maintenance operations noise level is 74.8 dBA L_{max}.

9.2.3 EQUIPMENT STORAGE/DISPLAY

To evaluate the noise levels associated with truck idling, backup alarms, tractor trailer movements storage and display activities, Urban Crossroads collected a reference noise level measurement 71.2 dBA L_{max} at 50 feet. The reference noise level measurement includes a semi-truck with trailer pass-by event, background switcher cab trailer towing, drop-off, idling, and backup alarm events.

9.2.4 TRUCK MOVEMENTS

The truck movements reference noise level measurement was taken over a 15-minute period and represents multiple noise sources producing a reference noise level of 73.1 dBA L_{max} at 50 feet. The noise sources included at this measurement location account for the rattling and squeaking during normal opening and closing operations, the gate closure equipment, truck engines idling outside the entry gate, truck movements through the entry gate, and background truck court activities and forklift backup alarm noise.

9.2.5 ROOF-TOP AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units, reference noise level measurements were collected from Lennox SCA120 series 10-ton model packaged air conditioning unit. At a uniform reference distance of 50 feet, the roof-top air conditioning units generate a reference noise level of 57.7 dBA L_{max}. Based on the typical operating conditions

observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project buildings.

9.2.6 PARKING LOT VEHICLE MOVEMENTS

To describe the on-site parking lot activity a reference noise level of 56.2 dBA L_{max} at 50 feet is used. Parking activities are expected to take place during the full hour (60 minutes) throughout the daytime and evening hours. The parking lot noise levels are mainly due to cars pulling in and out of parking spaces.

9.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational 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 9613-2 protocol, CadnaA will calculate 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 noise level at each receiver and the partial noise level contributions by noise source.

Consistent with the ISO 9613-2 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 operational noise level calculations provided in this noise study 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. Appendix 9.1 includes the detailed noise dBA L_{max} model inputs used to estimate the Project operational noise levels presented in this section.

9.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include heavy equipment maintenance activity, equipment storage/display, truck movements, roof-top air conditioning units, trash enclosure activity, and parking lot vehicle movements, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 9-2 shows the Project operational noise levels during

the daytime hours. The daytime hourly noise levels at the off-site receiver locations are expected to range from 58.3 to 70.2 dBA L_{max}.

TABLE 9-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA L_{max})				
	R1	R2	R3	R4	R5
Heavy Equipment Maintenance	55.9	55.8	55.0	50.4	50.4
Equipment Storage/Display	69.8	70.0	67.9	69.0	57.5
Truck Movements	42.1	42.6	47.7	42.5	33.7
Roof-Top Air Conditioning Units	34.9	35.1	36.0	34.6	28.1
Trash Enclosure Activity	41.9	41.9	42.0	31.2	35.6
Parking Lot Vehicle Movements	33.3	33.4	33.1	31.8	23.8
Total (All Noise Sources)	**70.0**	**70.2**	**68.2**	**69.1**	**58.3**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

9.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Perris exterior noise level standards at nearby noise-sensitive receiver locations. Table 9-3 shows that the operational noise levels associated with Barker Business Park Project will not exceed the City of Perris 80 dBA L_{max} daytime exterior noise level standards at the nearest receiver locations. The Project will be open and operational Monday through Friday, from 7:00 a.m. to 6:00 p.m. with no nighttime Project activity. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 9-3: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Land Use	Project Operational Noise Levels (dBA L_{max})[2]	Noise Level Standards (dBA L_{max})[3]	Noise Level Standards Exceeded?[4]
R1	Residential	70.0	80	No
R2	Residential	70.2	80	No
R3	Residential	68.2	80	No
R4	Residential	69.1	80	No
R5	School	58.3	80	No

[1] See Exhibit 8-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 9-2.
[3] Exterior noise level standards per the City of Perris Municipal Code, sections 7.34.040 (Appendix 3.1).
[4] Do the estimated Project operational noise source activities exceed the noise level standards?

Consistent with the City of Perris General Plan Noise Element, Implementation Measure V.A.1, Project operational noise levels at the nearest sensitive receiver locations cannot exceed 60 dBA CNEL. The CNEL metric is typically used to describe 24-hour transportation-related noise levels, however, the City of Perris General Plan Noise Element requires new industrial facilities and large commercial facilities to demonstrate compliance at any noise-sensitive land use within 160 feet of the Project site.

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 7:01 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:01 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 noise can become more intrusive, particularly for noise sensitive residential land use. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. However, since the Project activities will be limited to Monday through Friday, from 7:00 a.m. to 6:00 p.m., the CNEL noise levels presented are limited to the daytime hours of operation with no evening or nighttime noise source activity.

Table 9-4 indicates that the 24-hour noise levels associated with the Barker Business Park at the nearest receiver locations are expected to range from 48.1 to 59.9 dBA CNEL. The Project-related operational noise levels shown on Table 9-4 will satisfy the City of Perris 60 dBA CNEL exterior noise level standards at the nearest property line receiver locations. The 24-hour noise level calculations are included in Appendix 9.2.

TABLE 9-4: OPERATIONAL NOISE LEVEL COMPLIANCE (CNEL)

Receiver Location[1]	Project Operational Noise Levels[2]		Exterior Noise Level Standards (CNEL)[3]	Noise Level Standards Exceeded?[4]
	Daytime (dBA L_{eq})	24-Hour (CNEL)		
R1	63.1	59.7	60	No
R2	63.3	59.9	60	No
R3	61.5	58.1	60	No
R4	62.3	58.9	60	No
R5	51.5	48.1	60	No

[1] See Exhibit 8-A for the receiver locations.
[2] Proposed Project operational noise level calculations are included in Appendix 9.3.
[3] City of Perris General Plan Noise Element Implementation Measure V.A.1
[4] Do the estimated Project operational noise source activities exceed the noise level standards?

9.6 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 levels measurements for the nearby 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. (12) 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. As indicated on Tables 9-5, the Project will generate a daytime operational noise level increase ranging from 0.2 to 4.6 dBA L_{eq} at the nearest receiver locations. Appendix 9.2 includes the detailed noise dBA L_{eq} model inputs. The Project-related operational noise level increases will satisfy the operational noise level increase significance criteria presented on Table 4-1. Therefore, the incremental Project operational noise level increase is considered *less than significant* at all receiver locations.

TABLE 9-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	63.1	L1	60.6	65.0	4.4	5.0	No
R2	63.3	L1	60.6	65.2	4.6	5.0	No
R3	61.5	L2	59.4	63.6	4.2	5.0	No
R4	62.3	L3	60.6	64.5	3.9	5.0	No
R5	51.5	L4	64.4	64.6	0.2	5.0	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 9-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on 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.
[7] Significance increase criteria as shown on Table 4-1.

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10 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A presents the construction noise source locations in relation to the nearest sensitive receiver locations previously described in Section 8. To prevent high levels of construction noise from impacting noise-sensitive land uses, City of Perris Municipal Code Section 7.34.060 limits construction activities to the hours of 7:00 a.m. to 7:00 p.m. on any day except Sundays and legal holidays (with the exception of Columbus Day and Washington's birthday).

10.1 CONSTRUCTION NOISE LEVELS

The FTA Transit Noise and Vibration Impact Assessment Manual recognizes that construction projects are accomplished in several different stages and outlines the procedures for assessing noise impacts during construction. Each stage has a specific equipment mix, depending on the work to be completed during that stage. As a result of the equipment mix, each stage has its own noise characteristics; some stages have higher continuous noise levels than others, and some have higher impact noise levels than others. The Project construction activities are expected to occur in the following stages:

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

10.2 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. (18) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for 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.

EXHIBIT 10-A: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Construction Activity	Reference Noise Level @ 50 Feet (dBA L_{max})[1]	Highest Reference Noise Level (dBA L_{max})
Site Preparation	Crawler Tractors	82	82
	Rubber Tired Dozers	79	
Grading	Crawler Tractors	82	85
	Excavators	81	
	Graders	85	
	Rubber Tired Dozers	79	
	Scrapers	84	
Building Construction	Cranes	81	85
	Forklifts	85	
	Generator Sets	73	
	Backhoes	78	
	Welders	74	
Paving	Pavers	77	85
	Paving Equipment	85	
	Rollers	80	
Arch. Coating	Air Compressors	78	78

[1] FHWA's Roadway Construction Noise Model, January 2006.

10.3 CONSTRUCTION NOISE ANALYSIS

Using the reference RCNM L_{max} 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. Consistent with FTA guidance for general construction noise assessment, Table 10-1 presents the combined noise levels for the loudest construction equipment, assuming all equipment operates at the same time. To account for the dynamic nature of construction activities, the CadnaA construction noise analysis evaluates the equipment as multiple moving point sources within the construction area (Project site boundary). Construction impacts are based on the highest noise level calculated at each receiver location. As shown on Table 10-2, the construction noise levels are expected to range from 53.2 to 77.4 dBA L_{max} at the nearby receiver locations. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.

TABLE 10-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Highest Construction Noise Levels (dBA L_{max})						
	Site Preparation	Grading	Building Construction	Arch. Coating	Paving	Landscaping	Highest Levels[2]
R1	74.4	77.4	77.4	70.4	77.4	77.4	77.4
R2	74.4	77.4	77.4	70.4	77.4	77.4	77.4
R3	73.9	76.9	76.9	69.9	76.9	76.9	76.9
R4	72.1	75.1	75.1	68.1	75.1	75.1	75.1
R5	57.2	60.2	60.2	53.2	60.2	60.2	60.2

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Construction noise level calculations based on distance from the construction activity area to nearby receiver locations. CadnaA construction noise model inputs are included in Appendix 10.1.

10.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only construction noise levels are evaluated against exterior noise level thresholds established by Section 7.34.060 of City of Perris Municipal Code at the adjacent property line. As shown on Table 10-3, the estimated construction noise levels at the adjacent noise sensitive receiver locations will not exceed the 80 dBA L_{max} construction noise level standard. Therefore, the noise impact due to Project construction activities is considered *less than significant* at all receiver locations.

TABLE 10-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{max})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	77.4	80	No
R2	77.4	80	No
R3	76.9	80	No
R4	75.1	80	No
R5	60.2	80	No

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations as shown on Table 10-2.
[3] Construction noise level thresholds are limited to the noise sensitive receiver locations (Section 3.5).
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

10-5 VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed, distance to the affected structures, and soil type. Construction vibration is generally associated with pile driving and rock blasting. However, no pile driving, or rock blasting activities are planned for the Project. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized

intrusion. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Ground vibration levels associated with various types of construction equipment are summarized on Table 10-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential building damage using the following vibration assessment methods defined by the FTA. To describe the vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 10-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089
Vibratory Roller	0.210

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Using the vibration source level of construction equipment provided on Table 10-4 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration building damage impacts. Table 10-5 presents the expected Project related vibration levels at the nearby sensitive building structures. As shown on Exhibit 10-B, the building vibration analysis is based on the distance from the limits of construction activity to the nearest sensitive building structures. At distances ranging from 25 to 1,067 feet from the Project construction boundary to the sensitive building locations, construction vibration velocity levels are estimated to be between 0.001 and 0.210 PPV (in/sec). Based on maximum acceptable vibration threshold identified in the PVCCSP EIR (Page 4.9-27) of 0.5 PPV (in/sec), the typical Project construction vibration levels will satisfy the building damage thresholds at the nearest sensitive building locations.

Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities at the Project site. Moreover, the vibration levels reported at the receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

EXHIBIT 10-B: BUILDING STRUCTURE LOCATIONS (VIBRATION)

TABLE 10-5: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Location[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]						Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Vibratory Roller	Highest Vibration Level		
B1	160'	0.000	0.002	0.005	0.005	0.013	0.013	0.5	No
B2	100'	0.000	0.004	0.010	0.011	0.026	0.026	0.5	No
B3	74'	0.001	0.007	0.015	0.017	0.041	0.041	0.5	No
B4	25'	0.003	0.035	0.076	0.089	0.210	0.210	0.5	No
B5	1,067'	0.000	0.000	0.000	0.000	0.001	0.001	0.5	No

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Distance from receiver building facade to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 10-4).
[4] PVCC SP EIR, Page 4.9-27.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

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10. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
11. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
12. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
13. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
14. **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.
15. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
16. **Urban Crossroads, Inc.** *Barker Business Park Traffic & VMT Analysis.* August 2024.
17. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *FHWA Roadway Construction Noise Model.* January, 2006.

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12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Barker Business Park Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 584-3148.

Bill Lawson, P.E., INCE
Principal
URBAN CROSSROADS, INC.
1133 Camelback #8329
Newport Beach, CA 92658
(949) 581-3148
blawson@urbanxroads.com

EDUCATION

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

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

PROFESSIONAL REGISTRATIONS

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of San Diego • March, 2018
Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CITY OF PERRIS MUNICIPAL CODE

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CHAPTER 7.34. - NOISE CONTROL

Sec. 7.34.010. - Declaration of policy.

Excessive noise levels are detrimental to the health and safety of individuals. Noise is considered a public nuisance, and the city discourages unnecessary, excessive or annoying noises from all sources. Creating, maintaining, causing, or allowing to be created, caused or maintained, any noise or vibration in a manner prohibited by the provisions of the ordinance codified in this chapter is a public nuisance and shall be punishable as a misdemeanor.

(Code 1972, § 7.34.010; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.020. - Definitions.

(a) *General.* The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Ambient noise means the all-encompassing noise associated with a given environment usually being composed of sounds from many sources near and far. For the purpose of this chapter, ambient noise level is the level obtained when the noise level is averaged over a period of five minutes without inclusion of noise from isolated identifiable sources at the location and time of day near that at which a comparison is to be made.

