# Final *Noise* Existing Conditions and Impact Analysis Report For the Mira Mesa Community Plan Update San Diego, California


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# Abbreviations and Acronyms

| | |
|---|---|
| ADT | average daily traffic |
| Caltrans | California Department of Transportation |
| CCR | California Code of Regulations |
| CEQA | California Environmental Quality Act |
| City | City of San Diego |
| CNEL | community noise equivalent level |
| CPA | Community Plan Area |
| CPIOZ | Community Plan Implementation Overlay Zones |
| CPU | Community Plan Update |
| dB | decibel |
| dBA | A-weighted Decibel |
| FTA | Federal Transit Administration |
| I-15 | Interstate 15 |
| I-805 | Interstate 805 |
| ID | Identifier |
| inch/sec | inch per second |
| $L_{eq}$ | one-hour equivalent noise level |
| $L_{max}$ | Maximum Noise Level |
| LT | long-term |
| MCAS | Marine Corps Air Station Miramar |
| mm/s | millimeter per second |
| NE | Noise Element |
| PST | Pacific Standard Time |
| PPV | peak particle velocity |
| SDIA | San Diego International Airport |
| SDMC | San Diego Municipal Code |
| ST | short-term |
| USEPA | United States Environmental Protection Agency |

# 1 Introduction

The purpose of this report is to document the existing noise conditions and any impacts to noise quality related to the Mira Mesa Community Plan Area (CPA) Community Plan Update (CPU).

The City of San Diego's (City) General Plan was adopted in 2008 and provides a comprehensive planning strategy and policy framework to shape long-term growth and development in the City. The Mira Mesa CPU supports the General Plan by providing localized goals and policies for the Mira Mesa CPA.

In the Mira Mesa CPA, the most common noise source is traffic noise on adjacent freeways, highways, and local roadways. Generally, the heavier and faster the traffic, the greater the noise levels. Mira Mesa's commercial and industrial areas also generate noise from their operations. Marine Corps Air Station (MCAS) Miramar lies immediately to the south of the Mira Mesa CPA and contributes military aircraft noise to the area.

## 1.1 Project Location

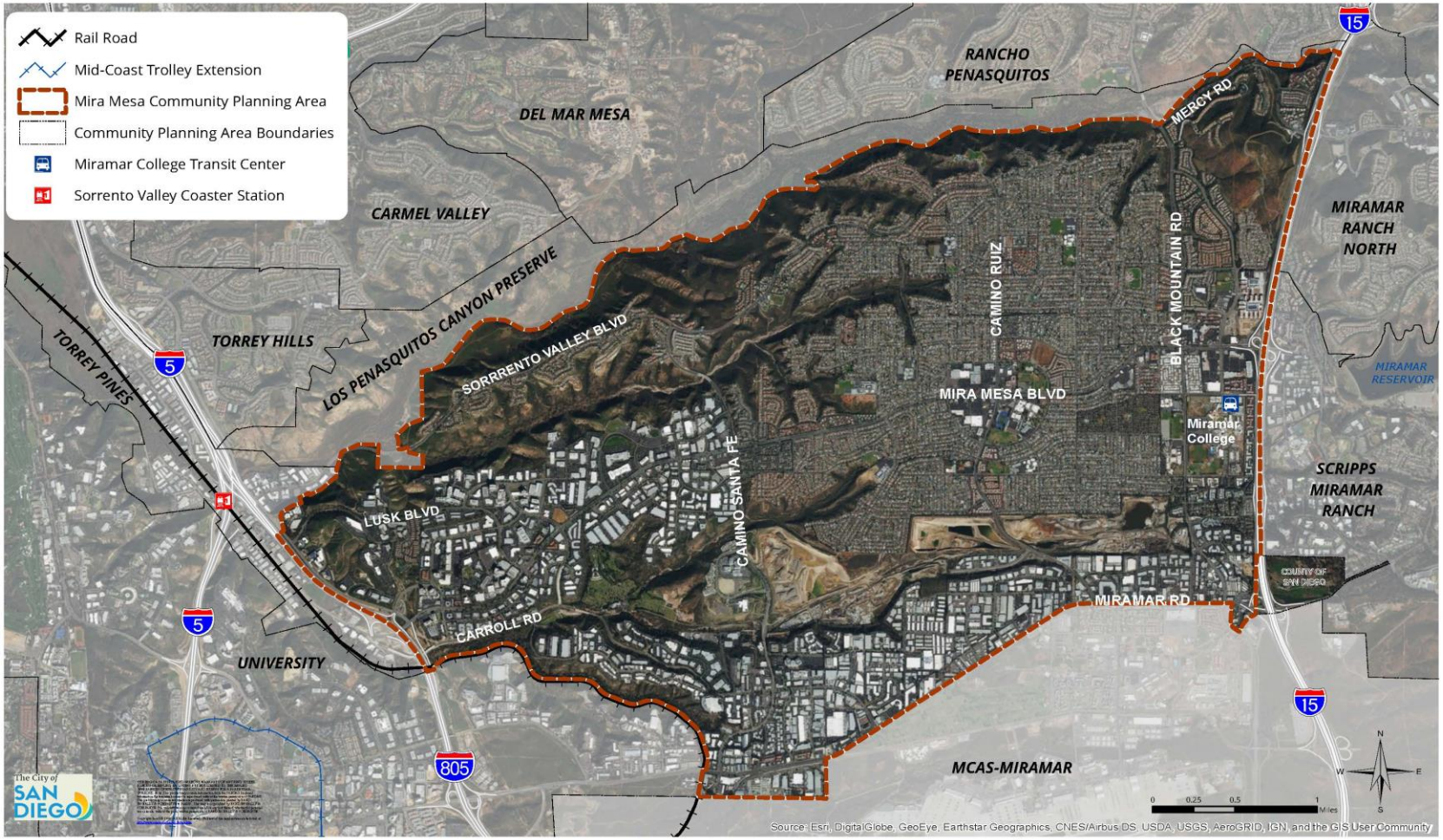
The Mira Mesa CPA is located within the north-central portion of the City, between the Interstate 805 (I-805) and Interstate 15 (I-15) corridors and is approximately 10,500 acres in area.

I-15 and the Miramar Ranch North and Scripps Miramar Ranch communities provide the eastern boundary of the CPA; MCAS Miramar, the southern boundary; I-805, the Atchison, Topeka and Santa Fe Railroad right-of-way, and the University and Torrey Pines communities, the western boundary; and Los Peñasquitos Canyon and the surrounding communities of Torrey Pines, Torrey Hills, Caramel Valley and Rancho Peñasquitos, the northern boundary.

Figure 1 shows the regional location of the CPA and Figure 2 shows an aerial view of the CPA.

**Figure 1 Regional Map of the Mira Mesa Community Plan Area**

**Figure 2 Mira Mesa Community Plan Area**



## 1.2 Project Description

The Mira Mesa CPA is a major residential and employment center, with approximately 80,000 residents (City of San Diego 2018) and approximately 83,000 jobs (City of San Diego 2019b). The Mira Mesa CPA is the largest industrial area in the region with a concentration of biotech, high-tech, defense, craft beverage/food, and manufacturing industry clusters. The CPA is a major industrial, office, and commercial center located in central San Diego (see Figure 1).

The purpose of the proposed CPU is to comprehensively update the adopted Mira Mesa Community Plan by analyzing current land use, development, and environmental characteristics; evaluating changes in demographics that may affect land use needs; understanding demand for housing, public facility, and commercial development; determining key issues of concern and providing vision and objectives for the CPU; evaluating the "fit" of adopted Community Plan policies to achieve current community goals and regulatory requirements; and ensuring that all policies and recommendations remain in harmony with the City's General Plan, Climate Action Plan, and State mandates (City of San Diego 2018).

The Mira Mesa CPU includes policies that provide guidance for new development related to noise. These policies include the following:

> **2.22 Freeway Adjacency.** Design any residential development built within 500 feet of a freeway to minimize the exposure of freeway impacts, including siting buildings and balconies perpendicular to the freeway, and using parking structures to shield units from noise.
>
> **2.24 Airport Land Use Compatibility.** Ensure that future development, land uses, building heights and intensities/densities, are consistent with airport policies identified in the Airport Land Use Compatibility Overlay Zone of the San Diego Municipal Code for MCAS Miramar, such as safety zones, noise contours, and airspace protection surfaces.
>
> **4.8 Caltrans Rights-of-Ways.** Work with Caltrans to plant trees in the landscaped areas in Caltrans right-of-way adjacent to I-805 and I-15 where feasible to assist in air pollution mitigation and noise mitigation.

