NOISE TECHNICAL REPORT

Introduction

This technical report evaluates noise impacts from construction and operation of a Proposed at 21611 Perry Street in the City of Carson. The analysis discusses applicable regulations and compares impacts to appropriate thresholds of significance. Noise measurements, calculation worksheets, and a map of noise receptors and measurement locations are included in the Technical Appendix to this analysis.

Fundamentals of Noise

Characteristics of Sound

Sound can be described in terms of its loudness (amplitude) and frequency (pitch). The standard unit of measurement for sound is the decibel (dB). Because the human ear is not equally sensitive to sound at all frequencies, the A-weighted scale (dBA) is used to reflect the normal hearing sensitivity range. On this scale, the range of human hearing extends from 3 to 140 dBA. Table 1 provides examples of A-weighted noise levels from common sources.

Table 1
A-Weighted Decibel Scale

Typical A-Weighted Sound Levels	Sound Level (dBA L_{eq})
Near Jet Engine	130
Rock and Roll Band	110
Jet flyover at 1,000 feet	100
Power Motor	90
Food Blender	80
Living Room Music	70
Human Voice at 3 feet	60
Residential Air Conditioner at 50 feet	50
Bird Calls	40
Quiet Living Room	30
Average Whisper	20
Rustling Leaves	10
Source: Cowan, James P., Handbook of Environmental Acoustics, 1993. These noise levels are approximations intended for general reference and informational use.	

Noise Definitions. This noise analysis discusses sound levels in terms of equivalent noise level (L_{eq}), maximum noise level (L_{max}) and the Community Noise Equivalent Level (CNEL).

- Equivalent Noise Level (L_{eq}): L_{eq} represents the average noise level on an energy basis for a specific time period. Average noise level is based on the energy content (acoustic energy) of sound. For example, the L_{eq} for one hour is the energy average noise level during that hour. L_{eq} can be thought of as a continuous noise level of a certain period equivalent in energy content to a fluctuating noise level of that same period.

- Maximum Noise Level (L_{max}): L_{max} represents the maximum instantaneous noise level measured during a given time period.

- Community Noise Equivalent Level (CNEL): CNEL is an adjusted noise measurement scale of average sound level during a 24-hour period. Due to increased noise sensitivities during evening and night hours, human reaction to sound between 7:00 P.M. and 10:00 P.M. is as if it were actually 5 dBA higher than had it occurred between 7:00 A.M. and 7:00 P.M. From 10:00 P.M. to 7:00 A.M., humans perceive sound as if it were 10 dBA higher. To account for these sensitivities, CNEL figures are obtained by adding an additional 5 dBA to evening noise levels between 7:00 P.M. and 10:00 P.M. and 10 dBA to nighttime noise levels between 10:00 P.M. and 7:00 A.M. As such, 24-hour CNEL figures are always higher than their corresponding actual 24-hour averages.

Effects of Noise. The degree to which noise can impact an environment ranges from levels that interfere with speech and sleep to levels that can cause adverse health effects. Most human response to noise is subjective. Factors that influence individual responses include the intensity, frequency, and pattern of noise; the amount of background noise present; and the nature of work or human activity exposed to intruding noise. According to the National Institute of Health (NIH), extended or repeated exposure to sounds at or above 85 dB can cause hearing loss. Sounds of 70 dBA or less, even after continuous exposure, are unlikely to cause hearing loss.[1] The World Health Organization (WHO) reports that adults should not be exposed to sudden "impulse" noise events of 140 dB or greater. For children, this limit is 120 dB.[2]

Exposure to elevated nighttime noise levels can disrupt sleep, leading to increased levels of fatigue and decreased work or school performance. For the preservation of healthy sleeping environments, the WHO recommends that continuous interior noise levels not exceed 30 dBA and that individual noise events of 45 dBA or higher be avoided.[3] Assuming a conservative exterior to interior sound reduction of 15 dBA, continuous exterior noise levels should therefore not exceed 45 dBA. Individual exterior events of 60 dBA or higher should also be limited. Some epidemiological studies have shown a weak association between long-term exposure to noise levels of 65 to 70 dBA and cardiovascular effects, including ischemic heart disease and hypertension. However, at this time, the relationship is largely inconclusive.

People with normal hearing sensitivity can recognize small changes in sound levels of approximately 3 dBA. Changes of at least 5 dBA can be readily noticeable while sound level increases of 10 dBA or greater are perceived as a doubling in loudness.[4] However, during daytime, few people are highly annoyed by noise levels below 55 dBA L_{eq}.[5]

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1 National Institute of Health, National Institute on Deafness and Other Communication, www.nidcd.nih.gov/health/noise-induced-hearing-loss.

2 World Health Organization, Guidelines for Community Noise, 1999.

3 Ibid.

4 Federal Transit Administration, Transit Noise and Vibration Impact Assessment, 2018.

5 World Health Organization, Guidelines for Community Noise, 1999.

Noise Attenuation. Noise levels decrease as the distance from noise sources to receivers increases. For each doubling of distance, noise from stationary sources can decrease by about 6 dBA over hard surfaces (e.g., reflective surfaces such as parking lots) and 7.5 dBA over soft surfaces (e.g., absorptive surfaces such as soft dirt and grass). For example, if a point source produces a noise level of 89 dBA at a reference distance of 50 feet over an asphalt surface, its noise level would be approximately 83 dBA at a distance of 100 feet, 77 dBA at 200 feet, etc. Noises generated by mobile sources such as roadways decrease by about 3 dBA over hard surfaces and 4.5 dBA over soft surfaces for each doubling of distance. It should be noted that because decibels are logarithmic units, they cannot be added or subtracted. For example, two cars each producing 60 dBA of noise would not produce a combined 120 dBA.

Noise is most audible when traveling by direct line of sight, an unobstructed visual path between noise source and receptor. Barriers that break line of sight between sources and receivers, such as walls and buildings, can greatly reduce source noise levels by allowing noise to reach receivers by diffraction only. As a result, sound barriers can generally reduce noise levels by up to 15 dBA.[6] The effectiveness of barriers can be greatly reduced when they are not high or long enough to completely break line of sight from sources to receivers.

Regulatory Framework

Noise

Federal. No federal noise standards regulate environmental noise associated with short-term construction activities or long-term operations of development projects. As such, temporary and long-term noise impacts produced by the Project would be largely regulated or evaluated by State and City of Carson standards designed to protect public well-being and health.

State. The State's 2017 General Plan Guidelines establish county and city standards for acceptable exterior noise levels based on land use. These standards are incorporated into land use planning processes to prevent or reduce noise and land use incompatibilities. Table 2 illustrates State compatibility considerations between land uses and exterior noise levels.

California Government Code Section 65302 also requires each county and city to prepare and adopt a comprehensive long-range general plan for its physical development. Section 65302(f) requires a noise element to be included in the general plan. This noise element must identify and appraise noise problems in the community, recognize State noise control guidelines, and analyze and quantify current and projected noise levels.

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels that are subject to relatively high levels of noise from transportation. The noise insulation standards, collectively referred to as the California Noise Insulation Standards (Title 24, California Code of Regulations) set forth an interior standard of 45 dBA CNEL for habitable rooms.

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6 California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013. https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf

The standards require an acoustical analysis which indicates that dwelling units meet this interior standard where such units are proposed in areas subject to exterior noise levels greater than 60 dBA CNEL. Local jurisdictions typically enforce the California Noise Insulation Standards through the building permit application process.

Los Angeles County Airport Land Use Commission Comprehensive Land Use Plan. In Los Angeles County, the Regional Planning Commission has the responsibility for acting as the Airport Land Use Commission and for coordinating the airport planning of public agencies within the County. The Airport Land Use Commission coordinates planning for the areas surrounding public use airports. The Comprehensive Land Use Plan provides for the orderly expansion of Los Angeles County's public use airports and the areas surrounding them. It is intended to provide for the adoption of land use measures that will minimize the public's exposure to excessive noise and safety hazards. In formulating the Comprehensive Land Use Plan, the Los Angeles County Airport Land Use Commission has established provisions for safety, noise insulation, and the regulation of building height within areas adjacent to each of the public airports in the County.

City of Carson General Plan Noise Element. The City of Carson General Plan includes a Noise Element that includes policies and standards to guide the control of noise to protect residents, workers, and visitors. Its primary goal is to regulate long-term noise impacts to preserve acceptable noise environments for all types of land uses. It includes programs applicable to construction projects that call for protection of noise sensitive uses and use of best practices to minimize short-term noise impacts. However, the Noise Element contains no quantitative or other thresholds of significance for evaluating a project's noise impacts. Instead, it adopts the State's guidance on noise and land use compatibility, shown in Table 2, to help guide determination of appropriate land use and mitigation measures vis-à-vis existing or anticipated ambient noise levels.