Decibel (dB) means an intensity unit which denotes the ratio between two quantities which are proportional to power; the number of decibels corresponding to the ratio is ten times the common logarithm of this ratio.

Sound amplifying equipment means any machine or device for the amplification of the human voice, music or any other sound. The term "sound amplifying equipment" does not include standard vehicle radios when used and heard only by the occupants of the vehicle in which the vehicle radio is installed. The term "sound amplifying equipment," as used in this chapter, does not include warning devices on any vehicle used only for traffic safety purposes and shall not include communications equipment used by public or private utilities when restoring utility service following a public emergency or when doing work required to protect person or property from an imminent exposure to danger.

Sound level (noise level) in decibels is the value of a sound measurement using the "A" weighting network of a sound level meter. Slow response of the sound level meter needle shall be used except where the sound is impulsive or rapidly varying in nature, in which case, fast response shall be used.

Sound level meter means an instrument, including a microphone, an amplifier, an output meter and frequency weighting networks, for the measurement of sound levels, which satisfies the pertinent requirements in American National Standards Institute's specification S1.4-1971 or the most recent revision for type S-2A general purpose sound level meters.

(b) *Supplementary definitions of technical terms.* Definitions of technical terms not defined in this section shall be obtained from the American National Standards Institute's Acoustical Terminology S1-1971 or the most recent revision thereof.

(Code 1972, § 7.34.020; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.030. - Measurement methods.

(a) Sound shall be measured with a sound level meter as defined in section 7.34.020.

(b) Unless otherwise provided, outdoor measurements shall be taken with the microphone located at any point on the property line of the noise source but no closer than five feet from any wall or vertical obstruction and three to five feet above ground level whenever possible.

(c) Unless otherwise provided, indoor measurements shall be taken inside the structure with the microphone located at any point as follows:

(1) No less than three feet above floor level;

(2) No less than five feet from any wall or vertical obstruction; and

(3) Not under common possession and control with the building or portion of the building from which the sound is emanating.

(Code 1972, § 7.34.030; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.040. - Sound amplification.

No person shall amplify sound using sound amplifying equipment contrary to any of the following:

(1) The only amplified sound permitted shall be either music or the human voice, or both.

(2) The volume of amplified sound shall not exceed the noise levels set forth in this subsection when measured outdoors at or beyond the property line of the property from which the sound emanates.

Time Period	Maximum Noise Level
10:01 p.m.—7:00 a.m.	60 dBA
7:01 a.m.—10:00 p.m.	80 dBA

(Code 1972, § 7.34.040; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.050. - General prohibition.

(a) It unlawful for any person to willfully make, cause or suffer, or permit to be made or caused, any loud excessive or offensive noises or sounds which unreasonably disturb the peace and quiet of any residential neighborhood or which are physically annoying to persons of ordinary sensitivity or which are so harsh, prolonged or unnatural or unusual in their use, time or place as to occasion physical discomfort to the inhabitants of the city, or any section thereof. The standards for dBA noise level in section 7.34.040 shall apply to this section. To the extent that the noise created causes the noise level at the property line to exceed the ambient noise level by more than 1.0 decibels, it shall be presumed that the noise being created also is in violation of this section.

(b) The characteristics and conditions which should be considered in determining whether a violation of the provisions of this section exists should include, but not be limited to, the following:

(1) The level of the noise;

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

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

(4) The level of the ambient noise;

(5) The proximity of the noise to sleeping facilities;

(6) The nature and zoning of the area from which the noise emanates and the area where it is received;

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

(8) The duration of the noise; and

(9) Whether the noise is recurrent, intermittent or constant.

(Code 1972, § 7.34.050; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.060. - Construction noise.

It is unlawful for any person between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on a legal holiday, with the exception of Columbus Day and Washington's birthday, or on Sundays to erect, construct, demolish, excavate, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise. Construction activity shall not exceed 80 dBA in residential zones in the city.

(Code 1972, § 7.34.060; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.070. - Refuse vehicles and parking lot sweepers.

No person shall operate or permit to be operated a refuse compacting, processing or collection vehicle or parking lot sweeper between the hours of 7:00 p.m. to 7:00 a.m. in any residential area unless a permit has been applied for and granted by the city.

(Code 1972, § 7.34.070; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.080. - Disturbing, excessive, offensive noises; declaration of certain acts constituting.

The following activities, among others, are declared to cause loud, disturbing, excessive or offensive noises in violation of this section and are unlawful, namely:

(1) *Horns, signaling devices, etc.* Unnecessary use or operation of horns, signaling devices or other similar devices on automobiles, motorcycles or any other vehicle.

(2) *Radios, television sets, phonographs, loud speaking amplifiers and similar devices.* The use or operation of any sound production or reproduction device, radio receiving set, musical instrument, drums, phonograph, television set, loudspeakers, sound amplifier, or other similar machine or device for the producing or reproducing of sound, in such a manner as to disturb the peace, quiet or comfort of any reasonable person of normal sensitivity in any area of the city is prohibited. This provision shall not apply to any participant in a licensed parade or to any person who has been otherwise duly authorized by the city to engage in such conduct.

(3) *Animals.*

a. The keeping or maintenance, or the permitting to be kept or maintained, upon any premises owned, occupied or controlled by any person of any animal or animals which by any frequent or long-continued noise shall cause annoyance or discomfort to a reasonable person of normal sensitiveness

in the vicinity.

b. The noise from any such animal or animals that disturbs two or more residents residing in separate residences adjacent to any part of the property on which the subject animal or animals are kept or maintained, or three or more residents residing in separate residences in close proximity to the property on which the subject animal or animals are kept or maintained, shall be prima facie evidence of a violation of this section.

(4) *Hospitals, schools, libraries, rest homes, long-term medical or mental care facilities.* To make loud, disturbing, excessive noises adjacent to a hospital, school, library, rest home or long-term medical or mental care facility, which noise unreasonably interferes with the workings of such institutions or which disturbs or unduly annoys occupants in said institutions.

(5) *Playing of radios on buses and trolleys.* The operation of any radio, phonograph or tape player on an urban transit bus or trolley so as to emit noise that is audible to any other person in the vehicle is prohibited.

(6) *Playing of radios, phonographs and other sound production or reproduction devices in public parks and public parking lots and streets adjacent thereto.* The operation of any radio, phonograph, television set or any other sound production or reproduction device in any public park or any public parking lot, or street adjacent to such park or beach, without the prior written approval of the city manager or the administrator, in such a manner that such radio, phonograph, television set or sound production or reproduction device emits a sound level exceeding those found in the table in section 7.34.040.

(7) *Leaf blowers.*

a. The term "leaf blower" means any portable, hand-held or backpack, engine-powered device with a nozzle that creates a directable airstream which is capable of and intended for moving leaves and light materials.

b. No person shall operate a leaf blower in any residential zoned area between the hours of 7:00 p.m. and 8:00 a.m. on weekdays and 5:00 p.m. and 9:00 a.m. on weekends or on legal holidays.

c. No person may operate any leaf blower at a sound level in excess of 80 decibels measured at a distance of 50 feet or greater from the point of noise origin.

d. Leaf blowers shall be equipped with functional mufflers and an approved sound limiting device required to ensure that the leaf blower is not capable of generating a sound level exceeding any limit prescribed in this section.

(Code 1972, § 7.34.080; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.090. - Burglar alarms.

(a) Audible burglar alarms for structures or motor vehicles are prohibited unless the operation of such burglar alarm can be terminated within 20 minutes of being activated.

(b) Notwithstanding the requirements of this provision, any member of the county sheriff's department, Perris Division, shall have the right to take such steps as may be reasonable and necessary to disconnect any such alarm installed in any building, dwelling or motor vehicle at any time during the period of its activation. On or after 30 days from the effective date of the ordinance codified in this chapter, any building, dwelling or motor vehicle upon which a burglar alarm has been installed shall prominently display the telephone number at which communication may be made with the owner of such building, dwelling or motor vehicle.

(Code 1972, § 7.34.090; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.100. - Motor vehicles.

(a) Off-highway.

(1) Except as otherwise provided for in this chapter, it shall be unlawful to operate any motor vehicle of any type on any site, other than on a public street or highway as defined in the California Vehicle Code, in any manner so as to cause noise in excess of those noise levels permitted for on-highway motor vehicles as specified in the table for "45-mile-per-hour or less speed limits" contained in section 23130 of the California Vehicle Code and as corrected for distances set forth in subsection (a)(2) of this section.

(2) The maximum noise level as the on-highway vehicle passes may be measured at a distance of other than 50 feet from the centerline of travel, provided the measurement is further adjusted by adding algebraically the application correction as follows:

Distance (feet)	Correction (decibels)
25	−6
28	−5
32	−4
35	−3
40	−2
45	−1
50 (preferred distance)	0
56	+1
63	+2
70	+3
80	+4
90	+5

100	+6

(b) Nothing in this section shall apply to authorized emergency vehicles when being used in emergency situations including the blowing of sirens and/or horns.

(Code 1972, § 7.34.100; Ord. No. 1082, § 2(part), 2000)

APPENDIX 5.1:

STUDY AREA PHOTOS

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JN:15638

15638_L1_C 1.North
33, 49' 32.610000", 117, 14' 16.690000"

15638_L1_C 2.South
33, 49' 32.580000", 117, 14' 16.710000"

15638_L1_C 3.East
33, 49' 32.570000", 117, 14' 16.770000"

15638_L1_C 4.West
33, 49' 32.630000", 117, 14' 16.800000"

JN:15638

15638_L2_D 1.North
33, 49' 32.020000", 117, 14' 17.040000"

15638_L2_D 2.South
33, 49' 32.040000", 117, 14' 17.040000"

15638_L2_D 3.East
33, 49' 32.020000", 117, 14' 17.020000"

15638_L2_D 4.West
33, 49' 32.020000", 117, 14' 17.020000"

15638_L3_E 1.North
33, 49' 25.640000", 117, 14' 13.420000"

15638_L3_E 2.South
33, 49' 25.480000", 117, 14' 13.500000"

15638_L3_E 3.East
33, 49' 25.430000", 117, 14' 13.470000"

15638_L3_E 4.West
33, 49' 25.460000", 117, 14' 13.530000"

15638_L4_G 1.North
33, 49' 17.410000", 117, 14' 16.690000"

15638_L4_G 2.South
33, 49' 17.120000", 117, 14' 16.770000"

15638_L4_G 3.East
33, 49' 17.140000", 117, 14' 16.770000"

15638_L4_G 4.West
33, 49' 17.150000", 117, 14' 16.800000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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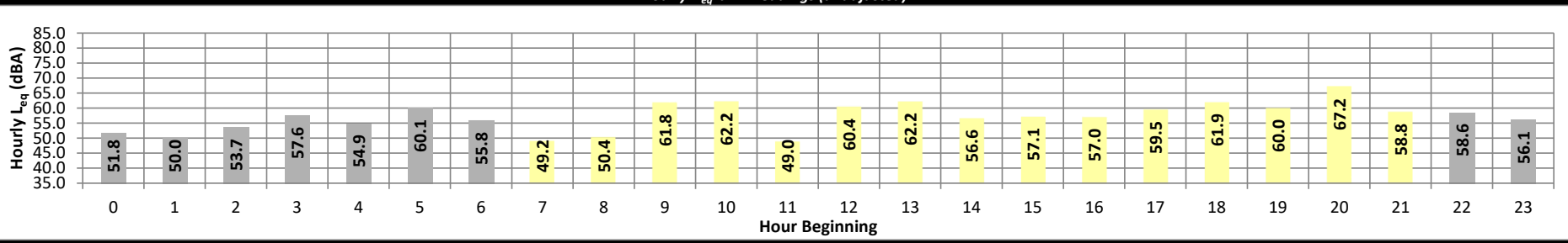
24-Hour Noise Level Measurement Summary

Date: Tuesday, June 18, 2024 *Location:* L1 - Located east of the site near the residence at 2958 Susan *Meter:* Piccolo II *JN:* 15638