## 1.3 Fundamentals of Noise and Vibration

### 1.3.1 Fundamentals of Noise

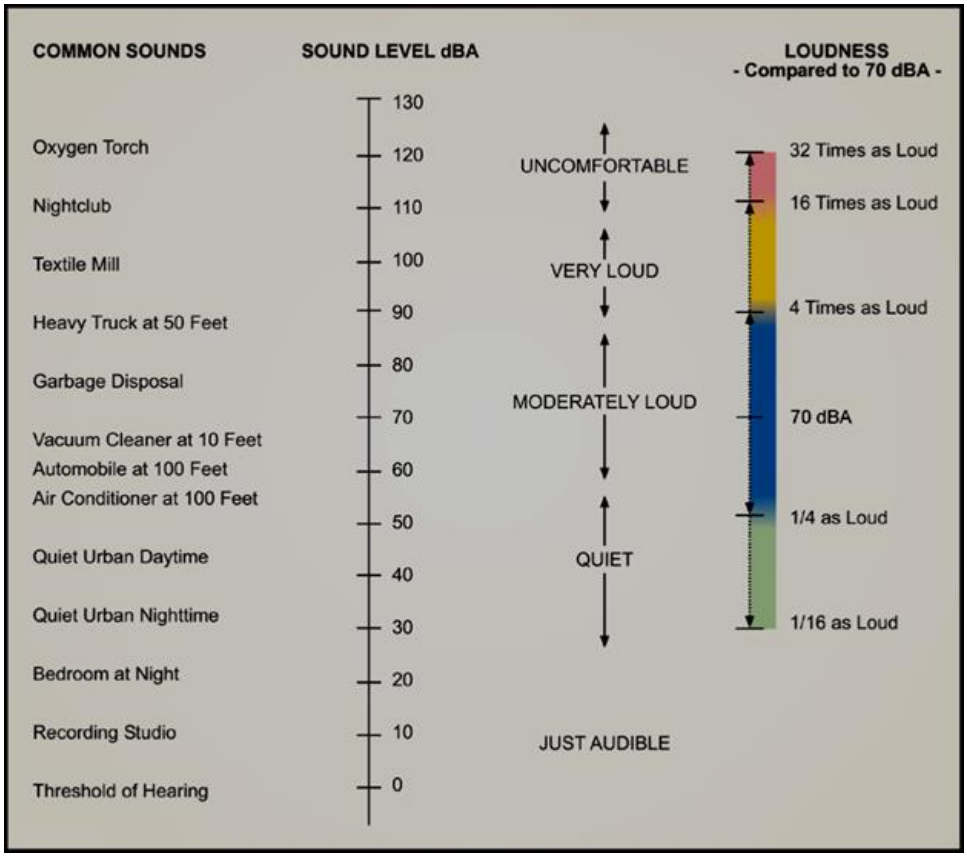
Noise is defined as unwanted or annoying sound that interferes with or disrupts normal human activities. Although continuous and extended exposure to high noise levels (e.g., through occupational exposure) can cause hearing loss, the principal human response to noise is annoyance. The response of different individuals to similar noise events is diverse and is influenced by the type of noise, perceived importance of the noise, its appropriateness in the setting, time of day, type of activity during which the noise occurs, and sensitivity of the individual.

Sound characteristics include the sound power – which relates to the source of the sound – and sound pressure – which is the sound received at a receptor. Sound power is the amount of energy of sound at the source. Sound pressure is the pressure vibrations caused by the source but perceived at the ear.

Levels of noise are measured in units called decibels (dB). However, several factors such as the actual level of noise, frequency, period of exposure, and fluctuations in noise levels during exposure affect how the human ear perceives sound. The human ear cannot equally perceive all pitches or frequencies and

noise measurements metrics are adjusted or weighted to compensate for the human lack of sensitivity to low- and high-pitched sounds. This commonly used adjusted unit is known as the A-weighted decibel (dBA). The A-weighted metric de-emphasizes very low and very high-pitched sound and is most often applied to noise generated by motor vehicle traffic and construction equipment. Typical sound levels are shown in Figure 3 and sound levels range from just audible at around 10 dB up to uncomfortably loud levels over 130 dBA.

Time-averaged noise levels are expressed by the symbol Leq, with a specified duration. For community planning purposes, average sound levels are preferred because they provide an overall cumulative average noise level. The CNEL represents the average of equivalent noise levels at a location for a 24-hour period, with 5 dBA added during the evening hours between 7 P.M. and 10 P.M., and 10 dBA added during the night hours between 10 P.M. and 7 A.M. These adjustments account for increased noise sensitivity and lower tolerance of individuals to noise during the evening and night periods.




**Sources: Derived from Harris (1979) and Federal Interagency Committee on Aviation Noise (1997).**

**Figure 3 A-weighted Sound Levels from Typical Sources**

### 1.3.2 Fundamentals of Vibration

Vibrations are movement of the ground or air caused by explosions, construction work, railway and road transport, or other forces causing the earth to move. These vibrational motions are measured in terms of peak particle velocity (PPV). Construction activities such as pile driving, demolition activities, blasting, and other earth-moving operations have the potential to cause ground vibrations that may cause structural damage to adjacent buildings. Unless there are extreme flaws in pavement surfaces, heavy

truck traffic on busy highways rarely creates vibrations strong enough to cause damage, though occasionally can generate human annoyance.

Transient vibration impacts to buildings vary depending on the type and structural integrity of buildings. According to the Swiss Association of Standardization Vibration Damage Criteria, transient vibration limits are a little more than double the continuous vibration limits.

# 2 Regulatory Framework

## 2.1 State Regulations

### 2.1.1 California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973 (Act), find that excessive noise is a serious hazard to the public health and welfare, and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. The Act also finds that there is a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

### 2.1.2 California Environmental Quality Act

Under CEQA, lead agencies are directed to assess conformance to local or other agency noise standards; measure and identify the potentially significant exposure of people to (or generation of) excessive ground-borne vibration or noise levels; and measure and identify potentially significant permanent or temporary increases in ambient noise levels. Implementation of CEQA ensures that during the decision-making stage of development, decision-makers and the public will be informed of any potentially excessive noise levels and available mitigation measures to reduce them to acceptable levels.

### 2.1.3 California Noise Insulation Standards (California Code of Regulations Title 24)

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for hotels, motels, dormitories, and multi-family residential buildings (California Building Standards Commission [CBSC] 2016a). Title 24 of the California Code of Regulations (CCR) regulates interior noise levels for habitable rooms. Title 24, Chapter 12, Section 1207 of the California Building Code requires that interior noise levels, attributable to exterior sources, not exceed 45 CNEL in any habitable room within a residential structure. A habitable room in a building is used for living, sleeping, eating, or cooking (24 CCR 1207 2016). The regulations also specify that acoustical studies must be prepared whenever a multi-family residential building or structure may be exposed to exterior noise levels of 60 CNEL or greater. The acoustical analysis must demonstrate that the residences have been designed to limit intruding noise to a maximum interior noise level of 45 CNEL.

### 2.1.4 California Green Building Standards Code – Environmental Comfort

For nonresidential structures, Title 24, Chapter 12, Section 1207.5 refers to the 2016 California Green Building Standards, Chapter 5 – Nonresidential Mandatory Measures, Division 5.5 – Environmental Quality Section 5.507 – Environmental Comfort, Subsection 5.507.4 – Acoustical Control. Following these standards, all nonresidential building construction shall employ building assemblies and components that achieve a composite sound transmission class rating of at least 50 or a composite

Outdoor-Indoor Sound Transmission Class rating of no less than 40 or shall otherwise demonstrate that exterior noise shall not result in interior noise environment where noise levels exceed 50 dBA in occupied areas during any hour of operation (24 CCR 1207.5 2019).

## 2.2 Local Regulations

### 2.2.1 City of San Diego General Plan Noise Element

In 2015, the City amended its General Plan to include revisions to its NE The NE includes goals and policies to guide compatible land uses and to incorporate noise attenuation measures for new uses to reduce noise impacts on people living and working in San Diego.

The NE discusses the relationship between noise and its effect on land uses. Land use planning for future noise-sensitive land uses provides for separation between excessive noise areas and noise-sensitive land uses. Residential and institutional areas, such as hospitals, nursing facilities, schools, and places of worship, are examples of noise-sensitive land uses.