The Noise Element includes a number of policies that are relevant for development projects:

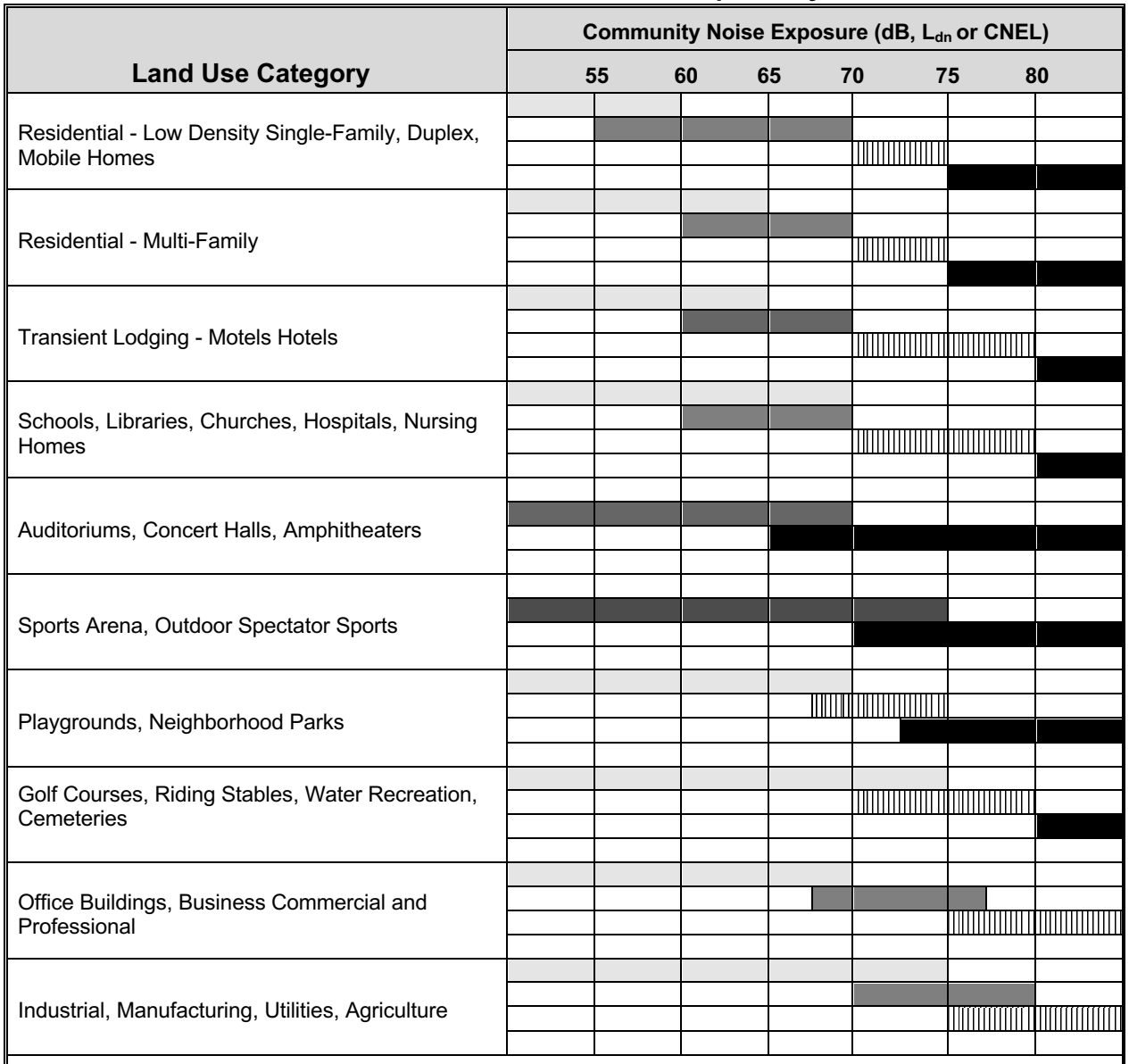
Guiding Policy NO-G-1: Maintain healthy sound environments and protect noise-sensitive uses from excessive noise exposure.

Guiding Policy NO-G-2: Continue efforts to incorporate noise considerations into land use planning decisions and guide the location and design of noise-generating facilities, such as transportation and industrial facilities, to minimize the effects of noise on adjacent land uses.

Guiding Policy NO-G-3: Seek to reduce noise impacts along major freeways, roadways, and truck routes to improve the health of nearby inhabitants.

Implementing Policy NO-P-1: Use the noise and land use compatibility matrix and Future Noise Contours map as criteria to determine acceptability of a land use. Seek to limit new noise-sensitive uses—including schools, hospitals, places of worship, and homes—where noise levels exceed "Normally Acceptable" or "Conditionally Acceptable" levels if alter-native locations are available for the uses in the City, or impose appropriate mitigation measures to bring noise levels down to acceptable levels.

Table 2
State of California Noise/Land Use Compatibility Matrix



	Normally Acceptable - Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
	Conditionally Acceptable - New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply system or air conditioning will normally suffice.
	Normally Unacceptable - New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
	Clearly Unacceptable - New construction or development should generally not be undertaken.

Source: California Office of Planning and Research "General Plan Guidelines, Noise Element Guidelines (Appendix D, Figure 2), 2017.

Implementing Policy NO-P-2: Require applicants for projects with noise exposure levels that exceed the standards listed in Table 9-1 to provide a technical analysis by a professional acoustical engineer and incorporate noise-attenuating features into site planning and architecture. With mitigation, development should meet the allowable out-door and indoor noise exposure standards in Table 9-2, or California Building Code, which-ever is stricter. When a building's openings to the exterior are required to be closed to meet the interior noise standard, mechanical ventilation should be provided.

Implementing Policy NO-P-3: Where site conditions permit, require noise buffering consistent with Policy NO-P-4 for all noise generators producing noise levels greater than the maximum allowed CNEL listed in Table 9-3, especially those located near noise-sensitive development.

Implementing Policy NO-P-4: For aesthetic reasons, discourage the use of sound walls for noise mitigation; rather, encourage the use of project design techniques such as increasing the distance between the noise source and the noise sensitive receiver, natural berms, and use non-noise sensitive structures (e.g., a garage) to shield noise sensitive areas. If a sound wall is determined necessary to mitigate noise, discourage exclusive use of walls in excess of six feet in height and encourage use of natural barriers such as site topography or constructed earthen berms. When walls are determined to be the only feasible solution to noise mitigation, then sound walls shall be designed to limit aesthetic impacts.

Implementing Policy NO-P-5: Require control of new developments deemed to be noise generators through site design, building design, landscaping, hours of operation, and other techniques for such that noise at site edges do not exceed performance-based standards.

Implementing Policy NO-P-7: Seek to mitigate noise impacts from loud noise generating uses—including industrial uses, construction activity, goods movement by train and trucking, and along freeways, major corridors, and truck routes—to surrounding non-industrial use.

City of Carson Municipal Code. The City of Carson Municipal Code (CMC) contains regulations that would regulate noise from the Project's temporary construction activities. The City largely incorporates the County of Los Angeles' noise control ordinance.

Section 12.08.390B establishes limits for exterior noise levels. Specifically, noise levels from human activity cannot exceed any of the following exterior standards:

- Standard No. 1 shall be the exterior noise level which may not be exceeded for a cumulative period of more than 15 minutes in any 30 minute period. Standard No. 1 shall be the applicable noise level from subsection A of this Section; or, if the ambient L_{50} exceeds the foregoing level, then the ambient L_{50} becomes the exterior noise level for Standard No. 1.

- Standard No. 2 shall be the exterior noise level which may not be exceeded for a cumulative period of more than 7.5 minutes in any 30 minute period. Standard No. 2 shall be the applicable noise level from subsection A of this Section plus 5 dB; or, if the ambient

L_{25} exceeds the foregoing level, then the ambient L_{25} becomes the exterior noise level for Standard No. 2.

- Standard No. 3 shall be the exterior noise level which may not be exceeded for a cumulative period of more than 2.5 minutes in any 30 minute period. Standard No. 3 shall be the applicable noise level from subsection A of this Section plus 20 dB; or, if the ambient $L_{8.3}$ exceeds the foregoing level, then the ambient $L_{8.3}$ becomes the exterior noise level for Standard No. 3.

- Standard No. 4 shall be the exterior noise level which may not be exceeded for a cumulative period of more than 30 seconds in any 30 minute period. Standard No. 4 shall be the applicable noise level from subsection A of this Section plus 15 dB; or, if the ambient $L_{1.7}$ exceeds the foregoing level, then the ambient $L_{1.7}$ becomes the exterior noise level for Standard No. 4.