Project: Perris Valley Commerce Center *Source:* Ln *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	51.8	55.6	48.1	55.3	55.0	54.4	54.0	52.7	51.5	49.2	48.8	48.2	51.8	10.0	61.8
	1	50.0	53.5	46.5	53.3	53.1	52.5	52.1	50.8	49.6	47.5	47.1	46.6	50.0	10.0	60.0
	2	53.7	57.9	48.9	57.6	57.3	56.7	56.3	54.8	53.2	50.1	49.6	49.0	53.7	10.0	63.7
	3	57.6	60.9	54.6	60.6	60.4	59.8	59.5	58.4	57.3	55.6	55.2	54.7	57.6	10.0	67.6
	4	54.9	57.4	53.1	57.1	56.9	56.4	56.2	55.4	54.7	53.6	53.4	53.2	54.9	10.0	64.9
	5	60.1	63.5	58.1	63.1	62.7	62.1	61.4	60.4	59.8	58.8	58.5	58.2	60.1	10.0	70.1
	6	55.8	59.2	53.9	58.9	58.3	57.6	57.2	56.2	55.6	54.5	54.3	54.0	55.8	10.0	65.8
Day	7	49.2	53.4	47.1	52.9	52.4	51.6	51.1	49.6	48.6	47.6	47.4	47.2	49.2	0.0	49.2
	8	50.4	55.5	47.9	55.0	54.5	53.6	53.2	51.0	49.2	48.3	48.2	48.0	50.4	0.0	50.4
	9	61.8	72.3	48.6	71.8	71.1	69.4	68.0	59.6	56.8	51.0	50.0	48.9	61.8	0.0	61.8
	10	62.2	70.8	48.9	70.0	68.7	68.1	67.5	64.3	57.5	49.8	49.4	49.0	62.2	0.0	62.2
	11	49.0	53.2	46.8	52.8	52.5	51.7	51.3	49.5	48.3	47.3	47.1	46.9	49.0	0.0	49.0
	12	60.4	67.5	48.1	67.0	66.3	65.4	64.5	62.1	59.3	50.7	49.5	48.2	60.4	0.0	60.4
	13	62.2	69.6	52.0	68.8	68.4	67.2	66.6	62.8	60.8	53.6	52.6	52.1	62.2	0.0	62.2
	14	56.6	63.3	53.1	63.0	62.5	61.2	59.6	56.5	55.4	53.9	53.6	53.3	56.6	0.0	56.6
	15	57.1	60.2	54.4	59.9	59.6	59.1	58.8	57.8	56.9	55.3	54.9	54.5	57.1	0.0	57.1
	16	57.0	60.1	54.6	59.7	59.5	59.0	58.7	57.7	56.7	55.3	55.0	54.7	57.0	0.0	57.0
	17	59.5	63.0	57.0	62.6	62.1	61.4	61.0	60.0	59.2	57.8	57.5	57.2	59.5	0.0	59.5
	18	61.9	70.3	58.1	69.5	68.6	65.7	64.0	62.1	60.8	58.9	58.6	58.2	61.9	0.0	61.9
	19	60.0	63.3	57.7	63.0	62.7	62.0	61.6	60.5	59.7	58.4	58.2	57.8	60.0	5.0	65.0
	20	67.2	73.3	56.7	72.7	72.4	71.6	71.2	69.4	65.2	57.6	57.3	56.8	67.2	5.0	72.2
	21	58.8	61.8	56.2	61.6	61.4	61.0	60.7	59.5	58.4	56.9	56.7	56.3	58.8	5.0	63.8
Night	22	58.6	64.3	54.7	64.0	63.8	63.2	62.1	58.7	57.2	55.6	55.2	54.8	58.6	10.0	68.6
	23	56.1	61.2	52.6	60.9	60.4	59.0	58.3	56.7	55.5	53.6	53.1	52.7	56.1	10.0	66.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	49.0	53.2	46.8	52.8	52.4	51.6	51.1	49.5	48.3	47.3	47.1	46.9
	Max	67.2	73.3	58.1	72.7	72.4	71.6	71.2	69.4	65.2	58.9	58.6	58.2
Energy Average		60.6	Average:		63.3	62.9	61.9	61.2	58.8	56.9	53.5	53.1	52.6
Night	Min	50.0	53.5	46.5	53.3	53.1	52.5	52.1	50.8	49.6	47.5	47.1	46.6
	Max	60.1	64.3	58.1	64.0	63.8	63.2	62.1	60.4	59.8	58.8	58.5	58.2
Energy Average		56.4	Average:		59.0	58.7	58.0	57.5	56.0	54.9	53.2	52.8	52.4

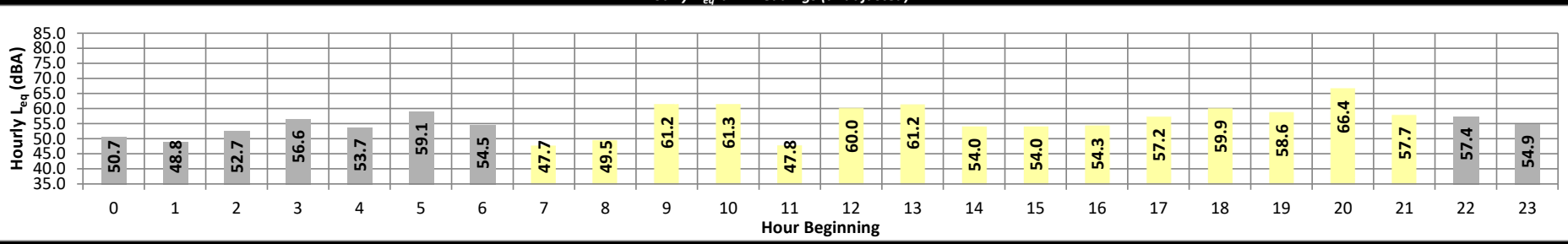
24-Hour CNEL	*Leq (dBA)* *Daytime (7am-10pm)*	*Nighttime (10pm-7am)*
64.7	**60.6**	**56.4**

24-Hour Noise Level Measurement Summary

Date: Tuesday, June 18, 2024 *Location:* L2 - Located east of the site near the residence at 2948 Susan *Meter:* Piccolo II *JN:* 15638

Project: Perris Valley Commerce Center *Source:* Ln *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	50.7	54.5	46.9	54.2	54.0	53.4	53.0	51.7	50.4	48.0	47.6	47.1	50.7	10.0	60.7
	1	48.8	52.6	45.3	52.4	52.1	51.5	51.0	49.7	48.5	46.3	45.9	45.4	48.8	10.0	58.8
	2	52.7	57.0	47.8	56.8	56.5	55.9	55.5	53.8	52.2	49.0	48.5	48.0	52.7	10.0	62.7
	3	56.6	59.8	53.4	59.5	59.3	58.7	58.4	57.3	56.3	54.6	54.1	53.6	56.6	10.0	66.6
	4	53.7	56.5	51.8	56.2	56.0	55.4	55.1	54.2	53.5	52.4	52.2	51.9	53.7	10.0	63.7
	5	59.1	62.6	57.1	62.2	61.8	61.0	60.4	59.5	58.9	57.8	57.6	57.2	59.1	10.0	69.1
	6	54.5	57.6	52.7	57.3	57.0	56.3	55.8	54.9	54.3	53.3	53.1	52.8	54.5	10.0	64.5
Day	7	47.7	51.7	45.7	51.2	50.8	50.1	49.6	48.1	47.2	46.2	46.0	45.8	47.7	0.0	47.7
	8	49.5	54.7	46.9	54.4	53.8	53.0	52.5	50.1	48.2	47.3	47.2	47.0	49.5	0.0	49.5
	9	61.2	71.7	47.6	71.4	70.9	68.6	66.8	59.0	56.0	49.9	48.9	48.0	61.2	0.0	61.2
	10	61.3	69.6	47.4	68.8	68.2	67.3	66.6	63.6	56.2	48.4	48.0	47.5	61.3	0.0	61.3
	11	47.8	52.2	45.7	51.8	51.4	50.6	50.2	48.4	47.1	46.1	45.9	45.7	47.8	0.0	47.8
	12	60.0	67.3	46.7	66.8	66.2	64.9	64.1	61.6	58.7	49.3	47.4	46.8	60.0	0.0	60.0
	13	61.2	68.7	50.1	68.2	67.7	66.6	65.8	62.1	59.5	51.5	50.8	50.3	61.2	0.0	61.2
	14	54.0	60.8	50.8	60.6	60.3	58.9	57.2	53.5	52.5	51.4	51.2	50.9	54.0	0.0	54.0
	15	54.0	56.9	51.8	56.6	56.3	55.9	55.6	54.6	53.8	52.4	52.2	51.9	54.0	0.0	54.0
	16	54.3	57.0	52.1	56.8	56.6	56.2	55.9	54.9	54.0	52.7	52.4	52.2	54.3	0.0	54.3
	17	57.2	60.9	54.8	60.5	60.1	59.2	58.7	57.7	56.9	55.6	55.3	55.0	57.2	0.0	57.2
	18	59.9	67.3	56.2	66.8	66.1	63.5	62.3	60.2	59.0	57.0	56.6	56.3	59.9	0.0	59.9
	19	58.6	61.9	56.3	61.6	61.3	60.6	60.1	59.1	58.3	57.0	56.8	56.5	58.6	5.0	63.6
	20	66.4	72.5	55.6	72.2	71.8	70.9	70.4	68.8	64.3	56.5	56.1	55.7	66.4	5.0	71.4
	21	57.7	60.8	55.2	60.5	60.3	59.9	59.7	58.5	57.3	55.9	55.6	55.3	57.7	5.0	62.7
Night	22	57.4	62.8	53.6	62.6	62.4	61.9	61.1	57.5	56.1	54.5	54.1	53.8	57.4	10.0	67.4
	23	54.9	60.3	51.5	60.0	59.4	57.9	57.2	55.5	54.3	52.4	52.0	51.6	54.9	10.0	64.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	47.7	51.7	45.7	51.2	50.8	50.1	49.6	48.1	47.1	46.1	45.9	45.7
	Max	66.4	72.5	56.3	72.2	71.8	70.9	70.4	68.8	64.3	57.0	56.8	56.5
Energy Average		59.4	Average:		61.9	61.5	60.4	59.7	57.4	55.3	51.8	51.4	51.0
Night	Min	48.8	52.6	45.3	52.4	52.1	51.5	51.0	49.7	48.5	46.3	45.9	45.4
	Max	59.1	62.8	57.1	62.6	62.4	61.9	61.1	59.5	58.9	57.8	57.6	57.2
Energy Average		55.3	Average:		57.9	57.6	56.9	56.4	54.9	53.8	52.0	51.7	51.3

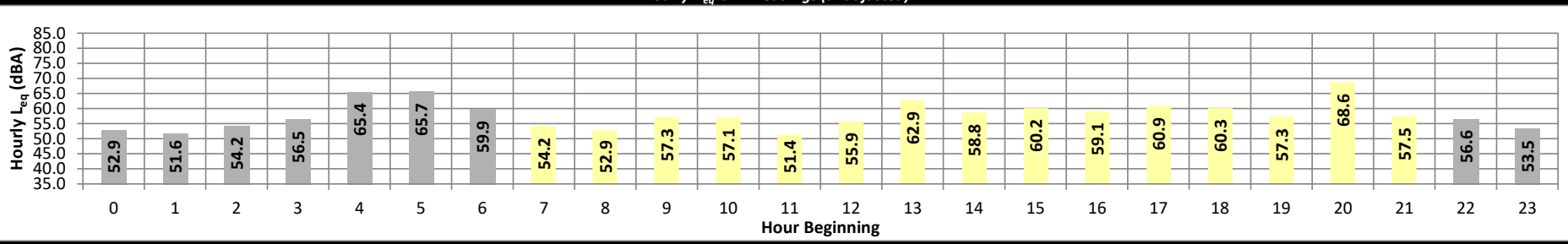
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
63.7	**59.4**	**55.3**

24-Hour Noise Level Measurement Summary

Date: Tuesday, June 18, 2024 *Location:* L3 - Located east of the site at the end of the Susan Ln cul-de- *Meter:* Piccolo II *JN:* 15638

Project: Perris Valley Commerce Center *Source:* sac *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	52.9	58.3	47.9	58.0	57.7	56.8	56.2	53.9	51.8	48.9	48.4	48.0	52.9	10.0	62.9
	1	51.6	57.8	46.1	57.5	57.1	56.3	55.5	52.5	49.9	47.2	46.7	46.2	51.6	10.0	61.6
	2	54.2	59.6	49.0	59.3	58.9	58.1	57.6	55.0	53.3	50.3	49.7	49.1	54.2	10.0	64.2
	3	56.5	60.7	52.5	60.5	60.2	59.7	59.2	57.3	55.8	53.7	53.2	52.7	56.5	10.0	66.5
	4	65.4	70.9	63.6	70.2	69.5	68.5	68.0	65.3	64.7	64.1	63.9	63.8	65.4	10.0	75.4
	5	65.7	70.0	63.0	69.4	69.0	68.3	67.8	66.1	65.3	63.9	63.6	63.2	65.7	10.0	75.7
	6	59.9	66.5	55.6	65.8	65.1	63.7	62.7	60.4	58.9	56.6	56.1	55.7	59.9	10.0	69.9
Day	7	54.2	60.9	48.4	60.4	59.8	58.8	58.0	55.1	52.8	49.5	48.9	48.5	54.2	0.0	54.2
	8	52.9	60.4	47.0	59.9	59.2	58.0	57.1	53.6	50.8	47.7	47.4	47.1	52.9	0.0	52.9
	9	57.3	68.7	46.7	67.8	67.3	65.1	59.6	53.9	51.0	47.5	47.2	46.8	57.3	0.0	57.3
	10	57.1	68.6	46.9	67.6	66.4	63.8	62.6	57.8	52.5	47.9	47.5	47.0	57.1	0.0	57.1
	11	51.4	58.5	46.0	58.2	57.6	56.4	55.5	52.0	49.5	46.8	46.5	46.1	51.4	0.0	51.4
	12	55.9	65.0	47.0	64.4	63.4	61.9	61.0	56.2	51.6	48.2	47.6	47.1	55.9	0.0	55.9
	13	62.9	69.9	52.5	69.1	68.5	67.3	66.6	64.5	61.4	55.5	54.6	53.2	62.9	0.0	62.9
	14	58.8	66.9	52.3	66.4	65.7	64.0	62.7	59.1	56.7	53.5	53.0	52.4	58.8	0.0	58.8
	15	60.2	68.0	52.8	67.3	66.7	65.3	64.3	61.1	58.2	54.2	53.6	53.0	60.2	0.0	60.2
	16	59.1	66.1	52.7	65.7	65.2	64.0	63.0	60.0	57.2	53.9	53.4	52.8	59.1	0.0	59.1
	17	60.9	68.0	54.5	67.4	66.8	65.5	64.6	61.7	59.2	55.9	55.3	54.7	60.9	0.0	60.9
	18	60.3	66.7	54.6	66.3	65.8	64.5	63.9	61.4	59.1	55.7	55.3	54.8	60.3	0.0	60.3
	19	57.3	62.0	54.2	61.6	61.2	60.3	59.6	57.8	56.8	55.1	54.7	54.3	57.3	5.0	62.3
	20	68.6	75.4	54.2	75.0	74.6	73.7	73.1	70.7	66.4	55.1	54.6	54.3	68.6	5.0	73.6
	21	57.5	63.6	53.6	63.2	62.9	62.0	61.1	57.9	55.9	54.3	54.0	53.7	57.5	5.0	62.5
Night	22	56.6	64.4	52.0	64.0	63.3	61.5	60.3	56.9	54.2	52.7	52.4	52.1	56.6	10.0	66.6
	23	53.5	57.7	50.4	57.5	57.3	56.7	56.1	54.2	52.7	51.1	50.8	50.5	53.5	10.0	63.5