To ensure new development does not create noise impacts, the City uses its Land Use – Noise Compatibility Guidelines as shown in Table 1 to evaluate noise exposure levels when reviewing land use development projects. A land use is considered "compatible" when exterior noise levels can be reduced to acceptable levels inside the structure by using standard construction methods. This also includes outdoor activities that can be exercised with minimal noise interference. Land uses that are "conditionally compatible" require additional noise attenuation beyond standard construction methods to reduce interior noise levels to acceptable levels. An acoustic study should be completed for land uses in "conditionally compatible" areas and should consider the type of noise source, the sensitivity of the noise receptor, and the degree that the noise source interferes with speech, sleep, or other activities characteristic of the land use. Development generally should not occur for land uses that are "incompatible" unless extensive mitigation is implemented.

Table 1 City of San Diego Land Use – Noise Compatibility Guidelines

| Land Use Category | Exterior Noise Exposure [dBA CNEL] | | | | |
|---|---|---|---|---|---|
| | 60 | 65 | 70 | 75 | |
| *Parks and Recreational* | | | | | |
| Parks, Active and Passive Recreation | | | | | |
| Outdoor Spectator Sports, Golf Courses; Water Recreational Facilities; Indoor Recreation Facilities | | | | | |
| *Agricultural* | | | | | |
| Crop Raising & Farming; Community Gardens, Aquaculture, Dairies; Horticulture Nurseries & Greenhouses, Animal Raising, Maintain & Keeping; Commercial Stables | | | | | |
| *Residential* | | | | | |
| Single Dwelling Units; Mobile Homes | | 45 | | | |
| Multiple Dwelling Units **For uses affected by aircraft noise, refer to Policies NE-D.2. & NE-D.3.* | | 45 | 45* | | |
| *Institutional* | | | | | |
| Hospitals; Nursing Facilities; Intermediate Care Facilities; Kindergarten through Grade 12 Educational Facilities; Libraries; Museums; Child Care Facilities | | 45 | | | |
| Other Educational Facilities including Vocational/Trade Schools and Colleges and Universities | | 45 | 45 | | |
| Cemeteries | | | | | |
| *Retail Sales* | | | | | |

| Table 1 City of San Diego Land Use – Noise Compatibility Guidelines | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Land Use Category** | | | | **Exterior Noise Exposure [dBA CNEL]** | | | |
| | | | | **60** | **65** | **70** | **75** |
| Building Supplies/Equipment; Food, Beverages & Groceries; Pets & Pet Supplies; Sundries, Pharmaceutical, & Convenience Sales; Wearing Apparel & Accessories | | | | | | 50 | 50 |
| *Commercial Services* | | | | | | | |
| Building Services; Business Support; Eating & Drinking; Financial Institutions; Maintenance & Repair; Personal Services; Assembly & Entertainment (includes public and religious assembly); Radio & Television Studios; Golf Course Support | | | | | | 50 | 50 |
| Visitor Accommodations | | | | | 45 | 45 | 45 |
| *Offices* | | | | | | | |
| Business & Professional; Government; Medical, Dental & Health Practitioner; Regional & Corporate Headquarters | | | | | | 50 | 50 |
| *Vehicle and Vehicular Equipment Sales and Services Use* | | | | | | | |
| Commercial or Personal Vehicle Repair & Maintenance; Commercial or Personal Vehicle Sales & Rentals; Vehicle Equipment & Supplies Sales & Rentals; Vehicle Parking | | | | | | | |
| *Wholesale, Distribution, Storage Use Category* | | | | | | | |
| Equipment & Materials Storage Yards; Moving & Storage Facilities; Warehouse; Wholesale Distribution | | | | | | | |
| *Industrial* | | | | | | | |
| Heavy Manufacturing; Light Manufacturing; Marine Industry; Trucking & Transportation Terminals; Mining & Extractive Industries | | | | | | | |
| Research & Development | | | | | | | 50 |
| | Compatible | Indoor Uses | Standard construction methods should attenuate exterior noise to an acceptable indoor noise level. Refer to Section I. | | | | |
| | | Outdoor Uses | Activities associated with the land use may be carried out. | | | | |
| | 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. Refer to Section I. | | | | |
| | | Outdoor Uses | Feasible noise mitigation techniques should be analyzed and incorporated to make the outdoor activities acceptable. Refer to Section I. | | | | |
| | Incompatible | Indoor Uses | New construction should not be undertaken. | | | | |
| | | Outdoor Uses | Severe noise interference makes outdoor activities unacceptable. | | | | |
| *Source:* City of San Diego General Plan Noise Element (2015)<br>*Legend:* dBA = A-weighted decibels; CNEL = community noise equivalent level | | | | | | | |

The NE outlines policies to address noise impacts associated with different categories including noise and land use compatibility; motor vehicle traffic; trolley and train; aircraft; commercial and mixed-use activity; industrial activity; construction, refuse vehicles, parking lot sweepers, and public activity noise; and event noise. In addition, the NE includes policies regarding noise attenuation methods. The following applicable NE policies are intended to minimize noise through standards, site planning, and noise mitigation:

1. Policy NE-A.1: Separate excessive noise-generating uses from residential and other noise-sensitive land uses with a sufficient spatial buffer of less sensitive uses.
2. Policy NE-A.2: Assure the appropriateness of proposed developments relative to existing and future noise levels by consulting the guidelines for noise-compatible land use (shown on Table NE-3) to minimize the effects on noise-sensitive land uses.
3. Policy NE-A.3: Limit future residential and other noise-sensitive land uses in areas exposed to high levels of noise.

4. Policy NE-A.4: Require an acoustical study consistent with Acoustical Study Guidelines (Table NE-4) for proposed developments in areas where the existing or future noise level exceeds or would exceed the "compatible" noise level thresholds as indicated on the Land Use - Noise Compatibility Guidelines (Table NE-3; shown as Table 1 in this report), so that noise mitigation measures can be included in the proposed project design to meet the noise guidelines.
5. Policy NE-A.5: Prepare noise studies to address existing and future noise levels from noise sources that are specific to a community when updating community plans.
6. Policy NE-B.1: Encourage noise-compatible land uses and site planning adjoining existing and future highways and freeways.

## 2.3 City of San Diego California Environmental Quality Act Thresholds

The City's California Environmental Quality Act (CEQA) Significance Determination Thresholds identify thresholds for traffic noise (City of San Diego 2020). These thresholds are summarized in Table 3.

**Table 2 Significance Thresholds for Traffic Noise**

| Type of Use that would be Impacted by Traffic Noise | Interior Space (dBA CNEL) | Exterior Useable Space* (dBA CNEL) | General Indication of Potential Significance |
|---|---|---|---|
| Single-family detached | 45 dB | 65 dB | Structure or outdoor useable area is less than 50 feet from the center of the closest (outside) lane on a street with existing or future ADTs greater than 7,500 vehicles |
| Multi-family, schools, libraries, hospitals, day care centers, hotels, motels, parks, convalescent homes | Development Services Department ensures 45 dB pursuant to Title 24 | 65 dB | |
| Offices, churches, businesses, professional uses | n/a | 70 dB | Structure or outdoor useable area is less than 50 feet from the center of the closest lane on a street with existing or future ADTs greater than 20,000 vehicles |
| Commercial, retail, industrial, outdoor spectator sports uses | n/a | 75 dB | Structure or outdoor useable area is less than 50 feet from the center of the closest lane on a street with existing or future ADTs greater than 40,000 vehicles |

*Source:* City of San Diego 2020

*Notes:*

*If a project is currently at or exceeds the significance thresholds for traffic noise described above and noise levels would result in less than a 3 dB increase, then the impact is not considered significant. Exterior usable areas do not include residential front yards or balconies, unless the areas such as balconies are part of the required usable open space calculation for multi-family units (City of San Diego 2020).

*Legend:* ADT = average daily traffic; dBA CNEL = A-weighted decibels average sound level for community noise equivalent level

## 2.4 City of San Diego Municipal Code Noise Abatement and Control Ordinance

The City's Municipal Code (SDMC) Section 59.5.0401 defines exterior noise level standards for various land uses, and permits differing noise levels depending upon the time of day. This standard protects noise-sensitive land uses (e.g., residential areas, hospitals, childcare facilities, schools) from high noise levels and guides the City's planning decisions (City of San Diego 2008). Table 3 shows the City's noise limits by land use and time of day.