- Standard No. 5 shall be the exterior noise level which may not be exceeded for any period of time. Standard No. 5 shall be the applicable noise level from subsection A of this Section plus 20 dB; or, if the ambient L_0 exceeds the foregoing level then the ambient L_0 becomes the exterior noise level for Standard No. 5.

Section 12.08.440B1 establishes construction-related limits for exterior noise levels at residential structures. Specifically, mobile equipment that is non-scheduled, intermittent, or involve short-term operation of twenty (20) days or less for construction equipment:

Time Period	Single-family Residential	Multi-family Residential
Daily, except Sundays and legal holidays, 7:00 A.M. to 8:00 P.M.	75 dBA	80 dBA
Daily, 8:00 P.M. to 7:00 A.M. and all day Sunday and legal holidays	60 dBA	64 dBA

Section 12.08.440B2 establishes construction-related limits for exterior noise levels at residential structures repetitively scheduled and relatively long-term (i.e., 21) days or more:

Time Period	Single-family Residential	Multi-family Residential
Daily, except Sundays and legal holidays, 7:00 A.M. to 8:00 P.M.	65 dBA	70 dBA
Daily, 8:00 P.M. to 7:00 A.M. and all day Sunday and legal holidays	55 dBA	60 dBA

The Carson Municipal Code provides a list of amendments added to the Los Angeles County Code for application in the City of Carson (Article V, Sanitation and Health, Chapter 5, Noise Control Ordinance, Section 5502, Amendments to Noise Control Ordinance). Section 5502(c) amends subsection B1 of Section 12.08.440 to address noise standards for construction activities

with nearby residential land uses. Long term construction (defined as more than 21 days of scheduled work) is permitted Monday through Saturday from 7:00 a.m. to 8:00 p.m. given construction does not exceed 65 dBA in single-family residential areas, 70 dBA in multi-family residential areas, and 70 dBA in semi-residential/commercial areas.

CMC Section 9147.2 states that no use can create a disturbance to the surrounding area through vibration, noise, or other radiations. Section 12.08.460 also prohibits activities that cause any annoyance, specifically loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans or similar objects between 10:00 P.M. and 6:00 A.M.

Existing Conditions

Noise Sensitive Receptors

The Project Site is located on the Carson Street corridor that flanks the Dominguez Channel and is home to a mix of residential and commercial uses. Noise-sensitive receptors within 0.25 miles of the Project Site include, but are not limited to, the following representative sampling:

- Residences, 215th Place; approximately 25 feet north of the Project Site.
- Perry Street Mini-Park; 70 feet northeast of the Project Site.
- Residences, Perry Street; 80 feet east of the Project Site.
- Residences – Ashmill Street; 250 feet southeast of the Project Site.
- Residences, Edgar Street; 800 feet southwest of the Project Site.

Existing Ambient Noise Levels

The Project Site is vacant. As such, there is no noise from anthropogenic sources on the Project Site.

Traffic is the primary source of noise near the Project Site, largely from the operation of vehicles with internal combustion engines and frictional contact with the ground and air.[7] The primary source of noise near the Project Site is vehicle travel. For example, Avalon Boulevard carried 29,718 average daily vehicles at Carson Street in 2018.[8] The San Diego Freeway that flanks the eastern portion of the Project Site carried about 220,000 annual average daily trips at Avalon Boulevard in 2021.[9]

In August 2024, DKA Planning took short-term noise measurements near the Project site to determine the ambient noise conditions of the neighborhood near sensitive receptors.[10] As shown

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7 World Health Organization, https://www.who.int/docstore/peh/noise/Comnoise-2.pdf accessed March 18, 2021.

8 City of Carson Traffic Count Map, 2018; https://ci.carson.ca.us/content/files/pdfs/BusinessDev/demographics/Traffic_Count_Map.pdf .

9 California Department of Transportation, Traffic Census Program 2021 data; https://dot.ca.gov/programs/traffic-operations/census.

10 Noise measurements were taken using a Quest Technologies Sound Examiner SE-400 Meter. The Sound Examiner meter complies with the American National Standards Institute (ANSI) and

in Table 3, noise levels along roadways near the Project Site ranged from 63.9 to 69.7 dBA L_{eq}, which was generally consistent with the traffic volumes on local streets. Figure 1 illustrates where ambient noise levels were measured near the Project Site to establish the noise environment and their relationship to the applicable sensitive receptor(s). 24-hour CNEL noise levels are generally considered "Conditionally Acceptable" for the types of land uses near the Project Site.

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Figure 1
Noise Measurement Locations

International Electrotechnical Commission (IEC) for general environmental measurement instrumentation. The meter was equipped with an omni-directional microphone, calibrated before the day's measurements, and set at approximately five feet above the ground.

Table 3
Existing Noise Levels

Noise Measurement Locations	Primary Noise Source	Sound Levels		Nearest Sensitive Receptor(s)	Noise/Land Use Compatibility[b]
		dBA (L_{eq})	dBA (CNEL)[a]		
A. 21814 Edgar St.	Traffic from San Diego Freeway	70.1	69.1	Residences – Edgar St.	Conditionally Acceptable
B. 21527 Perry St.	Traffic from Perry St.	57.2	55.2	Perry St. Mini Park, Residences – 215th Pl., Perry St.	Normally Acceptable
C. 1215 Ashmill St. (Carson St. façade)	Traffic from Carson St.	67.9	65.9	Residences – Carson St.	Conditionally Acceptable

[a] Estimated based on short-term (15-minute) noise measurement using Federal Transit Administration procedures from 2018 Transit Noise and Vibration Impact Assessment Manual, Appendix E, Option 4.
[b] Pursuant to California Office of Planning and Research "General Plan Guidelines, Noise Element Guidelines, 2017. When noise measurements apply to two or more land use categories, the more noise-sensitive land use category is used. See Table 2 above for definition of compatibility designations.

Source: DKA Planning, 2024.

Project Impacts

Methodology

On-Site Construction Activities. Construction noise levels at off-site sensitive receptors were modeled employing the ISO 9613-2 sound attenuation methodologies using the SoundPLAN Essential model (version 5.1). This software package considers reference equipment noise levels, noise management techniques, distance to receptors, and any attenuating features to predict noise levels from sources like construction equipment. Construction noise sources were modeled as area sources to reflect the mobile nature of construction equipment. These vehicles would not operate directly where the Project's property line abuts adjacent structures, as they would retain some setback to preserve maneuverability. This equipment would also occasionally operate at reduced power and intensity to maintain precision at these locations.

Off-Site Construction Noise Activities. The Project's off-site construction noise impact from haul trucks, vendor deliveries, worker commutes, and other vehicles accessing the Project Site was analyzed by considering the Project's anticipated vehicle trip generation with existing traffic and roadway noise levels along local roadways, particularly those likely to be part of any haul route. Because it takes a doubling of traffic volumes on a roadway to generate the increased sound energy it takes to elevate ambient noise levels by 3 dBA,[11] the analysis focused on whether truck and auto traffic would double traffic volumes on key roadways to be used for hauling soils to

[11] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

and/or from the Project Site during construction activities.[12] Because haul trucks generate more noise than traditional passenger vehicles, a 19.1 passenger car equivalency (PCE) was used to convert haul truck trips to a reference level conversion to an equivalent number of passenger vehicles.[13] For vendor deliveries, a 13.1 PCE was used to reflect an even blend of medium- and heavy-duty vehicles.[14] It should be noted that because an approved haul route may not be approved as of the preparation of this analysis, assumptions were made about logical routes that would minimize haul truck traffic on local streets in favor of major arterials that can access regional-serving freeways.

On-Site Operational Noise Activities. The Project's potential to result in significant noise impacts from on-site operational noise sources was evaluated by identifying sources of on-site noise and considering the impact that they could produce given the nature of the source (i.e., loudness and whether noise would be produced during daytime or more-sensitive nighttime hours), distances to nearby sensitive receptors, ambient noise levels near the Project Site, the presence of similar noise sources in the vicinity, and maximum noise levels permitted by the CMC.

Off-Site Operational Noise Activities. The Project's off-site noise impact from Project-related traffic was evaluated based its potential to increase traffic volumes on local roadways that serve the Project site. Because it takes a doubling of traffic volumes on a roadway to generate the increased sound energy it takes to elevate ambient noise levels by 3 dBA, the analysis focused on whether auto trips generated by the Proposed Project would double traffic volumes on key roadways that access the Project Site.

Thresholds of Significance

Construction Noise Thresholds. The on-site construction noise impact would be considered significant if construction activities of any duration would exceed the ambient noise level by 5 dBA (hourly L_{eq}) at a noise-sensitive use between the hours of 9:00 P.M. and 7:00 A.M. Monday through Friday, before 8:00 A.M. or after 6:00 P.M. on Saturday, or at any time on Sunday.

