Harris & Associates

NOISE TECHNICAL MEMORANDUM

To: Megan Hamilton, Senior Planner, San Diego Unified Port District
From: Sharon Toland, Senior Technical Specialist, and Kelsey Hawkins, Noise Technical Analyst, Harris & Associates
Subject: **Analysis of Noise Impacts for the East Harbor Island Redevelopment/Topgolf and Waterfront Park Project**
Date: April 30, 2026
CC: Ryan Binns, Vice President, Harris & Associates
Att: 1, Roadway Construction Noise Model Results; 2, FHWA Noise Prediction Model Results

Introduction

This memorandum provides the results of Harris & Associates' analysis of the potential construction and operational noise and vibration impacts from implementation of the East Harbor Island Redevelopment/Topgolf and Waterfront Park Project (Project). The Project would redevelop portions of East Harbor Island. The Project area is approximately 38 acres of land generally bounded to the north by North Harbor Drive, to the west by Harbor Island Drive, to the south by Liberator Way and the Harbor Island East Basin portion of San Diego Bay, and to the east by the Convair Lagoon portion of San Diego Bay. A portion of the Project area is planned for redevelopment (East Harbor Island redevelopment area). The Project area is currently occupied by the San Diego Harbor Police headquarters; Avis Rent A Car System, LLC, Enterprise Mobility, and The Hertz Corporation rental car companies; and San Diego International Airport (SDIA) temporary construction staging facilities. Existing structures include several one- and two-story buildings, various shade structures, parking lots, fencing, and walkway pavement. Much of the Project area shoreline is covered with a combination of riprap and concrete.

Project components include demolition and removal of existing structures and improvements, realignment of Liberator Way, redevelopment of approximately 9.8 acres for the Topgolf entertainment complex, and development of a new waterfront park and promenade. The existing San Diego Harbor Police headquarters on the western side of East Harbor Island would remain in place. A Port Master Plan Amendment would also be required to add the Project to the Port Master Plan's (PMP) Project List for Planning District 2 per Section 30711 of the California Coastal Act and to change the land use designation of the Project area from Industrial Business Park, Open Space, and Harbor Services to Commercial Recreation, Park/Plaza, Street, and Specialized Berthing.

This analysis focuses on the potential net increase in ambient noise levels attributable to the Project components. The addition of the Topgolf entertainment complex, park and promenade, realignment of Liberator Way, and associated vehicle traffic within East Harbor Island are addressed below. Future redevelopment of adjacent parcels is not included in this Project-level analysis.

Noise Analysis Background

The California Department of Transportation defines "noise" as sound that is loud, unpleasant, unexpected, or undesired. Sound pressure levels are quantified using a logarithmic ratio of actual sound pressure to a reference pressure squared, called "bels." A bel is typically divided into tenths, or decibels

(dB). Sound pressure alone is not a reliable indicator of loudness because frequency (or pitch) also affects how receptors respond to sound. To account for the pitch of sounds and the corresponding sensitivity of human hearing, the raw sound pressure level is adjusted with a frequency-dependent A-weighting scale that is stated in units of decibels (dBA) (Caltrans 2013).

A receptor's response to a given noise may vary depending on the sound level, duration of exposure, character of the noise source, time of day during which the noise is experienced, and activity affected by the noise. Activities most affected by noise include rest, relaxation, recreation, study, and communication. Considering these factors, different measures of noise exposure have been developed to quantify the extent of effects from a variety of noise levels. The Community Noise Equivalent Level (CNEL) is the average equivalent A-weighted sound level over a 24-hour period. This measurement applies weights to noise levels during evening and nighttime hours to compensate for the increased disturbance response of people at those times. A +5 dBA weighting is applied to sound occurring between 7:00 p.m. and 10:00 p.m., and a +10 dBA weighting is applied to sound occurring between 10:00 p.m. and 7:00 a.m.

The dB level of a sound decreases (or attenuates) as the distance from the source of that sound increases. For a single point source, such as a piece of mechanical equipment, the sound level typically decreases by approximately 6 dBA each time the distance from the source doubles. Sound that originates from a linear (or "line") source, such as vehicular traffic, decreases by approximately 3 dBA per doubling of distance. Other contributing factors that affect sound reception include ground absorption, topography that provides a natural barrier, meteorological conditions, and the presence of human-made obstacles, such as buildings and sound barriers (Caltrans 2013).

Regulatory Setting

This section describes the local regulatory framework adopted to address noise.

Local

San Diego Unified Port District (District) planning documents and City of San Diego (City) regulations are summarized below, consistent with the Port Master Plan Update (PMPU) Final Program Environmental Impact Report analysis of noise impacts (District 2024a). Although the Project area is not under the City's jurisdiction, the District has not adopted its own specific thresholds of impact for potential noise and vibration impacts and, therefore, uses the standards and guidelines of other agencies as applicable to evaluate potential noise and vibration impacts (District 2024a).

Port Master Plan

The PMP is a water and land use plan that designates specific areas of San Diego Bay and the surrounding waterfront for a variety of uses. Additionally, the PMP contains official planning policies, consistent with a general statewide purpose, for the development of lands within the District. The PMP includes the following planning goal related to the noise environment (District 2020):

- **Planning Goal VIII**: The Port District will enhance and maintain the bay and tidelines as an attractive physical and biological entity.
    - Establish guidelines and standards facilitating the retention and development of an aesthetically pleasing tideland environment free of noxious odors, excessive noise, and hazards to the health and welfare of the people of California.

