

APPENDIX C
Noise Impact Assessment Memorandum

June 13, 2019

Mr. Ross Geller
Applied Planning, Inc.
11762 De Palma Road, 1-C 310
Corona, CA 92883

SUBJECT: TORRANCE COMMERCE CENTER NOISE IMPACT ASSESSMENT MEMORANDUM

Dear Mr. Ross Geller:

Urban Crossroads, Inc. is pleased to provide the following Noise Impact Assessment Memorandum for the Torrance Commerce Center Project (“2019 Modified Project”), which is located on the southwest corner of Western Avenue and 195th Street, in the City of Torrance, as shown on Exhibit A. This Noise Impact Assessment Memorandum evaluates potential 2019 Modified Project noise impacts in the context of applicable City of Torrance noise standards and significance criteria based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA). (1) In addition, this letter outlines the local regulatory setting and provides off-site traffic, operational, and construction noise analyses related to the proposed 2019 Modified Project. The Torrance Commerce Center, including all facilities and supporting improvements, and associated discretionary actions comprise the 2019 Modified Project considered in this Noise Impact Assessment Memorandum.

BACKGROUND

As originally proposed in 2000, the Toyota South Campus (“Campus”) development concept envisioned a mix of office park uses, various training and vehicle preparation facilities, and a regional vehicle parts distribution warehouse. Within the following discussions, the 2000 Campus development concept is referred to as the, “Original Project.” The Original Project comprised Phase I and Phase II development components.

The Original Project Phase I entitlements allowed for development of a 26,000-square-foot service garage; 241,680-square-foot customer service center; and a 366,360-square-foot financial service center and parking structure. The Original Project Phase II entitlements allowed for development of 351,360 square feet of general office uses. Total Phase I and II entitlements under the Original Project would allow for up to 985,400 square feet of development. As various Original Project facilities were implemented, supporting infrastructure and services were upgraded to respond to increasing demands of the facilities and their tenants.

CEQA documentation for the Original Project is presented in the *South Toyota Campus Plan Mitigated Negative Declaration* (MND), State Clearinghouse Number 2000101085, referred to herein as the, “2000 MND.” The City adopted the 2000 MND in November 2000. (2)

The Original Project comprised Phase I and Phase II development components. The Original Project Phase I entitlements allowed for development of a 26,000-square-foot service garage; 241,680-square-foot customer service center; and a 366,360-square-foot financial service center and parking structure. Within this analysis, and consistent with direction provided by the City, the Original Phase I Entitlements are collectively considered to comprise “General Office Uses.” The 2019 Modified Project would replace the Original Project Phase I entitlements for a 26,000-square-foot service garage; 241,680-square-foot customer service center; and a 366,360-square-foot financial service center and parking structure. No other aspects of the Original Project would be substantively affected by the 2019 Modified Project.

The 2019 Modified Project would apportion and redevelop the Phase I area of the Original Project site as summarized in Table 1. The 2019 Modified Project Site Plan Concept is shown on Exhibit B.

TABLE 1: 2019 MODIFIED PROJECT DEVELOPMENT SUMMARY

	Parcel Area	Building Area (Square Feet, Maximum)	Land Use
	+/- 26.17 Acres	Bldg. 6 – 605,003 Square Feet	United States Postal Service (USPS) build-to-suit International Parcel Handling Center Facility
	+/- 3.90 Acres	Bldg. 5 – 86,043 Square Feet	Industrial Park
	+/- 3.09 Acres	Bldg. 4 – 69,026 Square Feet	Industrial Park
Totals:	33.16 Acres	760,072 Square Feet	- - -

Source: Torrance Commerce Center Development Concept (SRG) May 2019.

PREVIOUS FINDINGS OF THE 2000 MND

The *Toyota South Campus Plan Mitigation Negative Declaration* includes a discussion of noise impacts related to the Original Project. Specifically, the 2000 MND states:

There will be an increase in noise during the construction phase of the project. Construction hours are regulated by the Torrance Municipal Code to minimize noise impacts on nearby properties. This impact will cease upon completion of the Project. Long-term noise levels will be typical of the surrounding area. (2)

In addition, the 2000 MND identifies the following significance findings related to the CEQA Appendix G significance criteria, shown on Table 2. Based on the 2000 MND findings, the Original Project is shown to result in *less than significant* impacts to no impacts under all CEQA noise guidelines at the time it was prepared. (2)

TABLE 2: 2000 MND SIGNIFICANCE FINDINGS

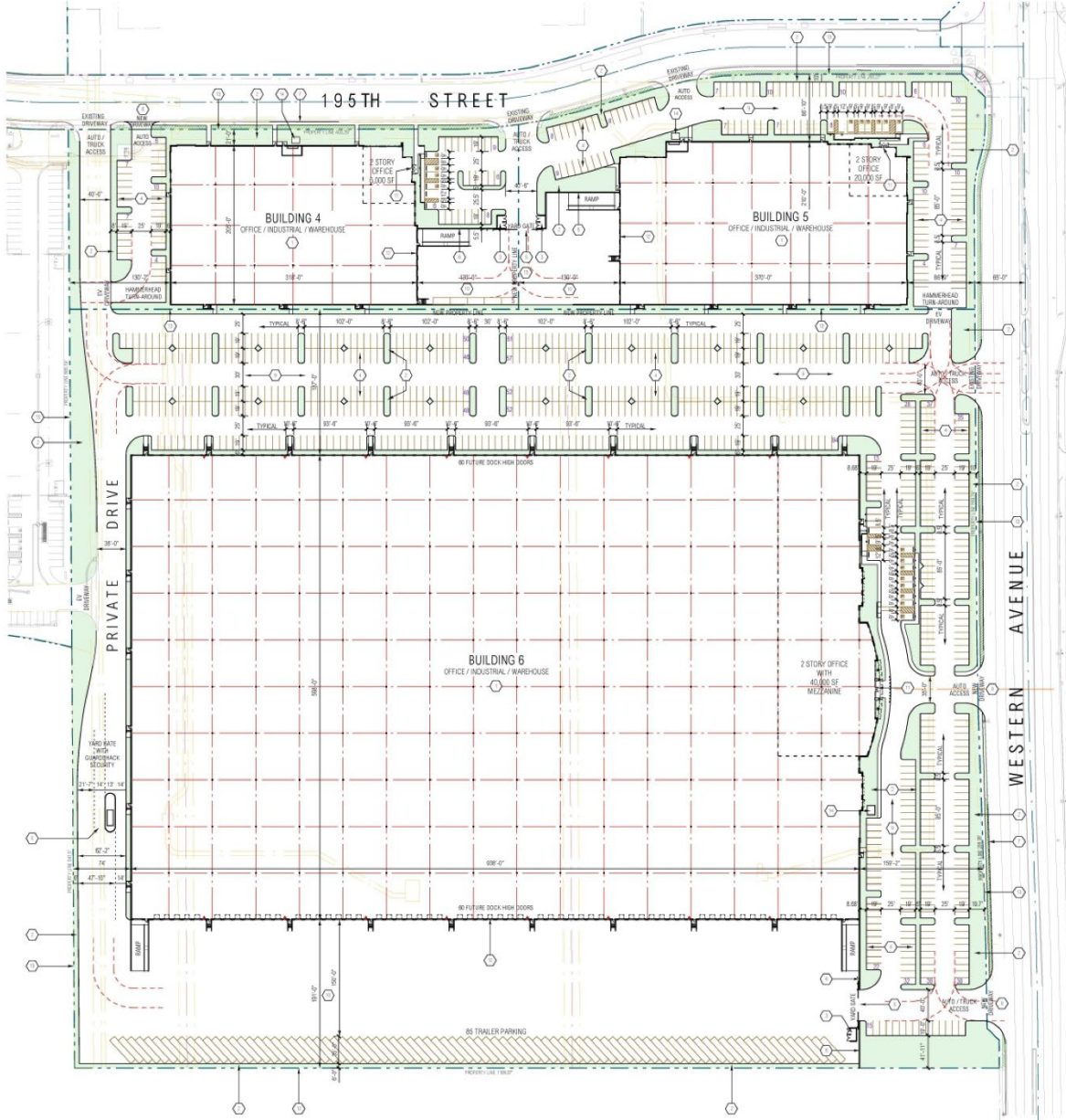
2016 CEQA Appendix G Guidelines		2000 MND Significance Findings	
Letter	Guideline Text	Less Than Significant Impact	No Impact
A	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	X	
B	Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.		X
C	A substantial permanent increase in ambient noise levels in the Project vicinity above existing levels without the proposed Project.		X
D	A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above noise levels existing without the proposed Project.	X	
E	For a project located within 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, expose people residing or working in the Project area to excessive noise levels.		X
F	For a project within the vicinity of a private airstrip, expose people residing or working in the Project area to excessive noise levels.		X

Source: Toyota South Campus Plan Mitigation Negative Declaration, 2000.
 "MND" = Mitigated Negative Declaration

EXHIBIT A: LOCATION MAP



EXHIBIT B: SITE PLAN



CITY OF TORRANCE MUNICIPAL CODE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Torrance Commerce Center 2019 Modified Project, stationary-source (operational) noise such as the expected idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements typically evaluated against standards established under a City’s Municipal Code.

OPERATIONAL NOISE STANDARDS

The City of Torrance Municipal Code (Municipal Code) establishes operational noise standards applicable to the 2019 Modified Project. For the purposes of regulating operational noise, the Municipal Code at Chapter 6 Noise Regulation, Article 7, Section 46.7.2 divides the City into four “Noise Regions.” The 2019 Modified Project site lies with Noise Region 1 (see Article 7 Exhibit A).

Municipal Code Section 46.7.2 (a) establishes exterior noise level standards for residential land uses within 500 feet of the City’s Noise Region 1 boundaries. The nearest residential land uses are located within 500 feet of the Noise Region 1 Boundary encompassing the 2019 Modified Project Site. In this context, and for the purposes of this analysis, the Municipal Code standards presented at Table 3 are employed in evaluation of noise levels that would be received at residential land uses.¹ Please refer also to the City of Torrance Municipal Code noise standards which are included at Appendix A to this Memorandum.

TABLE 3: OPERATIONAL NOISE LEVEL STANDARDS

Jurisdiction	Land Use	Time Period	Noise Level Standard (dBA Leq) ²
City of Torrance ¹	Residential (Region 4) ¹	Daytime (7:00 a.m. - 10:00 p.m.)	55
		Nighttime (10:00 p.m. - 7:00 a.m.)	50

¹ Source: City of Torrance Municipal Code, Article 7, Section 46.7.2(a) (Appendix A).

² Leq represents a steady state sound level containing the same total energy as a time varying signal over a given sample period.

CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with construction, the City has established limits to the hours of construction activities in Section 46.3.1(a) of the City’s Municipal Code. Per Section 46.3.1(a) construction activities are permitted within the hours of 7:30 a.m. to 6:00 p.m. Monday through Friday

¹ This analysis conservatively does not account for the added 5 dB allowance (Section 46.7.2 (a) (2)) allowed above the noise level standards identified in Municipal Code Section 46.7.2 (a) (1).

and 9:00 a.m. to 5:00 p.m. on Saturdays; with no activity allowed on Sundays and holidays. (3) In addition, the Municipal Code identifies an exterior construction noise level limit of 50 dBA L_{eq} for all other time periods outside the permitted hours.

It is assumed that the 2019 Modified Project construction activities would comply with City approved hour of activity restrictions, thereby precluding construction activities during noise-sensitive time periods. To present a conservative approach, this analysis nonetheless evaluates construction noise based on the 50 dBA L_{eq} exterior construction noise level limit identified in Section 46.3.1(a) of the City's Municipal Code.

CONSTRUCTION VIBRATION STANDARDS

Since the City of Torrance General Plan and Municipal Code do not identify specific vibration level standards, the Los Angeles County Code, Section 12.08.350, vibration perception threshold of a 0.01 in/sec root-mean-square (RMS) velocity is used in this analysis. (4) For the purposes of this analysis, the perception threshold of 0.01 in/sec RMS shall be used to assess the potential impacts due to 2019 Modified Project construction at nearby sensitive receiver locations.

Typically, the human response at the perception threshold for vibration includes annoyance in residential areas, when vibration levels expressed in vibration decibels (VdB) approach 75 VdB. The County, however, identifies a vibration perception threshold of 0.01 in/sec. For vibration levels expressed in velocity, the human body responds to the average vibration amplitude often described as the root-mean-square (RMS). The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a one-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to reduce the range of numbers used to describe human response to vibration. Therefore, the County of Los Angeles standard of 0.01 in/sec in RMS velocity levels is used in this analysis to assess the human perception of vibration levels due to 2019 Modified Project-related construction activities.

OFF-SITE TRAFFIC NOISE ASSESSMENT

Trip generation rates for the Project were provided by the Project team for the 2019 Modified Project, including an evaluation of the trip generation of the Original Project, previously analyzed in the 2000 MND, for a comparison with the 2019 Modified Project trip generation rates. (5)

The trip generation for the Original Project was 6,176 daily trips. (5) The 2019 Modified Project is forecast to result in approximately 2,745 daily trips. As such, the 2019 Modified Project will generate 3,431 fewer trips than the Original Project as analyzed in the 2000 MND, and therefore, lower off-site traffic noise levels will be generated by the 2019 Modified Project which will result in the same or reduced off-site traffic noise impacts as the findings of the 2000 MND.

EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, six 24-hour noise level measurements were taken in the Project study area. Exhibit C 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 4th, 2019. Appendix B includes study area photos.

MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (6)

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 any part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources.* (7) Further, FTA guidance states, *that it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community.* (8)

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. 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.

NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 4 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix C provides a summary of the existing hourly ambient noise levels described below:

TABLE 4: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

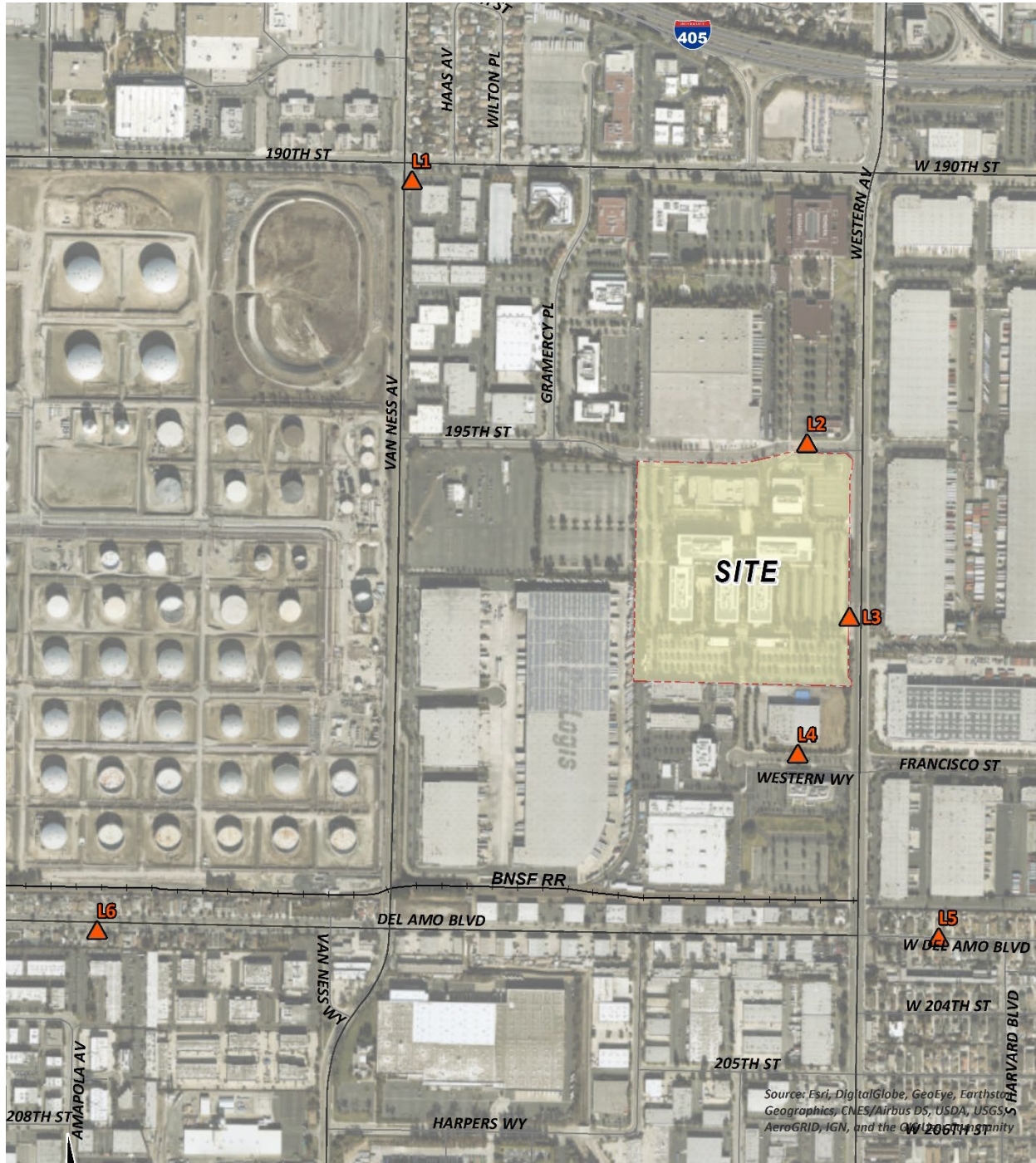
Location ¹	Description	Energy Average Noise Level (dBA L_{eq}) ²	
		Daytime	Nighttime
L1	Located on West 190th Street northwest of Project site, within the parking lot of an existing business complex.	66.0	62.3
L2	Located on West Knox Street, adjacent to the Project site boundary.	61.0	58.4
L3	Located on South Western Avenue, east of the Project site near an existing industrial area.	69.2	66.3
L4	Located on South Western Avenue, southeast of the Project site near an existing industrial area.	61.0	57.6
L5	Located on Del Amo Boulevard, southeast of the Project site near an existing single-family residential neighborhood.	61.7	54.8
L6	Located on Del Amo Boulevard, southwest of the Project site near an existing single-family residential homes.	61.4	55.3

¹ See Exhibit C for the noise level measurement locations.

² Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix C.

"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

EXHIBIT C: NOISE MEASUREMENT LOCATIONS



LEGEND:

▲ Noise Measurement Locations



SENSITIVE RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction impacts, three receiver locations, shown on Exhibit D, were identified as representative locations for analysis. The representative sensitive receivers in the 2019 Modified Project study area include single-family residential homes at receiver locations R1 to R3. Other sensitive land uses in the 2019 Modified Project study area that are located at greater distances than those identified in this noise study and would experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures.

EXHIBIT D: SENSITIVE RECEIVER LOCATIONS



LEGEND:

-  Receiver Locations
-  Distance from receiver to Project site boundary (in feet)

OPERATIONAL NOISE ASSESSMENT

To present the potential worst-case noise conditions, this analysis assumes the 2019 Modified Project would be operational 24 hours per day, seven days per week. The 2019 Modified Project business operations would primarily be conducted within the enclosed buildings, except for traffic movement, parking, as well as loading and unloading of trucks at designated loading bays. The on-site 2019 Modified Project-related noise sources are expected to include: idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements. This noise analysis is intended to describe noise level impacts associated with the expected typical activities at the 2019 Modified Project site. Exhibit E shows the operational noise source locations and the closest sensitive receiver locations used in this analysis, previously shown on Exhibit D.

REFERENCE NOISE LEVELS

The 2019 Modified Project's operational noise levels were estimated based on reference noise level measurements of similar operational activities including: idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements. To estimate the 2019 Modified Project off-site operational noise impacts associated with the Torrance Commerce Center, the following reference noise level measurements were collected from existing logistics warehouse operations containing similar operational noise sources, shown on Table 5.

Short-term reference noise level measurements were collected on Wednesday, January 7th, 2015, by Urban Crossroads, Inc. at the Motivational Fulfillment & Logistics Services distribution facility located at 6810 Bickmore Avenue in the City of Chino. The noise level measurements represent the typical weekday dry goods logistics warehouse operation in a single building with a loading dock area on the western side of the building façade. Up to ten trucks were observed in the loading dock area including a combination of track trailer semi-trucks, two-axle delivery trucks, and background forklift operations.

IDLING, DELIVERY TRUCK ACTIVITIES, BACKUP ALARMS, & LOADING/UNLOADING OF DRY GOODS

The unloading/docking activity noise level measurement was taken over a fifteen-minute period and represents multiple noise sources taken from the center of loading dock activities generating a reference noise level of 62.8 dBA L_{eq} at a uniform reference distance of 50 feet. At this measurement location, the noise sources associated with employees unloading a docked truck container included the squeaking of the truck's shocks when weight was removed from the truck, employees playing music over a radio, as well as a forklift horn and backup alarm. In addition, during the noise level measurement a truck entered the loading dock area and proceeded to reverse and dock in a nearby loading bay, adding truck engine and air brake noise.

While the specific noise levels at the 2019 Modified Project site will depend on the actual tenant, the intensity and the daytime / nighttime hours of operation, a reference noise level of 62.8 dBA L_{eq} for the

unloading/docking activity at a normalized reference distance of 50 feet is used to describe the peak 2019 Modified Project operational noise activity since it represents similar operational characteristics. The reference noise level of 62.8 dBA L_{eq} at 50 feet is intended to describe the worst-case noise levels associated with the expected typical industrial operations at the 2019 Modified Project site.

ROOF-TOP AIR CONDITIONING UNITS

To assess the impacts created by the roof-top air conditioning units at the 2019 Modified Project buildings, reference noise levels measurements were taken at the Santee Walmart on July 27th, 2015. Located at 170 Town Center Parkway in the City of Santee, the noise level measurements describe mechanical roof-top air conditioning units on the roof of an existing Walmart store. The reference noise level represents Lennox SCA120 series 10-ton model packaged air conditioning units. Using the uniform reference distance of 50 feet, the reference noise level is 57.2 dBA L_{eq} . The operating conditions of the reference noise level measurement reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. The roof-top air condition units were observed to operate the most during the daytime hours, for a total of 39 minutes per hour, and are anticipated to operate during the daytime and nighttime hours at the 2019 Modified Project site. The noise attenuation provided by a parapet wall is not reflected in this reference noise level measurement.

PARKING LOT VEHICLE MOVEMENTS (AUTOS)

To determine the noise levels associated with parking lot vehicle movements, Urban Crossroads collected reference noise level measurements over a 24-hour period on May 17th, 2017 at the parking lot for the Panasonic Avionics Corporation in the City of Lake Forest. The peak hour of activity measured over the 24-hour noise level measurement period occurred between 12:00 p.m. to 1:00 p.m., or the typical lunch hour for employees working in the area. The measured reference noise level at 50 feet from parking lot vehicle movements was measured at 41.7 dBA L_{eq} . The parking lot noise levels are mainly due to cars pulling in and out of spaces during peak lunch hour activity and employees talking. Noise associated with parking lot vehicle movements is expected to operate for the entire hour (60 minutes).

TABLE 5: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Duration (hh:mm:ss)	Distance From Source (Feet)	Noise Source Height (Feet)	Hourly Activity (Minutes) ³	Noise Level (dBA L _{eq})	
					@ Ref. Distance	@ 50 Feet
Unloading/Docking Activity ¹	00:15:00	30'	8'	60	67.2	62.8
Roof-Top Air Conditioning Units ²	96:00:00	5'	25'	39	77.2	57.2
Parking Lot Vehicle Movements ³	01:00:00	10'	5'	60	52.2	41.7

¹ Reference noise level measurements were collected on 1/7/2015 from the existing operations of the Motivational Fulfillment & Logistics Services distribution facility located at 6810 Bickmore Avenue in the City of Chino.

² As measured by Urban Crossroads, Inc. on 7/27/2015 at the Santee Walmart located at 170 Town Center Parkway.

³ As measured by Urban Crossroads, Inc. on 5/17/2017 at the Panasonic Avionics Corporation parking lot in the City of Lake Forest.

⁴ Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site based on the reference noise level measurement activity.

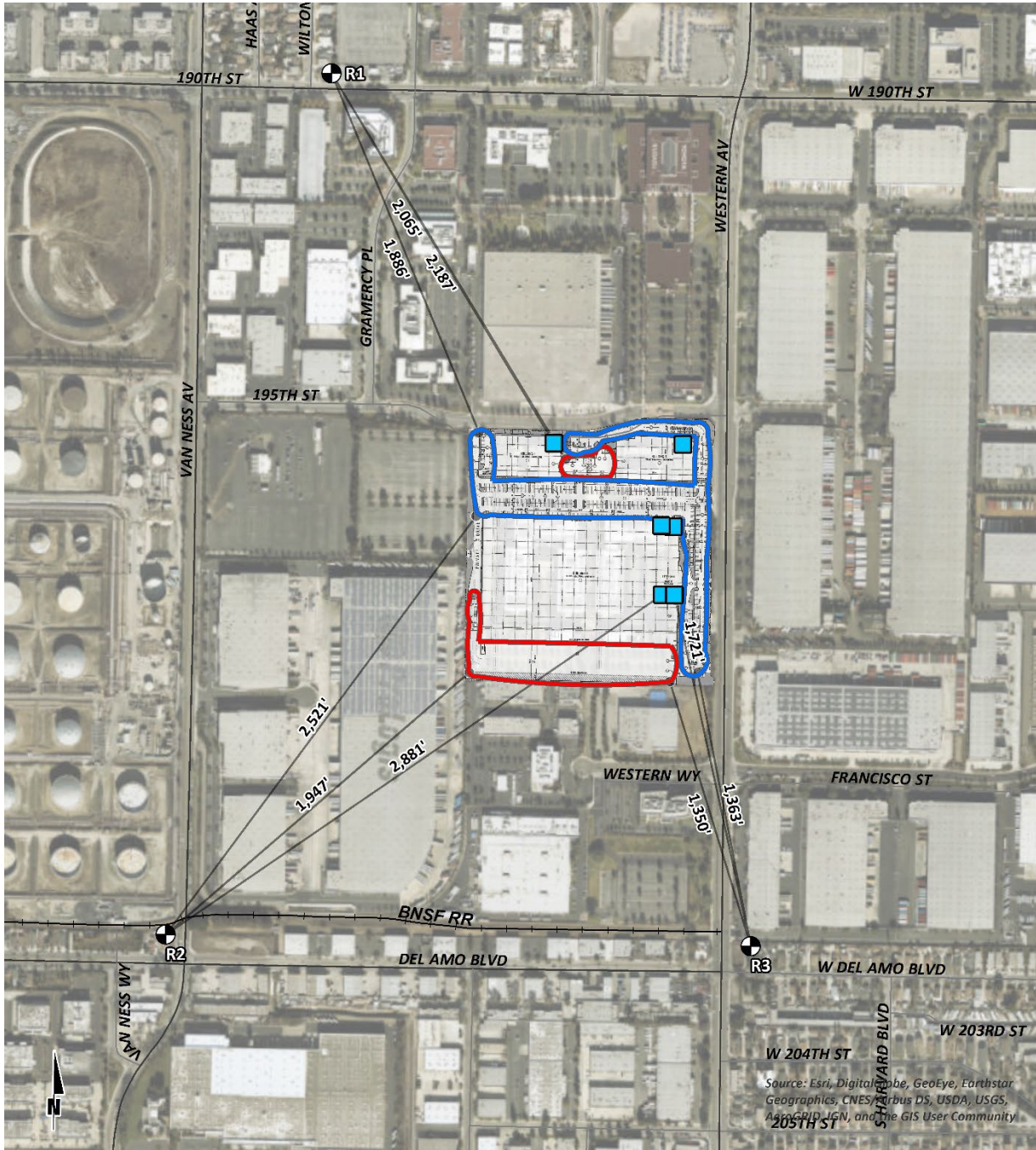
2019 MODIFIED PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed operations that include idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements, the resulting 2019 Modified Project operational-source noise levels are calculated at each of the sensitive receiver locations. The operational noise level calculations 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. With geometric spreading, sound levels attenuate (or decrease) at a rate of 6 dB for each doubling of distance from a point source.

Table 6 presents the combined total 2019 Modified Project-only operational noise level projections at the nearby sensitive receiver locations in comparison with the City of Torrance Municipal Code exterior noise level standards. The 2019 Modified Project operational noise levels at the nearby sensitive receiver locations are shown to range from 30.9 to 34.7 dBA L_{eq}. Based on the results of this analysis, the 2019 Modified Project operational noise levels associated with the Torrance Commerce Center will satisfy the City of Torrance Municipal Code 55 dBA L_{eq} daytime and 50 dBA L_{eq} nighttime exterior noise level standards. The operational noise level calculations are included in Appendix D. The 2019 Modified Project operational noise levels shown on Table 6 do not include any additional attenuation from intervening structures (e.g., barriers or buildings) to present a conservative analysis.

Based on the results of this analysis, no new or substantially increased operational-source noise impacts would occur under the 2019 Modified Project.