Operational Noise Thresholds. In addition to applicable City standards and guidelines that would regulate or otherwise moderate the Project's operational noise impacts, the following criteria are adopted to assess the impact of the Project's operational noise sources:

- Project operations would cause ambient noise levels at off-site locations to increase by 3 dBA CNEL or more to or within "normally unacceptable" or "clearly unacceptable" noise/land use compatibility categories, as defined by the State's 2017 General Plan Guidelines.

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12 A tripling of traffic volumes (i.e., 3.15x) is needed to elevate traffic noise levels by 5 dBA.

13 Caltrans, Technical Noise Supplement Table 3-3, 2013. Assumes 35 mph speed. While trucks traveling at higher speeds would have lower equivalency values (e.g., PCE is 15.1 at 40 mph), this analysis assumes a posted speed limit typical of major arterials (35 mph). While these equivalent vehicle factors do not consider source heights, Caltrans' factors are appropriate for use, as the local roads used by haul trucks would not involve a sound path where noise levels are intercepted by a barrier or natural terrain feature.

14 Caltrans, Technical Noise Supplement Table 3-3, 2013. Medium-duty trucks have a 7.1 PCE at 35 mph.

- Project operations would cause any 5 dBA CNEL or greater noise increase.[15]

Analysis of Project Impacts

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?

Less Than Significant Impact.

Construction

On-Site Construction Activities

Construction would generate noise during the construction process that would span 16 months of site preparation, grading, utilities trenching, building construction, paving, and application of architectural coatings, as shown in Table 4. During all construction phases, noise-generating activities could occur at the Project Site between 7:00 A.M. and 8:00 P.M. Monday through Friday. On Saturdays, construction would be permitted to occur between 8:00 A.M. and 7:00 P.M.

Table 4
Construction Schedule Assumptions

Phase	Duration	Notes
Site Preparation	Month 1	Grubbing and removal of 32 trees on-site and four municipal trees, plants, landscaping, weeds
Grading	Months 2-3	Approximately 4,590 cubic yards of soil imported 40 miles to site in 14-cubic yard capacity trucks.
Trenching	Months 4-16	Trenching for utilities, including gas, water, electricity, and telecommunications.
Building Construction	Months 4-16	Footings and foundation work (e.g., pouring concrete pads), framing, welding; installing mechanical, electrical, and plumbing. Floor assembly, cabinetry and carpentry, elevator installations, low voltage systems, trash management.
Paving	Months 5-6	Flatwork, including paving of driveways and walkways
Architectural Coatings	Months 9-16	Application of interior and exterior coatings and sealants.
Source: DKA Planning, 2024.		

[15] As a 3 dBA increase represents a slightly noticeable change in noise level, this threshold considers any increase in ambient noise levels to or within a land use's "normally unacceptable" or "clearly unacceptable" noise/land use compatibility categories to be significant so long as the noise level increase can be considered barely perceptible. In instances where the noise level increase would not necessarily result in "normally unacceptable" or "clearly unacceptable" noise/land use compatibility, a 5 dBA increase is still considered to be significant. Increases less than 3 dBA are unlikely to result in noticeably louder ambient noise conditions and would therefore be considered less than significant.

Noise levels would generally peak during the grading phase, when diesel-fueled heavy-duty equipment like excavators and dozers are used to move large amounts of dirt. This equipment is mobile in nature and does not always operate at in a steady-state mode full load, but rather powers up and down depending on the duty cycle needed to conduct work. As such, equipment is occasionally idle during which time no noise is generated.

During other phases of construction (e.g., site preparation, trenching, building construction, paving, architectural coatings), noise impacts are generally lesser because they are less reliant on using heavy equipment with internal combustion engines. Smaller equipment such as forklifts, generators, and various powered hand tools and pneumatic equipment would often be utilized. Off-site secondary noises would be generated by construction worker vehicles, vendor deliveries, and haul trucks. Figure 2 illustrates how noise would propagate from the construction site during the grading phase.

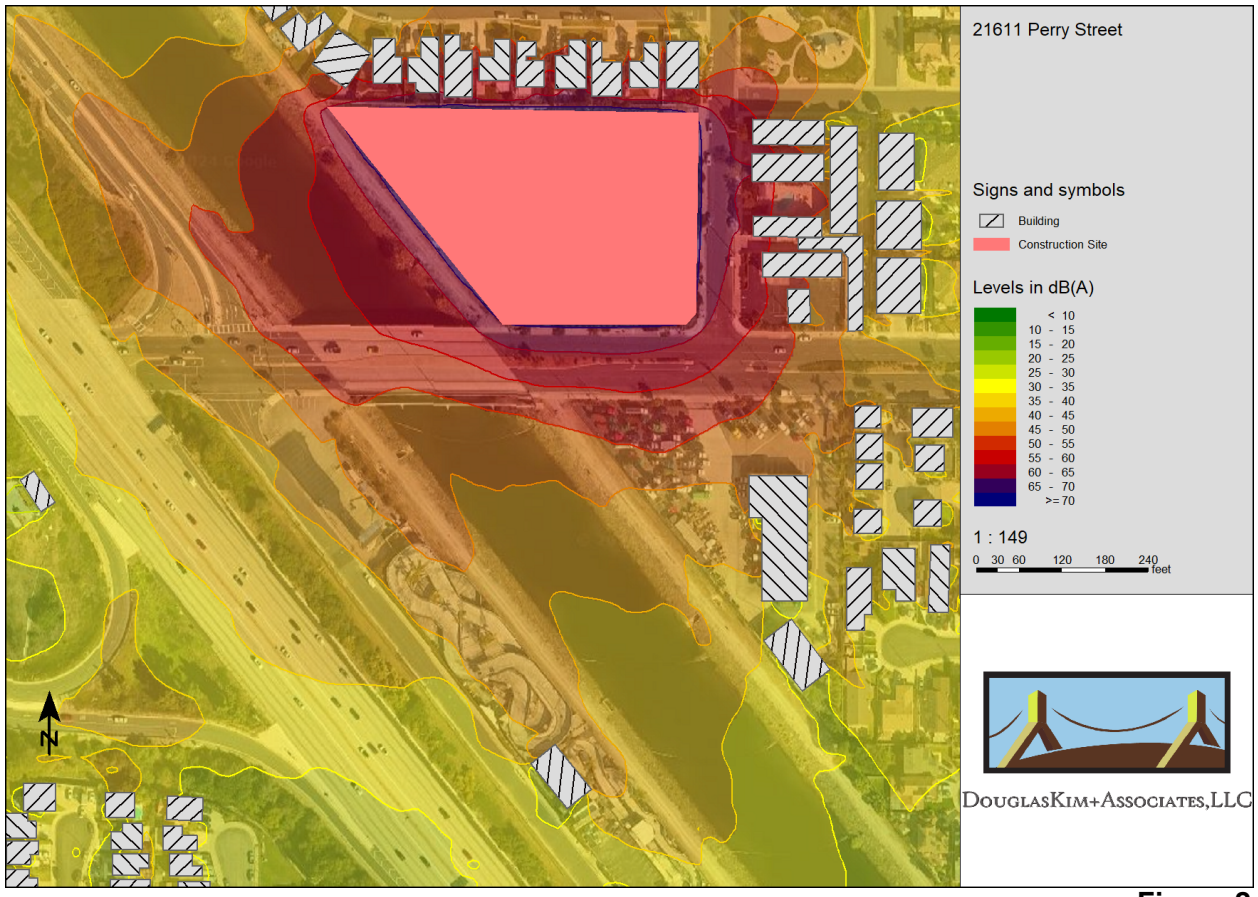

Figure 2
Construction Noise Sound Contours

As shown in Table 5, the use of multiple pieces of powered equipment simultaneously would elevate ambient noise at all four analyzed sensitive receptors. However, these construction noise levels would not exceed the City's significance threshold of 5 dBA. Therefore, the Project's on-site construction noise impact would be less than significant.

Table 5
Construction Noise Impacts at Off-Site Sensitive Receptors

Receptor	Maximum Construction Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Ambient Noise Level (dBA L_{eq})	Increase (dBA L_{eq})	Potentially Significant?
1. Residences – 215th Pl.	54.2	57.2	59.0	1.8	No
2. Perry Street Mini-Park	51.4	57.2	58.2	1.0	No
3. Residences – Perry St.	58.7	57.2	61.0	3.8	No
4. Residences – Carson St.	45.8	67.9	67.9	0.0	No
5. Residences – Edgar St.	29.0	70.1	70.1	0.0	No
Source: DKA Planning, 2024.					

Off-Site Construction Activities

The Project would also generate noise at off-site locations from haul trucks moving debris and soil from the Project Site during demolition and grading activities, respectively; vendor trips; and worker commute trips. These activities would generate up to an estimated 69 peak hourly PCE trips, as summarized in Table 6, during the building construction phase.[16] This would represent about 3.6 percent of traffic volumes on Carson Street, which carries about 1,851 vehicles at the San Diego Freeway on-ramps in the morning peak hour of traffic.[17] Because workers and vendors will likely use more than one route to travel to and from the Project Site, this conservative assessment of traffic volumes likely overstates traffic volumes from construction activities on this roadway.