Port Master Plan Update

The Port Master Plan Update (PMPU) is a comprehensive update to the PMP. The PMPU EIR was certified in February 2024; however, the PMPU has not yet been formally certified by the California Coastal Commission. Therefore, the PMP remains the governing land use document of the District at the time this Draft EIR was drafted. Similar to the PMP, the PMPU provides the official goals and planning policies, as well as water and land uses, for development and conservation of the District tidelands, tidelands, and submerged lands that compose the PMPU area. With buildout expected to occur by 2050, the PMPU would implement the approximately 30-year planning vision by identifying allowable water and

land uses and providing policies to address six PMPU elements: Water and Land Uses, Ecology, Environmental Justice, Mobility, Safety and Resiliency, and Economics (District 2024b).

The following Environmental Justice Element goal listed in the PMPU aims to reduce noise impacts within the District (District 2024b):

- **EJ Goal 3:** Healthy, thriving communities in and around Tidelands
  - **EJ Objective 3.1:** Minimize land use conflicts between industrial, working waterfront uses and historical, adjacent residential uses

City of San Diego 2024 General Plan Update

The City of San Diego 2024 General Plan Update (2024 General Plan Update) Noise Element establishes noise and land use compatibility standards and outlines goals and policies to achieve these standards (City of San Diego 2024). New projects in the City must meet the noise exposure compatibility standards listed in Table 1, San Diego Land Use – Noise Compatibility Guidelines (General Plan Table NE-3), when evaluating the land use of proposed development projects. In parks and recreational areas, exterior noise exposure shall not exceed 75 dBA CNEL at any time. In parks and areas of active and passive recreation, exterior noise exposure of 70 dBA CNEL is conditionally compatible. For visitor accommodations, exterior noise level exposure shall not exceed 75 dBA CNEL at any time, and noise levels up to 60 dBA CNEL are normally compatible, similar to residences. For other commercial services, such as entertainment and dining facilities, noise levels up to 65 dBA CNEL are normally compatible. Exposure between 60 and 75 dBA CNEL is conditionally compatible for visitor accommodations and other commercial services. For outdoor uses, feasible noise mitigation techniques should be incorporated to reduce noise levels to acceptable levels. If these noise limits are exceeded, the designated land use is incompatible with a proposed project's noise levels.

Table 1. San Diego Land Use – Noise Compatibility Guidelines (General Plan Table NE-3)

Land Use Category	Exterior Noise Exposure (dBA CNEL)				
	<60	60–65	65–70	70–75	75+
Parks and Recreational					
Parks; Active and Passive Recreation					
Outdoor Spectator Sports; Golf Courses; Water Recreational Facilities; Indoor Recreation Facilities					
Agricultural					
Crop Raising and Farming; Community Gardens; Aquaculture; Dairies; Horticulture Nurseries and Greenhouses; Animal Raising; Maintenance and Keeping; Commercial Stables					
Residential					
Single Dwelling Units; Mobile Homes		45			
Multiple Dwelling Units		45	45		
Institutional					
Hospitals; Nursing Facilities; Intermediate Care Facilities; K–12 Educational Facilities; Libraries; Museums; Childcare Facilities		45			
Other Educational Facilities (including Vocational/Trade Schools and Colleges and Universities)		45	45		
Cemeteries					
Retail Sales					

Table 1. San Diego Land Use – Noise Compatibility Guidelines (General Plan Table NE-3)

Land Use Category	Exterior Noise Exposure (dBA CNEL)				
	<60	60–65	65–70	70–75	75+
Building Supplies/Equipment; Groceries; Pets and Pet Supplies; Sundries, Pharmaceutical, and Convenience Sales; Apparel and Accessories			50	50	
Commercial Services					
Building Services; Business Support; Eating and Drinking; Financial Institutions; Maintenance and Repair; Personal Services; Assembly and Entertainment (includes Public and Religious Assembly); Radio and Television Studios; Golf Course Support			50	50	
Visitor Accommodations		45	45	45	
Offices					
Business and Professional; Government; Medical, Dental, and Health Practitioner; Regional and Corporate Headquarters			50	50	
Vehicle and Vehicular Equipment Sales and Services Use					
Vehicle Repair and Maintenance; Vehicle Sales and Rentals; Vehicle Equipment and Supplies Sales and Rentals; Vehicle Parking					50
Wholesale, Distribution, and Storage Use					
Equipment and Materials Storage Yards; Moving and Storage Facilities; Warehouse; Wholesale Distribution					50
Industrial					
Heavy Manufacturing; Light Manufacturing; Marine Industry; Trucking and Transportation Terminals; Mining and Extractive Industries					50
Research and Development				50	50

Compatibility Key:

	Compatible	Indoor Uses	Standard construction methods should attenuate exterior noise to an acceptable indoor noise level.
		Outdoor Uses	Activities associated with the land use may be carried out.
45, 50	Conditionally Compatible	Indoor Uses	Building structure must attenuate exterior noise to the indoor noise level indicated by the number (45 or 50) for occupied areas.
		Outdoor Uses	Feasible noise mitigation techniques should be analyzed and incorporated to make the outdoor activities acceptable.
	Incompatible	Indoor Uses	New construction should not be undertaken.
		Outdoor Uses	Severe noise interference makes outdoor activities unacceptable.

Source: City of San Diego 2024.
Notes: CNEL = community noise equivalent level; dBA = A-weighted decibel
Compatible noise levels and land use definitions reflect amendments to the 2008 General Plan Noise Element approved in 2015.

San Diego Municipal Code – Noise Ordinance

Chapter 5, Article 9.5, Noise Abatement and Control, of the San Diego Municipal Code (SDMC) declares that the making, creation, or continuance of excessive noises is detrimental to the health, comfort, convenience, safety, welfare, and prosperity of City residents. SDMC Section 59.5.0401 establishes sound level limits for morning, evening, and nighttime hours. The exterior noise limits for each land use classification are summarized in Table 2, City of San Diego Table of Applicable Noise Limits (1-Hour dBA). One-hour average sound levels are not to exceed the applicable limit at or beyond a residentially zoned property line. Noise subject to these limits is defined as the portion of the total noise at the specified location that results solely from the action of the identified source.