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	51.4	58.5	46.0	58.2	57.6	56.4	55.5	52.0	49.5	46.8	46.5	46.1
	Max	68.6	75.4	54.6	75.0	74.6	73.7	73.1	70.7	66.4	55.9	55.3	54.8
Energy Average		60.6	Average:		65.3	64.7	63.4	62.2	58.9	55.9	52.0	51.6	51.1
Night	Min	51.6	57.7	46.1	57.5	57.1	56.3	55.5	52.5	49.9	47.2	46.7	46.2
	Max	65.7	70.9	63.6	70.2	69.5	68.5	68.0	66.1	65.3	64.1	63.9	63.8
Energy Average		60.4	Average:		62.4	62.0	61.1	60.4	58.0	56.3	54.3	53.9	53.5

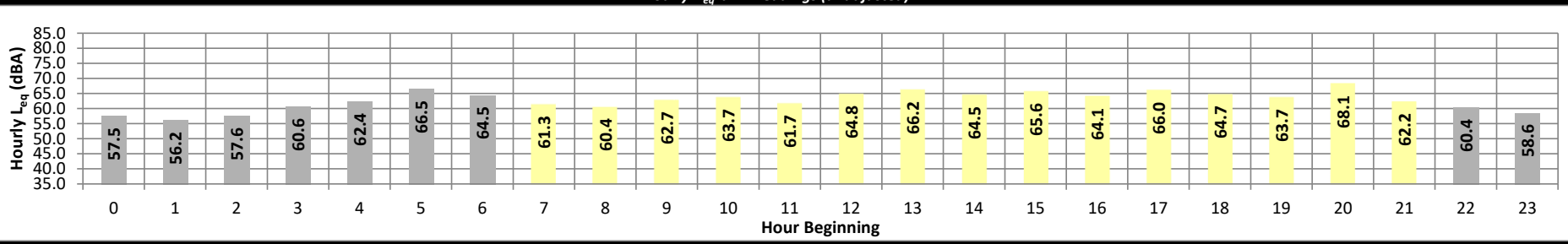
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
67.5	**60.6**	**60.4**

24-Hour Noise Level Measurement Summary

Date: Tuesday, June 18, 2024 | *Location:* L4 - Located southeast of the site near the Val Verde | *Meter:* Piccolo II | *JN:* 15638

Project: Perris Valley Commerce Center | *Source:* Elementary School at 2656 Indian Av | *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	57.5	64.4	52.8	64.1	63.6	61.8	60.4	57.9	56.3	53.7	53.3	52.9	57.5	10.0	67.5
	1	56.2	64.0	51.1	63.7	63.2	61.4	59.7	56.2	54.5	52.1	51.7	51.2	56.2	10.0	66.2
	2	57.6	63.1	53.0	62.9	62.5	61.3	60.5	58.3	56.8	54.1	53.5	53.1	57.6	10.0	67.6
	3	60.6	68.0	56.4	67.6	67.1	65.1	63.6	60.6	59.3	57.3	56.9	56.5	60.6	10.0	70.6
	4	62.4	70.3	58.2	70.0	69.3	67.1	65.5	62.3	60.8	59.0	58.6	58.3	62.4	10.0	72.4
	5	66.5	76.8	61.4	76.3	75.6	72.4	69.2	65.6	63.7	62.1	61.8	61.5	66.5	10.0	76.5
	6	64.5	71.8	60.0	71.5	70.9	69.1	68.2	65.0	62.4	60.6	60.3	60.1	64.5	10.0	74.5
Day	7	61.3	70.6	53.7	70.3	69.7	67.7	66.0	61.5	57.0	54.3	54.0	53.8	61.3	0.0	61.3
	8	60.4	69.2	54.6	68.9	68.5	66.5	64.7	60.2	57.2	55.3	55.0	54.7	60.4	0.0	60.4
	9	62.7	72.2	54.3	71.7	71.0	69.1	67.7	62.2	59.4	55.3	54.9	54.4	62.7	0.0	62.7
	10	63.7	71.4	54.6	71.0	70.6	69.1	68.2	65.4	60.1	55.6	55.2	54.7	63.7	0.0	63.7
	11	61.7	72.1	53.9	71.9	71.4	68.2	65.6	60.7	57.5	54.7	54.3	54.0	61.7	0.0	61.7
	12	64.8	72.6	55.0	72.1	71.5	70.2	69.0	66.0	62.9	56.6	55.6	55.1	64.8	0.0	64.8
	13	66.2	74.5	58.6	74.0	73.2	71.2	69.7	66.6	64.5	60.4	59.4	58.7	66.2	0.0	66.2
	14	64.5	72.8	58.9	72.5	72.0	69.9	68.2	64.6	62.5	60.0	59.6	59.1	64.5	0.0	64.5
	15	65.6	76.5	58.9	76.0	75.2	71.8	69.0	64.4	62.2	59.9	59.5	59.0	65.6	0.0	65.6
	16	64.1	72.6	58.9	72.3	71.4	68.9	67.3	64.2	62.1	59.8	59.4	59.0	64.1	0.0	64.1
	17	66.0	77.1	59.6	76.8	75.5	71.5	69.0	65.0	62.9	60.6	60.2	59.8	66.0	0.0	66.0
	18	64.7	73.3	59.3	72.8	71.9	69.8	68.3	64.9	62.6	60.1	59.8	59.4	64.7	0.0	64.7
	19	63.7	71.3	59.0	71.0	70.4	68.4	67.0	63.9	62.0	59.8	59.5	59.1	63.7	5.0	68.7
	20	68.1	74.8	58.2	74.5	74.2	73.0	72.4	70.4	65.7	59.1	58.6	58.3	68.1	5.0	73.1
	21	62.2	69.7	57.4	69.4	69.0	67.5	66.3	62.3	59.9	58.2	57.9	57.5	62.2	5.0	67.2
Night	22	60.4	67.5	55.8	67.3	67.0	65.5	64.2	60.5	58.3	56.6	56.2	55.9	60.4	10.0	70.4
	23	58.6	67.1	53.8	66.8	66.1	63.8	61.8	58.3	56.8	54.9	54.4	53.9	58.6	10.0	68.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	60.4	69.2	53.7	68.9	68.5	66.5	64.7	60.2	57.0	54.3	54.0	53.8
	Max	68.1	77.1	59.6	76.8	75.5	73.0	72.4	70.4	65.7	60.6	60.2	59.8
Energy Average		64.4	Average:		72.3	71.7	69.5	67.9	64.2	61.2	58.0	57.5	57.1
Night	Min	56.2	63.1	51.1	62.9	62.5	61.3	59.7	56.2	54.5	52.1	51.7	51.2
	Max	66.5	76.8	61.4	76.3	75.6	72.4	69.2	65.6	63.7	62.1	61.8	61.5
Energy Average		61.8	Average:		67.8	67.2	65.3	63.7	60.5	58.8	56.7	56.3	55.9

24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
69.2	**64.4**	**61.8**

URBAN CROSSROADS

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: E. Frontage Rd.
Road Segment: n/o Rider St.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,778 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	226 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-8.50	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	79.45	-27.20	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-22.93	2.69	-1.20	-5.69	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:	61.4	59.9	58.1	55.4	62.8	63.1
Medium Trucks:	53.7	53.1	43.6	46.0	54.1	54.2
Heavy Trucks:	62.8	61.7	55.0	57.3	64.5	64.6
Vehicle Noise:	65.5	64.3	59.9	59.7	66.9	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	44	96	206
CNEL:	21	46	99	214

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EP
Road Name: E. Frontage Rd.
Road Segment: n/o Rider St.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,844 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	231 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	95.38%
Medium Trucks:	85.3%	2.3%	12.4%	1.26%
Heavy Trucks:	75.3%	4.0%	20.8%	3.36%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-8.40	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	79.45	-27.20	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-22.93	2.69	-1.20	-5.69	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:	61.5	60.1	58.2	55.6	62.9	63.2
Medium Trucks:	53.7	53.1	43.6	46.0	54.1	54.2
Heavy Trucks:	62.8	61.7	55.0	57.3	64.5	64.6
Vehicle Noise:	65.5	64.3	60.0	59.7	67.0	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	45	96	208
CNEL:	22	46	100	215

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC
Road Name: E. Frontage Rd.
Road Segment: n/o Rider St.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,089 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	414 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.88	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	79.45	-24.57	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-20.30	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.0	62.6	60.7	58.1	65.4	65.8
Medium Trucks:	56.4	55.8	46.2	48.6	56.7	56.8
Heavy Trucks:	65.4	64.3	57.6	60.0	67.1	67.2
Vehicle Noise:	68.1	66.9	62.5	62.3	69.6	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	31	67	143	309
CNEL:	32	69	149	320

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP
Road Name: E. Frontage Rd.
Road Segment: n/o Rider St.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,155 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	420 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	95.33%
Medium Trucks:	85.3%	2.3%	12.4%	1.27%
Heavy Trucks:	75.3%	4.0%	20.8%	3.40%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.82	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	79.45	-24.57	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-20.30	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.1	62.6	60.8	58.1	65.4	65.8
Medium Trucks:	56.4	55.8	46.2	48.6	56.7	56.8
Heavy Trucks:	65.4	64.3	57.6	60.0	67.1	67.2
Vehicle Noise:	68.1	66.9	62.6	62.3	69.6	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	31	67	144	310
CNEL:	32	69	149	321

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: E. Frontage Rd.
Road Segment: s/o Rider St.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,699 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	301 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-7.26	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	79.45	-25.96	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-21.68	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	61.2	59.3	56.7	64.0	64.4
Medium Trucks:	55.0	54.4	44.8	47.3	55.3	55.4
Heavy Trucks:	64.1	62.9	56.2	58.6	65.7	65.9
Vehicle Noise:	66.7	65.5	61.1	60.9	68.2	68.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	25	54	116	250
CNEL:	26	56	120	259

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EP
Road Name: E. Frontage Rd.
Road Segment: s/o Rider St.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,813 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	310 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	95.41%
Medium Trucks:	85.3%	2.3%	12.4%	1.25%
Heavy Trucks:	75.3%	4.0%	20.8%	3.34%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-7.12	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	79.45	-25.96	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-21.68	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.8	61.3	59.5	56.8	64.1	64.5
Medium Trucks:	55.0	54.4	44.8	47.3	55.3	55.4
Heavy Trucks:	64.1	62.9	56.2	58.6	65.7	65.9
Vehicle Noise:	66.8	65.6	61.2	61.0	68.2	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	25	54	117	252
CNEL:	26	56	121	261

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC
Road Name: E. Frontage Rd.
Road Segment: s/o Rider St.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,499 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	529 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.81	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	79.45	-23.51	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-19.24	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.1	63.6	61.8	59.1	66.5	66.8
Medium Trucks:	57.4	56.8	47.2	49.7	57.8	57.9
Heavy Trucks:	66.5	65.4	58.6	61.0	68.2	68.3
Vehicle Noise:	69.2	67.9	63.6	63.4	70.6	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	36	78	169	364
CNEL:	38	81	175	377

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP
Road Name: E. Frontage Rd.
Road Segment: s/o Rider St.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,612 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	538 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	95.35%
Medium Trucks:	85.3%	2.3%	12.4%	1.26%
Heavy Trucks:	75.3%	4.0%	20.8%	3.38%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.73	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	79.45	-23.51	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-19.24	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.2	63.7	61.8	59.2	66.5	66.9
Medium Trucks:	57.4	56.8	47.2	49.7	57.8	57.9
Heavy Trucks:	66.5	65.4	58.6	61.0	68.2	68.3
Vehicle Noise:	69.2	68.0	63.6	63.4	70.7	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	37	79	170	365
CNEL:	38	82	176	378

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: E. Frontage Rd.
Road Segment: n/o Placentia Av.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,577 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	291 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-7.41	2.64	-1.20	*-4.52*	0.000	0.000
Medium Trucks:	79.45	-26.10	2.69	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-21.83	2.69	-1.20	*-5.69*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.5	61.0	59.2	56.5	63.9	64.2
Medium Trucks:	54.8	54.2	44.7	47.1	55.2	55.3
Heavy Trucks:	63.9	62.8	56.1	58.4	65.6	65.7
Vehicle Noise:	66.6	65.4	61.0	60.8	68.0	68.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	24	53	113	244
CNEL:	25	55	117	253

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EP
Road Name: E. Frontage Rd.
Road Segment: n/o Placentia Av.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,106 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	334 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	90.86%
Medium Trucks:	85.3%	2.3%	12.4%	3.17%
Heavy Trucks:	75.3%	4.0%	20.8%	5.97%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-7.01	2.64	-1.20	*-4.52*	0.000	0.000
Medium Trucks:	79.45	-21.59	2.69	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-18.84	2.69	-1.20	*-5.69*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.9	61.4	59.6	56.9	64.3	64.6
Medium Trucks:	59.3	58.8	49.2	51.6	59.7	59.8
Heavy Trucks:	66.9	65.8	59.0	61.4	68.6	68.7
Vehicle Noise:	68.9	67.7	62.5	63.1	70.3	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	35	75	161	347
CNEL:	36	77	166	357