Carson Street would serve as part of the haul route for debris and soil imported and exported, respectively, from the Project Site given its direct access to the San Diego Freeway. Because the Project's construction-related trips would not cause a doubling in traffic volumes (i.e., 100 percent increase) on Carson Street, the Project's construction-related traffic would not increase existing noise levels by 3 dBA or more, let alone the 5 dBA threshold of significance for off-site construction noise activities. Therefore, the Project's noise impacts from construction-related traffic would be less than significant.

16 This is a conservative, worst-case scenario, as it assumes all workers travel to the worksite at the same time and that vendor and haul trips are made in the same early hour, using the same route as haul trucks to travel to and from the Project Site.

17 City of Carson Traffic Count Map, 2018; https://ci.carson.ca.us/content/files/pdfs/BusinessDev/demographics/Traffic_Count_Map.pdf . Assumes eight percent of 23,132 daily vehicles on Carson Street at San Diego Freeway occurs in A.M. peak hour.

Table 6
Construction Vehicle Trips (Maximum Hourly)

Construction Phase	Worker Trips [a]	Vendor Trips	Haul Trips	Total Trips	Percent of Peak A.M. Hour Trips on Carson St.[d]
Site Preparation	8	0	0	8	0.4
Grading	10	0	40[b]	50	2.7
Trenching	3	0	0	3	0.1
Building Construction	47	25[c]	0	69	3.8
Paving	15	0	0	15	0.8
Architectural Coating	9	0	0	9	0.5

[a] Assumes all worker trips occur in the peak hour of construction activity.
[b] The project would generate 656 haul trips over a 45-day period with seven-hour work days. Because haul trucks emit more noise than passenger vehicles, a 19.1 passenger car equivalency (PCE) was used to convert haul truck trips to a passenger car equivalent
[c] This phase would generate about 6.6 vendor truck trips daily over a seven-hour workday. Assumes a blend of medium- and heavy-duty vehicle types and a 13.1 PCE.
[d] Percent of existing traffic volumes on Carson Street at San Diego Freeway on-ramp.

Source: DKA Planning, 2024

Operation

On-Site Operational Noise

During long-term operations, the Project would produce noise from on-site sources such as mechanical equipment associated with the structures themselves or from activity in outdoor spaces.

Mechanical Equipment

The Project would include outdoor mechanical equipment for cooling for each residence on the ground level. This could include air conditioners that operate during cooling cycles that would include a number of sound sources, including compressors, condenser fans, supply fans, return fans, and exhaust fans.[18] These units could be rated to generate a sound power between 51 and 76 dBA. Any off-site sensitive receptors would not experience elevated noise levels without a direct line-of-sight to these units. Given their location near each residence, any sound path from these units would likely be attenuated by the presence of the residences and structures in the development, as well as the distance to off-site receptors. In addition, these residences at the

[18] Given the Project Site's location in Climate Zone 9, Title 24 would also allow a more conventional gas heating system that uses an internal furnace paired with an external air conditioner that would be ground-mounted.

north of the Project Site do not have a line of sight to sensitive receptors in any direction. As a result, noise from HVAC units would negligibly elevate ambient noise levels, far less than the 5 dBA CNEL threshold of significance for operational impacts.

Pad-mounted oil transformers that lower high voltage to standard household voltage used to power electronics, appliances and lighting would be located on the ground level in unobstructed locations. These transformers would be housed in a steel cabinet and generally would not involve pumps, though fans may be needed on some units. Switchgear responsible for distributing power through the development could be located externally, though no mechanical processes that generate noise would be necessary. Otherwise, all other mechanical equipment would be fully enclosed within each of the Project's structures. All these activities would generally occur within the envelope of the development, operational noise would be shielded from off-site noise-sensitive receptors.

Parking-Related Activities

The majority of parking-related noise impacts at the Project Site would come from vehicles entering and exiting the residential development from a driveway off Perry Street. These vehicles would generate incremental noise from tire friction as they navigate to and from garage spaces or open air visitor spaces.

Parking-related noise would include door slamming (generally instantaneous) and car alarms, while could last a few seconds. These activities would be within an enclosed garage structure and as such, shielded largely from nearby sensitive receptors. Any noise from outdoor parking spaces within the interior of the development would be shielded by the residential buildings that flank Perry Street and the northern property line. Therefore, the Project's parking garage activities would not have a significant impact on the surrounding noise environment.

Outdoor Uses

While most operations would be conducted inside the development, outdoor activities could generate noise that could impact local sensitive receptors. This would include human conversation, trash collection, landscape maintenance. These are discussed below:

- Human conversation. This would include human conversation in outdoor spaces, such as private balconies. These would be private spaces for residents used for socializing or passive recreation (e.g., reading), with intermittent use largely during day or evening hours. No powered speakers are proposed that would amplify either speech or music. Two outdoor Community Open Space areas are proposed along the western property line fronting the Dominguez Channel. These would be used for passive outdoor activities. Pedestrian paseos throughout the development would host walking and other passive activities.

  The primary use of these spaces would be for human conversation, which would produce negligible noise impacts, based on the Lombard effect. This phenomenon recognizes that voice noise levels in face-to-face conversations generally increase proportionally to

background ambient noise levels. Specifically, vocal intensity increases about 0.38 dB for every 1.0 dB increase in noise levels above 55 dB.[19] For example, the sound of a human voice at 60 dB would produce a noise level of 39 dB at ten feet, which would not elevate ambient noise levels at any of the analyzed sensitive receptors by more than 0.2 dBA L_{eq}. Moreover, noise levels from human speech would attenuate rapidly with greater distance, resulting in a 33 dB noise level at twenty feet, and 27 dB at 40 feet.[20]

- Trash collection. On-site trash and recyclable materials for the residents would be managed from each residential building. Bins would be moved to the street and/or driveways manually. Haul trucks would access solid waste from the Perry Street driveway, where solid waste activities would include use of trash compactors and hydraulics associated with the refuse trucks themselves. Noise levels of approximately 71 dBA L_{eq} and 66 dBA L_{eq} could be generated by collection trucks and trash compactors, respectively, at 50 feet of distance.[21] Because CNEL levels represent the energy average of sound levels during a 24-hour period, the modest sound power from intermittent solid waste collection during daytime hours would negligibly affect CNEL sound levels.
- Landscape maintenance. Noise from gas-powered leaf blowers, lawnmowers, and other landscape equipment can generated substantial bursts of noise during regular maintenance. For example, two gas powered leaf blowers with two-stroke engines and a hose vacuum can generate an average of 85.5 dBA L_{eq} and cause nuisance or potential noise impacts for nearby receptors.[22] The landscape plan focuses on a modest palette of accent trees and raised planters that will minimize the need for powered landscaping equipment, as some of this can be managed by hand. Because CNEL levels represent the energy average of sound levels during a 24-hour period, the modest sound power from a few minutes of maintenance activities during daytime hours would negligibly affect CNEL sound levels.

As discussed above, the Project would not result in an exposure of persons to or a generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The Project would also not increase surrounding noise levels by more than 5 dBA CNEL, the minimum threshold of significance based on the noise/land use category of sensitive receptors near the Project Site. As a result, the Project's on-site operational noise impacts would be considered less than significant,

Off-Site Operational Noise

The majority of the Project's operational noise impacts would be off-site from vehicles traveling to and from the development. The Project could add 2,350 vehicle trips to the local roadway network on weekdays when the development could be operational in 2026.[23] During the peak P.M. hour,

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19 Acoustical Society of America, Volume 134; Evidence that the Lombard effect is frequency-specific in humans, Stowe and Golob, July 2013.

20 Public Resources Code Section 21085 states that for residential projects, the effects of noise generated by project occupants and their guests on human beings is not a significant effect on the environment.

21 RK Engineering Group, Inc. Wal-Mart/Sam's Club reference noise level, 2003.

22 Erica Walker et al, Harvard School of Public Health; Characteristics of Lawn and Garden Equipment Sound; 2017. These equipment generated a range of 74.0-88.5 dBA Leq at 50 feet.

23 Carson Kott Daily & Peak Trip Generation Estimates based on ITE Trip Generation, 11th Edition; November 2024.

up to 185 vehicles would generate noise entering or exiting the development, with up to 158 vehicles in the peak A.M. hour.[24] This would represent a small addition to traffic volumes on local roadways. For example, it would represent 7.9 percent of the 29,718 average daily vehicles that used Avalon Boulevard at Carson Street in 2018.[25]

Because it takes a doubling of traffic volumes (i.e., 100 percent) to increase ambient noise levels by 3 dBA L_{eq}, the Project's traffic would neither increase ambient noise levels 3 dBA or more into "normally unacceptable" or "clearly unacceptable" noise/land use compatibility categories, nor increase ambient noise levels 5 dBA or more. Twenty-four hour CNEL impacts would similarly be minimal, far below criterion for significant operational noise impacts, which begin at 3 dBA. As such, this impact would be considered less than significant.