**Table 3 City of San Diego Noise Limits by Land Use and Time of Day**

| Land Use Zone | Time of Day | One-Hour Average Sound Level (dB) |
|---|---|---|
| 1. Single Family Residential | 7 a.m. to 7 p.m. | 50 |
| | 7 p.m. to 10 p.m. | 45 |
| | 10 p.m. to 7 a.m. | 40 |
| 2. Multi-Family Residential (Up to a maximum density of 1/2000) | 7 a.m. to 7 p.m. | 55 |
| | 7 p.m. to 10 p.m. | 50 |
| | 10 p.m. to 7 a.m. | 45 |
| 3. All other Residential | 7 a.m. to 7 p.m. | 60 |
| | 7 p.m. to 10 p.m. | 55 |
| | 10 p.m. to 7 a.m. | 50 |
| 4. Commercial | 7 a.m. to 7 p.m. | 65 |
| | 7 p.m. to 10 p.m. | 60 |
| | 10 p.m. to 7 a.m. | 60 |
| 5. Industrial or Agricultural | Any time | 75 |

*Source:* San Diego Municipal Code §59.5.0401 (2019a)

Construction noise is regulated by the City's Noise Abatement and Control Ordinance (SDMC Section 59.5.0404). Pursuant to SDMC Section 59.5.0404, construction activity is prohibited between the hours of 7 P.M. and 7 A.M., on legal holidays as specified in Section 21.0104 of the SDMC (with the exception of Columbus Day and Washington's Birthday), and on Sundays. Exceptions are allowed and subject to a permit granted by the Noise Abatement and Control Administrator. Construction noise levels measured at or beyond the property lines of any property zoned residential are not permitted to exceed an average sound level (Leq) greater than 75 dB during the 12-hour period from 7 A.M. to 7 P.M. (City of San Diego 2019a).

## 2.5 Airport Land Use Compatibility Plans

The SDMC addresses issues related to safety compatibility in the airport land use compatibility overlay zone. Chapter 13 Article 2, Division 15 establishes the Airport Land Use Compatibility Overlay Zone, which ensures that new development located within an Airport Influence Area (AIA) for Marine Corps Air Station (MCAS) Miramar is compatible with respect to airport-related noise, public safety, airspace protection, and aircraft overflight areas. Regulations include safety compatibility and aircraft overflight notification.

# 3 Existing Noise Environment

## 3.1 Primary Noise Generators

The primary existing noise generators within the CPU area include the two nearby freeways (I-805and I-15), major roadways, and MCAS Miramar.

## 3.2 Noise Sensitive Land Uses

Noise sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise. Existing NSLUs in the CPU area include medical centers; the Mira Mesa –Branch Library; various hotels, private and public schools, and daycares; as well as residences located in the northeastern, central, and southeastern portions of the CPU area. Industrial and commercial land uses are generally not considered to be sensitive to noise.

## 3.3 Ambient Noise Levels

The community noise survey represents a range of the existing noise conditions and provides a representation of baseline noise conditions in the CPU area. Further analysis of ambient noise is analyzed in Section 4.1 of this report, which summarizes that while the sources of noise varied between sites, the primary noise generator in the CPU area is vehicular traffic.

# 4 Methodology

Future projects under the proposed CPU that involve facilities, such as the planned recreation centers, fire stations, etc., would generate stationary noise potentially affecting residents and other receptors near the facilities. Generally, future development or improvements in the CPU area involving construction would generate noise during construction. At this time, there is not sufficient detail (e.g. specific site plans and project level design) to analyze specific noise impacts at individual project sites. Therefore, this analysis discusses noise impacts programmatically such that specific impacts can be identified during the design stage of a project based upon the project's proximity to the nearest noise receptor.

## 4.1 Noise Measurements

A community noise survey was conducted to document noise levels throughout the CPU area. As part of this assessment, ambient noise levels were measured in the following focus areas for the Mira Mesa CPA: Mira Mesa Gateway, Mira Mesa Town Center, and Sorrento Mesa (Figure 4). These measurements help characterize the existing noise environment and assisted in determining constraints and opportunities for future development. Twelve 15-minute daytime noise level measurements and three long-term (up to 24 hours) noise measurements were conducted throughout the focus areas. Noise measurements were taken with a Type 1 Integrating Sound Level Meter, (Casella CEL-63X, Serial Number: 2145334). The following parameters were used:

| | |
|---|---|
| Filter: | A-weighted |
| Response: | Slow |
| Time History Period: | 5 seconds |
| Height of Instrument: | 5 feet above ground level |

Each measurement location is shown in Figure 1. A summary of the measurements is provided in Table 4. Based on the measurement data, daytime noise levels in the CPA are typical of an urban environment[1]. Each measurement location and noise source observed during the measurements are shown in the table.

Table 4 Mira Mesa Noise Measurements

| Focus Area | ID1 | Location (Street – Nearest landmark) | Date | Time | Leq |
|---|---|---|---|---|---|
| Mira Mesa Gateway | ST-1 | Hillery Drive – The Home Depot | 05/18/2021 | 9:36am PST | 68 |
| | ST-2 | Mira Mesa Blvd - Mira Mesa Market/Bucca di Beppo Parking Lot | 05/18/2021 | 12:31pm PST | 70 |
| | LT-1 | Mira Mesa Blvd - Mira Mesa Market/Bucca di Beppo Parking Lot | 05/18-19/2021 | 12:31pm PST | 70 |
| | ST-3 | Mira Mesa Blvd – United States Postal Service | 05/18/2021 | 9:10am PST | 74 |
| Mira Mesa Town Center | ST-1 | Mira Mesa Blvd – Mira Mesa Mall/ Panda Express Parking Lot | 05/18/2021 | 8:44am PST | 73 |
| | ST-2 | Camino Ruiz – El Pollo Loco Parking Lot | 05/19/2021 | 1:45pm PST | 65 |
| | LT-1 | Camino Ruiz – El Pollo Loco Parking Lot | 05/19-20/2021 | 1:45pm PST | 63 |
| Sorrento Mesa | ST-1 | Lusk Blvd – West of Pacific Center Blvd/ Qualcomm Building Q | 05/20/2021 | 9:00am PST | 69 |
| | LT-1 | Lusk Blvd – West of Pacific Center Blvd/ Qualcomm Building Q | 05/20-21/2021 | 2:32pm PST | 65 |
| | ST-2 | Mira Mesa Blvd – Fountain Plaza Parking Lot | 05/18/2021 | 10:58am PST | 68 |
| | ST-3 | Mira Mesa Blvd – Sorrento Commerce Park | 05/18/2021 | 11:19am PST | 59 |
| | ST-4 | Mira Mesa Blvd – Plaza Sorrento Shopping Center | 05/19/2021 | 1:14pm PST | 72 |
| Miramar Road | ST-1 | Miramar Road – Shell Gas Station | 05/21/2021 | 3:43pm PST | 73 |
| Black Mountain Road | ST-1 | Black Mountain Road – Intersection of Black Mountain Road and Maya Linda Road | 05/21/2021 | 3:05pm PST | 65 |
| | ST-2 | Black Mountain Road – Little India Shopping Center | 05/21/2021 | 3:25pm PST | 59 |

*Notes:*
[1]Measurement locations are shown in Figure 1. ID points refer to the ST – Short-term, LT – Long-term.
*Legend:* ID = identifier; $L_{eq}$ = one-hour equivalent noise level; PST – pacific standard time

The distance the noise meter was setup to the road for the noise measurements varied due to a variety of reasons including accessibility and being inobtrusive. As such the distances from the road vary for each measurement location. Normalizing the noise levels can be done mathematically to get levels at given intervals, such as 50, 100, and 150 feet. Table 4 shows the noise levels at the actual distance of the meter, and levels at 50, 100, and 150 feet from the roadway. Noise levels drop the farther away such that at 150 feet from the roads, noise levels are generally below 60 dB Leq.