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC
Road Name: E. Frontage Rd.
Road Segment: n/o Placentia Av.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,953 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	485 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.19	2.64	-1.20	*-4.52*	0.000	0.000
Medium Trucks:	79.45	-23.89	2.69	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-19.62	2.69	-1.20	*-5.69*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.7	63.3	61.4	58.8	66.1	66.5
Medium Trucks:	57.0	56.5	46.9	49.3	57.4	57.5
Heavy Trucks:	66.1	65.0	58.3	60.6	67.8	67.9
Vehicle Noise:	68.8	67.6	63.2	63.0	70.3	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	34	74	159	343
CNEL:	36	77	165	355

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP
Road Name: E. Frontage Rd.
Road Segment: n/o Placentia Av.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,481 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	528 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	92.48%
Medium Trucks:	85.3%	2.3%	12.4%	2.48%
Heavy Trucks:	75.3%	4.0%	20.8%	5.04%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-4.95	2.64	-1.20	*-4.52*	0.000	0.000
Medium Trucks:	79.45	-20.68	2.69	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-17.59	2.69	-1.20	*-5.69*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	63.5	61.6	59.0	66.3	66.7
Medium Trucks:	60.3	59.7	50.1	52.5	60.6	60.7
Heavy Trucks:	68.1	67.0	60.3	62.7	69.8	69.9
Vehicle Noise:	70.3	69.1	64.2	64.5	71.8	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	43	93	201	433
CNEL:	45	96	207	446

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Barker Business Park
Road Name: E. Frontage Rd. | Job Number: 15638
Road Segment: s/o Placentia Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,580 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	454 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.48	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	79.45	-24.17	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-19.90	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.4	63.0	61.1	58.5	65.8	66.2
Medium Trucks:	56.8	56.2	46.6	49.0	57.1	57.2
Heavy Trucks:	65.8	64.7	58.0	60.4	67.5	67.6
Vehicle Noise:	68.5	67.3	62.9	62.7	70.0	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	33	71	153	329
CNEL:	34	73	158	340

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EP | Project Name: Barker Business Park
Road Name: E. Frontage Rd. | Job Number: 15638
Road Segment: s/o Placentia Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,623 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	458 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	95.31%
Medium Trucks:	85.3%	2.3%	12.4%	1.28%
Heavy Trucks:	75.3%	4.0%	20.8%	3.41%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.44	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	79.45	-24.17	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-19.90	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.5	63.0	61.1	58.5	65.8	66.2
Medium Trucks:	56.8	56.2	46.6	49.0	57.1	57.2
Heavy Trucks:	65.8	64.7	58.0	60.4	67.5	67.6
Vehicle Noise:	68.5	67.3	63.0	62.7	70.0	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	33	71	153	329
CNEL:	34	73	158	341

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC | Project Name: Barker Business Park
Road Name: E. Frontage Rd. | Job Number: 15638
Road Segment: s/o Placentia Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,055 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	737 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.37	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	79.45	-22.07	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-17.80	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.5	65.1	63.2	60.6	67.9	68.3
Medium Trucks:	58.9	58.3	48.7	51.1	59.2	59.3
Heavy Trucks:	67.9	66.8	60.1	62.5	69.6	69.7
Vehicle Noise:	70.6	69.4	65.0	64.8	72.1	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	98	211	454
CNEL:	47	101	218	470

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP | Project Name: Barker Business Park
Road Name: E. Frontage Rd. | Job Number: 15638
Road Segment: s/o Placentia Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,099 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	741 vehicles
Vehicle Speed:	45 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	70.0%	11.4%	18.6%	95.30%
Medium Trucks:	85.3%	2.3%	12.4%	1.28%
Heavy Trucks:	75.3%	4.0%	20.8%	3.42%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.35	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	79.45	-22.07	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-17.80	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.5	65.1	63.2	60.6	67.9	68.3
Medium Trucks:	58.9	58.3	48.7	51.1	59.2	59.3
Heavy Trucks:	67.9	66.8	60.1	62.5	69.6	69.7
Vehicle Noise:	70.6	69.4	65.0	64.8	72.1	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	98	211	454
CNEL:	47	101	218	471

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Rider St.
Road Segment: e/o E. Frontage Rd.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,917 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	237 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	56 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	47.0 feet
Centerline Dist. to Observer:	47.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.079
Medium Trucks:	37.846
Heavy Trucks:	37.869

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-8.29	1.67	-1.20	-4.63	0.000	0.000
Medium Trucks:	79.45	-26.99	1.71	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-22.72	1.71	-1.20	-5.46	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.6	59.2	57.3	54.7	62.0	62.4
Medium Trucks:	53.0	52.4	42.8	45.2	53.3	53.4
Heavy Trucks:	62.0	60.9	54.2	56.6	63.7	63.8
Vehicle Noise:	64.7	63.5	59.1	58.9	66.2	66.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	26	56	121	262
CNEL:	27	58	126	271

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EP
Road Name: Rider St.
Road Segment: e/o E. Frontage Rd.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,961 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	241 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	56 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	47.0 feet
Centerline Dist. to Observer:	47.0 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:	70.0%	11.4%	18.6%	95.34%
Medium Trucks:	85.3%	2.3%	12.4%	1.27%
Heavy Trucks:	75.3%	4.0%	20.8%	3.39%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.079
Medium Trucks:	37.846
Heavy Trucks:	37.869

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-8.22	1.67	-1.20	-4.63	0.000	0.000
Medium Trucks:	79.45	-26.99	1.71	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-22.72	1.71	-1.20	-5.46	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.7	59.3	57.4	54.8	62.1	62.5
Medium Trucks:	53.0	52.4	42.8	45.2	53.3	53.4
Heavy Trucks:	62.0	60.9	54.2	56.6	63.7	63.8
Vehicle Noise:	64.7	63.5	59.2	59.0	66.2	66.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	26	57	122	263
CNEL:	27	59	126	272

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC
Road Name: Rider St.
Road Segment: e/o E. Frontage Rd.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,527 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	287 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	56 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	47.0 feet
Centerline Dist. to Observer:	47.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.079
Medium Trucks:	37.846
Heavy Trucks:	37.869

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-7.47	1.67	-1.20	-4.63	0.000	0.000
Medium Trucks:	79.45	-26.17	1.71	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-21.89	1.71	-1.20	-5.46	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:	61.5	60.0	58.1	55.5	62.8	63.2
Medium Trucks:	53.8	53.2	43.6	46.1	54.1	54.2
Heavy Trucks:	62.9	61.7	55.0	57.4	64.5	64.7
Vehicle Noise:	65.5	64.3	60.0	59.8	67.0	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	30	64	138	297
CNEL:	31	66	143	307

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP
Road Name: Rider St.
Road Segment: e/o E. Frontage Rd.
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,570 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	291 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	56 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	47.0 feet
Centerline Dist. to Observer:	47.0 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:	70.0%	11.4%	18.6%	95.33%
Medium Trucks:	85.3%	2.3%	12.4%	1.27%
Heavy Trucks:	75.3%	4.0%	20.8%	3.40%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.079
Medium Trucks:	37.846
Heavy Trucks:	37.869

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-7.41	1.67	-1.20	-4.63	0.000	0.000
Medium Trucks:	79.45	-26.17	1.71	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-21.89	1.71	-1.20	-5.46	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:	61.5	60.1	58.2	55.6	62.9	63.3
Medium Trucks:	53.8	53.2	43.6	46.1	54.1	54.2
Heavy Trucks:	62.9	61.7	55.0	57.4	64.5	64.7
Vehicle Noise:	65.6	64.3	60.0	59.8	67.0	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	30	64	138	298
CNEL:	31	66	143	308

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Placentia Av.
Road Segment: w/o I-215 SB Ramps
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,807 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	798 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	80 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-2.51	-0.13	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	77.72	-21.21	-0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-16.94	-0.11	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.7	61.2	59.4	56.7	64.0	64.4
Medium Trucks:	55.2	54.6	45.0	47.5	55.5	55.6
Heavy Trucks:	64.7	63.6	56.9	59.3	66.4	66.5
Vehicle Noise:	67.1	65.9	61.4	61.4	68.6	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	52	111	240	517
CNEL:	53	115	248	535

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EP
Road Name: Placentia Av.
Road Segment: w/o I-215 SB Ramps
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,893 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	805 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	80 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	70.0%	11.4%	18.6%	95.11%
Medium Trucks:	85.3%	2.3%	12.4%	1.36%
Heavy Trucks:	75.3%	4.0%	20.8%	3.53%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-2.48	-0.13	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	77.72	-20.93	-0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-16.78	-0.11	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.7	61.2	59.4	56.8	64.1	64.4
Medium Trucks:	55.5	54.9	45.3	47.8	55.8	55.9
Heavy Trucks:	64.9	63.8	57.0	59.4	66.6	66.7
Vehicle Noise:	67.2	66.0	61.5	61.5	68.7	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	53	114	245	527
CNEL:	54	117	253	545

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC
Road Name: Placentia Av.
Road Segment: w/o I-215 SB Ramps
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,839 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	1,371 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	80 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-0.17	-0.13	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	77.72	-18.86	-0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-14.59	-0.11	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.0	63.6	61.7	59.1	66.4	66.8
Medium Trucks:	57.5	57.0	47.4	49.8	57.9	58.0
Heavy Trucks:	67.1	66.0	59.2	61.6	68.8	68.9
Vehicle Noise:	69.5	68.3	63.8	63.7	71.0	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	74	160	344	742
CNEL:	77	165	356	767

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP
Road Name: Placentia Av.
Road Segment: w/o I-215 SB Ramps
Project Name: Barker Business Park
Job Number: 15638

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,925 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	1,378 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	80 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	70.0%	11.4%	18.6%	95.18%
Medium Trucks:	85.3%	2.3%	12.4%	1.33%
Heavy Trucks:	75.3%	4.0%	20.8%	3.50%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-0.15	-0.13	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	77.72	-18.70	-0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-14.50	-0.11	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.0	63.6	61.7	59.1	66.4	66.8
Medium Trucks:	57.7	57.1	47.5	50.0	58.1	58.2
Heavy Trucks:	67.2	66.1	59.3	61.7	68.9	69.0
Vehicle Noise:	69.5	68.3	63.8	63.8	71.0	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	75	162	348	750
CNEL:	78	167	360	775

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Barker Business Park
Road Name: Placentia Av. | Job Number: 15638
Road Segment: w/o E. Frontage Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,247 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	1,892 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	80 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.23	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-17.46	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-13.19	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.4	65.0	63.1	60.5	67.8	68.2
Medium Trucks:	58.9	58.4	48.8	51.2	59.3	59.4
Heavy Trucks:	68.5	67.4	60.6	63.0	70.2	70.3
Vehicle Noise:	70.9	69.7	65.2	65.1	72.4	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	92	198	427	920
CNEL:	95	205	441	951

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EP | Project Name: Barker Business Park
Road Name: Placentia Av. | Job Number: 15638
Road Segment: w/o E. Frontage Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,693 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	1,929 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	80 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	70.0%	11.4%	18.6%	94.49%
Medium Trucks:	85.3%	2.3%	12.4%	1.62%
Heavy Trucks:	75.3%	4.0%	20.8%	3.89%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.28	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-16.39	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-12.57	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.5	65.0	63.1	60.5	67.8	68.2
Medium Trucks:	60.0	59.4	49.8	52.3	60.4	60.5
Heavy Trucks:	69.1	68.0	61.3	63.6	70.8	70.9
Vehicle Noise:	71.3	70.1	65.4	65.6	72.8	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	99	212	458	986
CNEL:	102	219	473	1,018

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC | Project Name: Barker Business Park
Road Name: Placentia Av. | Job Number: 15638
Road Segment: w/o E. Frontage Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,616 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	2,818 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	80 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.96	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-15.73	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-11.46	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	66.7	64.8	62.2	69.5	69.9
Medium Trucks:	60.7	60.1	50.5	52.9	61.0	61.1
Heavy Trucks:	70.2	69.1	62.4	64.7	71.9	72.0
Vehicle Noise:	72.6	71.4	66.9	66.8	74.1	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	258	557	1,199
CNEL:	124	267	576	1,240

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP | Project Name: Barker Business Park
Road Name: Placentia Av. | Job Number: 15638
Road Segment: w/o E. Frontage Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,062 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	2,854 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	80 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	70.0%	11.4%	18.6%	94.75%
Medium Trucks:	85.3%	2.3%	12.4%	1.51%
Heavy Trucks:	75.3%	4.0%	20.8%	3.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.99	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-14.98	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-11.04	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.7	64.9	62.2	69.5	69.9
Medium Trucks:	61.4	60.8	51.2	53.7	61.8	61.9
Heavy Trucks:	70.6	69.5	62.8	65.2	72.3	72.4
Vehicle Noise:	72.9	71.7	67.1	67.2	74.4	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	126	271	584	1,258
CNEL:	130	280	603	1,299

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Barker Business Park
Road Name: Placentia Av. | Job Number: 15638
Road Segment: e/o E. Frontage Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,375 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	1,251 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	80 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.56	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-19.26	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-14.98	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.6	63.2	61.3	58.7	66.0	66.4
Medium Trucks:	57.1	56.6	47.0	49.4	57.5	57.6
Heavy Trucks:	66.7	65.6	58.8	61.2	68.4	68.5
Vehicle Noise:	69.1	67.9	63.4	63.3	70.6	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	150	324	698
CNEL:	72	156	335	722