The San Diego Noise Ordinance (SDMC Section 59.5.0501) establishes prohibitions for disturbing, excessive, or offensive noise, as well as programs to reduce noise in areas in the City where noise levels are above significance thresholds (City of San Diego 2024). Table 2 summarizes the applicable SDMC regulations.

Table 2. City of San Diego Table of Applicable Noise Limits (1-Hour dBA)

Land Use Category	Time of Day	1-Hour Average Sound Level (dBA)
Single Family Residential	7:00 a.m.–7:00 p.m. 7:00 p.m.–10:00 p.m. 10:00 p.m.–7:00 a.m.	50 45 40
Multi-Family Residential (up to a maximum density of 1/2,000)	7:00 a.m.–7:00 p.m. 7:00 p.m.–10:00 p.m. 10:00 p.m.–7:00 a.m.	55 50 45
All Other Residential	7:00 a.m.–7:00 p.m. 7:00 p.m.–10:00 p.m. 10:00 p.m.–7:00 a.m.	60 55 50
Commercial	7:00 a.m.–7:00 p.m. 7:00 p.m.–10:00 p.m. 10:00 p.m.–7:00 a.m.	65 60 60
Industrial or Agriculture	any time	75

Source: City of San Diego 2005.

Notes: dBA = A-weighted decibel

The San Diego Noise Ordinance also includes requirements for construction noise. SDMC Section 59.5.0404 sets forth the following limitations related to construction noise (City of San Diego 2024):

A. It shall be unlawful for any person, between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in Section 21.04 of the San Diego Municipal Code, with the exception of Columbus Day and Washington's Birthday, or on Sundays, to erect, construct, demolish, excavate for, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator. In granting such permit, the Administrator shall consider whether the construction noise in the vicinity of the proposed work site would be less objectionable at night than during the daytime because of different population densities or different neighboring activities; whether obstruction and interference with traffic particularly on streets of major importance would be less objectionable at night than during the daytime; whether the type of work to be performed emits noises at such a low level as to not cause significant disturbances in the vicinity of the work site; the character and nature of the neighborhood of the proposed work site; whether great economic hardship would occur if the work were spread over a longer time; whether proposed night work is in the general public interest; and he shall prescribe such conditions, working times, types of construction equipment to be used, and permissible noise levels as he deems to be required in the public interest.

B. Except as provided in subsection C. hereof, it shall be unlawful for any person, including the City of San Diego, to conduct any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 decibels during the 12–hour period from 7:00 a.m. to 7:00 p.m.
C. The provisions of subsection B. of this section shall not apply to construction equipment used in connection with emergency work, provided the Administrator is notified within 48 hours after commencement of work.

Existing Noise Environment

Existing noise sources that affect the Project area are described below.

Existing Noise Sources

The PMPU Final Program Environmental Impact Report describes the existing noise environment within the District (District 2024a).

Due to the large geographical area and varied land uses within the District, the existing noise environment varies widely within and around the District. Notable noise sources within the District include the following (District 2024a):

- Transportation sources such as traffic, aircraft (civilian and military), watercraft (recreational, commercial, and military), and rail (passenger, freight, and trolley)
- Industrial activities such as ship operations and cargo-handling activities at and around District terminals; shipbuilding and repair; manufacturing activities; and storage, loading, and shipping operations
- Activities at various U.S. Navy installations
- Commercial and recreational activities such as operations at the San Diego Convention Center, area hotels, restaurants, parks, marinas, and cruise ship terminals

Within the Project area, noise sources include traffic, aircraft, area hotels, parks, and marinas. The Project area is not in an area typically affected by rail or industrial noise.

Existing Noise Levels

An ambient sound level survey was conducted in January 2024 to quantify the noise environment within the Project boundary and the surrounding vicinity. One short-term (1-hour) measurement was taken on Liberator Way between the existing rental car facilities and East Basin. One long-term (24-hour) measurement was taken on Liberator Way, just west of the short-term survey location conducted on the same street, and across Harbor Island Drive from the Sheraton San Diego Hotel & Marina. The short-term (1-hour) measurement was taken between approximately 10:00 a.m. and 11:00 a.m. on January 17, 2024. The long-term (24-hour) measurement was taken between approximately 12:00 p.m. on January 17, 2024, and 1:00 p.m. on January 18, 2024.

A Larson Davis SoundExpert LxT Type I integrating sound level meter calibrated with a Larson Davis CAL200 calibrator was used to record ambient sound levels. Weather conditions during the measurements were calm, with a temperature of 59 degrees Fahrenheit (°F), wind speeds of 3 miles per hour, and humidity of 75 percent. Table 3, Ambient Sound Level Measurements (dBA) – Short-Term Location (1-Hour Leq, dBA), summarizes the measured equivalent continuous sound level (Leq) and noise sources for the short-term monitoring location. Table 4, Ambient Sound Level Measurements – Long-Term Monitoring (24-Hour Leq, dBA), provides the measured hourly Leq for the long-term measurement. Figure 1 shows the monitoring locations. As shown in Table 4, existing noise levels are compatible with park and commercial service uses and conditionally compatible with visitor accommodations.