Consistency with City General Plan Noise Element

While the City's Noise Element focuses on a number of measures for Citywide implementation by municipal government, there are some objectives, policies, and programs that are applicable to development projects. Table 7 summarizes the Proposed Project's consistency with these.

Table 7
Project Consistency with City of Carson General Plan Noise Element

Policy	Project Consistency
Guiding Policy NO-G-1: Maintain healthy sound environments and protect noise-sensitive uses from excessive noise exposure.	**Consistent.** The Project would comply with City, state, and other applicable noise regulations to ensure that noise impacts are considered less than significant.
Guiding Policy NO-G-2: Continue efforts to incorporate noise considerations into land use planning decisions and guide the location and design of noise-generating facilities, such as transportation and industrial facilities, to minimize the effects of noise on adjacent land uses.	**Consistent.** The project is being evaluated under CEQA and would result in less-than-significant impacts on noise.
Guiding Policy NO-G-3: Seek to reduce noise impacts along major freeways, roadways, and truck routes to improve the health of nearby inhabitants.	**Consistent.** The Project would not have a significant noise impact on noise-sensitive uses and as such, would not require mitigation under CEQA.
Implementing Policy NO-P-1: Use the noise and land use compatibility matrix and Future Noise Contours map as criteria to determine acceptability of a land use. Seek to limit new noise-sensitive uses—including schools, hospitals, places of worship, and homes—where noise levels exceed "Normally Acceptable" or "Conditionally Acceptable" levels	**Consistent.** The ambient noise levels at the Project Site do not exceed "Normally Acceptable" or "Conditionally Acceptable" levels. Further, this analysis confirms that the Project will neither impact short- or long-term noise levels significantly for sensitive receptors.

[24] Ibid.

[25] City of Carson Traffic Count Map, 2018; https://ci.carson.ca.us/content/files/pdfs/BusinessDev/demographics/Traffic_Count_Map.pdf.

Table 7
Project Consistency with City of Carson General Plan Noise Element

Policy	Project Consistency
if alternative locations are available for the uses in the City, or impose appropriate mitigation measures to bring noise levels down to acceptable levels.	
Implementing Policy NO-P-2: Require applicants for projects with noise exposure levels that exceed the standards listed in Table 9-1 to provide a technical analysis by a professional acoustical engineer and incorporate noise-attenuating features into site planning and architecture. With mitigation, development should meet the allowable out-door and indoor noise exposure standards in Table 9-2, or California Building Code, which-ever is stricter. When a building's openings to the exterior are required to be closed to meet the interior noise standard, mechanical ventilation should be provided.	**Consistent.** The ambient noise levels at the Project Site do not exceed "Normally Acceptable" or "Conditionally Acceptable" levels. Further, this analysis confirms that the Project will neither impact short- or long-term noise levels significantly for sensitive receptors. The noise-sensitive project is being evaluated under CEQA and would comply with Building Code and Title 24 noise insulation requirements to achieve an interior noise level of 45 dB.
Implementing Policy NO-P-3: Where site conditions permit, require noise buffering consistent with Policy NO-P-4 for all noise generators producing noise levels greater than the maximum allowed CNEL listed in Table 9-3, especially those located near noise-sensitive development.	**Consistent.** The Project will not require noise buffering during the construction or operational phases.
Implementing Policy NO-P-4: For aesthetic reasons, discourage the use of sound walls for noise mitigation; rather, encourage the use of project design techniques such as increasing the distance between the noise source and the noise sensitive receiver, natural berms, and use non-noise sensitive structures (e.g., a garage) to shield noise sensitive areas. If a sound wall is determined necessary to mitigate noise, discourage exclusive use of walls in excess of six feet in height and encourage use of natural barriers such as site topography or constructed earthen berms. When walls are determined to be the only feasible solution to noise mitigation, then sound walls shall be designed to limit aesthetic impacts.	**Consistent.** The Project will not require noise buffering during the construction or operational phases.
Implementing Policy NO-P-5: Require control of new developments deemed to be noise generators through site design, building design, landscaping, hours of operation, and other	**Consistent.** The Project will not require noise buffering during the construction or operational phases. The ambient noise levels at the Project Site do not exceed "Normally Acceptable" or "Conditionally Acceptable" levels. Further, this analysis confirms that the Project

Table 7
Project Consistency with City of Carson General Plan Noise Element

Policy	Project Consistency
techniques for such that noise at site edges do not exceed performance-based standards.	will neither impact short- or long-term noise levels significantly for sensitive receptors. The noise-sensitive project is being evaluated under CEQA and would comply with Building Code and Title 24 noise insulation requirements to achieve an interior noise level of 45 dB.
Implementing Policy NO-P-7: Seek to mitigate noise impacts from loud noise generating uses—including industrial uses, construction activity, goods movement by train and trucking, and along freeways, major corridors, and truck routes—to surrounding non-industrial use.	**Consistent.** The noise-sensitive project is being evaluated under CEQA and would comply with Building Code and Title 24 noise insulation requirements to achieve an interior noise level of 45 dB.
Source: DKA Planning, 2024.	

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

Less Than Significant Impact. The Project Site is located about 4.8 miles east of Torrance Airport, 5.1 miles west of Long Beach Airport, and 4.0 miles south of the Compton/Woodley Airport. Because the Proposed Project would not be located within the vicinity of a private airstrip or within two miles of a public airport, the Project would not expose local workers or residents in the area to excessive noise levels. This would be considered a less than significant impact.

TECHNICAL APPENDIX

DouglasKim+Associates,LLC

AMBIENT NOISE MEASUREMENTS

DouglasKim+Associates,LLC

Figure 1
Noise Measurement Locations

Session Report

8/4/2024

Information Panel

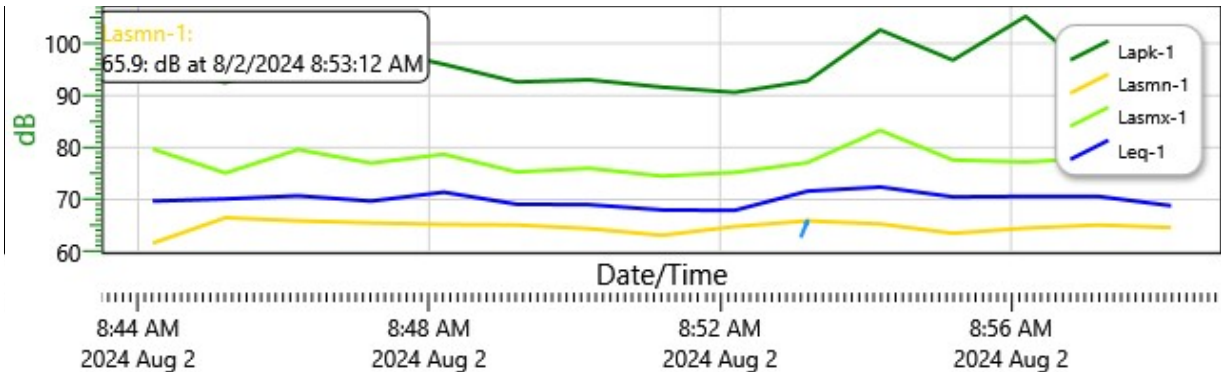
Name	21814 Edgar Street
Comments	
Start Time	8/2/2024 8:43:12 AM
Stop Time	8/2/2024 8:58:15 AM
Run Time	00:15:03
Serial Number	SE40214325
Device Name	SE40214325
Model Type	Sound Examiner
Device Firmware Rev	R.11F
Company Name	
Description	
Location	
User Name	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	70.1 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF

Logged Data Chart

21814 Edgar Street: Logged Data Chart



Logged Data Table

Date/Time	Lapk-1	Lasmn-1	Lasmx-1	Leq-1
8/2/2024 8:44:12 AM	95.7	61.6	79.7	69.7
8:45:12 AM	92.5	66.5	75.1	70.1
8:46:12 AM	96.3	65.9	79.6	70.7
8:47:12 AM	99.1	65.5	77	69.7
8:48:12 AM	96	65.2	78.7	71.4
8:49:12 AM	92.6	65.1	75.3	69.1
8:50:12 AM	93	64.4	76	69
8:51:12 AM	91.6	63.1	74.5	68
8:52:12 AM	90.6	64.8	75.2	67.9
8:53:12 AM	92.8	65.9	77.1	71.6
8:54:12 AM	102.6	65.3	83.3	72.4
8:55:12 AM	96.8	63.5	77.6	70.5
8:56:12 AM	105.2	64.5	77.2	70.6
8:57:12 AM	93.7	65.1	78	70.6
8:58:12 AM	102.7	64.6	75.2	68.8