[1] At the time of the noise measurements, students attend class in a hybrid format due to the COVID-19 pandemic. Approximately 54 percent of students and staff attend in-person class four days a week (San Diego County Office of Education 2021; Times of San Diego 2021).

| Table 5 Noise Levels at 50, 100, and 150 feet | | | | | | |
|---|---|---|---|---|---|---|
| **ID1** | **Location (Street – Nearest landmark)** | **Measurement Distance (feet)** | **Leq at Measure Point dBA** | **Leq at 50 feet (dBA)** | **Leq at 100 feet (dBA)** | **Leq at 150 feet (dBA)** |
| Mira Mesa Gateway | | | | | | |
| ST-1 | Hillery Drive – The Home Depot | 10 | 68 | 54 | 48 | 45 |
| ST-2 | Mira Mesa Blvd - Mira Mesa Market/Bucca di Beppo Parking Lot | 60 | 71 | 73 | 67 | 63 |
| ST-3 | Mira Mesa Blvd – United States Postal Service | 15 | 74 | 64 | 58 | 54 |
| LT-1 | Mira Mesa Blvd - Mira Mesa Market/Bucca di Beppo Parking Lot | 60 | 70 | 71 | 65 | 62 |
| Mira Mesa Town Center | | | | | | |
| ST-1 | Mira Mesa Blvd – Mira Mesa Mall/ Panda Express Parking Lot | 20 | 73 | 65 | 59 | 55 |
| ST-2 | Camino Ruiz – El Pollo Loco Parking Lot | 70 | 65 | 68 | 62 | 58 |
| LT-1 | Camino Ruiz – El Pollo Loco Parking Lot | 70 | 63 | 66 | 60 | 56 |
| Sorrento Mesa | | | | | | |
| ST-1 | Lusk Blvd – West of Pacific Center Blvd/ Qualcomm Building Q | 10 | 69 | 61 | 55 | 51 |
| ST-2 | Mira Mesa Blvd – Fountain Plaza Parking Lot | 70 | 68 | 60 | 54 | 50 |
| ST-3 | Mira Mesa Blvd – Sorrento Commerce Park | 70 | 59 | 62 | 56 | 53 |
| ST-4 | Mira Mesa Blvd – Plaza Sorrento Shopping Center | 30 | 72 | 64 | 58 | 55 |
| LT-1 | Lusk Blvd – West of Pacific Center Blvd/ Qualcomm Building Q | 60 | 65 | 57 | 51 | 48 |
| Miramar Road | | | | | | |
| ST-1 | Miramar Road – Shell Gas Station | 20 | 73 | 69 | 63 | 59 |
| Black Mountain Road | | | | | | |
| ST-1 | Black Mountain Road – Intersection of Black Mountain Road and Maya Linda Road | 70 | 65 | 68 | 62 | 58 |
| ST-2 | Black Mountain Road – Little India Shopping Center | 20 | 59 | 62 | 56 | 53 |
| *Legand*: ID = identifier; dBA = A-weighted decibel | | | | | | |

## 4.2 Existing Aircraft Noise Contours

The Mira Mesa CPA is affected by military aircraft noise generated from operations at MCAS Miramar. Fighter jets, including F-18E/F and F-35 aircraft, flying on the Julian and Seawolf departure routes dominate the noise contours emanating from MCAS Miramar. Aircraft generally depart MCAS Miramar to the west on one of these two routes. The Julian departure route takes off the runway and turns north over Mira Mesa. The Seawolf departure route takes aircraft west over the ocean.

Most of the land in the CPA north of MCAS Miramar is used for industrial or commercial purposes. Figure 5 shows the Mira Mesa CPA and the MCAS Miramar noise contours. Noise contours 65 dBA CNEL or greater extend from MCAS Miramar to as far as Mira Mesa Boulevard in the CPA. Since the area is

used for commercial and industrial purposes, there is a lack of existing noise-sensitive receptors. Residential areas occur under the 60 dBA CNEL noise contours, however according to the Airport Land Use Compatibility Overlay Zone, Noise Compatibility (City of San Diego 2022), areas between 60 and 65 dB CNEL are permitted for all residential areas provided interior noise levels are attenuated to below 45 dB CNEL.

## 4.3 Stationary Noise

Stationary noises are the noises emanating from or within a facility or building. Examples of stationary noises would be HVAC units, industrial equipment, parking lot operations, emergency generators, and recreational activities. Stationary noises are generated from a fixed location and are considered "point sources" from a noise analysis perspective. Noise from point sources decrease as the distance between the source and the receptor increases. The rate of decrease, or attenuation, is typically 6 A-weighted decibels (dBA) for each doubling of the distance (i.e., a compressor that has a noise level of 78 dBA at 50 feet reduces to 72 dBA at 100 feet, 66 dBA at 200 feet, and 60 dBA at 400 feet), but this attenuation can be increased by topographic differences or by intervening structures or vegetation.

Stationary noise impacts resulting from the proposed CPU would not likely change. Although build out would include more buildings and the use of stationary equipment, noise levels would not appreciably change because newer equipment tends to be quieter due to operating efficiencies. Metal enclosures for items such as air conditioning units on older units get loose and rattle and often get ignored, whereas new equipment is tight, and seals are fresh and noise from rattling sheet metal is minimized.

New stationary sources would be designed to comply with the SDMC Section 59.5.0401 defines exterior noise level standards for various land uses, and permits differing noise levels depending upon the time of day.

## 4.4 Construction Noise

Construction noise is generated using heavy equipment on job sites and is short-term in duration (i.e., the duration of the construction period). Use of heavy equipment occurs sporadically throughout daytime hours. Table 9 provides a list of representative samples of construction equipment and associated noise levels, adjusted for the percentage of time the equipment would typically be operated at full power at a construction site. Construction noise levels vary greatly depending on the construction process, type and condition of equipment used, and layout of the construction site. Overall, construction noise levels are governed primarily by the noisiest pieces of equipment, like impact devices (i.e., jackhammers, pile drivers).

## 4.5 Vibration

As previously discussed, construction activities such as pile driving, demolition activities, blasting, and other earth-moving operations have the potential to cause ground vibrations that may cause structural damage to adjacent buildings. Unless there are extreme flaws in pavement surfaces, heavy truck traffic on busy highways rarely creates vibrations strong enough to cause damage, though occasionally can generate human annoyance. Table 5 shows various vibration levels and corresponding effects expressed in terms of PPVs (Caltrans 2013).

| Table 6 Vibration Effects of Continuous and Transient Operations | | | | | |
|---|---|---|---|---|---|
| **Vibration Amplitude Levels (PPV - Peak Particle Velocity)** | | | | **Human Reaction (Continuous and Transient)** | **Effect on Buildings** |
| **Continuous** | | **Transient** | | | |
| **mm/s** | **in/sec** | **mm/s** | **in/sec** | | |
| 0.15–0.30 | 0.006–0.019 | 0.90 | 0.035 | Threshold of perception; possibility of intrusion | Vibrations unlikely to cause damage of any type |
| 2.0 | 0.08 | 6.10 | 0.24 | Vibrations readily perceptible | Recommended upper amplitude of the vibration to which ruins and ancient monuments should be subjected |
| 2.5 | 0.10 | 22.8 | 0.9 | Amplitude at which continuous vibrations begin to annoy people | Virtually no risk of "architectural" damage to normal buildings |
| 5.0 | 0.20 | | | Vibrations annoying to people in buildings (this agrees with the amplitudes established for people standing on bridges and subjected to relative short periods of vibrations) | Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings<br><br>Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage |
| 10–15 | 0.4–0.6 | 50.8 | 2.0 | Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges | Vibrations at a greater amplitude than normally expected from traffic but would cause "architectural" damage and possibly minor structural damage. |

*Source:* Caltrans 2013
*Legend:* mm/s = millimeters per second; in/sec = inches per second