Table 3. Ambient Sound Level Measurements (dBA) – Short-Term Location (1-Hour Leq, dBA)

Site	Location	Observed Noise Sources	Date/Time	Leq	Lmax	Lmin
1	Liberator Way, between the existing rental car facilities (to the north) and the East Basin (to the south)	Constant traffic on North Harbor Drive and Liberator Way Construction at SDIA Airplane departures and arrivals at SDIA	January 17, 2024 9:57 a.m.	64.3	80.7	43.6

Notes: dBA = A-weighted decibel; Leq = equivalent continuous sound level; Lmax = maximum noise level; Lmin = minimum noise level; SDIA = San Diego International Airport

Table 4. Ambient Sound Level Measurements – Long-Term Monitoring (24-Hour Leq, dBA)

	Sound Level Range (Leq, dBA)
Average Daytime Noise Level (7:00 a.m. to 7:00 p.m.)	57–66 dBA Leq
Average Evening Noise Level (7:00 p.m. to 10:00 p.m.)	57–60 dBA Leq
Average Nighttime Noise Level (10:00 p.m. to 7:00 a.m.)	54–66 dBA Leq
CNEL for Measurement Period	62 dBA CNEL

Notes: CNEL = Community Noise Equivalent Level; dBA = A-weighted decibel; Leq = equivalent continuous sound level

Significance Thresholds

As discussed above, the District uses the standards and guidelines of other agencies to evaluate potential significant impacts. Because the nearest receptors to the Project outside the District are in the City of San Diego, the City of San Diego Noise Ordinance is applicable to the Project. Therefore, the Project would result in a substantial temporary or permanent increase in ambient noise levels within the vicinity of the Project area if noise levels exceed the standards established in the 2024 General Plan Update, San Diego Noise Ordinance, or the City's California Environmental Quality Act (CEQA) Significance Determination Thresholds. As such, a significant noise impact during construction would occur if:

- Project construction noise exceeded a 12-hour average noise level of 75 dBA limit at the nearest residential zone during the allowable construction hours of 7:00 a.m. and 7:00 p.m., or;
- If construction occurred outside the allowable hours stated in SDMC Section 59.5.0404(A).

The Project would also result in excessive groundborne vibration during construction or operation if it:

- Exceeds the "strongly perceptible" vibration annoyance potential criterion for human receptors as specified by the California Department of Transportation, or;
- Exceeds the criterion for damage to older residential structures for continuous/frequent intermittent construction sources as specified by the California Department of Transportation.

The nearest off-site receptor to the Project area is the Sheraton San Diego Hotel & Marina west of the Project area, approximately 300 feet from the closest Project construction area, and approximately 1,660 feet west from the proposed Topgolf Project site. Operation of the Project would result in a significant direct impact if:

- It results in an increase in vehicle noise that causes noise levels to exceed the City's CEQA Significance Determination Threshold of 65 dBA CNEL or:
- Results in a noticeable (more than 3 dBA) increase in noise levels on roadways where the compatibility standard would be exceeded without Project implementation (City of San Diego 2022; District 2024b). 65 dBA CNEL is the applicable standard for the nearest sensitive land use type (hotels) (City of San Diego 2022).

The CNEL standard is applicable to vehicle noise because vehicle noise is a constant contributor to the noise environment, but vary throughout the day, and generally cannot be controlled at the source. The CNEL provides a 24-hour average noise level that is weighted during periods when receptors are more sensitive (evening and nighttime hours).

For stationary operational noise sources and temporary construction noise, the Project would result in a significant impact if:

- Future noise levels exceed applicable San Diego Noise Ordinance noise level limits.

The 1-hour average sound level thresholds apply to sources that may contribute intermittently to the noise environment (such as HVAC systems that cycle on and off) and that may be controlled at the noise source (such as through shielding). These limits are for multi-family residences, but are conservatively applied in this analysis as a screening level at the nearest sensitive receptor, the Sheraton San Diego Hotel & Marina. The hotel is approximately 300 feet west of the nearest Project component, the proposed Harbor Island Drive/Liberator Way intersection entryway improvements. Hotels are considered by the District to be transient housing that is noise-sensitive land use during only the evening and nighttime hours between 7:00 p.m. and 7:00 a.m. when guests would be sleeping. Since Project construction would be conducted only between 7:00 a.m. and 7:00 p.m. per City of San Diego Municipal Code, Section 21.04, the Sheraton San Diego Hotel & Marina is not a noise-sensitive land use with regard to temporary construction noise. However, the hotel is used to screen for impacts to receptors at a greater distance from the activity area for construction and operation.

Impact Analysis

The following discussion includes an analysis of temporary construction noise and increases in vehicle noise and other operational noise sources that may result from Project implementation.

Construction

Temporary Construction Noise

Construction of the Project would potentially result in temporary noise level increases due to the operation of heavy equipment. Construction of the Project would generate noise that could expose nearby receptors to elevated noise levels that may disrupt communication and routine activities. The magnitude of the impact would depend on the type of construction activity, equipment, duration of the construction phase, distance between the noise source and receiver, and intervening structures. Sound levels from typical construction equipment range from 60 to 90 dBA Leq at 50 feet from the source (FHWA 2018). Noise from construction equipment generally exhibits point source acoustical characteristics. A point source sound decays at a rate of 6 dBA per doubling of distance from the source. This rule applies to the propagation of sound waves with no ground interaction.

Standard equipment, such as dozers, loaders, graders, backhoes, scrapers, and miscellaneous trucks, would be used for construction of the Project. A pile driver may also be required for installation of poles for netting at the Topgolf visitor-serving attraction. A pile driver would not be required for other Project components, such as the proposed Harbor Island Drive/Liberator Way intersection entryway improvements. Noise levels from standard construction equipment in the Project area were determined based on typical equipment noise levels established by the Roadway Construction Noise Model (FHWA 2018) (Attachment 1, Roadway Construction Noise Model Results). The three noisiest pieces of construction equipment (grader, excavator, and dozer) that could be required for the Project were assumed to operate simultaneously in the same location. Project construction has the potential to generate average noise levels of 83.7 dBA at 50 feet from the construction site. On days when use of pile driver would be required, the three noisiest pieces of construction equipment plus use of pile driver would potentially result in average noise levels of 94.2 dBA at 50 feet.