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EP | Project Name: Barker Business Park
Road Name: Placentia Av. | Job Number: 15638
Road Segment: e/o E. Frontage Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,418 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	1,255 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	80 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	70.0%	11.4%	18.6%	95.29%
Medium Trucks:	85.3%	2.3%	12.4%	1.28%
Heavy Trucks:	75.3%	4.0%	20.8%	3.43%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.55	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-19.26	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-14.98	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.6	63.2	61.3	58.7	66.0	66.4
Medium Trucks:	57.1	56.6	47.0	49.4	57.5	57.6
Heavy Trucks:	66.7	65.6	58.8	61.2	68.4	68.5
Vehicle Noise:	69.1	67.9	63.4	63.3	70.6	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	151	324	699
CNEL:	72	156	335	722

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC | Project Name: Barker Business Park
Road Name: Placentia Av. | Job Number: 15638
Road Segment: e/o E. Frontage Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,794 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	1,693 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	80 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	70.0%	11.4%	18.6%	95.27%
Medium Trucks:	85.3%	2.3%	12.4%	1.29%
Heavy Trucks:	75.3%	4.0%	20.8%	3.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.75	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-17.95	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-13.67	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.9	64.5	62.6	60.0	67.3	67.7
Medium Trucks:	58.5	57.9	48.3	50.7	58.8	58.9
Heavy Trucks:	68.0	66.9	60.2	62.5	69.7	69.8
Vehicle Noise:	70.4	69.2	64.7	64.6	71.9	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	85	184	396	854
CNEL:	88	190	410	883

Tuesday, September 3, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP | Project Name: Barker Business Park
Road Name: Placentia Av. | Job Number: 15638
Road Segment: e/o E. Frontage Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,838 vehicles
Peak Hour Percentage:	8.14%
Peak Hour Volume:	1,696 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	80 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	70.0%	11.4%	18.6%	95.28%
Medium Trucks:	85.3%	2.3%	12.4%	1.28%
Heavy Trucks:	75.3%	4.0%	20.8%	3.43%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.76	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	77.72	-17.95	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-13.67	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.9	64.5	62.6	60.0	67.3	67.7
Medium Trucks:	58.5	57.9	48.3	50.7	58.8	58.9
Heavy Trucks:	68.0	66.9	60.2	62.5	69.7	69.8
Vehicle Noise:	70.4	69.2	64.7	64.6	71.9	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	85	184	397	854
CNEL:	88	190	410	883

Tuesday, September 3, 2024

APPENDIX 9.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS (LMAX)

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15638 - Barker Business Park

CadnaA Noise Prediction Model: 15638-02.cna
Date: 04.09.24
Analyst: B. Lawson

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)
RECEIVERS		R1	70.0	70.0	76.7	80.0	60.0	0.0				5.00	a	6261634.71	2245753.62	5.00
RECEIVERS		R2	70.2	70.2	76.9	80.0	60.0	0.0				5.00	a	6261634.82	2245713.91	5.00
RECEIVERS		R3	68.2	68.2	74.8	80.0	60.0	0.0				5.00	a	6261636.12	2245477.89	5.00
RECEIVERS		R4	69.1	69.1	75.8	80.0	60.0	0.0				5.00	a	6261640.74	2245126.42	5.00
RECEIVERS		R5	58.3	58.3	65.0	80.0	60.0	0.0				5.00	a	6261836.89	2243869.09	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)
POINTSOURCE		AC01	89.4	89.4	89.4	Lw	89.4		585.00	0.00	0.00	5.00	g	6260992.21	2245369.95	35.00
POINTSOURCE		AC02	89.4	89.4	89.4	Lw	89.4		585.00	0.00	0.00	5.00	g	6260940.08	2245307.10	35.00
POINTSOURCE		AC03	89.4	89.4	89.4	Lw	89.4		585.00	0.00	0.00	5.00	g	6260843.67	2245409.94	35.00
POINTSOURCE		AC04	89.4	89.4	89.4	Lw	89.4		585.00	0.00	0.00	5.00	g	6260883.66	2245458.50	35.00
POINTSOURCE		AC05	89.4	89.4	89.4	Lw	89.4		585.00	0.00	0.00	5.00	g	6260540.28	2245621.17	35.00
POINTSOURCE		AC06	89.4	89.4	89.4	Lw	89.4		585.00	0.00	0.00	5.00	g	6260595.19	2245686.29	35.00
POINTSOURCE		AC07	89.4	89.4	89.4	Lw	89.4		585.00	0.00	0.00	5.00	g	6260378.12	2245765.45	35.00
POINTSOURCE		AC08	89.4	89.4	89.4	Lw	89.4		585.00	0.00	0.00	5.00	g	6260417.06	2245812.69	35.00
POINTSOURCE		TRASH01	102.8	102.8	102.8	Lw	102.8					5.00	a	6260597.10	2245546.47	5.00
POINTSOURCE		TRASH02	102.8	102.8	102.8	Lw	102.8					5.00	a	6260590.72	2245536.89	5.00
POINTSOURCE		TRASH03	102.8	102.8	102.8	Lw	102.8					5.00	a	6260815.11	2245428.51	5.00

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)	
LINESOURCE		TRUCK01	91.4	91.4	91.4	63.8	63.8	63.8	Lw	91.4									8	a
LINESOURCE		TRUCK02	91.4	91.4	91.4	75.9	75.9	75.9	Lw	91.4									8	a
LINESOURCE		TRUCK03	91.4	91.4	91.4	71.9	71.9	71.9	Lw	91.4									8	a
LINESOURCE		TRUCK04	91.4	91.4	91.4	67.9	67.9	67.9	Lw	91.4									8	a
LINESOURCE		TRUCK05	91.4	91.4	91.4	71.3	71.3	71.3	Lw	91.4									8	a
LINESOURCE		TRUCK06	91.4	91.4	91.4	73.5	73.5	73.5	Lw	91.4									8	a
LINESOURCE		TRUCK07	91.4	91.4	91.4	67.1	67.1	67.1	Lw	91.4									8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	TRUCK01	8.00	a			6261157.89	2245891.97	8.00	0.00
						6261591.36	2245531.34	8.00	0.00
						6261590.65	2245359.24	8.00	0.00
						6261589.97	2245350.55	8.00	0.00
						6261587.85	2245342.11	8.00	0.00
						6261584.34	2245334.14	8.00	0.00
						6261579.55	2245326.87	8.00	0.00
						6261573.60	2245320.51	8.00	0.00
						6261566.66	2245315.24	8.00	0.00
						6261558.94	2245311.21	8.00	0.00
						6261550.65	2245308.53	8.00	0.00
						6261348.01	2245474.12	8.00	0.00
						6261146.62	2245641.22	8.00	0.00
						6260946.50	2245809.85	8.00	0.00
						6260943.34	2245816.84	8.00	0.00
						6260941.43	2245824.28	8.00	0.00
						6260940.84	2245831.94	8.00	0.00
						6260941.59	2245839.58	8.00	0.00
						6260943.65	2245846.98	8.00	0.00
						6260963.64	2245872.92	8.00	0.00
						6260985.07	2245897.69	8.00	0.00
						6261005.17	2245903.18	8.00	0.00
						6261025.70	2245906.77	8.00	0.00
						6261046.48	2245908.40	8.00	0.00
						6261069.28	2245909.12	8.00	0.00
						6261092.06	2245907.90	8.00	0.00
						6261114.64	2245904.73	8.00	0.00
						6261136.88	2245899.65	8.00	0.00
						6261158.60	2245892.69	8.00	0.00
LINESOURCE	TRUCK02	8.00	a			6261221.34	2245578.92	8.00	0.00
						6261185.81	2245533.00	8.00	0.00
						6261148.85	2245488.22	8.00	0.00
LINESOURCE	TRUCK03	8.00	a			6261394.59	2244721.70	8.00	0.00
						6261393.29	2244828.47	8.00	0.00
						6261383.87	2244853.09	8.00	0.00
						6261372.25	2244876.76	8.00	0.00
						6261358.54	2244899.28	8.00	0.00
						6261342.84	2244920.46	8.00	0.00
						6261325.29	2244940.13	8.00	0.00
						6261306.03	2244958.13	8.00	0.00
						6261285.22	2244974.31	8.00	0.00
LINESOURCE	TRUCK04	8.00	a			6261285.22	2244974.31	8.00	0.00
						6260722.72	2245450.87	8.00	0.00
LINESOURCE	TRUCK05	8.00	a			6260827.39	2245579.17	8.00	0.00
						6260604.23	2245323.26	8.00	0.00
LINESOURCE	TRUCK06	8.00	a			6261097.72	2245398.79	8.00	0.00
						6260974.02	2245239.93	8.00	0.00
LINESOURCE	TRUCK07	8.00	a			6260707.09	2245724.31	8.00	0.00
						6260539.12	2245523.79	8.00	0.00
						6260276.10	2245751.65	8.00	0.00
						6260229.23	2245884.46	8.00	0.00
						6260321.67	2245980.82	8.00	0.00

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)		
AREASOURCE		CAR01	87.9	87.9	87.9	64.0	64.0	64.0	Lw	87.9					5	a
AREASOURCE		CAR02	87.9	87.9	87.9	64.3	64.3	64.3	Lw	87.9					5	a
AREASOURCE		CAR03	87.9	87.9	87.9	63.4	63.4	63.4	Lw	87.9					5	a
AREASOURCE		CAR04	87.9	87.9	87.9	66.4	66.4	66.4	Lw	87.9					5	a
AREASOURCE		CAR05	87.9	87.9	87.9	66.2	66.2	66.2	Lw	87.9					5	a
AREASOURCE		CAR06	87.9	87.9	87.9	63.4	63.4	63.4	Lw	87.9					5	a
AREASOURCE		CAR07	87.9	87.9	87.9	64.1	64.1	64.1	Lw	87.9					5	a
AREASOURCE		CAR08	87.9	87.9	87.9	63.9	63.9	63.9	Lw	87.9					5	a

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)		
AREASOURCE		HEAVY01	119.7	119.7	119.7	91.1	91.1	91.1	Lw	119.7					8	a
AREASOURCE		HEAVY02	119.7	119.7	119.7	83.7	83.7	83.7	Lw	119.7					8	a
AREASOURCE		STORE01	111.6	111.6	111.6	72.9	72.9	72.9	Lw	111.6					8	a
AREASOURCE		STORE02	111.6	111.6	111.6	83.7	83.7	83.7	Lw	111.6					8	a
AREASOURCE		STORE03	111.6	111.6	111.6	79.8	79.8	79.8	Lw	111.6					8	a
AREASOURCE		STORE04	111.6	111.6	111.6	79.2	79.2	79.2	Lw	111.6					8	a
AREASOURCE		STORE05	111.6	111.6	111.6	83.0	83.0	83.0	Lw	111.6					8	a
AREASOURCE		STORE06	111.6	111.6	111.6	74.4	74.4	74.4	Lw	111.6					8	a
AREASOURCE		STORE07	111.6	111.6	111.6	78.8	78.8	78.8	Lw	111.6					8	a
AREASOURCE		STORE08	111.6	111.6	111.6	85.2	85.2	85.2	Lw	111.6					8	a
AREASOURCE		STORE09	111.6	111.6	111.6	77.6	77.6	77.6	Lw	111.6					8	a
AREASOURCE		STORE10	111.6	111.6	111.6	78.6	78.6	78.6	Lw	111.6					8	a
AREASOURCE		STORE11	111.6	111.6	111.6	84.3	84.3	84.3	Lw	111.6					8	a
AREASOURCE		STORE12	111.6	111.6	111.6	73.2	73.2	73.2	Lw	111.6					8	a
AREASOURCE		STORE13	111.6	111.6	111.6	74.9	74.9	74.9	Lw	111.6					8	a