EXHIBIT E: OPERATIONAL NOISE SOURCE LOCATIONS



LEGEND:

- Receiver Locations
- Parking Lot Vehicle Movements
- Distribution/Warehouse Activity
- Roof-Top Air Conditioning Unit
- Distance from receiver to noise source (in feet)

TABLE 6: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location ¹	Noise Sources ²			Combined Operational Noise Levels (dBA L _{eq}) ³	Noise Level Standard (dBA L _{eq}) ⁴		Threshold Exceeded? ⁵	
	Unloading/Docking Activity	Roof-Top Air Conditioning Unit	Parking Lot Vehicle Movements		Daytime	Nighttime	Daytime	Nighttime
R1	29.9	23.0	18.1	30.9	55	50	No	No
R2	31.0	20.1	16.2	31.5	55	50	No	No
R3	34.1	24.6	20.2	34.7	55	50	No	No

¹ See Exhibit E for the receiver and noise source locations.

² Reference noise sources as shown on Table 5.

³ Calculations for each noise source are provided in Appendix B and do not account for any intervening structures in the Project study area (e.g., barriers or buildings).

⁴ Exterior noise level standard as shown on Table 3.

⁵ Do the estimated 2019 Modified Project operational noise source activities exceed the noise level threshold?

CONSTRUCTION NOISE ASSESSMENT

Noise generated by the 2019 Modified Project construction equipment would include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can result in elevated noise levels. This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels of 2019 Modified Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Hard site conditions are used in the construction noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source (i.e. construction equipment).

CONSTRUCTION REFERENCE NOISE LEVELS

To describe the 2019 Modified Project construction noise levels, measurements were collected for similar activities at several construction sites. Table 7 provides a summary of the construction reference noise level measurements. Since the reference noise levels were collected at varying distances, all construction noise level measurements presented on Table 7 have been adjusted to describe a common reference distance of 50 feet.

TABLE 7: CONSTRUCTION REFERENCE NOISE LEVELS

ID	Noise Source	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA L _{eq})	Reference Noise Levels @ 50 Feet (dBA L _{eq})
1	Truck Pass-Bys & Dozer Activity ¹	30'	63.6	59.2
2	Dozer Activity ¹	30'	68.6	64.2
3	Construction Vehicle Maintenance Activities ²	30'	71.9	67.5
4	Foundation Trenching ²	30'	72.6	68.2
5	Dozer Pass-By ³	30'	84.0	79.6
6	Concrete Mixer Truck Movements ⁴	50'	71.2	71.2
7	Concrete Paver Activities ⁴	30'	70.0	65.6
8	Concrete Mixer Pour Activities ⁴	50'	67.7	67.7

¹ As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.

² As measured by Urban Crossroads, Inc. on 10/20/15 at a construction site located in Rancho Mission Viejo.

³ As measured by Urban Crossroads, Inc. on 10/30/15 during grading operations within an industrial construction site located in the City of Ontario.

⁴ Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.

2019 MODIFIED PROJECT CONSTRUCTION NOISE LEVELS

Table 8 shows the reference construction noise levels used in the construction noise analysis. Based on the reference construction noise levels, the 2019 Modified Project-related construction noise levels when the highest reference noise level is operating at a single point nearest the sensitive receiver location from primary construction activity would range from 43.0 to 46.5 dBA L_{eq} at the sensitive receiver locations in the City of Torrance, as shown on Table 8.

As shown on Table 9, the construction noise levels, which are expected to range from 43.0 to 46.5 dBA L_{eq} at the receiver locations, will satisfy the construction noise level standard of 50 dBA L_{eq}, based on the City of Torrance Municipal Code standards. The construction noise levels shown on Tables 8 and 9 include up to 5 dBA L_{eq} of attenuation provided by existing structures (e.g., barriers and buildings) in the 2019 Modified Project study area based on Federal Transit Administration guidance. (8)

Based on the preceding, no new or substantially increased construction-source noise impacts would occur under the 2019 Modified Project.

TABLE 8: CONSTRUCTION NOISE LEVELS

Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Construction Vehicle Maintenance Activities	67.5
Foundation Trenching	68.2
Dozer Pass-By	79.6
Concrete Mixer Truck Movements	71.2
Concrete Paver Activities	65.6
Concrete Mixer Pour Activities	67.7
Highest Reference Noise Level at 50 Feet (dBA L _{eq}):	79.6

Receiver Location	Distance To Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Estimated Noise Barrier Attenuation (dBA L _{eq}) ⁴	Construction Noise Level (dBA L _{eq})
R1	1,826'	-31.3	-5.0	43.3
R2	1,885'	-31.5	-5.0	43.0
R3	1,263'	-28.0	-5.0	46.5

¹ Reference construction noise level measurements taken by Urban Crossroads, Inc.

² Distance from the nearest point of construction activity to the nearest receiver.

³ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.

⁴ Estimated barrier attenuation from existing barriers and buildings in the Project study area.

TABLE 9: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location ¹	Construction Noise Levels (dBA L _{eq})		
	Highest Construction Noise Levels ²	Threshold ³	Threshold Exceeded? ⁴
R1	43.3	50	No
R2	43.0	50	No
R3	46.5	50	No

¹ Noise receiver locations are shown on Exhibit D.

² Highest construction noise levels during peak operating conditions, as shown on Table 8.

³ Construction noise level threshold if construction activities occur outside the permitted hours of 7:30 a.m. to 6:00 p.m. Monday through Friday and 9:00 a.m. to 5:00 p.m. on Saturdays; with no activity allowed on Sundays and holidays.

⁴ Do the estimated 2019 Modified Project construction noise levels meet the construction noise level threshold?

CONSTRUCTION VIBRATION ASSESSMENT

This analysis focuses on the potential ground-borne vibration associated with vehicular traffic and construction activities. Ground-borne vibration levels from vehicular traffic are generally overshadowed by vibration generated by heavy trucks that roll over the same uneven roadway surfaces. However, due to the rapid drop-off rate of ground-borne vibration and the short duration of the associated events, vehicular traffic-induced ground-borne vibration is rarely perceptible beyond the roadway right-of-way, and rarely results in vibration levels that cause damage to buildings in the vicinity.

However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 10. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the human response (annoyance) and potential for building damage using the following vibration assessment methods defined by the FTA. (8) To describe the potential vibration levels capable of causing building damage the FTA provides the following equation:

$$PPV_{\text{equip}} = PPV_{\text{ref}} \times (25/D)^{1.5}$$

TABLE 10: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet	Vibration Decibels (VdB) at 25 feet
Small bulldozer	0.003	58
Jackhammer	0.035	79
Loaded Trucks	0.076	86
Large bulldozer	0.089	87

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, September 2018.

2019 MODIFIED PROJECT CONSTRUCTION VIBRATION LEVELS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from 2019 Modified Project construction activities would cause only intermittent, localized intrusion. The 2019 Modified Project's construction activities most likely to cause vibration impacts are:

- **Heavy Construction Equipment:** Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration, the vibration is usually short-term and is not of sufficient magnitude to cause building damage. It is not expected that heavy equipment such as large bulldozers would operate close enough to any residences to cause a vibration impact.

- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the 2019 Modified Project site were estimated by data published by the Federal Transit Administration (FTA). Construction activities that would have the potential to generate low levels of ground-borne vibration within the 2019 Modified Project site include grading. Using the vibration source level of construction equipment provided on Table 10 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the 2019 Modified Project vibration impacts. Table 11 presents the expected 2019 Modified Project related vibration levels at each of the sensitive receiver locations based on the County of Los Angeles 0.01 in/sec RMS threshold for human annoyance. At distances ranging from 1,263 to 1,885 feet from 2019 Modified Project construction activities, construction vibration velocity levels are expected to range from 0.0001 to 0.0002 in/sec RMS, as shown on Table 11. Therefore, 2019 Modified Project construction-source vibration levels would remain below the County of Los Angeles 0.01 in/sec RMS threshold for human annoyance at all receiver locations during 2019 Modified Project construction.

Based on the results of this analysis, the 2019 Modified Project construction vibration levels will satisfy the County of Los Angeles vibration standards, resulting in no impact to nearby sensitive receiver locations, which is consistent with the findings of the 2000 MND.

TABLE 11: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver ¹	Distance to Const. Activity (Feet)	Receiver PPV Levels (in/sec) ²					RMS Vibration Level (in/sec) ³	Threshold Exceeded? ⁴
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Highest Vibration Levels		
R1	1,826'	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	No
R2	1,885'	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	No
R3	1,263'	0.0000	0.0001	0.0002	0.0002	0.0002	0.0002	No

¹ Receiver locations are shown on Exhibit D.

² Based on reference vibration levels for each equipment type shown on Table 10.

³ Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.

⁴ Does the highest vibration level exceed the vibration standard of 0.01 in/sec RMS?

"PPV" = peak particle velocity; "RMS" = root mean square

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Applied Planning, Inc.
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AIRPORT NOISE LEVEL ASSESSMENT

The 2019 Modified Project site is not located within two miles of a public airport or within an airport land use plan; nor is the Project within the vicinity of a private airstrip. As such, the 2019 Modified Project site would not be exposed to excessive noise levels from airport operations, and therefore, there are no impacts in relation to CEQA Guidelines E and F.

CONCLUSIONS

This Noise Impact Assessment Memorandum substantiates that the 2019 Modified Project would not result in new or substantially increased construction-source or operational-source noise impacts when compared to the Original Project.

Further, the 2019 Modified Project would experience no impacts from airport noise levels. This Noise Impact Assessment Memorandum substantiates that the 2019 Modified Project would in no instance result in potentially significant noise impacts consistent with the findings of the 2000 *Toyota South Campus Plan Mitigation Negative Declaration*. If you have any questions, please contact me directly at (949) 336-5979.

Respectfully submitted,

URBAN CROSSROADS, INC.



Bill Lawson, P.E., INCE
Principal



Alex Wolfe, INCE
Associate

REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **City of Torrance.** *Toyota South Campus Plan Mitigated Negative Declaration.* 2000.
3. **City of Torrance.** *Municipal Code, Chapter 6 Noise Regulation.*
4. **County of Los Angeles.** *Municipal Code, Chapter 12.08.*
5. **Applied Planning, Inc.** *Torrance Toyota 2019 MND Modified Project Trip Generation.* June 2019.
6. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
7. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
8. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* September 2018.

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APPENDIX A

CITY OF TORRANCE MUNICIPAL CODE NOISE STANDARDS

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**CHAPTER 6
NOISE REGULATION**

ARTICLE 1 - GENERAL PROVISIONS

(Added by O-2170; Amended by O-2211)

46.1.1 DECLARATION OF POLICY.

It is hereby declared to be the policy of the City to prohibit unnecessary, excessive and annoying noises from all sources subject to its police power. At certain levels noises are detrimental to the health and welfare of the citizenry and in the public interests shall be systematically proscribed.

46.1.2 DEFINITIONS.

(Amended by O-2466)

As used in this Chapter, unless the context otherwise clearly indicates, the words and phrases used in this Chapter are defined as follows:

- a) Ambient noise is the all encompassing noise associated with a given environment, being usually a composite of sounds from many sources near and far, without inclusion of intruding noises from isolated identifiable sources.
- b) Decibel (db) shall mean a unit of level which denotes the ratio between two (2) quantities which are proportional to power; the number of decibels corresponding to the ratio to two (2) amounts of power is ten (10) times the logarithm to the base ten (10) of this ratio.
- c) Emergency work shall mean work made necessary to restore property to a safe condition following a public calamity or work required to protect persons or property from an imminent exposure to danger.
- d) Noise level, in decibels, is the A-weighted sound pressure level as measured using the slow dynamic characteristic for sound level meters specified in ASA S1.4-1961, American Standard Specification for General Purpose Sound Level Meters, or latest revision thereof. The reference pressure is twenty (20) micronewtons/square meter (2×10^{-4} microbar).
- e) Person shall mean a person, firm, association, copartnership, joint venture, corporation or any entity, public or private in nature.
- f) Sound level meter shall mean an instrument including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement of noise and sound levels in a specified manner as specified in ASA S1.4-1961, American Standard Specification for General Purpose Sound Level Meters, or latest revision thereof.

- g) Sound pressure level, in decibels (db) of a sound is twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of this sound to the reference pressure. For the purpose of this Chapter the reference pressure shall be twenty (20) micronewtons/square meter (2×10^{-4} microbar).
- h) Impulsive sound means a short duration sound (such as might be produced by the impact of a drophammer or pile driver) with one (1) second or less duration.
- i) Motor vehicles shall include, but not be limited to, minibikes and go carts.
- j) Sound amplifying equipment shall mean any machine or device for the amplification of the human voice, music, or any other sound. Sound amplifying equipment shall not include standard automobile radios when used and heard only by the occupants of the vehicle in which the automobile radio is installed. Sound amplifying equipment, as used in this Chapter, shall not include warning devices on authorized emergency vehicles or horns or other warning devices on any vehicle used only for traffic safety purposes.
- k) Sound truck shall mean any motor vehicle, or any other vehicle regardless of motive power, whether in motion or stationary, having mounted thereon, or attached thereto, any sound amplifying equipment.
- l) Commercial purpose shall mean and include the use, operation or maintenance of any sound amplifying equipment for the purpose of advertising any business or any goods or any services, or for the purpose of attracting the attention of the public to, or advertising for, or soliciting patronage or customers to or for any performance, show, entertainment, exhibition, or event, or for the purpose of demonstrating any such sound equipment.
- m) Noncommercial purpose shall mean the use, operation or maintenance of any sound equipment for other than a commercial purpose. Noncommercial purposes shall mean and include, but shall not be limited to, philanthropic, political, patriotic and charitable purposes.
- n) Residential land shall mean that land which is utilized for residential purposes or zoned for residential purposes.
- o) Residential purpose means any purpose involving routine and relatively permanent use of a building as a dwelling, as opposed to relatively transient uses such as hotels and motels.
- p) Day means the time period from 7:00 A.M. to 10:00 P.M.
- q) Night means the time period from 10:00 P.M. to 7:00 A.M.

46.1.3 MEASUREMENTS.

Noise levels shall be measured with a sound level meter satisfying the requirements of ASA S1.4-1961, American Standard Specification for General Purpose Sound Level Meters, or latest revision

thereof. Noise level of steady or slowly varying sounds shall be measured using the slow dynamic characteristic of the sound level meter and by reading the central tendency of the needle. Noise level of impulse sounds shall be measured using the fast dynamic characteristic of the sound level meter and by reading the maximum indication of the needle.