Based on the typical attenuation rate of 6 dBA per doubling of distance from the source (Caltrans 2013), Project construction would have the potential to exceed the residential property line screening level of 75 dBA between 7:00 a.m. and 7:00 p.m. (as specified in the San Diego Noise Ordinance) up to 140 feet from the construction area during typical construction, and up to 460 feet from the construction area on days when pile driving is required. No sensitive receptors are located within 140 feet or 460 feet of the construction area. The closest receptor to the construction area is the Sheraton San Diego Hotel & Marina. The San Diego Noise Ordinance applies specifically to residential development, and it is conservative to

apply the standard to hotel land use. The hotel is more than 460 feet from the construction area for the Topgolf visitor-serving attraction site, where pile driving would potentially be required. The hotel is approximately 300 feet west of the nearest Project component, the proposed Harbor Island Drive/Liberator Way intersection entryway improvements. Project construction has the potential to generate noise levels up to 69.4 dBA at 300 feet from the construction site. As described above, the hotel is not considered a sensitive receptor for daytime construction noise. However, because the SDMC threshold would not be exceeded at the closest receptor, it would not be exceeded at any residences located at a greater distance from the construction area. Construction would not exceed 75 dBA at the nearest sensitive land use; therefore, it would not exceed the San Diego Noise Ordinance limit at any residential property line. Additionally, construction activities would occur only between the hours of 7:00 a.m. and 7:00 p.m. and would comply with restrictions specified in the San Diego Noise Ordinance. Therefore, the Project would not exceed the San Diego Noise Ordinance noise level limit of 75 dBA from 7:00 a.m. to 7:00 p.m. at nearby sensitive receptors. Impacts during construction would be less than significant.

Temporary Construction Groundborne Vibration

Excessive groundborne vibration would occur if construction-related groundborne vibration exceeds the "strongly perceptible" vibration annoyance potential criterion of 0.1 inch per second peak particle velocity for human receptors as specified by the California Department of Transportation (Caltrans 2013). The criterion of 0.5 inch per second peak particle velocity for damage to older residential structures for continuous/frequent intermittent construction sources (such as impact pile drivers, vibratory pile drivers, and vibratory compaction equipment) is also considered. As shown in Table 5, Vibration Levels from Typical Construction Equipment, typical construction equipment would generally not result in excessive groundborne vibration above the California Department of Transportation-allowed levels for annoyance or building damage beyond 50 feet of equipment operation. Use of a pile driver for installation of netting poles would attenuate to 0.1 inches/second peak particle velocity at approximately 155 feet.

No receptors are within 50 feet or 155 feet of the Project construction area. The nearest off-site receptor to the Project area is the Sheraton San Diego Hotel & Marina west of the Project area (approximately 300 feet from the closest Project construction area). Additionally, off-site exposure to groundborne vibration would be temporary and limited to short-term operation of a pile driver or vibratory roller, or similar equipment, within the immediate vicinity of receptors. Therefore, temporary impacts related to groundborne vibration from standard construction would be less than significant.

Table 5. Vibration Levels from Typical Construction Equipment

Equipment Description	Approximate RMS Vibration Level at 25 Feet (inches/second)	Approximate RMS Vibration Level at 50 Feet (inches/second)	Approximate RMS Vibration Level at 155 Feet (inches/second)
Vibratory Roller	0.210	0.074	0.014
Hoe Ram	0.089	0.031	0.006
Large Bulldozer	0.089	0.031	0.006
Caisson Drilling	0.089	0.031	0.006
Loaded Trucks	0.076	0.027	0.005
Jackhammer	0.035	0.012	0.002
Small Bulldozer	0.003	0.001	<0.001
Pile Driver (Impact – Upper Range)	1.518	0.537	0.098

Source: FTA 2018
Notes: RMS = root mean square

Additionally, no operational vibration is associated with the Project. Therefore, the Project would not result in a significant impact related to vibration during operation, and no further discussion is required.

Operation

The following analysis focuses on vehicle traffic generated by the proposed Topgolf visitor-serving attraction and the proposed waterfront park and promenade, the only Project components with the potential to result in a net increase in area traffic volumes. Roadway improvements would not generate new vehicle trips.

Permanent Increase in Vehicle Noise

The potential for implementation of the proposed Topgolf visitor-serving attraction and waterfront park and promenade to permanently increase ambient noise levels from increased traffic was assessed using standard noise modeling equations adapted from the Federal Highway Administration Noise Prediction Model (Attachment 2, FHWA Noise Prediction Model Results). The modeling calculations account for the posted vehicle speed, median width, average daily trip volume, and estimated vehicle mix. Traffic volumes and roadway characteristics with buildout of the Project were obtained from Chen Ryan Associates (CRA 2024). Noise levels were calculated at 50 feet from the centerline of each roadway segment. Generally, noise from heavily traveled roadways experience a decrease of approximately 3 dBA for every doubling of distance. The actual sound level at any receptor location depends on the source-to-receptor distance and the presence of intervening structures, barriers, vegetation, and topography; therefore, the result of the calculations is the worst-case scenario. Noise levels were calculated at 50 feet from the centerline of each roadway segment.

Table 6, Near-Term Traffic Noise Levels with and without Project Implementation, provides the worst-case near-term buildout noise levels with implementation of the Project from the study area segments during opening year of the Project. Table 7, Long-Term Traffic Noise Levels with and without Project Implementation, provides long-term increases in noise levels with Project implementation, accounting for regional growth and planned projects in the area. Further, cumulative impacts are evaluated in Table 8, Cumulative Traffic Noise Level Increase, which compares long-term traffic noise levels with cumulative growth and Project implementation to near-term conditions.