**Figure 4 Mira Mesa Community Plan Update – Noise Monitoring Points**

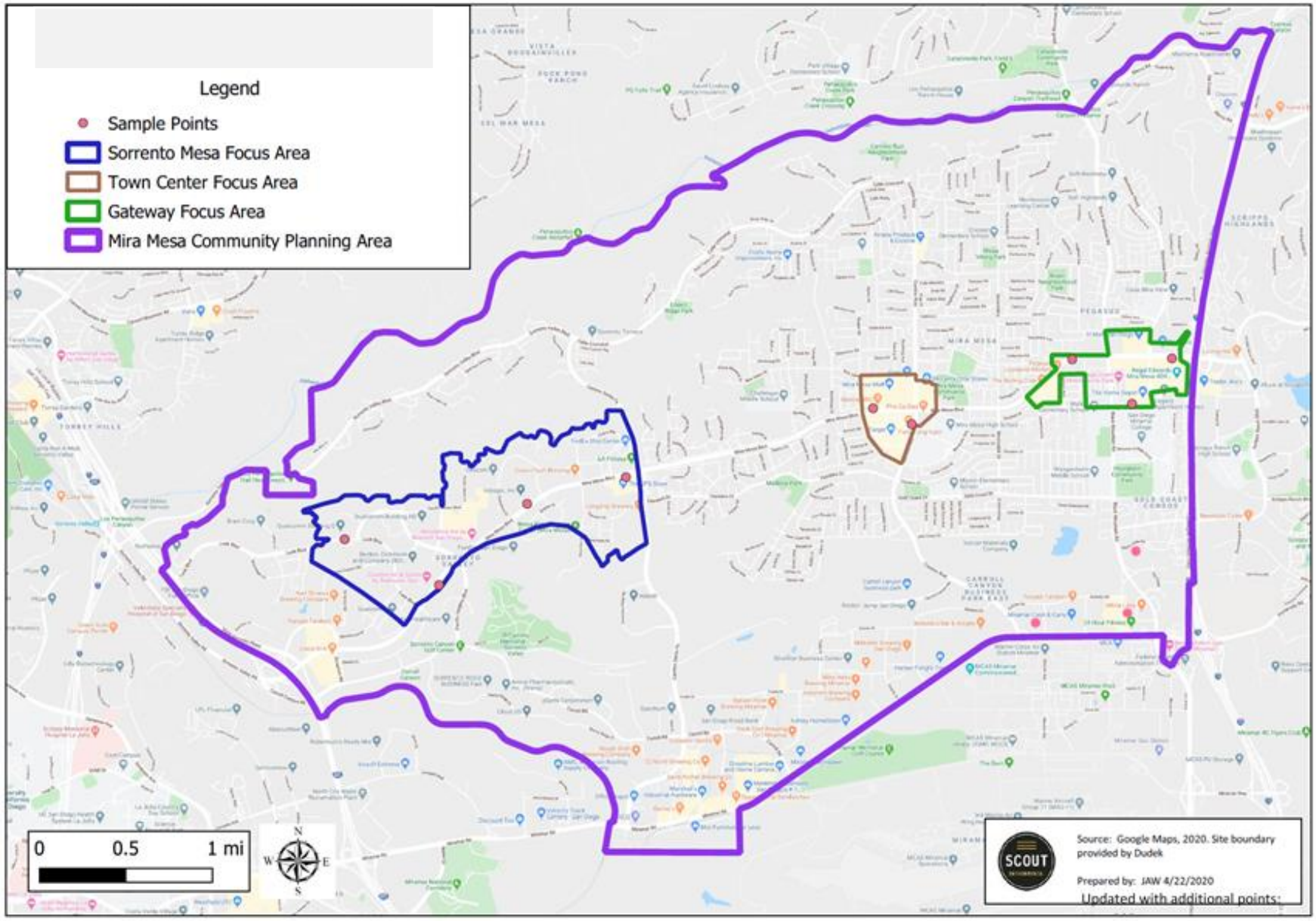
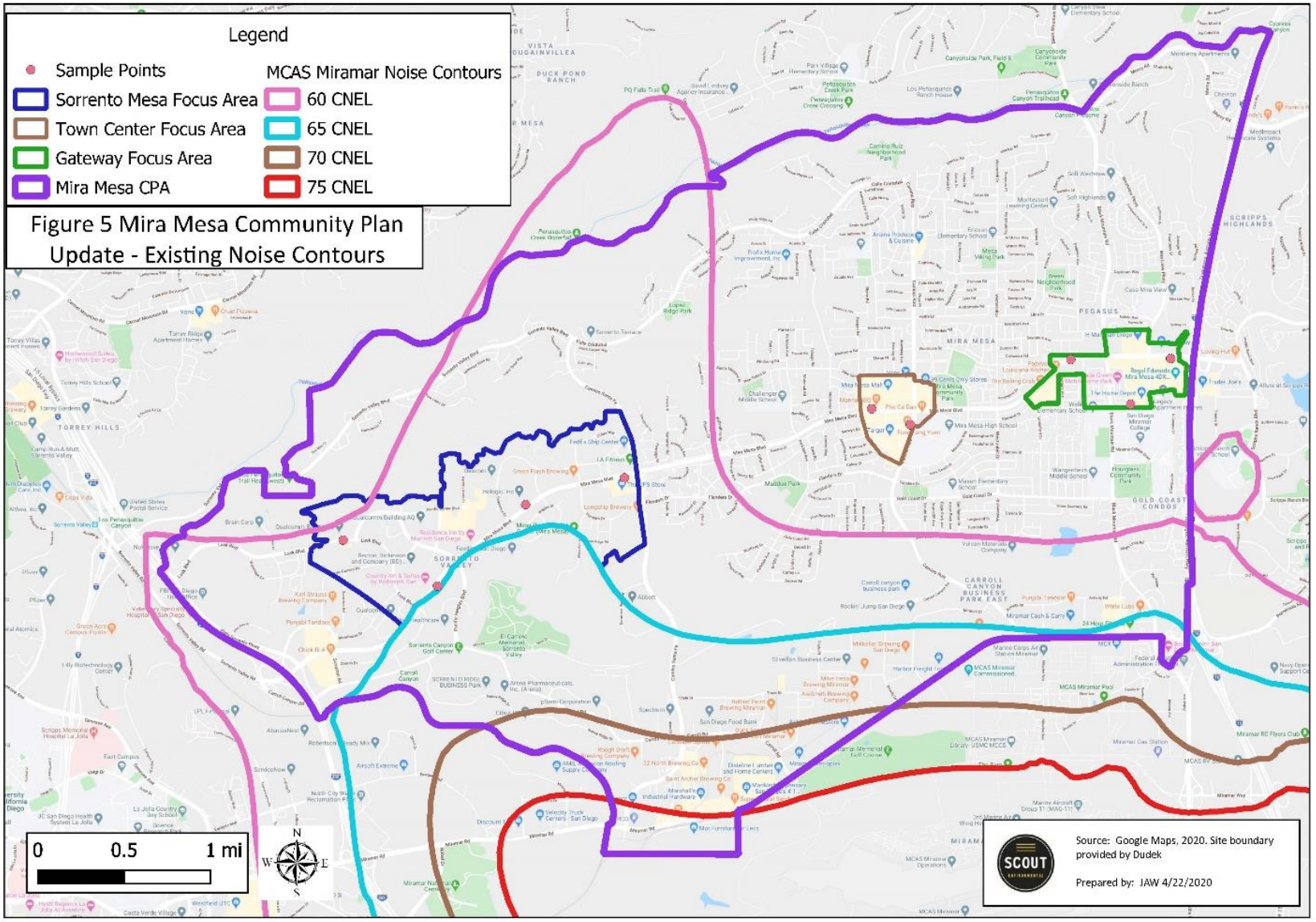


**Figure 5 Mira Mesa Community Plan Update – Existing Noise Contours**



# 5 Thresholds of Significance

The CPU proposed projects that involve building facilities, such as the proposed recreation centers, fire stations, aquatic center, etc., which would generate stationary noise potentially affecting residents and other receptors around the facilities. Generally, all of the proposed improvements or projects resulting from the proposed CPU would involve construction related noise. However, these individual projects are unknown at this time so there is not sufficient detail to analyze specific noise impacts at individual projects sites. Therefore, this analysis discusses noise impacts programmatically, future site-specific impacts will be identified during the design stage of a specific-project based upon proximity from the projects to the nearest noise recipient.

The following thresholds are based on the City's CEQA Significance Determination Thresholds, General Plan Noise Element, and Noise Ordinance, as applicable to the CPU.

A potentially significant noise impact could occur if the CPU would:

**Issue 1: Result in or create a significant increase in the existing ambient noise levels;**

**Issue 2: Result in an exposure of people to current or future transportation noise levels which exceed guidelines established in the Noise Element of the General Plan;**

**Issue 3: Result in land uses which are not compatible with aircraft noise levels as defined by an adopted ALUCP;**

**Issue 4: Result in the exposure of people to noise levels which exceed property line limits established in the Noise Abatement and Control Ordinance of the Municipal Code;**

**Issue 5: Result in the exposure of people to significant temporary construction noise; or**

**Issue 6: Result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.**

## 5.1 Guidelines for the Determination of Significance

### 5.1.1 Increase in Existing Ambient Noise Levels

A significant noise impact could occur if ambient noise levels exceed the exterior noise limits specified by the City's Noise Ordinance as shown in Table 1, or if future development per the CPU results in transportation-related noise levels that exceed the conditionally compatible limits specified by City' thresholds as shown in Table 2. If existing conditions are already above those limits, a significant increase would occur if the project generates a perceptible change (3 dBA) over existing conditions.