Session Report

8/4/2024

Information Panel

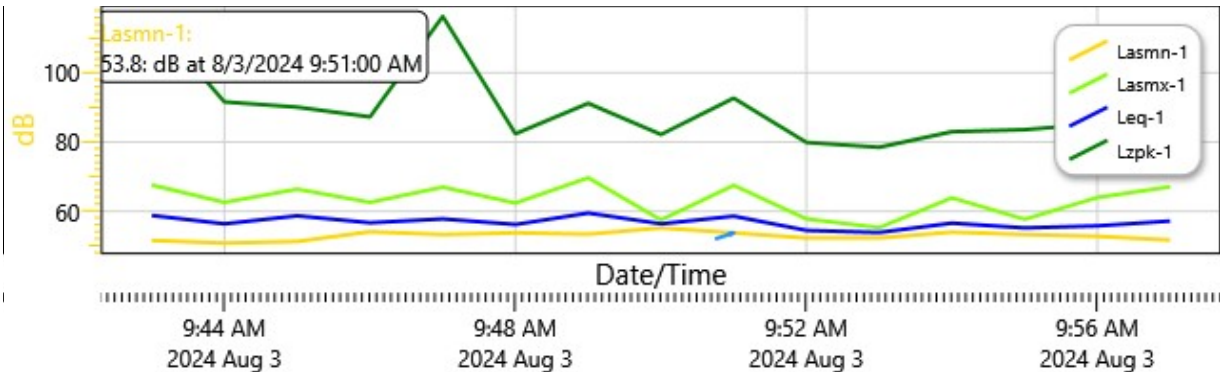
Name	21527 Perry Street
Comments	
Start Time	8/3/2024 9:42:00 AM
Stop Time	8/3/2024 9:57:15 AM
Run Time	00:15:15
Serial Number	SE40213991
Device Name	SE40213991
Model Type	Sound Examiner
Device Firmware Rev	R.11F
Company Name	
Description	
Location	
User Name	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	57.2 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF

Logged Data Chart

21527 Perry Street: Logged Data Chart



Logged Data Table

Date/Time	Lzpk-1	Lasmn-1	Lasmx-1	Leq-1
8/3/2024 9:43:00 AM	115.7	51.6	67.6	58.8
9:44:00 AM	91.6	50.8	62.6	56.4
9:45:00 AM	90.1	51.3	66.4	58.7
9:46:00 AM	87.3	54.1	62.6	56.7
9:47:00 AM	116.3	53.3	67	57.8
9:48:00 AM	82.4	53.8	62.4	56.2
9:49:00 AM	91.2	53.4	69.7	59.5
9:50:00 AM	82.2	55.2	57.5	56.4
9:51:00 AM	92.7	53.8	67.5	58.6
9:52:00 AM	79.9	52.3	57.8	54.5
9:53:00 AM	78.5	52.3	55.3	53.9
9:54:00 AM	83	54	63.9	56.6
9:55:00 AM	83.6	53.3	57.7	55.2
9:56:00 AM	85.3	52.8	64	55.8
9:57:00 AM	112.8	51.7	67.1	57.2

Session Report

8/4/2024

Information Panel

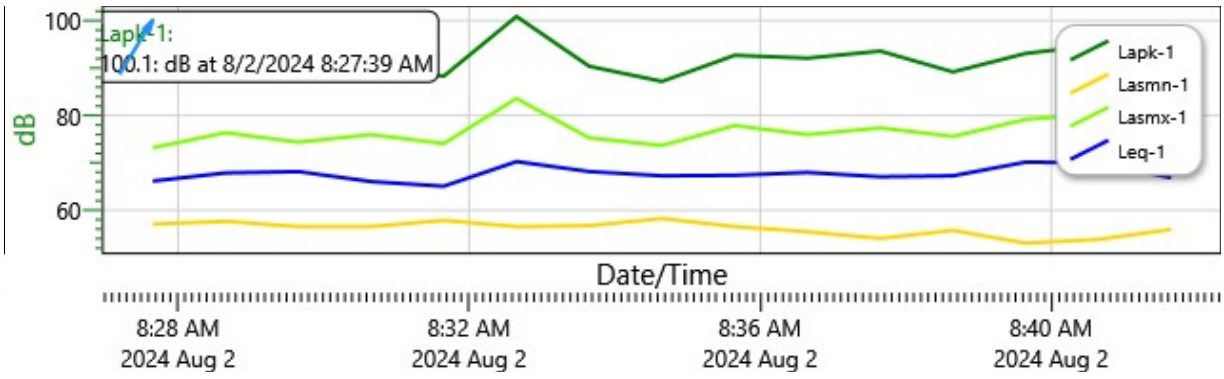
Name	1215 Ashmill Street (Carson Street facade)
Comments	
Start Time	8/2/2024 8:26:39 AM
Stop Time	8/2/2024 8:41:41 AM
Run Time	00:15:02
Serial Number	SE40214325
Device Name	SE40214325
Model Type	Sound Examiner
Device Firmware Rev	R.11F
Company Name	
Description	
Location	
User Name	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	67.9 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF

Logged Data Chart

1215 Ashmill Street (Carson Street facade): Logged Data Chart



Logged Data Table

Date/Time	Lapk-1	Lasmn-1	Lasmx-1	Leq-1
8/2/2024 8:27:39 AM	100.1	57.1	73.2	66.2
8:28:39 AM	98.9	57.7	76.4	67.9
8:29:39 AM	91.3	56.6	74.4	68.2
8:30:39 AM	90.3	56.6	76	66.1
8:31:39 AM	88.3	57.9	74.1	65.1
8:32:39 AM	100.9	56.6	83.6	70.3
8:33:39 AM	90.4	56.8	75.3	68.2
8:34:39 AM	87.2	58.3	73.7	67.3
8:35:39 AM	92.7	56.6	77.9	67.4
8:36:39 AM	92.1	55.5	76	68
8:37:39 AM	93.6	54.1	77.4	67.1
8:38:39 AM	89.2	55.8	75.6	67.3
8:39:39 AM	93.1	53.1	79.2	70.2
8:40:39 AM	94.9	53.9	80.3	70
8:41:39 AM	93.5	56	77.8	66.9

DouglasKim+Associates,LLC

CONSTRUCTION NOISE CALCULATIONS

Noise emissions of industry sources

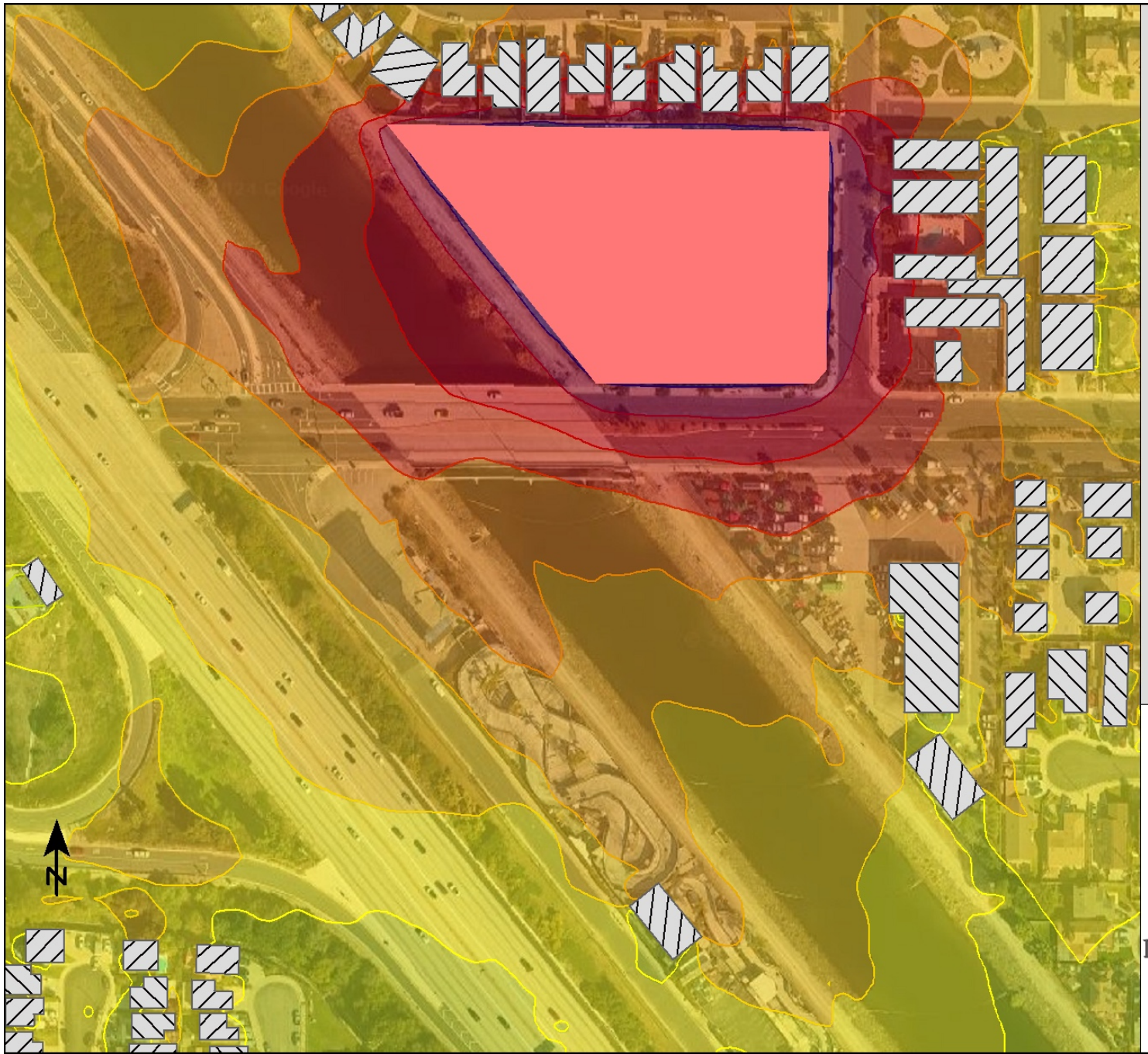
Source name	Size m/m²	Reference	Level Day dB(A)	Level Evening dB(A)	Level Night dB(A)	Corrections Cwall dB	Corrections CI dB	Corrections CT dB
Construction Site	10956 m²	Lw/unit	109.7	-	-	-	-	-