Table 6. Near-Term Traffic Noise Levels with and without Project Implementation

Roadway	Segment	Near-Term Noise Level (dBA CNEL)	Near-Term + Project (dBA CNEL)	Increase in Noise Level	Significant Impact?
Harbor Island Drive	South of North Harbor Drive	66.2	66.3	+0.1	No
North Harbor Drive	Liberator Way to Lindbergh Field Way	82.5	82.5	+0	No
	Laurel Street to Hawthorn Street	80.2	80.2	+0	No
Laurel Street	North Harbor Drive to Pacific Highway	70.7	70.8	+0.1	No
	East of Pacific Highway	68.8	68.9	+0.1	No

Source: Attachment 2.
Notes: CNEL = community noise equivalent level; dBA = A-weighted decibel

Table 7. Long-Term Traffic Noise Levels with and without Project Implementation

Roadway	Segment	Future Noise Level (dBA CNEL)	Future + Project (dBA CNEL)	Increase in Noise Level	Significant Impact?
Harbor Island Drive	South of North Harbor Drive	69.1	69.2	+0.1	No
North Harbor Drive	Liberator Way to Lindbergh Field Way	82.9	83.0	+0.1	No
	Laurel Street to Hawthorn Street	80.5	80.6	+0.1	No
Laurel Street	North Harbor Drive to Pacific Highway	73.2	73.3	+0.1	No
	East of Pacific Highway	69.8	69.9	+0.1	No

Source: Attachment 2.
Notes: CNEL = community noise equivalent level; dBA = A-weighted decibel

Table 8. Cumulative Traffic Noise Level Increase

Roadway	Segment	Existing (dBA CNEL)	Future + Project (dBA CNEL)	Change from Existing	Increase in Noise Level Attributable to Project	Cumulatively Considerable Contribution?
Harbor Island Drive	South of North Harbor Drive	66.2	69.2	+3.0	+0.1	No
North Harbor Drive	Liberator Way to Lindbergh Field Way	82.5	83.0	+0.5	+0.1	No
	Laurel Street to Hawthorn Street	80.2	80.6	+0.4	+0.1	No
Laurel Street	North Harbor Drive to Pacific Highway	70.7	73.3	+2.6	+0.1	No
	East of Pacific Highway	68.8	69.9	+1.1	+0.1	No

Source: Attachment 2.
Notes: CNEL = community noise equivalent level; dBA = A-weighted decibel

As shown in Table 6 and Table 7, implementation of the Project would not result in direct noise impacts on any study area segment. The Project contribution to changes in noise level would be less than 1 dBA on all segments under short-term and long-term conditions. The Project would not cause any segment to exceed the 60 dBA CNEL threshold for sensitive receptors, and there would be no noticeable (more than 3 dBA CNEL) change in existing traffic noise levels resulting from Project implementation. As shown in Table 8, regional growth would result in a 3 dBA CNEL increase in noise level on Harbor Island Drive. However, the Project would result in a less than 1 dBA contribution to the noise level increase on this segment and would not result in a cumulatively considerable contribution to any cumulative noise impact. Therefore, implementation of the Project would not result in direct or cumulatively considerable impacts

related to permanent increases in vehicle noise. Therefore, impacts from operational traffic noise would be less than significant.

Other Operational Noise Sources

The following describes other operational noise sources and their impacts that may result from Project implementation, including noise from activity at the Topgolf visitor-serving attraction, mechanical equipment, parking lot activity, and waterfront park and promenade. Sensitive receptors in the Project area include the Sheraton San Diego Hotel & Marina, Spanish Landing Park, and Harbor Island Park. As described below, the Sheraton San Diego Hotel & Marina is the closest sensitive receptor to all Project components and represents potential impacts to area sensitive receptors. The SDMC noise level limits for multi-family residences are conservatively applied to evaluate impacts to the hotel: 55 dBA (daytime), 50 dBA (evening), and 45 dBA (nighttime) noise standards.

Topgolf Vsitor-Serving Attraction Noise

New noise sources from human activity are associated with operation of the proposed Topgolf entertainment complex. The complex would include a three-story driving range facility with 108 hitting bays and an outdoor outfield enclosed by netting. The complex would also include a full-service restaurant, bar, lounges and corporate/event meeting spaces, and a family entertainment area with games. Music would be played above the individual hitting bays and may also be played on the rooftop entertainment area during events. Additionally, sound would be generated at the Topgolf visitor-serving attraction by patrons conversing, sometimes in raised voices. Proposed operating hours of the Topgolf visitor-serving attraction are daily from 9:00 a.m. to 1:00 a.m., Sunday through Thursday, and 9:00 a.m. to 2:00 a.m., Friday and Saturday.

A noise assessment completed for a similarly designed Topgolf facility in Burlingame, California, was used to evaluate the noise generation of the Project's Topgolf visitor-serving attraction (David J. Powers & Associates, Inc. 2020). The Burlingame Topgolf facility included the amenities mentioned above in a three-story structure, similar to the Project's Topgolf visitor-serving attraction. The Burlingame Topgolf facility analysis used an extensive sound level survey at an existing Topgolf facility in Gilbert, Arizona. Measured sound levels resulting from typical weekend Topgolf activities at the Gilbert Topgolf facility were plotted on a "heat map" representing noise levels generated on the Burlingame Topgolf facility site. This included measurements of existing Topgolf operation taken during daytime, evening, and nighttime hours. The results showed that the highest noise levels (above 65 dB) were generally contained within the netted outfield behind the open hitting bays. Noise levels ranging up to 65 dBA were shown to extend approximately 250 feet from the Topgolf facility. Worst-case noise levels were reduced to 55 dBA or below beyond approximately 160 feet in any direction of the Topgolf facility or outfield. On the side of the building opposite of the outfield, noise levels were reduced to below 55 dBA just outside the building, approximately 40 feet from the entrance. Operation of the Project's Topgolf visitor-serving attraction would be similar to or below the existing measured ambient noise levels in the Project area, as shown in Table 4. Based on the results of the analyses conducted at similar Topgolf facilities, noise generated from operation of the Project's Topgolf visitor-serving attraction would be approximately 55 dBA at 160 feet from the complex under normal operating conditions.