Name	ID	Height			Coordinates			
		Begin		End	x	y	z	Ground
		(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
AREASOURCE	CAR01	5.00	a		6260426.64	2245945.49	5.00	0.00
					6260532.62	2245857.38	5.00	0.00
					6260522.41	2245843.34	5.00	0.00
					6260412.60	2245930.80	5.00	0.00
AREASOURCE	CAR02	5.00	a		6260567.73	2245828.02	5.00	0.00
					6260672.44	2245739.91	5.00	0.00
					6260662.86	2245725.23	5.00	0.00
					6260555.60	2245814.61	5.00	0.00
AREASOURCE	CAR03	5.00	a		6260378.12	2245904.63	5.00	0.00
					6260390.89	2245918.04	5.00	0.00
					6260510.28	2245817.80	5.00	0.00
					6260499.42	2245801.20	5.00	0.00
AREASOURCE	CAR04	5.00	a		6260540.28	2245792.90	5.00	0.00
					6260601.57	2245740.55	5.00	0.00
					6260586.25	2245727.78	5.00	0.00
					6260528.15	2245778.22	5.00	0.00
AREASOURCE	CAR05	5.00	a		6260632.22	2245689.48	5.00	0.00
					6260646.26	2245677.35	5.00	0.00
					6260587.53	2245607.12	5.00	0.00
					6260574.76	2245617.33	5.00	0.00
AREASOURCE	CAR06	5.00	a		6260722.23	2245683.09	5.00	0.00
					6260626.47	2245566.26	5.00	0.00
					6260610.51	2245579.67	5.00	0.00
					6260708.19	2245696.50	5.00	0.00
AREASOURCE	CAR07	5.00	a		6260573.48	2245533.70	5.00	0.00
					6260586.89	2245522.85	5.00	0.00
					6260501.98	2245418.14	5.00	0.00
					6260485.38	2245430.27	5.00	0.00
AREASOURCE	CAR08	5.00	a		6260901.51	2245500.63	5.00	0.00
					6261020.06	2245399.23	5.00	0.00
					6261011.43	2245386.37	5.00	0.00
					6260889.03	2245486.37	5.00	0.00
AREASOURCE	HEAVY01	8.00	a		6260337.30	2245905.30	8.00	0.00
					6260397.19	2245854.51	8.00	0.00
					6260315.16	2245763.37	8.00	0.00
					6260304.75	2245775.09	8.00	0.00
					6260294.33	2245861.02	8.00	0.00
AREASOURCE	HEAVY02	8.00	a		6260455.79	2245448.26	8.00	0.00
					6260345.11	2245542.01	8.00	0.00
					6260214.90	2245712.59	8.00	0.00
					6260045.63	2245958.68	8.00	0.00
					6260044.33	2245992.54	8.00	0.00
					6260253.97	2245982.12	8.00	0.00
					6260246.15	2245932.64	8.00	0.00
					6260170.66	2245933.98	8.00	0.00
					6260168.68	2245850.39	8.00	0.00
					6260250.65	2245738.46	8.00	0.00
					6260395.89	2245571.96	8.00	0.00
					6260490.94	2245492.54	8.00	0.00
AREASOURCE	STORE01	8.00	a		6260714.56	2245375.43	8.00	0.00
					6261297.89	2244885.85	8.00	0.00
					6261262.47	2244844.18	8.00	0.00
					6261199.97	2244893.49	8.00	0.00
					6261163.17	2244850.43	8.00	0.00
					6261001.36	2244989.32	8.00	0.00
					6260961.08	2245028.21	8.00	0.00
					6260934.00	2245051.82	8.00	0.00
					6260886.78	2245084.46	8.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6260642.33	2245288.63	8.00	0.00
AREASOURCE	STORE02	8.00	a			6261354.14	2244722.31	8.00	0.00
						6261297.37	2244723.87	8.00	0.00
						6261295.81	2244840.02	8.00	0.00
						6261352.06	2244841.06	8.00	0.00
AREASOURCE	STORE03	8.00	a			6261441.12	2244851.48	8.00	0.00
						6261561.95	2244847.83	8.00	0.00
						6261564.56	2244835.85	8.00	0.00
						6261559.87	2244714.50	8.00	0.00
						6261439.03	2244717.62	8.00	0.00
AREASOURCE	STORE04	8.00	a			6261363.51	2244997.31	8.00	0.00
						6261463.51	2245048.35	8.00	0.00
						6261542.68	2244894.71	8.00	0.00
						6261493.20	2244867.62	8.00	0.00
						6261490.60	2244878.56	8.00	0.00
						6261441.12	2244851.48	8.00	0.00
AREASOURCE	STORE05	8.00	a			6261409.87	2245119.71	8.00	0.00
						6261452.06	2245063.46	8.00	0.00
						6261363.51	2244997.31	8.00	0.00
						6261321.85	2245055.64	8.00	0.00
AREASOURCE	STORE06	8.00	a			6261128.62	2245363.98	8.00	0.00
						6261394.76	2245141.06	8.00	0.00
						6261321.85	2245055.64	8.00	0.00
						6261305.70	2245069.71	8.00	0.00
						6261271.33	2245026.48	8.00	0.00
						6261028.10	2245229.08	8.00	0.00
AREASOURCE	STORE07	8.00	a			6260810.39	2245632.73	8.00	0.00
						6260572.89	2245350.43	8.00	0.00
						6260530.18	2245384.29	8.00	0.00
						6260766.12	2245668.14	8.00	0.00
AREASOURCE	STORE08	8.00	a			6260923.41	2245537.93	8.00	0.00
						6260869.76	2245472.31	8.00	0.00
						6260827.06	2245509.29	8.00	0.00
						6260881.74	2245572.31	8.00	0.00
AREASOURCE	STORE09	8.00	a			6261220.73	2245516.34	8.00	0.00
						6261593.50	2245205.70	8.00	0.00
						6261558.51	2245161.42	8.00	0.00
						6261183.59	2245474.92	8.00	0.00
AREASOURCE	STORE10	8.00	a			6260870.81	2245812.70	8.00	0.00
						6261165.74	2245564.90	8.00	0.00
						6261131.46	2245520.63	8.00	0.00
						6260834.39	2245772.00	8.00	0.00
AREASOURCE	STORE11	8.00	a			6260894.37	2245934.82	8.00	0.00
						6260935.79	2245899.83	8.00	0.00
						6260865.09	2245817.70	8.00	0.00
						6260823.67	2245850.55	8.00	0.00
AREASOURCE	STORE12	8.00	a			6261104.33	2245880.55	8.00	0.00
						6261564.22	2245495.63	8.00	0.00
						6261527.09	2245452.07	8.00	0.00
						6261575.65	2245412.79	8.00	0.00
						6261539.94	2245370.66	8.00	0.00
						6260991.49	2245826.99	8.00	0.00
						6261029.34	2245869.83	8.00	0.00
						6261069.33	2245836.27	8.00	0.00
AREASOURCE	STORE13	8.00	a			6261465.67	2245914.11	8.00	0.00
						6261601.67	2245783.82	8.00	0.00
						6261587.07	2245740.58	8.00	0.00
						6261602.62	2245715.98	8.00	0.00
						6261583.50	2245670.59	8.00	0.00
						6261620.64	2245639.17	8.00	0.00
						6261587.07	2245594.90	8.00	0.00
						6261252.15	2245878.40	8.00	0.00
						6261283.57	2245921.25	8.00	0.00
						6261342.13	2245875.55	8.00	0.00
						6261377.84	2245916.97	8.00	0.00
						6261430.68	2245872.69	8.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00001	x	0		30.00	a	6260414.51	2245839.51	30.00	0.00
									6260507.72	2245762.26	30.00	0.00
									6260515.38	2245768.00	30.00	0.00
									6260611.79	2245688.20	30.00	0.00
									6260541.56	2245602.01	30.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6260351.94	2245764.81	30.00	0.00
BUILDING			BUILDING00002	x	0		30.00	a	6260880.80	2245484.21	30.00	0.00
									6261020.06	2245371.38	30.00	0.00
									6260937.93	2245282.82	30.00	0.00
									6260912.23	2245304.25	30.00	0.00
									6260923.65	2245318.53	30.00	0.00
									6260815.11	2245409.94	30.00	0.00

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APPENDIX 9.2:

CADNAA OPERATIONAL NOISE MODEL INPUTS (LEQ)

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15638 - Barker Business Park

CadnaA Noise Prediction Model: 15638-02_CNEL.cna
Date: 04.09.24
Analyst: B. Lawson

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)
RECEIVERS		R1	63.1	-80.2	59.7	80.0	60.0	0.0				5.00	a	6261634.71	2245753.62	5.00
RECEIVERS		R2	63.3	-80.2	59.9	80.0	60.0	0.0				5.00	a	6261634.82	2245713.91	5.00
RECEIVERS		R3	61.5	-80.2	58.1	80.0	60.0	0.0				5.00	a	6261636.12	2245477.89	5.00
RECEIVERS		R4	62.3	-80.2	58.9	80.0	60.0	0.0				5.00	a	6261640.74	2245126.42	5.00
RECEIVERS		R5	51.5	-80.2	48.1	80.0	60.0	0.0				5.00	a	6261836.89	2243869.09	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)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	0.00	5.00	g	6260992.21	2245369.95	35.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	0.00	5.00	g	6260940.08	2245307.10	35.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	0.00	5.00	g	6260843.67	2245409.94	35.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	0.00	5.00	g	6260883.66	2245458.50	35.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	0.00	5.00	g	6260540.28	2245621.17	35.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	0.00	5.00	g	6260595.19	2245686.29	35.00
POINTSOURCE		AC07	88.9	88.9	88.9	Lw	88.9		585.00	0.00	0.00	5.00	g	6260378.12	2245765.45	35.00
POINTSOURCE		AC08	88.9	88.9	88.9	Lw	88.9		585.00	0.00	0.00	5.00	g	6260417.06	2245812.69	35.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		900.00	0.00	0.00	5.00	a	6260597.10	2245546.47	5.00
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89		900.00	0.00	0.00	5.00	a	6260590.72	2245536.89	5.00
POINTSOURCE		TRASH03	89.0	89.0	89.0	Lw	89		900.00	0.00	0.00	5.00	a	6260815.11	2245428.51	5.00

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)	
LINESOURCE		TRUCK01	89.7	89.7	89.7	62.1	62.1	62.1	Lw	89.7		900.00	0.00	0.00					8	a
LINESOURCE		TRUCK02	89.7	89.7	89.7	74.2	74.2	74.2	Lw	89.7		900.00	0.00	0.00					8	a
LINESOURCE		TRUCK03	89.7	89.7	89.7	70.2	70.2	70.2	Lw	89.7		900.00	0.00	0.00					8	a
LINESOURCE		TRUCK04	89.7	89.7	89.7	66.2	66.2	66.2	Lw	89.7		900.00	0.00	0.00					8	a
LINESOURCE		TRUCK05	89.7	89.7	89.7	69.6	69.6	69.6	Lw	89.7		900.00	0.00	0.00					8	a
LINESOURCE		TRUCK06	89.7	89.7	89.7	71.8	71.8	71.8	Lw	89.7		900.00	0.00	0.00					8	a
LINESOURCE		TRUCK07	89.7	89.7	89.7	65.4	65.4	65.4	Lw	89.7		900.00	0.00	0.00					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	TRUCK01	8.00	a			6261157.89	2245891.97	8.00	0.00
						6261591.36	2245531.34	8.00	0.00
						6261590.65	2245359.24	8.00	0.00
						6261589.97	2245350.55	8.00	0.00
						6261587.85	2245342.11	8.00	0.00
						6261584.34	2245334.14	8.00	0.00
						6261579.55	2245326.87	8.00	0.00
						6261573.60	2245320.51	8.00	0.00
						6261566.66	2245315.24	8.00	0.00
						6261558.94	2245311.21	8.00	0.00
						6261550.65	2245308.53	8.00	0.00
						6261348.01	2245474.12	8.00	0.00
						6261146.62	2245641.22	8.00	0.00
						6260946.50	2245809.85	8.00	0.00
						6260943.34	2245816.84	8.00	0.00
						6260941.43	2245824.28	8.00	0.00
						6260940.84	2245831.94	8.00	0.00
						6260941.59	2245839.58	8.00	0.00
						6260943.65	2245846.98	8.00	0.00
						6260963.64	2245872.92	8.00	0.00
						6260985.07	2245897.69	8.00	0.00
						6261005.17	2245903.18	8.00	0.00
						6261025.70	2245906.77	8.00	0.00
						6261046.48	2245908.40	8.00	0.00
						6261069.28	2245909.12	8.00	0.00
						6261092.06	2245907.90	8.00	0.00
						6261114.64	2245904.73	8.00	0.00
						6261136.88	2245899.65	8.00	0.00
						6261158.60	2245892.69	8.00	0.00
LINESOURCE	TRUCK02	8.00	a			6261221.34	2245578.92	8.00	0.00
						6261185.81	2245533.00	8.00	0.00
						6261148.85	2245488.22	8.00	0.00
LINESOURCE	TRUCK03	8.00	a			6261394.59	2244721.70	8.00	0.00
						6261393.29	2244828.47	8.00	0.00
						6261383.87	2244853.09	8.00	0.00
						6261372.25	2244876.76	8.00	0.00
						6261358.54	2244899.28	8.00	0.00
						6261342.84	2244920.46	8.00	0.00
						6261325.29	2244940.13	8.00	0.00
						6261306.03	2244958.13	8.00	0.00
						6261285.22	2244974.31	8.00	0.00
LINESOURCE	TRUCK04	8.00	a			6261285.22	2244974.31	8.00	0.00
						6260722.72	2245450.87	8.00	0.00
LINESOURCE	TRUCK05	8.00	a			6260827.39	2245579.17	8.00	0.00
						6260604.23	2245323.26	8.00	0.00
LINESOURCE	TRUCK06	8.00	a			6261097.72	2245398.79	8.00	0.00
						6260974.02	2245239.93	8.00	0.00
LINESOURCE	TRUCK07	8.00	a			6260707.09	2245724.31	8.00	0.00
						6260539.12	2245523.79	8.00	0.00
						6260276.10	2245751.65	8.00	0.00
						6260229.23	2245884.46	8.00	0.00
						6260321.67	2245980.82	8.00	0.00

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)		
AREASOURCE		CAR01	84.3	84.3	84.3	60.4	60.4	60.4	Lw	84.3		900.00	0.00	0.00	5	a
AREASOURCE		CAR02	84.3	84.3	84.3	60.7	60.7	60.7	Lw	84.3		900.00	0.00	0.00	5	a
AREASOURCE		CAR03	84.3	84.3	84.3	59.8	59.8	59.8	Lw	84.3		900.00	0.00	0.00	5	a
AREASOURCE		CAR04	84.3	84.3	84.3	62.8	62.8	62.8	Lw	84.3		900.00	0.00	0.00	5	a
AREASOURCE		CAR05	84.3	84.3	84.3	62.6	62.6	62.6	Lw	84.3		900.00	0.00	0.00	5	a
AREASOURCE		CAR06	84.3	84.3	84.3	59.8	59.8	59.8	Lw	84.3		900.00	0.00	0.00	5	a
AREASOURCE		CAR07	84.3	84.3	84.3	60.5	60.5	60.5	Lw	84.3		900.00	0.00	0.00	5	a
AREASOURCE		CAR08	84.3	84.3	84.3	60.3	60.3	60.3	Lw	84.3		900.00	0.00	0.00	5	a