ARTICLE 2 - SPECIAL NOISE SOURCES

46.2.1 RADIOS, TELEVISION SETS AND SIMILAR DEVICES.

a) Use Restricted. It shall be unlawful for any person within the City of Torrance to use or operate any radio receiving set, musical instrument, phonograph, television set, or other machine or device for the producing or reproducing of sound at any time in such a manner as to produce noise levels on residential land which would disturb the peace, quiet and comfort of neighboring residents or any reasonable person of normal sensitiveness residing in the area.

b) Prima Facie Violation. Any noise exceeding the ambient noise level at the property line of any residential land (or if a condominium or apartment house, within any adjoining apartment) by more than five (5) decibels shall be deemed to be prima facie evidence of a violation of the provisions of this Section.

46.2.2 HAWKERS AND PEDDLERS.

It shall be unlawful for any person within the City to sell anything by outcry within any area of the City utilized for residential purposes. The provisions of this Section shall not be construed to prohibit the selling by outcry of merchandise, food and beverages at licensed sporting events, parades, fairs, circuses and other similar licensed public entertainment events.

46.2.3 DRUMS.

It shall be unlawful for any person to use any drum or other instrument or device of any kind for the purpose of attracting attention by the creation of noise within the City. This Section shall not apply to any person who is a participant in a school band or duly licensed parade or who has been otherwise duly authorized by the City to engage in such conduct.

46.2.4 SCHOOLS, HOSPITALS AND CHURCHES.

It shall be unlawful for any person to create any noise on any street, sidewalk or public place adjacent to any school, institution of learning or church while the same is in use or adjacent to any hospital, which noise unreasonably interferes with the workings of such institution or which disturbs or unduly annoys patients in the hospital, provided conspicuous signs are displayed in such streets, sidewalks or public place indicating the presence of a school, church or hospital.

46.2.5 ANIMALS AND FOWL.

No person shall keep or maintain, or permit the keeping of upon any premises owned, occupied or controlled by such person, any animal or fowl otherwise permitted to be kept which, by any sound, cry or behavior shall cause annoyance or discomfort to a reasonable person of normal sensitiveness on any residential land.

46.2.6 MACHINERY, EQUIPMENT, FANS AND AIR CONDITIONING.

It shall be unlawful for any person to operate any machinery, equipment, pump, fan, air conditioning apparatus or similar mechanical device in any manner so as to create any noise which would cause the noise level at the property line of any residential land to exceed the ambient noise level by more than five (5) decibels.

46.2.7 OIL PRODUCTION EQUIPMENT.

(Added by O-2528)

It shall be unlawful for any person to operate, or cause to be operated any oil production equipment in any manner so as to create any noise which would cause the noise level at the nearest property line of any residential land to exceed the ambient noise level by more than five (5) decibels; provided, however, that the aforesaid provisions of this Section shall not apply to oil production equipment being used in the drilling, redrilling, deepening, repair, maintenance or abandonment of an oil well.

ARTICLE 3 - CONSTRUCTION**46.3.1 CONSTRUCTION OF BUILDINGS AND PROJECTS.**

(Amended by O-3712)

- a) It shall be unlawful for any person within the City of Torrance to operate power construction tools, equipment, or engage in the performance of any outside construction or repair work on buildings, structures, or projects in or adjacent to a residential area involving the creation of noise beyond 50 decibels (db) as measured at property lines, except between the hours of 7:30 A.M. to 6:00 P.M. Monday through Friday and 9:00 A.M. to 5:00 P.M. on Saturdays. Construction shall be prohibited on Sundays and Holidays observed by City Hall. An exception exists between the hours of 10:00 A.M. to 4:00 P.M. for homeowners that reside at the property.
- b) The Community Development Director may allow expanded hours and days of construction if unusual circumstances and conditions exist. Such requests must be made in writing and must receive approval by the Director prior to any expansion of the hour and day restrictions listed above.
- c) Every construction project requiring Planning Commission review or considered to be a significant remodel as defined by Section 231.1.2, shall be required to post an information board along the front property line that displays the property owner's name and contact number, contractor's name and contact number, a copy of TMC Section [46.3.1](#), a list of any special conditions, and the Code Enforcement phone number where violations can be reported.
- d) Properties zoned as commercial, industrial or within an established redevelopment District, are exempted from the above day and hour restrictions if a minimum buffer of 300 feet is maintained from the subject property's property line to the closest residential property. The Community

Development Director, may, however, revoke such exemption for a particular project if the noise level exceeds 50 decibels (db) at the property line of a residential property beyond the 300 linear foot buffer.

e) Heavy construction equipment such as pile drivers, mechanical shovels, derricks, hoists, pneumatic hammers, compressors or similar devices shall not be operated at any time, within or adjacent to a residential area, without first obtaining from the Community Development Director permission to do so. Such request for permission shall include a list and type of equipment to be used, the requested hours and locations of its use, and the applicant shall be required to show that the selection of equipment and construction techniques has been based on minimization of noise within the limitations of such equipment as is commercially available or combinations of such equipment and auxiliary sound barriers. Such permission to operate heavy construction equipment will be revoked if operation of such equipment is not in accordance to approval. No permission shall be required to perform emergency work as defined in Article [1](#) of this Chapter.

46.3.2 OPERATION OF OIL EQUIPMENT.

(Added by O-2528)

a) It shall be unlawful for any person to operate machinery or power tools for the repair, maintenance or abandonment of oil well equipment on Sundays and legal holidays and, except between the hours of 7:00 A.M. and 8:00 P.M., on any other day; provided, however, that the provisions of this subsection shall not apply to any well, the surface of which is three hundred (300) or more feet from any dwelling.

b) It shall be unlawful for any person to conduct oil drilling or redrilling operations other than circulation of mud, on Sundays and legal holidays and, except between the hours of 7:00 A.M. and 9:00 P.M., on any other day; provided, however, that the provisions of this subsection shall not apply to any well the surface of which is three hundred (300) or more feet from any dwelling.

c) It shall be unlawful for any person to operate machinery or power tools for the repair, maintenance or abandonment of oil well equipment or to conduct oil well drilling or redrilling operations at any time within three hundred (300) feet of any dwelling without first obtaining from the Director of Building and Safety permission to do so. Such request for permission shall include a list and type of equipment to be used, the requested hours and locations of its use. The Director of Building and Safety shall issue such permit only if the applicant demonstrates to the reasonable satisfaction of the Director that the selection of equipment and construction techniques has been based on minimization of noise within the limitations of such equipment as is commercially available or combinations of such equipment and auxiliary sound barriers or acoustical sound blankets as provided in Section [46.3.3](#). Such permission to operate oil well equipment shall be revoked if such equipment is not operated and construction is not accomplished in accordance with the conditions of approval. No permission shall be required to perform emergency work as defined in Article [1](#) of this Chapter. The person performing such emergency work shall first notify the

occupants of adjacent residences and the Torrance Police Department as to the nature and extent of the work to be performed.

46.3.3 ACOUSTICAL BLANKETS.

(Added by O-2528)

Acoustical blankets shall be made of fibrous glass insulation 1-1/2 inches thick, 0.50 pounds per cubic foot density, 0.63 pounds per square foot weight, .00010 to .00015 fibre diameter (inches) with phenolic binder having a temperature limit of 450 degrees F. sewed between layers of fire retardant vinyl fibre glass cloth, 15-17 ounces per square yard sewed with dacron thread D-92 with stitches not more than six (6) to the inch. The lacing cord shall be flat vinyl coated tape composed of fibrous glass yard braided, heat set and bonded. The tape shall have a 90 pound tensile strength. Grommets shall be No. 4 brass. Provided, however, that there may be substituted for the aforesaid specifications an acoustical blanket which in the opinion of the Director of Building and Safety is equal to sound-proofing ability and fire resistive qualities to the aforesaid specifications.

ARTICLE 4 - VEHICLES

46.4.1 VEHICLE REPAIRS.

It shall be unlawful for any person within the City of Torrance to repair, rebuild or test any motor vehicle at any time in such a manner that a reasonable person of normal sensitiveness located on residential land is caused discomfort or annoyance by reason of the noise produced therefrom.

46.4.2 MOTOR DRIVEN VEHICLES.

It shall be unlawful for any person to operate any motor driven vehicle within the City in such a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance; provided, however, that any such vehicle which is operated upon any public highway, street or right-of-way shall be excluded from the provisions of this Section, provided the provisions of the California Motor Vehicle Code, Sections 23130, 27150 and 27151 are complied with.

ARTICLE 5 - AMPLIFIED SOUND

(Amended by O-3360)

46.5.1 PURPOSE.

The Council enacts the provisions of this Article for the sole purpose of securing and promoting the public health, comfort, safety, and welfare for its citizenry. While recognizing that the use of sound amplifying equipment is protected by the constitutional rights of freedom of speech and assembly, the Council nevertheless feels obligated to reasonably regulate the use of sound amplifying equipment in order to protect the correlative constitutional rights of the citizens of this community to privacy and freedom from public nuisance of loud and unnecessary noise.

46.5.2 APPLICATION REQUIRED.

It shall be unlawful for any person, other than personnel of law enforcement or governmental agencies, to install, use or operate within the City a loudspeaker or sound amplifying equipment in a fixed or movable position or mounted upon any sound truck for the purposes of giving instructions, directions, talks, addresses, lectures or transmitting music to any persons or assemblages of persons in or upon any street, alley, sidewalk, park, place or public property without first filing an application and obtaining a permit therefor as set forth in Division 3 of this Code.

46.5.3 REGULATIONS.

The commercial and noncommercial use of sound amplifying equipment shall be subject to the following regulations:

- a) The only sounds permitted shall be either music or human speech, or both.
- b) The operation of sound amplifying equipment shall only occur between the hours of 9:00 A.M. and 9:00 P.M. each day except on Sundays and legal holidays. The operation of sound amplifying equipment for noncommercial purposes on Sundays and legal holidays shall only occur between the hours of 10:00 A.M. and 6:00 P.M.
- c) No sound emanating from sound amplifying equipment shall exceed fifteen (15) dBA above the ambient as measured at any property line.
- d) Notwithstanding the provisions of subsection c) of this Section, sound amplifying equipment shall not be operated within two hundred (200) feet of churches, schools or hospitals.
- e) In any event, the volume of sound shall be so controlled that it will not be unreasonably loud, raucous, jarring, disturbing or a nuisance to reasonable persons of normal sensitiveness within the area of audibility.

ARTICLE 6 - TRAIN HORNS AND WHISTLES

46.6.1 EXCESSIVE SOUND PROHIBITED.

It shall be unlawful for any person to operate or sound or cause to be operated or sounded, between the hours of 10:00 P.M. of one day and 7:00 A.M. of the next day, a train horn or train whistle which creates noise in excess of ninety (90) db at any place or point three hundred (300) feet or more distant from along a line normal to the direction of travel of the source of such sound.

ARTICLE 7 - GENERAL NOISE REGULATIONS

46.7.1 GENERAL NOISE REGULATIONS.

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

46.7.2 NOISE LIMITS.

To provide for methodical enforcement and to give reasonable notice of the performance standards to be met, the foregoing intent is expressed in the following numerical standards. For purposes of this Chapter, the City is divided into regions as set forth in Exhibit A.

a) Noise Limits on Residential Land. It shall be unlawful for any person within the City of Torrance (wherever located) to produce noise in excess of the following levels as received on residential land owned or occupied by another person within the designated regions. In addition to the noise limits stated herein, the noise limits set forth in Sec. 46.7.2.b) shall also be complied with.

1) For noise receivers located on residential land, for measurement positions five hundred (500) feet or more distant from the boundaries of Regions 1 and 2, the following limits apply:

REGION (in which noise receiver is located)	NOISE LEVEL, db	
	Day	Night
3	50	45
4	55	50

2) For noise receivers located on residential land, for positions within five hundred (500) feet from the boundary of Region 1 or 2, the following limits apply:

Five (5) dB above the limits set forth in Section 46.7.2.a) 1 above, or 5 dB above the ambient noise level, whichever is the lower number.

b) Noise Limits at Industrial and Commercial Boundaries:

1) Noise Sources in Region 1: It shall be unlawful for any person in Region 1 to produce noise levels at the boundary of Region 1 in excess of 70 dB during the day or 65 dB during the night.

2) Noise Sources in Region 2: It shall be unlawful for any person in Region 2 to produce noise levels at the boundary of Region 2 in excess of 60 dB during the day or 55 dB during the night.

3) Noise Sources in All Remaining Industrial Use Land: It shall be unlawful for any person on industrial use land outside Region 1 and 2 to produce noise levels at his own property boundary in excess of 60 dB during the day or 55 dB during the night.

4) Noise Sources on All Land Use for Commercial Purposes: It shall be unlawful for any person on land used for commercial purposes to produce noise levels at his own property boundary in excess of 60 dB during the day or 55 dB during the night.

In addition to the noise limits set forth herein (Sec. 46.7.2.b), the noise limits set forth in Sec. 46.7.2.(a) shall also be complied with.

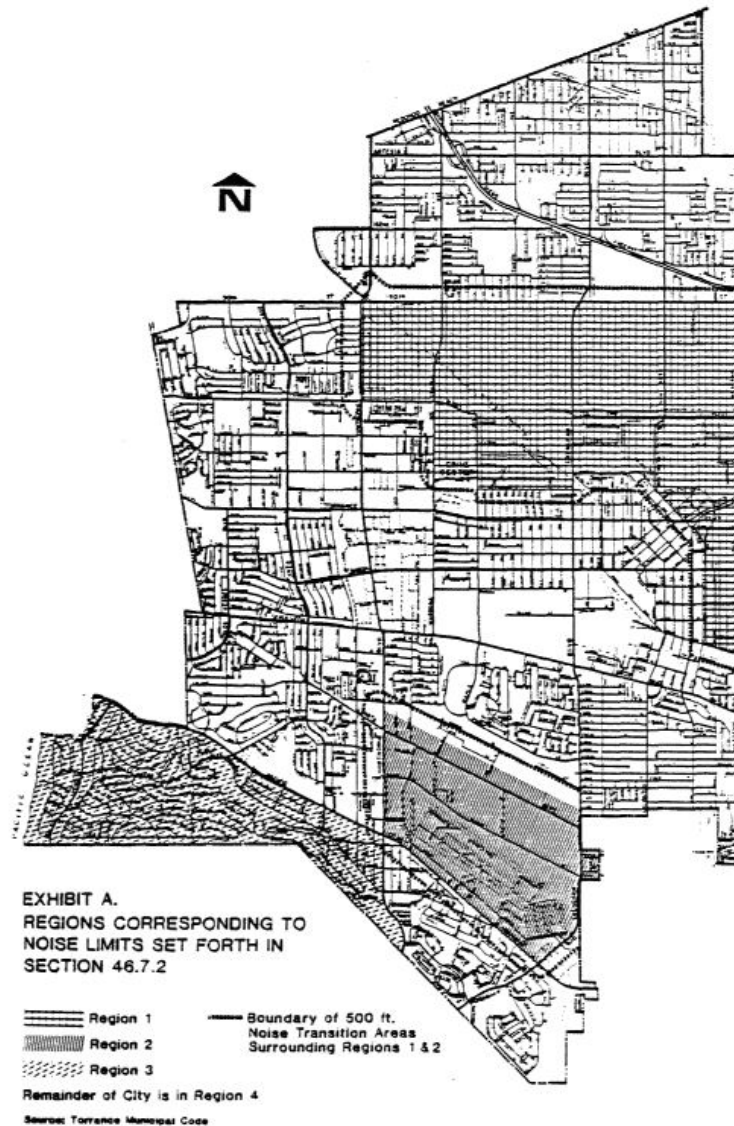
c) Corrections to the Noise Limits: The numerical limits given in Sec. 46.7.2.(a) and (b) shall be adjusted by addition of the following corrections where appropriate.