The nearest sensitive receptor to the proposed Topgolf visitor-serving attraction site is the Sheraton San Diego Hotel & Marina. The hotel is considered sensitive during evening and nighttime hours and is approximately 1,660 feet west from the proposed Topgolf visitor-serving attraction property line.

The Topgolf visitor-serving attraction would be in operation during the SDIA flight takeoff curfew (11:30 p.m.–6:00 a.m.), when ambient noise levels are reduced in the Project area due to the curfew. However, San Diego Noise Ordinance limits indicate noise levels below which a project would not result in a noise disturbance independent of ambient noise. At a distance of 1,660 feet, noise levels would be reduced to below 40 dBA and would not exceed the 50 dBA (evening) or 45 dBA (nighttime) noise standards applicable for the hotel. Therefore, the proposed Topgolf visitor-serving attraction would not increase ambient noise levels at the nearest sensitive receptors.

Mechanical Equipment Noise

The Topgolf visitor-serving attraction proposes heating, ventilation, and air conditioning (HVAC) systems for maintaining comfortable temperatures within the proposed Topgolf visitor-serving attraction. It is anticipated that the mechanical equipment would be within an enclosure on the rooftop of the complex.

A similarly sized Topgolf project in Burlingame, California, evaluated noise levels associated with enclosed rooftop HVAC systems. Noise from rooftop HVAC units was calculated to be approximately 50 dB at a reference distance of 100 feet from the building facade (David J. Powers & Associates, Inc. 2020). Based on this estimate, noise levels from rooftop HVAC equipment would be reduced to below the 45 dBA nighttime threshold at approximately 200 feet from the Topgolf visitor-serving attraction. The nearest noise-sensitive land use, the Sheraton San Diego Hotel & Marina, would be approximately 1,660 feet from any Topgolf visitor-serving attraction component-related HVAC equipment. As such, noise levels would not exceed the San Diego Noise Ordinance exterior noise level standards of 45 dBA (nighttime), 50 dBA (nighttime), and 55 dBA (daytime) at any sensitive receptor. Noise impacts resulting from daytime and nighttime HVAC system usage on the Topgolf visitor-serving attraction site would be less than significant.

Parking Lot Activity Noise

Noise sources from the proposed parking areas for the Topgolf visitor-serving attraction and the waterfront park and promenade would include car alarms, door slams, radios, and tire squeals, which are generally short term and intermittent. Parking lots have the potential to generate noise levels that exceed the exterior sound level limits established in the SDMC, depending on the location of the source; however, noise sources from the parking lot would be different from each other in kind, duration, and location. All Project parking would be surface-level parking. Surface-level parking would be along the western and southern boundary of the proposed Topgolf visitor-serving attraction and along the proposed realignment of Liberator Way.

Based on existing data of noise generation due to parking lot activities, a typical maximum noise level associated with parking lot activity would not exceed 65 dB maximum noise level (Lmax) from 50 feet (David J. Powers & Associates, Inc. 2020). Average (Leq) noise levels were predicted to be 5 dB lower than maximum noise levels. The distance between the nearest proposed parking spaces at the Topgolf visitor-serving attraction property line and the closest sensitive receptor, Sheraton San Diego Hotel & Marina, is approximately 1,660 feet. At this distance, noise levels generated by the nearest parking lot activities would be reduced to approximately 35 dBA Leq and would not be audible over existing ambient noise levels. The predicted exterior noise level would not exceed the San Diego Noise Ordinance's most conservative (nighttime) exterior noise level standard of 45 dBA for hotels. Noise from parking lot activities would be less than significant.

Waterfront Park and Promenade Noise Sources

The Project's proposed waterfront park and promenade have the potential to generate nuisance noise from the proposed recreational attractions (waterside paths), a step down area, health and wellness features, and recreational activity spaces. Noise from these uses would typically be limited to normal conversation noise levels (approximately 65 dBA) with some sporadic incidental recreational noise due to children at play or recreational users. The noises would be intermittent, short in duration, and at varying distances from individual receptors. Hours of operation in these areas would also be limited to typical park hours (6:00 a.m. to 10:30 p.m.), 7 days a week. Additionally, at the shortest distance between the proposed park improvements along Harbor Island Drive to the nearest sensitive receptor (Sheraton San Diego Hotel & Marina), approximately 400 feet, noise levels from typical conversation (65 dBA at 3 feet) (Caltrans 2013) would be reduced to below 25 dBA and would not be audible at the hotel. Therefore, the Project's proposed waterfront park and promenade would not exceed the San Diego Noise Ordinance's most conservative (nighttime) exterior noise level standards for the adjacent hotel and recreational uses. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Summary

Implementation of the Project would not result in temporary or permanent increases in noise levels above applicable thresholds. The Project would not result in a significant direct or cumulative permanent increase in vehicle noise levels. Existing sensitive receptors would not be exposed to noise levels in excess of the SDMC noise level limits as a result of temporary construction noise or long-term operation of the Topgolf entertainment complex, mechanical equipment, parking lots, or use of the waterfront park and promenade. Therefore, no mitigation is required for the Project.

References

Caltrans (California Department of Transportation). 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol. September. Accessed April 2026. https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf.

City of San Diego. 2005. City of San Diego Environmental Impact Report Guidelines. Revised September 2002. Updated December. Accessed April 2026. https://www.sandiego.gov/sites/default/files/legacy/cip/pdf/stadiumeir/2005-12_eir-guidelines-update.pdf.

City of San Diego. 2024. “Noise Element.” In the City of San Diego 2024 General Plan Update. July. Accessed April 2026. https://www.sandiego.gov/planning/work/general-plan.

City of San Diego. 2022. City of San Diego California Environmental Quality Act Significance Determination Thresholds. Updated September. Accessed April 2026. ttps://www.sandiego.gov/sites/default/files/september_2022_ceqa_thresholds_final.pdf.