Receiver list

No.	Receiver name	Coordinates X in meter	Coordinates Y in meter	Building side	Floor	Height abv.grd. m	Limit Day dB(A)	Level Day dB(A)	Conflict Day dB
1	Perry Street Mini-Park	11384083.60	3744323.85	-	GF	7.10	-	51.4	-
2	Residences - 215th Pl.	11384061.92	3744319.79	South	GF	8.56	-	54.2	-
3	Residences - Carson St.	11384131.49	3744181.82	West	GF	8.35	-	45.8	-
4	Residences - Edgar St.	11383854.02	3744014.45	East	GF	8.39	-	29.0	-
5	Residences - Perry St.	11384087.66	3744283.95	West	GF	9.21	-	58.7	-

Contribution levels of the receivers

Source name		Traffic lane	Level Day dB(A)
Perry Street Mini-Park	GF		51.4
Construction Site		-	51.4
Residences - 215th Pl.	GF		54.2
Construction Site		-	54.2
Residences - Carson St.	GF		45.8
Construction Site		-	45.8
Residences - Edgar St.	GF		29.0
Construction Site		-	29.0
Residences - Perry St.	GF		58.7
Construction Site		-	58.7



21611 Perry Street

Signs and symbols

Building

Construction Site

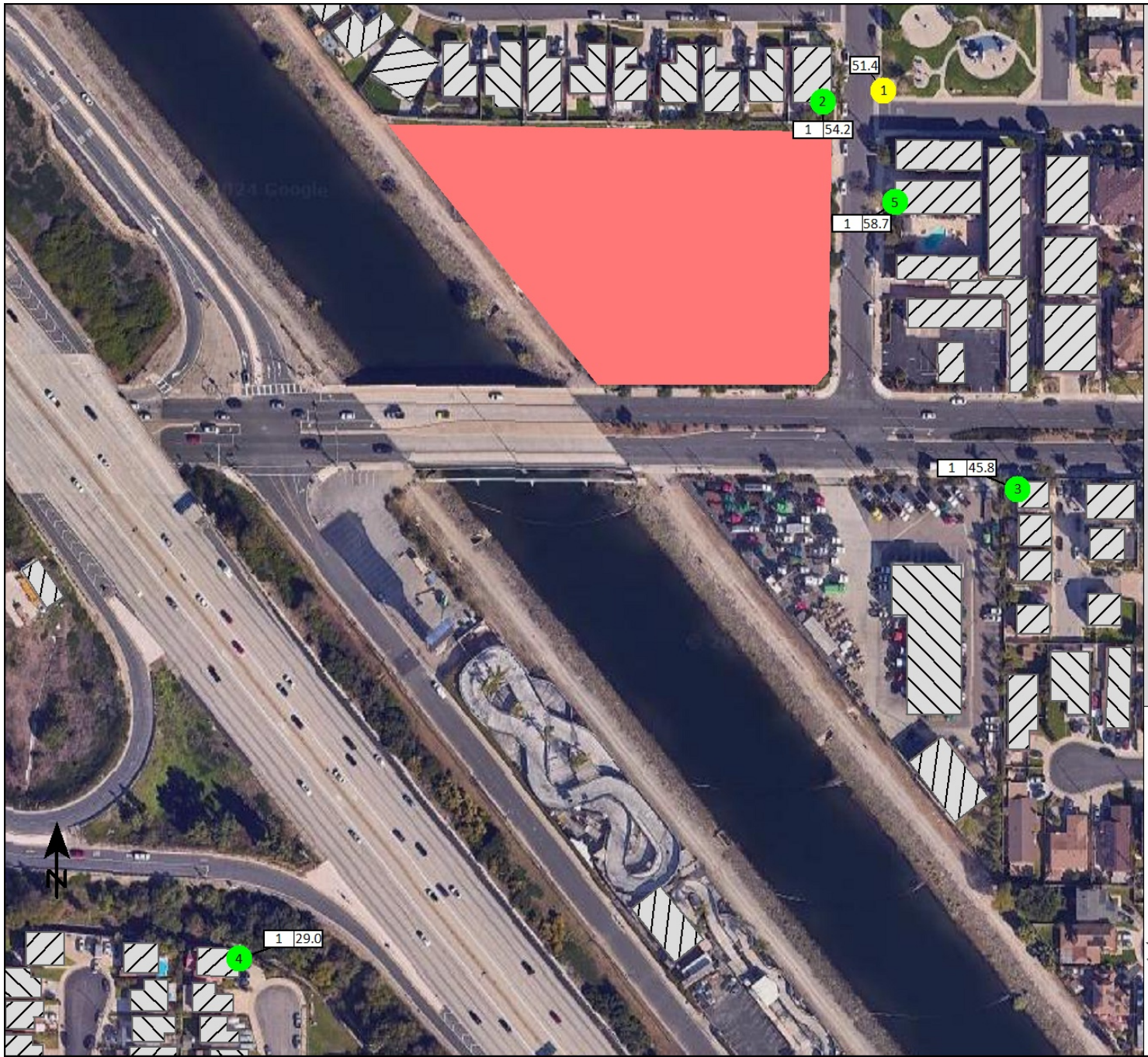
Levels in dB(A)

< 10
10 - 15
15 - 20
20 - 25
25 - 30
30 - 35
35 - 40
40 - 45
45 - 50
50 - 55
55 - 60
60 - 65
65 - 70
>= 70

1 : 149

0 30 60 120 180 240 feet

DouglasKim+Associates,LLC



21611 Perry Street

Signs and symbols

- Building
- Analyzed Sensitive Receptor (Outdoor)
- Analyzed Sensitive Receptor
- Construction Site

1 : 149

0 30 60 120 180 240 feet

DouglasKim+Associates,LLC

Construction Noise Impacts

Sound Power Level (Lw)	109.7	dB

Receptor	Existing Leq	Noise	New Leq	Difference Leq	Significant?
Residences.- 215th Pl.	57.2	54.2	59.0	1.8	**No**
Perry Street Mini-Park	57.2	51.4	58.2	1.0	**No**
Residences - Perry St.	57.2	58.7	61.0	3.8	**No**
Residences - Carson St.	67.9	45.8	67.9	0.0	**No**
Residences - Edgar St.	70.1	29.0	70.1	0.0	**No**

OFF-SITE CONSTRUCTION-RELATED TRAVEL VOLUMES

Construction Phase	Worker Trips	Vendor Trips	Haul Trips	Total	% of Traffic Volumes
Site Preparation	7.5	0		8	0.4%
Grading	10	0	40	50	2.7%
Trenching	2.5	0		3	0.1%
Building Construction	44.6	24.8		69	3.8%
Paving	15	0.0		15	0.8%
Architectural Coatings	8.93	0		8.93	0.5%

Haul trips represent heavy-duty truck trips with a 19.1 Passenger Car Equivalent applied; Vendor trips are an even split of medium- and heav

1,851 Traffic Volumes on Carson Street at the San Diego Freeway in the peak A.M. hour