Noise Conditions	Correction to the Limits, decibels
1. Noise contains a steady, audible tone, such as a whine, screech or hum	-5
2. Noise is a repetitive impulsive noise, such as hammering or riveting	-5
3. If the noise is not continuous, one of the following corrections to the limits shall be applied:	
a) Noise occurs less than 5 hours per day or less than 1 hour per night	+5
b) Noise occurs less than 90 minutes per day or less than 20 minutes per night	+10
c) Noise occurs less than 30 minutes per day or less than 6 minutes per night	+15
4. Noise occurs on Sunday morning (between 12:01 A.M. and 12:01 P.M. Sunday)	-5

46.7.3 EXCEPTIONS.

The following noise sources are specifically excluded from the provisions of this Chapter:

- 1) Aircraft in flight.
- 2) Motor vehicles operating in accordance with Sec. 46.4.2. and in accordance with all the sections of the California Motor Vehicles Code.



ARTICLE 8 - AIRPORT NOISE LIMITS

(Added by O-2784)

46.8.1 VIOLATIONS UNLAWFUL.

It shall be unlawful for any person to pilot or operate or permit to be piloted or operated an aircraft in violation of the provisions of Sections [46.8.8.](#), [46.8.9.](#) or [46.8.14.](#)

46.8.2 EXTENDED AIRPORT BOUNDARIES DEFINED.

For the purposes of this Article, the term extended airport boundaries shall mean the area enclosed by Lomita Boulevard on the north, Crenshaw Boulevard on the east, Pacific Coast Highway on the

south and Hawthorne Boulevard on the west.

46.8.3 TAKE-OFF DEFINED.

(Amended by O-3270)

For the purposes of this Article, take-off shall mean the flight of an aircraft departing Torrance Airport from the time it commences on its departure on the runway.

46.8.4 LANDING DEFINED.

(Amended by O-3270)

For the purposes of this Article, landing shall mean the flight of an aircraft from the time it begins its landing approach until it is taxied from the runway.

46.8.5 SOUND EXPOSURE LEVEL.

For the purposes of this Article, the sound exposure level is the level of sound accumulated during a given event, with reference to a duration of one second. More specifically, sound exposure level, in decibels, is the level of the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on the reference pressure of 20 micronewtons per square meter and reference duration of one second.

46.8.6 SENEL.

For the purposes of this Article, the single event noise exposure level (SENEL), in decibels, is the sound exposure level of a single event, such as an aircraft fly-by, measured over the time interval between the initial and final times for which the sound level of a single event exceeds the threshold sound level. For implementation of the provisions of this Article, the threshold noise level shall be at least 20 decibels below the numerical value of the single event noise exposure level limits specified in Sections [46.8.8](#). or [46.8.9](#). as the case may be.

46.8.7 MAXIMUM SOUND LEVEL DEFINED.

For the purposes of this Article, the maximum sound level, in decibels, is the highest sound level reached at any instant of time during the time interval used in measuring the sound exposure level of a single event.

46.8.8 AIRCRAFT NOISE LIMIT.

Except as provided in Section [46.8.10](#)., no aircraft taking off from or landing on the Torrance Municipal Airport may exceed a single event noise exposure level (SENEL) of 88 dBA or a maximum sound level of 82 dBA measured at ground level outside the extended Airport boundaries.

46.8.9 AIRCRAFT NOISE LIMIT AT NIGHT.

(Amended by O-3284)

Notwithstanding the provisions of Section [46.8.8](#)., except as provided in Section [46.8.10](#)., no aircraft taking off from or landing on the Torrance Municipal Airport between the hours of 10:00 P.M. of any day and 7:00 A.M. of the following morning on any Monday through Friday inclusive, nor

between the hours of 10:00 P.M. each night and 8:00 A.M. of the following morning on any Saturday or Sunday inclusive, nor on any of the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day; provided, however, that if any such holiday falls on a Saturday or Sunday, the observance of which is then moved to the preceding Friday, or the following Monday, then such Friday or Monday shall be considered to be a holiday for purposes of this section, may exceed a single event noise exposure level (SENEL) of 82 dBA or a maximum sound level of 76 dBA measured at ground level outside the extended Airport boundaries.

46.8.10 AIRCRAFT NOISE EXEMPTION.

(Amended by O-3382)

The following categories of aircraft shall be exempt from the provisions of Sections [46.8.8](#) and [46.8.9](#):

- 1) Aircraft operated by the United States of America or the State of California;
- 2) Law enforcement, emergency, fire or rescue aircraft operated by any county or city of said state;
- 3) Aircraft used for emergency purposes during an emergency that has been officially proclaimed by competent authority pursuant to the laws of the United States, said State or the City;
- 4) Civil Air Patrol aircraft when engaged in actual search and rescue missions;
- 5) Aircraft engaged in landings or takeoffs while conducting tests under the direction of the Airport Manager in an attempt to rebut the presumption of aircraft noise violation pursuant to the provisions of Section [46.8.13](#)
- 6) Aircraft while participating in a City-sponsored event approved by City Council.

46.8.11 CULPABILITY OF INSTRUCTOR PILOT.

In the case of any training flight in which both an instructor pilot and a student pilot are in the aircraft which is flown in violation of any of the provisions of this Article, the instructor pilot shall be rebuttably presumed to have caused such violation.

46.8.12 CULPABILITY OF AIRCRAFT OWNER OR LESSEE.

For purposes of this Article, the beneficial owner of an aircraft shall be presumed to be the pilot of the aircraft with authority to control the aircraft's operations, except that where the aircraft is leased, the lessee shall be presumed to be the pilot. Such presumption may be rebutted only if the owner or lessee identifies the person who in fact was the pilot at the time of the asserted violation.

46.8.13 DENIAL OF USE OF AIRPORT.

(See Section 51.7.2. et seq. concerning denial of the use of the Airport for repeated violations of

this Article.)

46.8.14 PRESUMPTION OF AIRCRAFT NOISE VIOLATION.

In the event that the Airport Manager determines to his reasonable satisfaction that available published noise measurements for a particular type or class of aircraft indicate that it cannot meet the noise levels set forth in Sections [46.8.8](#) and [46.8.9](#), it shall be presumed that operation of such aircraft will result in violation of the provisions of Sections [46.8.8](#) and [46.8.9](#) and such aircraft will not be permitted to land on, tie down on, be based at or take off from the Torrance Municipal Airport, except in emergencies as set forth in Section 51.4.2.; provided, however, that the owner or operator of such aircraft shall be entitled to rebut such presumption to the reasonable satisfaction of the Airport Manager by furnishing evidence to the contrary.

46.8.15 DESIGNATED ENFORCEMENT OFFICIAL.

The Director of Building and Safety, the Administrator of Environmental Quality, the Environmental Quality Officers and such other City employees as are designated by the Director of Building and Safety with the approval of the City Manager, all acting under the direction and control of the City Manager, shall have the duty and authority to enforce the provisions of this Article, pursuant to the provisions of Section 836.5 of the State Penal Code.

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APPENDIX B

STUDY AREA PHOTOS

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JN:12578 Study Area Photos



L1 East

33, 51' 29.150000", 118, 19' 3.460000"



L1 North

33, 51' 29.140000", 118, 19' 3.480000"



L1 South

33, 51' 29.150000", 118, 19' 3.510000"



L1 West

33, 51' 29.150000", 118, 19' 3.510000"



L2 East

33, 51' 15.250000", 118, 18' 37.450000"



L2 North

33, 51' 15.270000", 118, 18' 37.390000"

JN:12578 Study Area Photos



L2 South

33, 51' 15.290000", 118, 18' 37.470000"



L2 West

33, 51' 15.290000", 118, 18' 37.450000"



L3 East

33, 51' 5.910000", 118, 18' 34.480000"



L3 North

33, 51' 5.930000", 118, 18' 34.480000"



L3 South

33, 51' 5.890000", 118, 18' 34.540000"



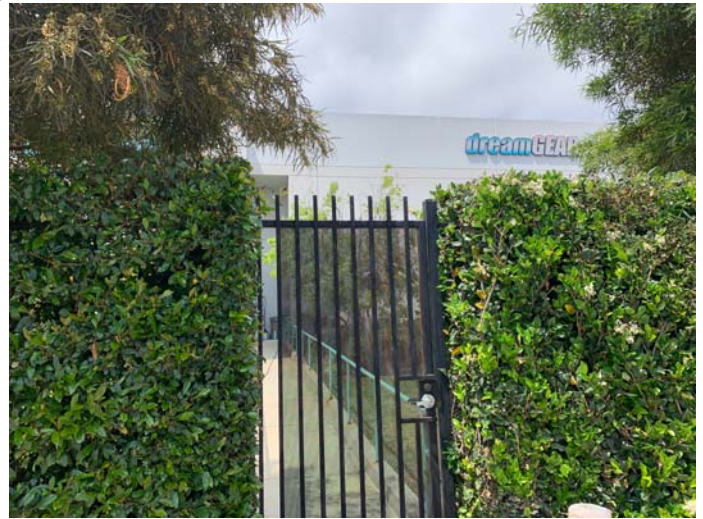
L3 West

33, 51' 5.930000", 118, 18' 34.540000"

JN:12578 Study Area Photos



L4 East
33, 50' 58.460000", 118, 18' 37.580000"



L4 North
33, 50' 58.420000", 118, 18' 37.670000"



L4 South
33, 50' 58.480000", 118, 18' 37.530000"



L4 West
33, 50' 58.500000", 118, 18' 37.610000"



L5 East
33, 50' 48.610000", 118, 18' 28.250000"



L5 North
33, 50' 48.730000", 118, 18' 28.380000"

JN:12578 Study Area Photos



L5 South
33, 50' 48.610000", 118, 18' 28.300000"



L5 West
33, 50' 48.760000", 118, 18' 28.380000"



L6 East
33, 50' 48.120000", 118, 19' 23.100000"



L6 North
33, 50' 47.770000", 118, 19' 23.480000"



L6 South
33, 50' 48.100000", 118, 19' 23.040000"



L6 West
33, 50' 48.090000", 118, 19' 23.040000"

APPENDIX C

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

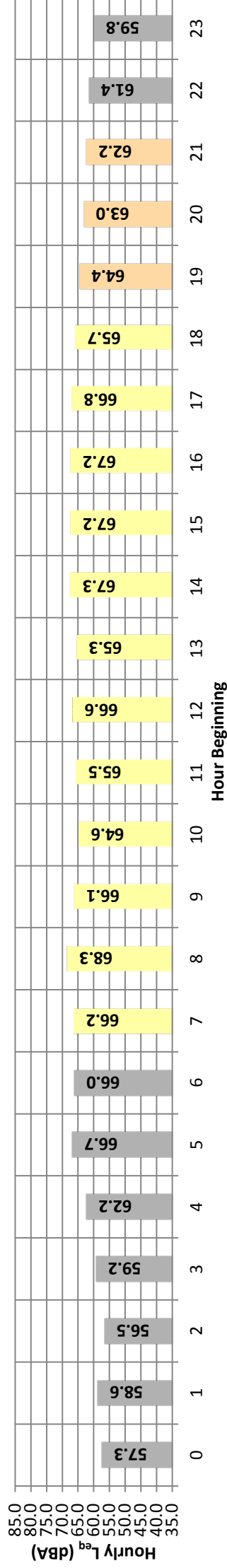
Date: Tuesday, June 04, 2019
Project: Torrance Commerce Center

Location: L1 - Located on West 190th Street northwest of Project site, within the parking lot of an existing business complex.