City San Diego. 2024. San Diego Municipal Code, as amended.

CRA (Chen Ryan Associates). 2024. Local Mobility Analysis for East Harbor Island Redevelopment/Topgolf Project.

David J. Powers & Associates, Inc. 2020. Initial Study/Mitigated Negative Declaration, Topgolf Burlingame. February.

FHWA (Federal Highway Administration). 2018. Roadway Construction Noise Model. Version 2.0. Accessed April 2026. https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm2/.

District (San Diego Unified Port District). 2020. Port Master Plan. September. Accessed April 2026. https://www.portofsandiego.org/waterfront-development/port-master-plan-update.

San Diego Unified Port District. 2024a. Port Master Plan Update Final Program Environmental Impact Report (SCH No.2017031070). Certified by the Board of Port Authorities on February 24. Accessed September 2025. https://www.portofsandiego.org/waterfront-development/port-master-plan-update#finaleir.

San Diego Unified Port District. 2024b. Port Master Plan Update. Final Draft. San Diego Unified Port District Document No. 76469. Approved by the Board of Port Commissioners on February 28. Filed at the Office of the District Clerk on May 29. Accessed April 2026. https://www.portofsandiego.org/waterfront-development/port-master-plan-update.



Date: 5/10/2024 – Last saved by: Randy Deodat – Path: C:\GIS\Projects\Port of San Diego\East Harbor Island Topgolf\Map Docs\Noise\Figure1_NoiseMonitoringLocations.mxd

Source: Maxar Imagery 2022.

Harris & Associates

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Feet

Figure 1

Noise Measurement Locations

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project

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Attachment 1. Roadway Construction Noise Model Results

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Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/03/2025
Case Description: East Harbor - Pile Driving

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Sheraton	Residential	55.0	50.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Excavator	No	40		80.7	50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	83.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/03/2025
Case Description: East Harbor - Pile Driving

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Sheraton	Residential	55.0	50.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Vibratory Pile Driver	No	20		100.8	50.0	0.0
Grader	No	40	85.0		50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Excavator	No	40		80.7	50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Calculated (dBA)	Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Vibratory Pile Driver	100.8	93.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	100.8	94.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Attachment 2. FHWA Noise Prediction Model Results

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TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number:
Project Name: East Harbor Island Tc

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: CR Associates 2024
Community Noise Descriptor: L_{dn}: CNEL: X

"-" = contour is located within the roadway right-of-way.
Distance is from the centerline of the roadway segment to the receptor location.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition		Median	ADT	Design Speed	Alpha	Vehicle Mix Medium	Vehicle Mix Heavy	Distance from Centerline of Roadway CNEL at	Distance to Contour			
Roadway, Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	**50 Feet**	70 CNEL	65 CNEL	60 CNEL	55 CNEL
Harbor Island Drive												
South of N Harbor Drive, existing	4	28	12,206	35	0.5	2.0%	1.0%	**66.2**	-	60	130	279
South of N Harbor Drive, existing + project	4	28	12,491	35	0.5	2.0%	1.0%	**66.3**	-	61	132	283
South of N Harbor Drive, future (2031)	4	28	23,749	35	0.5	2.0%	1.0%	**69.1**	-	94	202	435
South of N Harbor Drive, future + project	4	28	24,476	35	0.5	2.0%	1.0%	**69.2**	-	96	206	444
N Harbor Drive												
Liberator Way to Lindbergh Field Way, existing	7	18	75,052	45	0.5	5.0%	3.0%	**82.5**	340	732	1,578	3,399
Liberator Way to Lindbergh Field Way, existing + project	7	18	75,908	45	0.5	5.0%	3.0%	**82.5**	342	738	1,590	3,425
Liberator Way to Lindbergh Field Way, future (2031)	7	18	82,470	45	0.5	5.0%	3.0%	**82.9**	362	780	1,680	3,619
Liberator Way to Lindbergh Field Way, future + project	7	18	84,652	45	0.5	5.0%	3.0%	**83.0**	368	793	1,709	3,683
N Harbor Drive												
Lindburgh Field Way to Laurel St, existing	6	18	76,374	45	0.5	5.0%	3.0%	**80.2**	239	515	1,110	2,392
Lindburgh Field Way to Laurel St, existing + project	6	18	77,230	45	0.5	5.0%	3.0%	**80.2**	241	519	1,118	2,409
Lindburgh Field Way to Laurel St, future (2031)	6	18	82,528	45	0.5	5.0%	3.0%	**80.5**	252	543	1,169	2,518
Lindburgh Field Way to Laurel St, future + project	6	18	84,710	45	0.5	5.0%	3.0%	**80.6**	256	552	1,189	2,563
Laurel Street												
N Harbor Drive to Pacific Highway, existing	4	12	31,302	40	0.5	2.0%	1.0%	**70.7**	56	120	259	557
N Harbor Drive to Pacific Highway, existing + project	4	12	31,730	40	0.5	2.0%	1.0%	**70.8**	56	121	261	562
N Harbor Drive to Pacific Highway, future (2031)	4	12	55,324	40	0.5	2.0%	1.0%	**73.2**	81	176	378	815
N Harbor Drive to Pacific Highway, future + project	4	12	56,415	40	0.5	2.0%	1.0%	**73.3**	83	178	383	825
Laurel Street												
East of Pacific Hwy, existing	4	8	21,021	40	0.5	2.0%	1.0%	**68.8**	-	90	194	418
East of Pacific Hwy, existing + project	4	8	21,306	40	0.5	2.0%	1.0%	**68.9**	-	91	196	421
East of Pacific Hwy, future (2031)	4	8	26,314	40	0.5	2.0%	1.0%	**69.8**	48	104	225	485
East of Pacific Hwy, future + project	4	8	27,041	40	0.5	2.0%	1.0%	**69.9**	49	106	229	494

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