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)		
AREASOURCE		HEAVY01	111.5	111.5	111.5	82.9	82.9	82.9	Lw	111.5		900.00	0.00	0.00	8	a
AREASOURCE		HEAVY02	111.5	111.5	111.5	75.5	75.5	75.5	Lw	111.5		900.00	0.00	0.00	8	a
AREASOURCE		STORE01	103.4	103.4	103.4	64.7	64.7	64.7	Lw	103.4		900.00	0.00	0.00	8	a
AREASOURCE		STORE02	103.4	103.4	103.4	75.5	75.5	75.5	Lw	103.4		900.00	0.00	0.00	8	a
AREASOURCE		STORE03	103.4	103.4	103.4	71.6	71.6	71.6	Lw	103.4		900.00	0.00	0.00	8	a
AREASOURCE		STORE04	103.4	103.4	103.4	71.0	71.0	71.0	Lw	103.4		900.00	0.00	0.00	8	a
AREASOURCE		STORE05	103.4	103.4	103.4	74.8	74.8	74.8	Lw	103.4		900.00	0.00	0.00	8	a
AREASOURCE		STORE06	103.4	103.4	103.4	66.2	66.2	66.2	Lw	103.4		900.00	0.00	0.00	8	a
AREASOURCE		STORE07	103.4	103.4	103.4	70.6	70.6	70.6	Lw	103.4		900.00	0.00	0.00	8	a
AREASOURCE		STORE08	103.4	103.4	103.4	77.0	77.0	77.0	Lw	103.4		900.00	0.00	0.00	8	a
AREASOURCE		STORE09	103.4	103.4	103.4	69.4	69.4	69.4	Lw	103.4		900.00	0.00	0.00	8	a
AREASOURCE		STORE10	103.4	103.4	103.4	70.4	70.4	70.4	Lw	103.4		900.00	0.00	0.00	8	a
AREASOURCE		STORE11	103.4	103.4	103.4	76.1	76.1	76.1	Lw	103.4		900.00	0.00	0.00	8	a
AREASOURCE		STORE12	103.4	103.4	103.4	65.0	65.0	65.0	Lw	103.4		900.00	0.00	0.00	8	a
AREASOURCE		STORE13	103.4	103.4	103.4	66.7	66.7	66.7	Lw	103.4		900.00	0.00	0.00	8	a

Name	ID	Height			Coordinates			
		Begin		End	x	y	z	Ground
		(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
AREASOURCE	CAR01	5.00	a		6260426.64	2245945.49	5.00	0.00
					6260532.62	2245857.38	5.00	0.00
					6260522.41	2245843.34	5.00	0.00
					6260412.60	2245930.80	5.00	0.00
AREASOURCE	CAR02	5.00	a		6260567.73	2245828.02	5.00	0.00
					6260672.44	2245739.91	5.00	0.00
					6260662.86	2245725.23	5.00	0.00
					6260555.60	2245814.61	5.00	0.00
AREASOURCE	CAR03	5.00	a		6260378.12	2245904.63	5.00	0.00
					6260390.89	2245918.04	5.00	0.00
					6260510.28	2245817.80	5.00	0.00
					6260499.42	2245801.20	5.00	0.00
AREASOURCE	CAR04	5.00	a		6260540.28	2245792.90	5.00	0.00
					6260601.57	2245740.55	5.00	0.00
					6260586.25	2245727.78	5.00	0.00
					6260528.15	2245778.22	5.00	0.00
AREASOURCE	CAR05	5.00	a		6260632.22	2245689.48	5.00	0.00
					6260646.26	2245677.35	5.00	0.00
					6260587.53	2245607.12	5.00	0.00
					6260574.76	2245617.33	5.00	0.00
AREASOURCE	CAR06	5.00	a		6260722.23	2245683.09	5.00	0.00
					6260626.47	2245566.26	5.00	0.00
					6260610.51	2245579.67	5.00	0.00
					6260708.19	2245696.50	5.00	0.00
AREASOURCE	CAR07	5.00	a		6260573.48	2245533.70	5.00	0.00
					6260586.89	2245522.85	5.00	0.00
					6260501.98	2245418.14	5.00	0.00
					6260485.38	2245430.27	5.00	0.00
AREASOURCE	CAR08	5.00	a		6260901.51	2245500.63	5.00	0.00
					6261020.06	2245399.23	5.00	0.00
					6261011.43	2245386.37	5.00	0.00
					6260889.03	2245486.37	5.00	0.00
AREASOURCE	HEAVY01	8.00	a		6260337.30	2245905.30	8.00	0.00
					6260397.19	2245854.51	8.00	0.00
					6260315.16	2245763.37	8.00	0.00
					6260304.75	2245775.09	8.00	0.00
					6260294.33	2245861.02	8.00	0.00
AREASOURCE	HEAVY02	8.00	a		6260455.79	2245448.26	8.00	0.00
					6260345.11	2245542.01	8.00	0.00
					6260214.90	2245712.59	8.00	0.00
					6260045.63	2245958.68	8.00	0.00
					6260044.33	2245992.54	8.00	0.00
					6260253.97	2245982.12	8.00	0.00
					6260246.15	2245932.64	8.00	0.00
					6260170.66	2245933.98	8.00	0.00
					6260168.68	2245850.39	8.00	0.00
					6260250.65	2245738.46	8.00	0.00
					6260395.89	2245571.96	8.00	0.00
					6260490.94	2245492.54	8.00	0.00
AREASOURCE	STORE01	8.00	a		6260714.56	2245375.43	8.00	0.00
					6261297.89	2244885.85	8.00	0.00
					6261262.47	2244844.18	8.00	0.00
					6261199.97	2244893.49	8.00	0.00
					6261163.17	2244850.43	8.00	0.00
					6261001.36	2244989.32	8.00	0.00
					6260961.08	2245028.21	8.00	0.00
					6260934.00	2245051.82	8.00	0.00
					6260886.78	2245084.46	8.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6260642.33	2245288.63	8.00	0.00
AREASOURCE	STORE02	8.00	a			6261354.14	2244722.31	8.00	0.00
						6261297.37	2244723.87	8.00	0.00
						6261295.81	2244840.02	8.00	0.00
						6261352.06	2244841.06	8.00	0.00
AREASOURCE	STORE03	8.00	a			6261441.12	2244851.48	8.00	0.00
						6261561.95	2244847.83	8.00	0.00
						6261564.56	2244835.85	8.00	0.00
						6261559.87	2244714.50	8.00	0.00
						6261439.03	2244717.62	8.00	0.00
AREASOURCE	STORE04	8.00	a			6261363.51	2244997.31	8.00	0.00
						6261463.51	2245048.35	8.00	0.00
						6261542.68	2244894.71	8.00	0.00
						6261493.20	2244867.62	8.00	0.00
						6261490.60	2244878.56	8.00	0.00
						6261441.12	2244851.48	8.00	0.00
AREASOURCE	STORE05	8.00	a			6261409.87	2245119.71	8.00	0.00
						6261452.06	2245063.46	8.00	0.00
						6261363.51	2244997.31	8.00	0.00
						6261321.85	2245055.64	8.00	0.00
AREASOURCE	STORE06	8.00	a			6261128.62	2245363.98	8.00	0.00
						6261394.76	2245141.06	8.00	0.00
						6261321.85	2245055.64	8.00	0.00
						6261305.70	2245069.71	8.00	0.00
						6261271.33	2245026.48	8.00	0.00
						6261028.10	2245229.08	8.00	0.00
AREASOURCE	STORE07	8.00	a			6260810.39	2245632.73	8.00	0.00
						6260572.89	2245350.43	8.00	0.00
						6260530.18	2245384.29	8.00	0.00
						6260766.12	2245668.14	8.00	0.00
AREASOURCE	STORE08	8.00	a			6260923.41	2245537.93	8.00	0.00
						6260869.76	2245472.31	8.00	0.00
						6260827.06	2245509.29	8.00	0.00
						6260881.74	2245572.31	8.00	0.00
AREASOURCE	STORE09	8.00	a			6261220.73	2245516.34	8.00	0.00
						6261593.50	2245205.70	8.00	0.00
						6261558.51	2245161.42	8.00	0.00
						6261183.59	2245474.92	8.00	0.00
AREASOURCE	STORE10	8.00	a			6260870.81	2245812.70	8.00	0.00
						6261165.74	2245564.90	8.00	0.00
						6261131.46	2245520.63	8.00	0.00
						6260834.39	2245772.00	8.00	0.00
AREASOURCE	STORE11	8.00	a			6260894.37	2245934.82	8.00	0.00
						6260935.79	2245899.83	8.00	0.00
						6260865.09	2245817.70	8.00	0.00
						6260823.67	2245850.55	8.00	0.00
AREASOURCE	STORE12	8.00	a			6261104.33	2245880.55	8.00	0.00
						6261564.22	2245495.63	8.00	0.00
						6261527.09	2245452.07	8.00	0.00
						6261575.65	2245412.79	8.00	0.00
						6261539.94	2245370.66	8.00	0.00
						6260991.49	2245826.99	8.00	0.00
						6261029.34	2245869.83	8.00	0.00
						6261069.33	2245836.27	8.00	0.00
AREASOURCE	STORE13	8.00	a			6261465.67	2245914.11	8.00	0.00
						6261599.45	2245787.16	8.00	0.00
						6261587.07	2245740.58	8.00	0.00
						6261599.29	2245717.09	8.00	0.00
						6261583.50	2245670.59	8.00	0.00
						6261620.64	2245639.17	8.00	0.00
						6261587.07	2245594.90	8.00	0.00
						6261252.15	2245878.40	8.00	0.00
						6261283.57	2245921.25	8.00	0.00
						6261342.13	2245875.55	8.00	0.00
						6261377.84	2245916.97	8.00	0.00
						6261430.68	2245872.69	8.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00001	x	0		30.00	a	6260414.51	2245839.51	30.00	0.00
									6260507.72	2245762.26	30.00	0.00
									6260515.38	2245768.00	30.00	0.00
									6260611.79	2245688.20	30.00	0.00
									6260541.56	2245602.01	30.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6260351.94	2245764.81	30.00	0.00
BUILDING			BUILDING00002	x	0		30.00	a	6260880.80	2245484.21	30.00	0.00
									6261020.06	2245371.38	30.00	0.00
									6260937.93	2245282.82	30.00	0.00
									6260912.23	2245304.25	30.00	0.00
									6260923.65	2245318.53	30.00	0.00
									6260815.11	2245409.94	30.00	0.00

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APPENDIX 10.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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15638 - Barker Business Park

CadnaA Noise Prediction Model: 15638-02_Construction.cna
Date: 04.09.24
Analyst: B. Lawson

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)
RECEIVERS		R1	77.4	-29.5	74.4	80.0	60.0	0.0				5.00	a	6261634.71	2245753.62	5.00
RECEIVERS		R2	77.4	-29.6	74.4	80.0	60.0	0.0				5.00	a	6261634.82	2245713.91	5.00
RECEIVERS		R3	76.9	-30.0	73.9	80.0	60.0	0.0				5.00	a	6261636.12	2245477.89	5.00
RECEIVERS		R4	75.1	-31.9	72.0	80.0	60.0	0.0				5.00	a	6261640.74	2245126.42	5.00
RECEIVERS		R5	60.2	-46.7	57.2	80.0	60.0	0.0				5.00	a	6261836.89	2243869.09	5.00

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)		
SITEBOUNDARY		SITEBOUNDARY00001	123.7	16.7	16.7	75.7	-31.3	-31.3	PWL-Pt	116.7		5				8	a
SITEBOUNDARY		SITEBOUNDARY00002	123.7	16.7	16.7	77.6	-29.3	-29.3	PWL-Pt	116.7		5				8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	SITEBOUNDARY00001	8.00	a			6260000.57	2246001.33	8.00	0.00
						6260284.86	2245992.65	8.00	0.00
						6260283.77	2245977.46	8.00	0.00
						6260349.96	2245974.21	8.00	0.00
						6260349.96	2245950.34	8.00	0.00
						6260445.45	2245948.17	8.00	0.00
						6260722.14	2245712.71	8.00	0.00
						6260890.33	2245575.99	8.00	0.00
						6261050.92	2245438.62	8.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6261167.02	2245342.05	8.00	0.00
						6261283.12	2245243.31	8.00	0.00
						6261362.33	2245176.03	8.00	0.00
						6261413.33	2245126.12	8.00	0.00
						6261461.07	2245068.61	8.00	0.00
						6261501.22	2245013.27	8.00	0.00
						6261529.43	2244961.19	8.00	0.00
						6261558.73	2244895.00	8.00	0.00
						6261577.18	2244825.55	8.00	0.00
						6261605.39	2244719.22	8.00	0.00
						6261553.30	2244668.22	8.00	0.00
						6261289.63	2244692.09	8.00	0.00
						6261289.63	2244835.32	8.00	0.00
						6261091.06	2244841.83	8.00	0.00
						6261055.80	2244906.93	8.00	0.00
						6261024.33	2244948.17	8.00	0.00
						6260996.12	2244982.89	8.00	0.00
						6260941.87	2245033.89	8.00	0.00
						6260881.10	2245076.20	8.00	0.00
						6260822.51	2245116.35	8.00	0.00
						6260670.60	2245211.84	8.00	0.00
						6260511.09	2245364.62	8.00	0.00
						6260421.03	2245449.25	8.00	0.00
						6260337.48	2245529.55	8.00	0.00
						6260298.42	2245578.37	8.00	0.00
						6260234.40	2245661.93	8.00	0.00
						6260146.51	2245770.22	8.00	0.00
						6260126.98	2245797.34	8.00	0.00
SITEBOUNDARY	SITEBOUNDARY00002	8.00	a			6260626.11	2245924.30	8.00	0.00
						6260645.64	2245950.34	8.00	0.00
						6261629.80	2245918.87	8.00	0.00
						6261622.21	2244997.43	8.00	0.00
						6261588.57	2245061.45	8.00	0.00
						6261553.85	2245113.53	8.00	0.00
						6261522.38	2245155.85	8.00	0.00
						6261502.85	2245181.89	8.00	0.00
						6261482.23	2245210.10	8.00	0.00