Meter: Piccolo I

JN: 12578
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	Hour Beginning								L _{eq}	Adj.	Adj. L _{eq}	
					L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%				L99%
Night	0	57.3	77.7	45.2	69.0	65.0	62.0	61.0	55.0	51.0	47.0	46.0	46.0	57.3	10.0	67.3
	1	58.6	82.4	43.8	69.0	66.0	63.0	60.0	55.0	50.0	46.0	45.0	44.0	58.6	10.0	68.6
	2	56.5	75.9	43.3	67.0	65.0	63.0	61.0	54.0	49.0	46.0	45.0	44.0	56.5	10.0	66.5
	3	59.2	82.3	44.5	70.0	66.0	64.0	62.0	56.0	52.0	47.0	46.0	45.0	59.2	10.0	69.2
	4	62.2	77.9	46.0	73.0	71.0	68.0	66.0	61.0	56.0	52.0	50.0	48.0	62.2	10.0	72.2
	5	66.7	90.9	50.7	76.0	74.0	71.0	69.0	64.0	58.0	56.0	55.0	53.0	66.7	10.0	76.7
	6	66.0	85.3	52.9	75.0	73.0	70.0	69.0	65.0	58.0	56.0	55.0	53.0	66.0	10.0	76.0
Day	7	66.2	84.0	54.2	75.0	73.0	70.0	68.0	66.0	64.0	59.0	58.0	57.0	66.2	0.0	66.2
	8	68.3	94.6	54.0	76.0	74.0	71.0	69.0	66.0	63.0	59.0	58.0	56.0	68.3	0.0	68.3
	9	66.1	88.7	52.0	76.0	73.0	70.0	68.0	64.0	62.0	57.0	56.0	54.0	66.1	0.0	66.1
	10	64.6	81.3	49.9	73.0	71.0	69.0	67.0	64.0	62.0	58.0	56.0	53.0	64.6	0.0	64.6
	11	65.5	87.1	52.9	74.0	73.0	70.0	68.0	64.0	62.0	57.0	56.0	54.0	65.5	0.0	65.5
	12	66.6	88.7	51.5	76.0	73.0	69.0	68.0	64.0	60.0	58.0	56.0	53.0	66.6	0.0	66.6
	13	65.3	81.9	52.8	74.0	72.0	70.0	68.0	65.0	60.0	58.0	57.0	55.0	65.3	0.0	65.3
	14	67.3	84.8	53.2	77.0	75.0	72.0	70.0	66.0	62.0	59.0	58.0	57.0	67.3	0.0	67.3
	15	67.2	85.8	54.3	76.0	74.0	72.0	70.0	66.0	62.0	59.0	58.0	56.0	67.2	0.0	67.2
	16	67.2	86.6	54.8	77.0	75.0	72.0	70.0	66.0	62.0	59.0	58.0	56.0	67.2	0.0	67.2
	17	66.8	87.8	55.3	75.0	73.0	70.0	69.0	65.0	59.0	59.0	58.0	56.0	66.8	0.0	66.8
	18	65.7	88.0	52.6	75.0	73.0	70.0	68.0	65.0	57.0	57.0	56.0	55.0	65.7	0.0	65.7
Evening	19	64.4	86.7	51.0	72.0	71.0	68.0	67.0	63.0	61.0	56.0	55.0	53.0	64.4	5.0	69.4
	20	63.0	83.3	49.8	71.0	69.0	67.0	65.0	62.0	59.0	54.0	52.0	51.0	63.0	5.0	68.0
	21	62.2	83.2	49.3	72.0	70.0	67.0	65.0	61.0	58.0	53.0	52.0	50.0	62.2	5.0	67.2
Night	22	61.4	82.0	46.6	73.0	70.0	65.0	63.0	59.0	56.0	49.0	48.0	47.0	61.4	10.0	71.4
	23	59.8	80.5	46.2	70.0	68.0	64.0	63.0	58.0	54.0	49.0	48.0	47.0	59.8	10.0	69.8
Day	Min	64.6	81.3	49.9	73.0	71.0	69.0	67.0	64.0	62.0	57.0	56.0	53.0	65.0	24-Hour	
	Max	68.3	94.6	55.3	77.0	75.0	72.0	70.0	66.0	64.0	59.0	58.0	57.0	65.0	Nighttime	
Evening	Min	62.2	83.2	49.3	73.0	71.0	69.0	67.0	65.1	62.8	58.3	57.1	55.2	65.0	24-Hour	
	Max	64.4	86.7	51.0	72.0	70.0	68.0	67.0	63.0	61.0	56.0	55.0	53.0	62.3	Nighttime	
Night	Min	63.3	86.7	49.3	71.7	70.0	67.3	65.7	62.0	59.3	54.3	53.0	51.3	65.0	24-Hour CNEL (dBA)	
	Max	66.7	90.9	52.9	76.0	74.0	71.0	69.0	65.0	63.0	58.0	57.0	55.0	66.7	69.7	
Energy Average		62.3	Average:		71.3	68.7	65.6	63.8	58.6	54.9	50.2	49.0	47.8			



24-Hour Noise Level Measurement Summary

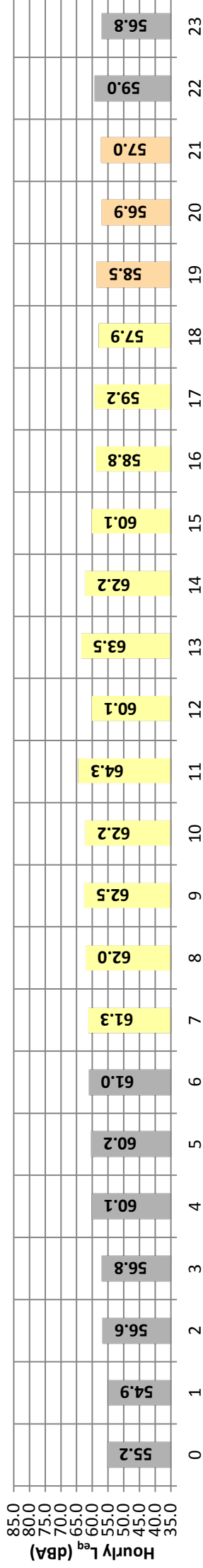
Date: Tuesday, June 04, 2019
Project: Torrance Commerce Center

Location: L2 - Located on West Knox Street, adjacent to the Project site boundary.

Meter: Piccolo I

JN: 12578
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	Hour Beginning								L _{99%}	L _{eq}	Adj.	Adj. L _{eq}
					L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%				
Night	0	55.2	81.3	41.8	63.0	59.0	55.0	54.0	50.0	48.0	44.0	44.0	42.0	55.2	10.0	65.2
	1	54.9	78.8	41.6	67.0	65.0	59.0	55.0	49.0	45.0	42.0	42.0	41.0	54.9	10.0	64.9
	2	56.6	81.0	41.5	68.0	64.0	56.0	54.0	49.0	45.0	42.0	42.0	41.0	56.6	10.0	66.6
	3	56.8	81.8	43.2	69.0	66.0	60.0	57.0	51.0	48.0	45.0	44.0	43.0	56.8	10.0	66.8
	4	60.1	79.4	43.1	71.0	69.0	66.0	64.0	57.0	52.0	47.0	45.0	44.0	60.1	10.0	70.1
	5	60.2	82.9	44.3	72.0	69.0	64.0	62.0	57.0	54.0	49.0	48.0	45.0	60.2	10.0	70.2
	6	61.0	83.4	45.4	72.0	70.0	65.0	63.0	58.0	55.0	50.0	49.0	47.0	61.0	10.0	71.0
Day	7	61.3	83.1	47.4	72.0	69.0	65.0	63.0	59.0	57.0	53.0	53.0	50.0	61.3	0.0	61.3
	8	62.0	84.1	46.7	74.0	70.0	65.0	63.0	58.0	56.0	51.0	51.0	48.0	62.0	0.0	62.0
	9	62.5	81.1	46.2	75.0	72.0	67.0	64.0	59.0	56.0	51.0	51.0	48.0	62.5	0.0	62.5
	10	62.2	85.1	45.6	74.0	71.0	66.0	63.0	58.0	56.0	50.0	49.0	48.0	62.2	0.0	62.2
	11	64.3	88.6	46.6	76.0	71.0	66.0	64.0	58.0	55.0	51.0	49.0	48.0	64.3	0.0	64.3
	12	60.1	84.0	47.2	70.0	67.0	63.0	61.0	57.0	54.0	50.0	49.0	48.0	60.1	0.0	60.1
	13	63.5	91.6	48.4	74.0	70.0	65.0	63.0	57.0	55.0	51.0	50.0	49.0	63.5	0.0	63.5
	14	62.2	85.2	49.2	73.0	70.0	66.0	64.0	58.0	55.0	51.0	50.0	50.0	62.2	0.0	62.2
	15	60.1	83.2	48.7	69.0	68.0	65.0	63.0	57.0	55.0	51.0	51.0	50.0	60.1	0.0	60.1
	16	58.8	79.8	49.4	68.0	66.0	63.0	61.0	57.0	55.0	51.0	51.0	50.0	58.8	0.0	58.8
	17	59.2	83.7	49.9	69.0	66.0	63.0	61.0	57.0	55.0	51.0	51.0	50.0	59.2	0.0	59.2
	18	57.9	76.7	49.1	67.0	65.0	62.0	60.0	56.0	54.0	50.0	52.0	51.0	57.9	0.0	57.9
Evening	19	58.5	81.6	49.3	68.0	64.0	60.0	59.0	55.0	53.0	51.0	51.0	50.0	58.5	5.0	63.5
	20	56.9	78.8	46.7	68.0	65.0	60.0	58.0	54.0	52.0	49.0	49.0	48.0	56.9	5.0	61.9
	21	57.0	79.3	45.6	67.0	63.0	59.0	57.0	53.0	51.0	48.0	47.0	46.0	57.0	5.0	62.0
Night	22	59.0	88.5	44.3	66.0	63.0	58.0	56.0	52.0	50.0	47.0	46.0	45.0	59.0	10.0	69.0
	23	56.8	80.6	43.5	68.0	64.0	57.0	55.0	52.0	49.0	45.0	45.0	44.0	56.8	10.0	66.8
	24															
Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq} (dBA)		
Day	Min	57.9	76.7	45.6	67.0	65.0	62.0	60.0	56.0	54.0	50.0	49.0	48.0	24-Hour Daytime		
	Max	64.3	91.6	49.9	76.0	72.0	67.0	64.0	59.0	57.0	53.0	52.0	50.0	60.2	61.0	58.4
Evening	Min	56.9	78.8	45.6	67.0	63.0	59.0	57.0	53.0	51.0	48.0	47.0	46.0	24-Hour CNEL (dBA)		
	Max	58.5	81.6	49.3	68.0	65.0	60.0	59.0	55.0	53.0	51.0	50.0	50.0	60.2	61.0	58.4
Energy Average		57.5	Average:	Average:	67.7	64.0	59.7	58.0	54.0	52.0	49.3	48.7	48.0	65.5		
Night	Min	54.9	78.8	41.5	63.0	59.0	55.0	54.0	49.0	45.0	42.0	42.0	41.0	24-Hour CNEL (dBA)		
	Max	61.0	88.5	45.4	72.0	70.0	66.0	64.0	58.0	55.0	50.0	49.0	47.0	60.2	61.0	58.4
Energy Average		58.4	Average:	Average:	68.4	65.4	60.0	57.8	52.8	49.6	45.7	45.0	43.6	65.5		



24-Hour Noise Level Measurement Summary

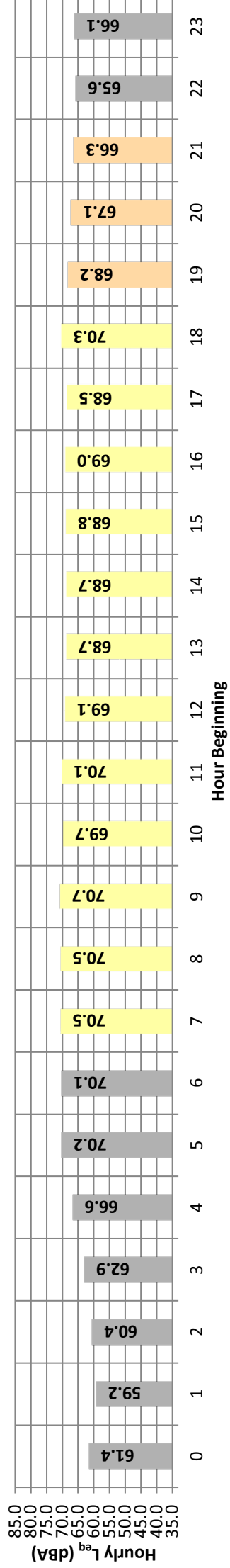
Date: Tuesday, June 04, 2019
 Project: Torrance Commerce Center

Location: L3 - Located on South Western Avenue, east of the Project site near an existing industrial area.

Meter: Piccolo I

JN: 12578
 Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq}	Adj.	Adj. L _{eq}
Night	0	61.4	83.1	40.9	71.0	70.0	67.0	66.0	60.0	52.0	44.0	43.0	41.0	61.4	10.0	71.4
Night	1	59.2	77.9	39.8	70.0	68.0	66.0	64.0	57.0	47.0	41.0	41.0	41.0	59.2	10.0	69.2
Night	2	60.4	80.8	39.3	71.0	69.0	67.0	65.0	58.0	48.0	41.0	41.0	39.0	60.4	10.0	70.4
Night	3	62.9	84.5	40.7	72.0	71.0	68.0	67.0	62.0	53.0	42.0	41.0	41.0	62.9	10.0	72.9
Night	4	66.6	90.2	41.2	74.0	73.0	72.0	71.0	67.0	62.0	49.0	47.0	44.0	66.6	10.0	76.6
Night	5	70.2	95.9	44.1	76.0	75.0	73.0	73.0	70.0	66.0	53.0	50.0	46.0	70.2	10.0	80.2
Night	6	70.1	89.3	44.8	76.0	75.0	74.0	73.0	71.0	68.0	56.0	52.0	48.0	70.1	10.0	80.1
Day	7	70.5	90.1	47.3	77.0	75.0	73.0	73.0	71.0	69.0	61.0	57.0	50.0	70.5	0.0	70.5
Day	8	70.5	92.3	45.3	77.0	75.0	74.0	73.0	71.0	68.0	57.0	53.0	48.0	70.5	0.0	70.5
Day	9	70.7	94.9	48.4	78.0	76.0	74.0	73.0	71.0	68.0	58.0	55.0	52.0	70.7	0.0	70.7
Day	10	69.7	84.4	48.4	77.0	75.0	74.0	73.0	70.0	67.0	58.0	55.0	51.0	69.7	0.0	69.7
Day	11	70.1	93.0	49.2	77.0	75.0	73.0	73.0	70.0	67.0	58.0	55.0	51.0	70.1	0.0	70.1
Day	12	69.1	84.8	47.5	77.0	75.0	73.0	72.0	70.0	67.0	57.0	54.0	50.0	69.1	0.0	69.1
Day	13	68.7	92.7	48.5	75.0	74.0	72.0	71.0	69.0	66.0	57.0	54.0	49.0	68.7	0.0	68.7
Day	14	68.7	88.1	49.8	75.0	74.0	73.0	72.0	69.0	66.0	56.0	53.0	51.0	68.7	0.0	68.7
Day	15	68.8	89.2	49.9	76.0	74.0	72.0	72.0	69.0	66.0	58.0	55.0	52.0	68.8	0.0	68.8
Day	16	69.0	84.9	51.0	77.0	75.0	73.0	72.0	69.0	66.0	58.0	55.0	53.0	69.0	0.0	69.0
Day	17	68.5	80.7	50.3	75.0	74.0	73.0	72.0	70.0	66.0	55.0	54.0	52.0	68.5	0.0	68.5
Day	18	70.3	97.5	49.5	75.0	74.0	73.0	72.0	70.0	67.0	59.0	56.0	52.0	70.3	0.0	70.3
Evening	19	68.2	83.8	49.8	75.0	74.0	72.0	71.0	69.0	66.0	58.0	54.0	51.0	68.2	5.0	73.2
Evening	20	67.1	86.1	46.7	74.0	73.0	71.0	71.0	68.0	64.0	54.0	51.0	48.0	67.1	5.0	72.1
Evening	21	66.3	85.7	45.7	73.0	72.0	71.0	70.0	67.0	63.0	52.0	49.0	47.0	66.3	5.0	71.3
Night	22	65.6	90.3	43.2	73.0	72.0	70.0	69.0	65.0	60.0	48.0	47.0	45.0	65.6	10.0	75.6
Night	23	66.1	95.1	43.2	73.0	71.0	69.0	68.0	63.0	58.0	46.0	45.0	44.0	66.1	10.0	76.1
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)		
Day	Min	68.5	80.7	45.3	75.0	74.0	72.0	71.0	69.0	66.0	55.0	53.0	48.0	24-Hour Daytime		
Day	Max	70.7	97.5	51.0	78.0	76.0	74.0	73.0	71.0	69.0	61.0	57.0	53.0	Nighttime		
Evening	Min	66.3	83.8	45.7	73.0	72.0	71.0	70.0	67.0	63.0	52.0	49.0	47.0	68.4	69.2	66.3
Evening	Max	68.2	86.1	49.8	75.0	74.0	72.0	71.0	69.0	66.0	58.0	54.0	51.0	24-Hour CNEL (dBA)		
Energy Average	Energy Average	67.3	Average:	Average:	74.0	73.0	71.3	70.7	68.0	64.3	54.7	51.3	48.7	73.5		
Night	Min	59.2	77.9	39.3	70.0	68.0	66.0	64.0	57.0	47.0	41.0	41.0	39.0			
Night	Max	70.2	95.9	44.8	76.0	75.0	74.0	73.0	71.0	68.0	56.0	52.0	48.0			
Energy Average	Energy Average	66.3	Average:	Average:	72.9	71.6	69.6	68.4	63.7	57.1	46.7	45.2	43.2			