### 5.1.2 Transportation Noise compliance with the Noise Element of the General Plan

A significant noise impact could occur if new development of residential and other sensitive land uses along major transit corridors would expose sensitive noise receptors to higher levels of traffic noise. A significant impact could occur if, compared to existing conditions, future traffic noise levels increased by more than 3 CNEL along major traffic corridors. Potential impacts of this increase on existing and future

receptors would vary depending on the land use type and would be compared to the limits specified in Table 1.

### 5.1.3 Compliance with an adopted ALUCP

A significant noise impact could occur if projects located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or private airstrip, expose people residing or working in the project area to excessive noise levels. Generally, NSLUs are compatible with aircraft noise levels up to 60 CNEL.

### 5.1.4 Compliance with the Noise Abatement and Control Ordinance of the Municipal Code

A significant impact would occur if implementation of the CPU resulted in the exposure of people to noise levels that exceed property line limits established in the Noise Abatement and Control Ordinance of the SDMC and as depicted in Table 3. Stationary sources of noise include activities associated with a given land use. For example, noise sources in commercial uses would include car washes, fast food restaurants, auto repair facilities, parking lots, and a variety of other uses.

### 5.1.5 Significant temporary construction noise

A significant noise impact could occur if construction activities result in temporary construction noise that exceeds 75 dBA LEQ (12 hour) at the property line of a residentially-zoned property from 7:00 a.m. to 7:00 p.m. (as identified in Section 59.5.0404 of the City's Municipal Code) or if non-emergency construction occurs during the 12-hour period from 7:00 p.m. to 7:00 a.m. A significant impact would occur if implementation of the CPU resulted in the exposure of people to significant temporary construction noise. Future development implemented under the CPU could result in a temporary ambient noise increase due to construction activities.

### 5.1.6 Excessive Ground-borne Vibration

The City does not have standards for vibration, but the Federal Transit Administration (FTA) and Caltrans has issued guidelines for vibration limits. Caltrans' guidelines recommend that a standard of 0.2 inch/sec PPV not be exceeded for the protection of normal residential buildings, and that a standard of 0.08 inch/sec PPV not be exceeded for the protection of old or historically significant structures (Caltrans 2013). With respect to human response within residential uses (i.e., annoyance, sleep disruption), the FTA recommends a maximum acceptable vibration standard of 80 vibration decibels (FTA 2018).

Table 7 shows various vibration levels at different distances from a sample of typical vibration causing construction equipment. Only the vibratory roller exceeds the threshold of perception for humans but is less than the level for annoyance. All other equipment does not exceed vibration limits.

**Table 7 Vibration Levels for Various Pieces of Construction Equipment at 50, 100, and 150 Feet**

| Equipment | $PPV_{ref}$[1] | $PPV_{equip}$[2] | | |
|---|---|---|---|---|
| | | 50 ft | 100 ft | 150 ft |
| Vibratory roller | 0.21 | 0.098 | 0.046 | 0.021 |
| Large Bulldozer | 0.089 | 0.042 | 0.019 | 0.009 |
| Caisson Drilling | 0.089 | 0.042 | 0.019 | 0.009 |

**Table 7 Vibration Levels for Various Pieces of Construction Equipment at 50, 100, and 150 Feet**

| Equipment | $PPV_{ref}$[1] | $PPV_{equip}$[2] | | |
|---|---|---|---|---|
| | | 50 ft | 100 ft | 150 ft |
| Loaded Trucks | 0.076 | 0.035 | 0.017 | 0.008 |
| Jackhammer | 0.035 | 0.016 | 0.008 | 0.004 |
| Small Bulldozer | 0.003 | 0.001 | 0.001 | 0.000 |

*Source:* Caltrans 2013

*Notes:*

1. PPVref is the particle velocity at a reference distance of 25 feet from the piece of equipment.
2. PPVequip is the particle velocity at the given distance; in this case, 50, 100, and 150 feet.

# 6 IMPACTS

## 6.1 Issue 1: Ambient Noise; and Issue 2: Land Use Compatibility

The primary noise generator in the CPU area is vehicular traffic. Therefore, any permanent increase in ambient noise levels would be primarily associated with roadway traffic noise levels. Increases related to stationary or operational noise sources would be subject to City standards and are discussed below under Issue 4. Existing noise levels were measured in areas proposed for future development intensification and are summarized in Section 4 of this report. Future development implemented under the proposed CPU would increase traffic along local roadways due to increased density and intensity of uses. A significant noise impact could occur if build-out of the project would result in ambient noise levels that exceed the City's significance threshold for traffic noise (see Table 2). If the existing noise conditions exceed those thresholds for traffic noise, a significant noise impact could occur if the project more than doubles (increases by more than 3 CNEL) the existing noise level. Vehicular traffic and associated traffic noise in the CPU area would generally increase with buildout under the proposed CPU. The conditionally compatible noise levels are 65 CNEL for single-family residential, 70 CNEL for multifamily residential, and 75 CNEL for commercial-retail, industrial, and for active and passive recreation. For indoor uses at a conditionally compatible land use, exterior noise must be attenuated to 45 CNEL for single and multi-family residential and 50 CNEL for commercial-retail.

The proposed CPU would result in the development of residential and other noise sensitive land use along major transit corridors that would result in the exposure of sensitive noise receptors to higher levels of traffic noise. In comparison with existing conditions, future traffic noise levels would likely increase by more than 3 CNEL along major roadway segments, such as Mira Mesa Boulevard, Miramar Road, Camino Santa Fe, and Camino Ruiz. Impacts of this increase on existing and future receptors would vary depending on the land use type. For instance, Miramar Road mostly features industrial land uses that are less sensitive to noise and are assigned a land use/noise compatibility level of 75 CNEL. Noise increases are not likely to exceed this compatibility threshold. The increase in traffic noise along other roads traversing residential uses and institutional uses (such as schools), including Mira Mesa Boulevard, Camino Santa Fe, and Camino Ruiz, may exceed the applicable lower threshold.

Although the General Plan Noise Element has an exterior noise compatibility level of 60 CNEL or less for residential uses, noise levels up to 65 CNEL for single-family residential and up to 70 CNEL for multi-family residential are considered conditionally compatible, since interior noise levels are required to be reduced to 45 CNEL through building attenuation measures pursuant to Title 24 of the California Building Code's (CBC's) building construction requirements. Proposed NSLUs under the CPU would be primarily multi-family or mixed-use in nature. No new single-family residences are anticipated. The proposed CPU includes policies that would require site design strategies and noise reduction measures for new residential development within 500 feet of freeways (policy 2.22). Additionally, policies in the General Plan Noise Element (e.g. policies NE-A.2, NE-A.3, and NE-B.1) require the reduction of traffic noise exposure. Due to these policies standards for the siting of sensitive land uses, while Title 24 of the CBC requires that multi-family residential development projects must demonstrate that interior noise levels would be reduced to acceptable levels (45 CNEL or less) through submission and approval of a Title 24 Compliance Report. General Plan Noise Element policy NE-A.4 requires an acoustical study consistent with the Acoustical Study Guidelines presented in the Noise Element Table NE-4 for proposed developments in areas where the existing or future noise level exceeds or would exceed the "compatible" noise level thresholds as indicated on the City's Land Use – Noise Compatibility Guidelines.

### 6.1.1 Significance of Impact

Implementation of the proposed CPU would result in a substantial increase in ambient noise due to traffic and NSLUs could be exposed to vehicular traffic noise levels in excess of the City's Land Use – Noise Compatibility Guidelines (Table 1). Thus, impacts would be potentially significant.

## 6.2 Issue 3: Airport Noise

A significant impact could occur if implementation of the proposed CPU would result in land uses that are not compatible with aircraft noise levels as defined by an adopted Airport Land Use Compatibility Plan (ALUCP). Generally, NSLUs are compatible with aircraft noise levels up to 60 CNEL. Aircraft noise is evaluated based on the noise contours developed by the San Diego County Regional Airport Authority and provided in the ALUCPs. Portions of the CPU area are located within the 60, 65, 70, and 75 CNEL contours of the Marine Corps Air Station (MCAS) Miramar ALUCP, as depicted in Figure 5. New residential, as well as urban employment village and business park, land use designations that allow for residential uses are proposed within the 60 CNEL contours associated with MCAS Miramar. Operational noise from MCAS Miramar aircraft operations would not change and the areas proposed would increase the residents in some areas but would generally be outside of the 65 dB DNL noise level.