24-Hour Noise Level Measurement Summary

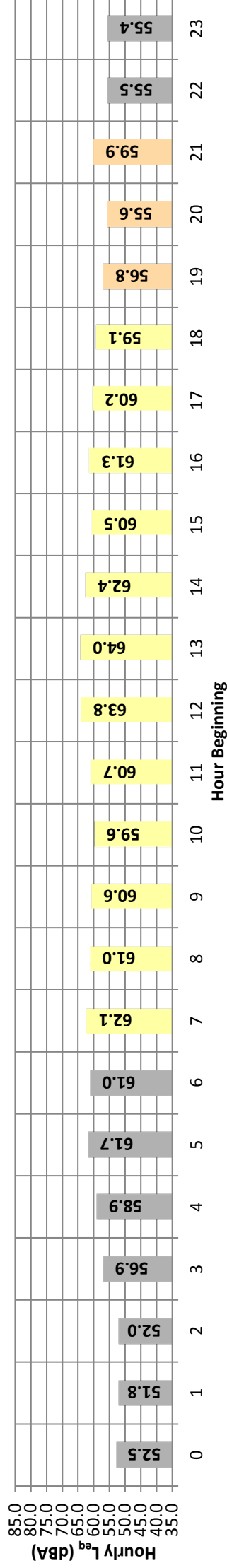
Date: Tuesday, June 04, 2019
Project: Torrance Commerce Center

Location: L4 - Located on South Western Avenue, southeast of the Project site near an existing industrial area.

Meter: Piccolo I

JN: 12578
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	Hour Beginning								L _{eq}	Adj.	Adj. L _{eq}
					L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%			
Night	0	52.5	68.1	49.0	61.0	59.0	55.0	53.0	51.0	50.0	49.0	49.0	52.5	10.0	62.5
	1	51.8	68.0	49.1	57.0	55.0	53.0	52.0	51.0	50.0	49.0	49.0	51.8	10.0	61.8
	2	52.0	71.7	48.8	56.0	55.0	53.0	52.0	51.0	50.0	49.0	49.0	52.0	10.0	62.0
	3	56.9	84.4	49.1	66.0	64.0	59.0	56.0	52.0	50.0	50.0	49.0	56.9	10.0	66.9
	4	58.9	81.5	49.7	69.0	67.0	64.0	62.0	55.0	53.0	50.0	50.0	58.9	10.0	68.9
	5	61.7	81.0	50.2	71.0	69.0	67.0	66.0	60.0	55.0	52.0	51.0	61.7	10.0	71.7
Day	6	61.0	81.8	50.5	70.0	69.0	66.0	65.0	59.0	56.0	52.0	51.0	61.0	10.0	71.0
	7	62.1	81.1	50.5	71.0	69.0	67.0	66.0	61.0	57.0	53.0	51.0	62.1	0.0	62.1
	8	61.0	78.2	49.8	70.0	69.0	67.0	65.0	60.0	55.0	52.0	50.0	61.0	0.0	61.0
	9	60.6	78.9	49.1	71.0	68.0	65.0	64.0	58.0	56.0	52.0	50.0	60.6	0.0	60.6
	10	59.6	80.4	49.7	68.0	67.0	64.0	63.0	58.0	55.0	52.0	50.0	59.6	0.0	59.6
	11	60.7	80.6	49.8	70.0	68.0	66.0	64.0	59.0	55.0	52.0	51.0	60.7	0.0	60.7
	12	63.8	87.4	50.7	72.0	69.0	67.0	65.0	62.0	57.0	53.0	51.0	63.8	0.0	63.8
	13	64.0	92.0	51.1	71.0	68.0	66.0	65.0	60.0	56.0	53.0	52.0	64.0	0.0	64.0
	14	62.4	82.6	52.2	73.0	70.0	67.0	65.0	60.0	57.0	54.0	53.0	62.4	0.0	62.4
	15	60.5	78.5	51.7	70.0	68.0	65.0	64.0	59.0	56.0	54.0	52.0	60.5	0.0	60.5
	16	61.3	84.3	51.7	70.0	68.0	65.0	64.0	60.0	57.0	54.0	53.0	61.3	0.0	61.3
	17	60.2	77.6	52.9	69.0	67.0	64.0	63.0	59.0	57.0	55.0	53.0	60.2	0.0	60.2
18	59.1	76.6	52.1	67.0	66.0	64.0	62.0	58.0	56.0	53.0	52.0	59.1	0.0	59.1	
Evening	19	56.8	74.3	51.5	66.0	64.0	60.0	59.0	56.0	54.0	52.0	52.0	56.8	5.0	61.8
	20	55.6	72.7	50.8	64.0	62.0	59.0	58.0	55.0	53.0	51.0	51.0	55.6	5.0	60.6
	21	59.9	89.5	50.6	67.0	65.0	61.0	58.0	54.0	53.0	51.0	51.0	59.9	5.0	64.9
Night	22	55.5	71.8	49.3	66.0	63.0	60.0	58.0	53.0	52.0	50.0	50.0	55.5	10.0	65.5
	23	55.4	76.9	49.3	65.0	62.0	57.0	55.0	53.0	51.0	50.0	49.0	55.4	10.0	65.4
Day	Min	59.1	76.6	49.1	67.0	66.0	64.0	62.0	58.0	55.0	52.0	51.0	59.1	24-Hour	Nighttime
	Max	64.0	92.0	52.9	73.0	70.0	67.0	66.0	62.0	57.0	55.0	54.0	64.0	Daytime	Nighttime
Energy Average		61.5	Average:	Average:	70.2	68.1	65.6	64.2	59.5	56.2	53.1	52.4	61.5	24-Hour CNEL (dBA)	
Evening	Min	55.6	72.7	50.6	64.0	62.0	59.0	58.0	54.0	53.0	51.0	51.0	55.6	60.0	61.0
	Max	59.9	89.5	51.5	67.0	65.0	61.0	59.0	56.0	54.0	53.0	52.0	59.9	57.6	
Energy Average		57.8	Average:	Average:	65.7	63.7	60.0	58.3	55.0	53.3	52.0	51.3	57.8		
Night	Min	51.8	68.0	48.8	56.0	55.0	53.0	52.0	51.0	50.0	49.0	49.0	51.8		
	Max	61.7	84.4	50.5	71.0	69.0	67.0	66.0	60.0	56.0	52.0	51.0	61.7		
Energy Average		57.6	Average:	Average:	64.6	62.6	59.3	57.7	53.9	52.1	50.4	50.0	57.6		



24-Hour Noise Level Measurement Summary

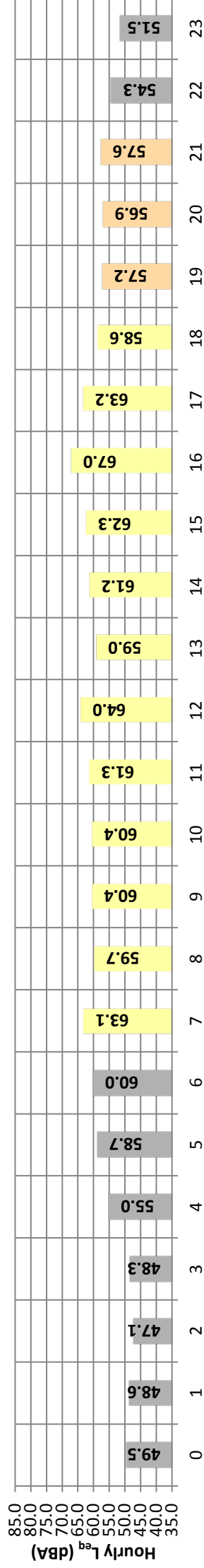
Date: Tuesday, June 04, 2019
Project: Torrance Commerce Center

Location: L5 - Located on Del Amo Boulevard, southeast of the Project site near an existing single-family residential neighborhood.

Meter: Piccolo I

JN: 12578
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	Hour Beginning								$L_{99\%}$	L_{eq}	Adj.	Adj. L_{eq}
					L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%				
Night	0	49.5	74.3	37.3	62.0	54.0	47.0	46.0	42.0	38.0	38.0	49.5	10.0	59.5		
	1	48.6	73.7	35.9	61.0	53.0	45.0	43.0	40.0	37.0	35.0	48.6	10.0	58.6		
	2	47.1	73.7	35.9	58.0	50.0	45.0	43.0	40.0	36.0	35.0	47.1	10.0	57.1		
	3	48.3	73.0	35.9	60.0	52.0	46.0	44.0	41.0	39.0	35.0	48.3	10.0	58.3		
	4	55.0	81.7	36.7	67.0	64.0	58.0	54.0	47.0	43.0	38.0	55.0	10.0	65.0		
	5	58.7	79.4	40.4	71.0	69.0	65.0	62.0	51.0	47.0	43.0	58.7	10.0	68.7		
Day	6	60.0	81.8	42.2	71.0	70.0	67.0	64.0	54.0	49.0	45.0	60.0	10.0	70.0		
	7	63.1	87.3	42.3	73.0	71.0	69.0	67.0	60.0	52.0	44.0	63.1	0.0	63.1		
	8	59.7	76.9	40.8	71.0	69.0	67.0	65.0	55.0	49.0	44.0	59.7	0.0	59.7		
	9	60.4	81.8	41.8	72.0	70.0	67.0	64.0	56.0	49.0	44.0	60.4	0.0	60.4		
	10	60.4	83.7	42.1	71.0	70.0	66.0	64.0	53.0	49.0	45.0	60.4	0.0	60.4		
	11	61.3	80.0	42.8	72.0	71.0	68.0	66.0	58.0	52.0	46.0	61.3	0.0	61.3		
	12	64.0	77.6	44.1	73.0	72.0	70.0	69.0	64.0	55.0	47.0	64.0	0.0	64.0		
	13	59.0	83.6	45.8	70.0	68.0	65.0	63.0	54.0	50.0	47.0	59.0	0.0	59.0		
	14	61.2	87.0	47.3	72.0	70.0	67.0	65.0	57.0	53.0	50.0	61.2	0.0	61.2		
	15	62.3	87.6	46.9	72.0	70.0	68.0	67.0	60.0	54.0	50.0	62.3	0.0	62.3		
	16	67.0	95.2	48.1	78.0	76.0	71.0	68.0	61.0	54.0	50.0	67.0	0.0	67.0		
	17	63.2	90.7	48.3	71.0	70.0	68.0	67.0	60.0	54.0	51.0	63.2	0.0	63.2		
	18	58.6	75.4	46.2	70.0	68.0	65.0	63.0	55.0	52.0	48.0	58.6	0.0	58.6		
	Evening	19	57.2	77.7	45.1	69.0	67.0	63.0	60.0	53.0	49.0	46.0	57.2	5.0	62.2	
		20	56.9	80.8	42.8	69.0	67.0	62.0	58.0	51.0	48.0	44.0	56.9	5.0	61.9	
		21	57.6	79.4	40.5	70.0	68.0	63.0	59.0	49.0	45.0	42.0	57.6	5.0	62.6	
	Night	22	54.3	74.4	38.8	68.0	65.0	59.0	55.0	46.0	43.0	39.0	54.3	10.0	64.3	
		23	51.5	75.9	38.6	65.0	60.0	50.0	47.0	43.0	39.0	38.0	51.5	10.0	61.5	
Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L_{eq} (dBA)			
Day	Min	58.6	75.4	40.8	70.0	68.0	65.0	63.0	53.0	49.0	44.0	43.0	42.0	24-Hour Daytime		
	Max	67.0	95.2	48.3	78.0	76.0	71.0	69.0	64.0	55.0	51.0	50.0	49.0	60.2	61.7	54.8
Evening	Min	56.9	77.7	40.5	69.0	67.0	62.0	58.0	49.0	45.0	42.0	41.0	40.0	24-Hour CNEL (dBA)		
	Max	57.6	80.8	45.1	70.0	68.0	63.0	60.0	53.0	49.0	47.0	46.0	46.0	60.2	61.7	54.8
Night	Min	47.1	73.0	35.9	58.0	50.0	45.0	43.0	40.0	38.0	36.0	35.0	35.0	24-Hour CNEL (dBA)		
	Max	60.0	81.8	42.2	71.0	70.0	67.0	64.0	54.0	49.0	45.0	44.0	43.0	60.2	61.7	54.8
Energy Average		54.8	Average:	Average:	64.8	59.7	53.6	50.9	44.9	42.0	39.3	38.6	38.1	63.5		



24-Hour Noise Level Measurement Summary

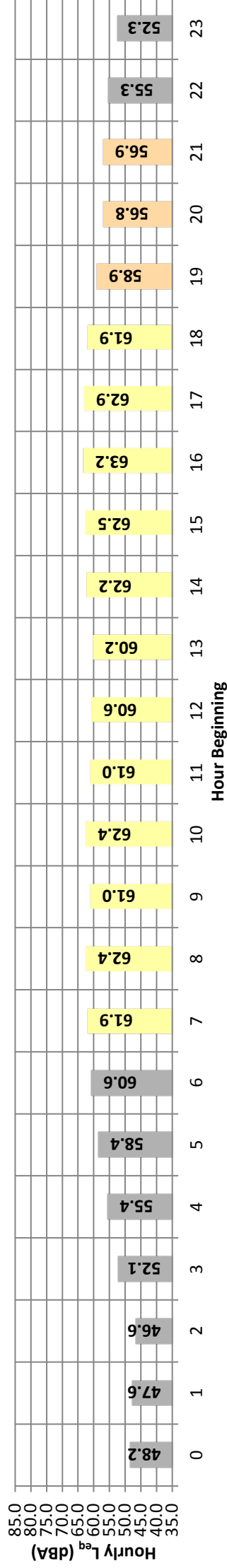
Date: Tuesday, June 04, 2019
Project: Torrance Commerce Center

Location: L5 - Located on Del Amo Boulevard, southwest of the Project site near an existing single-family residential homes

Meter: Piccolo I

JN: 12578
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	Hour Beginning								L _{eq}	Adj.	Adj. L _{eq}		
					L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%				L99%	
Night	0	48.2	66.0	42.1	60.0	57.0	52.0	49.0	45.0	44.0	43.0	43.0	43.0	42.0	48.2	10.0	58.2
	1	47.6	74.6	41.9	57.0	55.0	49.0	46.0	44.0	43.0	43.0	42.0	42.0	42.0	47.6	10.0	57.6
	2	46.6	65.7	41.3	58.0	55.0	49.0	46.0	44.0	44.0	43.0	42.0	42.0	41.0	46.6	10.0	56.6
	3	52.1	79.0	41.0	62.0	59.0	54.0	51.0	45.0	45.0	44.0	41.0	41.0	41.0	52.1	10.0	62.1
	4	55.4	80.6	40.4	66.0	64.0	60.0	58.0	50.0	43.0	43.0	41.0	41.0	41.0	55.4	10.0	65.4
	5	58.4	76.1	41.2	68.0	66.0	63.0	62.0	58.0	52.0	52.0	43.0	42.0	41.0	58.4	10.0	68.4
Day	6	60.6	79.2	42.1	69.0	67.0	65.0	64.0	61.0	57.0	46.0	46.0	44.0	42.0	60.6	10.0	70.6
	7	61.9	74.1	42.9	68.0	67.0	66.0	66.0	63.0	59.0	51.0	51.0	49.0	45.0	61.9	0.0	61.9
	8	62.4	75.4	42.3	70.0	68.0	67.0	66.0	63.0	60.0	60.0	50.0	47.0	43.0	62.4	0.0	62.4
	9	61.0	77.8	42.6	68.0	68.0	66.0	65.0	61.0	57.0	46.0	46.0	45.0	43.0	61.0	0.0	61.0
	10	62.4	84.8	42.9	71.0	69.0	67.0	65.0	62.0	57.0	48.0	46.0	46.0	44.0	62.4	0.0	62.4
	11	61.0	82.8	43.7	68.0	67.0	65.0	65.0	61.0	56.0	47.0	46.0	46.0	44.0	61.0	0.0	61.0
	12	60.6	74.8	45.8	68.0	67.0	65.0	65.0	61.0	57.0	49.0	49.0	47.0	47.0	60.6	0.0	60.6
	13	60.2	77.0	47.8	67.0	66.0	65.0	64.0	61.0	57.0	49.0	51.0	50.0	49.0	60.2	0.0	60.2
	14	62.2	82.3	50.7	69.0	68.0	66.0	65.0	63.0	60.0	59.0	53.0	52.0	51.0	62.2	0.0	62.2
	15	62.5	75.7	50.8	69.0	68.0	66.0	66.0	64.0	60.0	60.0	54.0	52.0	51.0	62.5	0.0	62.5
	16	63.2	82.8	50.4	71.0	68.0	66.0	66.0	64.0	60.0	61.0	55.0	53.0	52.0	63.2	0.0	63.2
	17	62.9	78.6	51.3	70.0	68.0	67.0	66.0	64.0	60.0	60.0	54.0	53.0	52.0	62.9	0.0	62.9
18	61.9	79.0	49.7	71.0	69.0	66.0	65.0	62.0	58.0	52.0	52.0	51.0	50.0	61.9	0.0	61.9	
Evening	19	58.9	73.4	47.8	67.0	66.0	64.0	63.0	59.0	54.0	49.0	49.0	49.0	48.0	58.9	5.0	63.9
	20	56.8	70.8	46.3	65.0	64.0	63.0	61.0	56.0	52.0	48.0	47.0	47.0	47.0	56.8	5.0	61.8
	21	56.9	80.9	44.3	66.0	64.0	62.0	60.0	54.0	49.0	45.0	45.0	45.0	45.0	56.9	5.0	61.9
Night	22	55.3	76.2	43.8	66.0	64.0	60.0	58.0	51.0	47.0	45.0	45.0	44.0	44.0	55.3	10.0	65.3
	23	52.3	73.8	42.3	63.0	62.0	59.0	56.0	48.0	45.0	43.0	43.0	43.0	43.0	52.3	10.0	62.3
Day	Min	60.2	74.1	42.3	67.0	66.0	65.0	64.0	61.0	56.0	46.0	46.0	45.0	43.0	60.2	24-Hour	
	Max	63.2	84.8	51.3	71.0	69.0	67.0	66.0	64.0	61.0	55.0	55.0	53.0	52.0	63.2	Daytime	
Evening	Min	56.8	70.8	44.3	65.0	64.0	62.0	60.0	54.0	49.0	45.0	45.0	45.0	45.0	56.8	Nighttime	
	Max	58.9	80.9	47.8	67.0	66.0	64.0	63.0	59.0	54.0	49.0	49.0	48.0	48.0	58.9	24-Hour CNEL (dBA)	
Night	Min	46.6	65.7	40.4	66.0	64.7	63.0	61.3	56.3	51.7	47.3	47.0	46.7	46.7	59.9	63.6	
	Max	60.6	80.6	43.8	69.0	67.0	65.0	64.0	61.0	57.0	46.0	45.0	44.0	44.0	60.6		
Energy Average	Min	57.6	Average:	Average:	69.2	67.8	66.0	65.3	62.4	58.4	50.8	49.4	47.6	47.6	59.9	55.3	
	Max	58.9	80.9	47.8	71.0	69.0	67.0	66.0	64.0	61.0	55.0	53.0	52.0	52.0	61.9	61.4	
Night	Min	46.6	65.7	40.4	66.0	64.7	63.0	61.3	56.3	51.7	47.3	47.0	46.7	46.7	59.9	55.3	
	Max	60.6	80.6	43.8	69.0	67.0	65.0	64.0	61.0	57.0	46.0	45.0	44.0	44.0	60.6	63.6	
Energy Average	Min	55.3	Average:	Average:	63.2	61.0	56.8	54.4	49.6	46.4	43.0	42.6	41.9	41.9	55.3	63.6	
	Max	60.6	80.6	43.8	69.0	67.0	65.0	64.0	61.0	57.0	46.0	45.0	44.0	44.0	60.6	63.6	



APPENDIX D

OPERATIONAL NOISE LEVEL CALCULATIONS

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STATIONARY SOURCE NOISE PREDICTION MODEL

6/11/2019

Observer Location: R1	Project Name: Toyota
Source: Unloading/Docking Activity	Job Number: 12578
Condition: Operational	Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer: 2,187.0 feet	Barrier Height:	0.0 feet
Noise Distance to Barrier: 2,187.0 feet	Noise Source Height:	8.0 feet
Barrier Distance to Observer: 0.0 feet	Observer Height:	5.0 feet
Observer Elevation: 0.0 feet	Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation: 0.0 feet	Drop Off Coefficient:	20.0
Barrier Elevation: 0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	30.0	67.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	2,187.0	-37.3	-37.3	-37.3	-37.3	-37.3	-37.3
Shielding (Barrier Attenuation)	2,187.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		29.9	-37.3	-37.3	-37.3	-37.3	-37.3
60 Minute Hourly Adjustment		29.9	-37.3	-37.3	-37.3	-37.3	-37.3

STATIONARY SOURCE NOISE PREDICTION MODEL

6/11/2019

Observer Location: R1	Project Name: Toyota
Source: Roof-Top Air Conditioning Unit	Job Number: 12578
Condition: Operational	Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer: 2,065.0 feet	Barrier Height:	0.0 feet
Noise Distance to Barrier: 2,065.0 feet	Noise Source Height:	5.0 feet
Barrier Distance to Observer: 0.0 feet	Observer Height:	5.0 feet
Observer Elevation: 0.0 feet	Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation: 30.0 feet	Drop Off Coefficient:	20.0
Barrier Elevation: 0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	2,065.0	-52.3	-52.3	-52.3	-52.3	-52.3	-52.3
Shielding (Barrier Attenuation)	2,065.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		24.9	-52.3	-52.3	-52.3	-52.3	-52.3
39 Minute Hourly Adjustment		23.0	-54.2	-54.2	-54.2	-54.2	-54.2

STATIONARY SOURCE NOISE PREDICTION MODEL

6/11/2019

Observer Location: R1

Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Toyota

Job Number: 12578
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer:	1,886.0 feet	Barrier Height:	0.0 feet
Noise Distance to Barrier:	1,886.0 feet	Noise Source Height:	5.0 feet
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	10.0	52.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,886.0	-34.1	-34.1	-34.1	-34.1	-34.1	-34.1
Shielding (Barrier Attenuation)	1,886.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		18.1	-34.1	-34.1	-34.1	-34.1	-34.1
60 Minute Hourly Adjustment		18.1	-34.1	-34.1	-34.1	-34.1	-34.1

STATIONARY SOURCE NOISE PREDICTION MODEL

6/11/2019

Observer Location: R2

Source: Unloading/Docking Activity
Condition: Operational

Project Name: Toyota

Job Number: 12578
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer:	1,947.0 feet	Barrier Height:	0.0 feet
Noise Distance to Barrier:	1,947.0 feet	Noise Source Height:	8.0 feet
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	30.0	67.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,947.0	-36.2	-36.2	-36.2	-36.2	-36.2	-36.2
Shielding (Barrier Attenuation)	1,947.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		31.0	-36.2	-36.2	-36.2	-36.2	-36.2
60 Minute Hourly Adjustment		31.0	-36.2	-36.2	-36.2	-36.2	-36.2

STATIONARY SOURCE NOISE PREDICTION MODEL

6/11/2019

Observer Location: R2

Source: Roof-Top Air Conditioning Unit
Condition: Operational

Project Name: Toyota

Job Number: 12578
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer:	2,881.0 feet	Barrier Height:	0.0 feet
Noise Distance to Barrier:	2,881.0 feet	Noise Source Height:	5.0 feet
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation:	30.0 feet	Drop Off Coefficient:	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	2,881.0	-55.2	-55.2	-55.2	-55.2	-55.2	-55.2
Shielding (Barrier Attenuation)	2,881.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		22.0	-55.2	-55.2	-55.2	-55.2	-55.2
39 Minute Hourly Adjustment		20.1	-57.1	-57.1	-57.1	-57.1	-57.1

STATIONARY SOURCE NOISE PREDICTION MODEL

6/11/2019

Observer Location: R2

Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Toyota

Job Number: 12578
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer:	2,521.0 feet	Barrier Height:	0.0 feet
Noise Distance to Barrier:	2,521.0 feet	Noise Source Height:	5.0 feet
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	10.0	52.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	2,521.0	-36.0	-36.0	-36.0	-36.0	-36.0	-36.0
Shielding (Barrier Attenuation)	2,521.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		16.2	-36.0	-36.0	-36.0	-36.0	-36.0
60 Minute Hourly Adjustment		16.2	-36.0	-36.0	-36.0	-36.0	-36.0

STATIONARY SOURCE NOISE PREDICTION MODEL

6/11/2019

Observer Location: R3

Source: Unloading/Docking Activity
Condition: Operational

Project Name: Toyota

Job Number: 12578
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer:	1,350.0 feet	Barrier Height:	0.0 feet
Noise Distance to Barrier:	1,350.0 feet	Noise Source Height:	8.0 feet
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	30.0	67.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,350.0	-33.1	-33.1	-33.1	-33.1	-33.1	-33.1
Shielding (Barrier Attenuation)	1,350.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		34.1	-33.1	-33.1	-33.1	-33.1	-33.1
60 Minute Hourly Adjustment		34.1	-33.1	-33.1	-33.1	-33.1	-33.1

STATIONARY SOURCE NOISE PREDICTION MODEL

6/11/2019

Observer Location: R3

Source: Roof-Top Air Conditioning Unit
Condition: Operational

Project Name: Toyota

Job Number: 12578
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer:	1,721.0 feet	Barrier Height:	0.0 feet
Noise Distance to Barrier:	1,721.0 feet	Noise Source Height:	5.0 feet
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation:	30.0 feet	Drop Off Coefficient:	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,721.0	-50.7	-50.7	-50.7	-50.7	-50.7	-50.7
Shielding (Barrier Attenuation)	1,721.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		26.5	-50.7	-50.7	-50.7	-50.7	-50.7
39 Minute Hourly Adjustment		24.6	-52.6	-52.6	-52.6	-52.6	-52.6

STATIONARY SOURCE NOISE PREDICTION MODEL

6/11/2019

Observer Location: R3	<i>Project Name: Toyota</i>
Source: Parking Lot Vehicle Movements	<i>Job Number: 12578</i>
Condition: Operational	<i>Analyst: A. Wolfe</i>

NOISE MODEL INPUTS

<i>Noise Distance to Observer:</i> 1,363.0 feet	Barrier Height: 0.0 feet
<i>Noise Distance to Barrier:</i> 1,363.0 feet	<i>Noise Source Height:</i> 5.0 feet
<i>Barrier Distance to Observer:</i> 0.0 feet	<i>Observer Height:</i> 5.0 feet
<i>Observer Elevation:</i> 0.0 feet	<i>Barrier Type (0-Wall, 1-Berm):</i> 0
<i>Noise Source Elevation:</i> 0.0 feet	<i>Drop Off Coefficient:</i> 15.0
<i>Barrier Elevation:</i> 0.0 feet	
	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

<i>Noise Level</i>	<i>Distance (feet)</i>	<i>Leq</i>	<i>L50</i>	<i>L25</i>	<i>L8</i>	<i>L2</i>	<i>Lmax</i>
Reference (Sample)	10.0	52.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,363.0	-32.0	-32.0	-32.0	-32.0	-32.0	-32.0
Shielding (Barrier Attenuation)	1,363.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		20.2	-32.0	-32.0	-32.0	-32.0	-32.0
60 Minute Hourly Adjustment		20.2	-32.0	-32.0	-32.0	-32.0	-32.0

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