### 6.2.1 Significance of Impact

Although the General Plan Noise Element has an exterior noise compatibility level of 60 CNEL or less for residential uses, noise levels up to 70 CNEL for multi-family residential are considered conditionally compatible, as long as interior noise levels can be attenuated to 45 CNEL or less. New residential development may be exposed to exterior noise levels from aircrafts that exceed the Land Use – Noise Compatibility Guidelines, therefor aircraft noise impacts would be significant.

## 6.3 Issue 4: On-site Generated Noise – San Diego Municipal Code

A significant impact could occur if implementation of the proposed CPU would result in the exposure of people to noise levels that exceed the one-hour average sound level property line limits established in the Noise Abatement and Control Ordinance of the SDMC. The 1-hour sound level limits are the maximum noise levels allowed at any point on or beyond the property boundaries from stationary sources located on the property.

Implementation of the proposed CPU would result in pedestrian-oriented mixed-use development where residential uses would be located in proximity to commercial, office, and technology-related uses that could expose sensitive receptors to elevated noise levels. Noise associated with these types of land uses is generally produced by mechanical equipment, such as heating, ventilation, and air conditioning (HVAC) units and emergency electrical generators, parking lot activities, public gathering spaces, and loading dock operations. Noise generated by residential and commercial uses is generally short-lived and intermittent, while noise generated by auto-oriented commercial and industrial uses is generally sporadic, highly variable, and spatially distributed.

### 6.3.1 Significance of Impact

The land uses proposed by the CPU would be similar to the land uses that currently exist in the CPU area, but with a greater amount of residential uses and at higher densities. Residential uses typically do not generate substantial noise from stationary sources. Noise levels in the CPU area are dominated by vehicle traffic on freeways and heavily traveled roadways, so noise levels from stationary sources throughout the CPU area would not be expected to substantially increase the hourly or daily average sound level with respect to current conditions. Although noise-sensitive residential uses would be exposed to noise associated with commercial, office, and industrial related land uses, future development under the proposed CPU would be required to demonstrate compliance with the Noise Abatement and Control Ordinance to ensure noise compatibility between various land uses. The City regulates specific noise level limits allowable between land uses including the requirement for noise studies (General Plan Noise Element Policy NE-A.4), limits on hours of operation for various noise-generating activities (SDMC Section 59.5.0404), and standards for the compatibility of various land uses with the existing and future noise environment (General Plan Noise Element Table NE-3). Through enforcement of the Noise Abatement and Control Ordinance of the SDMC, impacts would be less than significant.

## 6.4 Issue 5: Construction Noise

Construction noise impacts would involve construction around the Urban Village areas and its effect on current residential or other sensitive receptors. Noise levels stated in Table 7 are for individual pieces of equipment, but most job sites utilize multiple pieces of equipment and as such, noise levels would be louder for a combination of equipment than a single unit. Each construction job is unique with respect to the number and types of equipment being used, the timing of the equipment used, and the size of the site such that the noisiest equipment may be spread out or concentrated over the site. In addition, noise impacts are time and distance dependent. From a time perspective, noise impacts only occur while the work is being performed and cease when completed; and from a distance standpoint, the greatest noise impacts occur to the closest receptors. On a construction job, noise is typically generated throughout the day and stops at the end of the shift and the cycle continues until the end of the job.

Because of these factors, each individual construction job has a different noise impact to the local area, but average construction noise impacts would be between 75-90 dB.

Noise during construction would be required to comply with the City's Noise Abatement and Control Ordinance for construction noise (SDMC Section 59.5.0404) which limits construction noise to 75 dB between 7:00 a.m. and 7:00 p.m. at residential areas with Sunday's and Holidays excluded. Activities expected to exceed these standards should be coordinated with the Noise Abatement and Control Administrator for acceptable noise mitigation strategies.

A significant impact could occur if implementation of the proposed CPU would result in the exposure of people to noise levels that exceed the one-hour average sound level property line limits established in the Noise Abatement and Control Ordinance of the SDMC (Section 59.5.0401 et seq.). The 1-hour sound level limits are the maximum noise levels allowed at any point on or beyond the property boundaries from stationary sources located on the property.

Implementation of the proposed CPU would result in pedestrian-oriented mixed-use development where residential uses would be located in proximity to commercial, office, and technology-related uses that could expose sensitive receptors to elevated noise levels. Noise associated with these types of land uses is generally produced by mechanical equipment, such as heating, ventilation, and air conditioning (HVAC) units and emergency electrical generators, parking lot activities, public gathering spaces, and loading dock operations. Noise generated by residential and commercial uses is generally short-lived and intermittent, while noise generated by auto-oriented commercial and industrial uses is generally sporadic, highly variable, and spatially distributed.

### 6.4.1 Significance of Impact

Although the City regulates construction noise through enforcement of SDMC Section 59.5.0404, and would impose conditions for approval of building or grading permits, there is a potential through permitting to deviate from the City's Noise Ordinance. In addition, due to the developed nature of the CPU area and the proposed increase in residential uses, sensitive receptors could potentially be located in proximity to construction sites. Therefore, future construction activities could expose sensitive receptors to substantial noise levels, which is a potentially significant impact.

## 6.5 Issue 6: Vibration

Construction activities such as pile driving, demolition activities, blasting, and other earth-moving operations have the potential to cause ground vibrations that may cause structural damage to adjacent buildings. Unless there are extreme flaws in pavement surfaces, heavy truck traffic on busy highways rarely creates vibrations strong enough to cause damage, though occasionally can generate human annoyance.

The proposed CPU does not include land uses or other improvements that would act as a long-term source of groundborne vibration. However, some construction activities are known to generate excessive groundborne vibration. Construction activities related to implementation of the proposed CPU would not take place all at once; however, future construction activities would have the potential to temporarily generate vibration resulting in a short-term effect on nearby vibration-sensitive land uses. Sources of vibration during the construction activities include the potential use of pile driving equipment and smaller equipment such as a vibratory roller (Table 7). Construction activities within 200 feet and pile driving within 600 feet of a vibration-sensitive use, such as those that include machinery in

manufacturing and processing or medical laboratory equipment, could be potentially disruptive to vibration-sensitive operations (Caltrans 2013).

### 6.5.1 Significance of Impacts

New development in the CPU area would include construction activities that could use vibratory construction equipment and could expose sensitive receptors to substantial vibration levels. Therefore, construction-related vibration impacts would be potentially significant.

# 7 Mitigation, Monitoring, and Reporting

**MM-NOI-1** **Construction Noise - Reduction Measures.** Construction contractors shall implement the following measures to minimize short-term noise levels caused by construction activities. Measures to reduce construction noise shall be included in contractor specifications and shall include, but not be limited to, the following:

Properly outfit and maintain construction equipment with manufacturer-recommended noise reduction devices to minimize construction-generated noise.

Operate all diesel equipment with closed engine doors and equip with factory recommended mufflers.

Use electrical power to operate air compressors and similar power tools.

Employ additional noise attenuation techniques, as needed, to reduce excessive noise levels such as, but not limited to, the construction of temporary sound barriers or sound blankets between construction sites and nearby noise-sensitive receptors.

Notify adjacent noise-sensitive receptors in writing no later than 2 weeks prior to the start of construction of any construction activity such as jackhammering, concrete sawing, asphalt removal, pile driving, and large scale grading operations that would occur within 100 feet of the property line of the nearest noise-sensitive receptor. The extent and duration of the construction activity shall be included in the notification.

Designate a “disturbance coordinator” who shall be responsible for receiving and responding to any complaints about construction noise or vibration. The disturbance coordinator shall determine the cause of the noise complaint and, if identified as a sound generated by construction area activities, shall require that reasonable measures be implemented to correct the problem. Potential measures to address the problem could include, but are not limited to, providing sound barriers or sound blankets between construction sites and the receiver location, locating noisy equipment as far from the receiver as possible, and reducing the duration of the noise-generating construction activity.

**MM-NOI-2** **Vibration – Construction Activities.** Future construction activities under the project that are located near vibration-sensitive land uses and require the use of vibratory construction equipment shall implement the following vibration reduction measures to

minimize construction-related vibration impacts. Measures to reduce vibration shall be included in contractor specifications and shall include, but not be limited to, the following:

1. Limit the use of vibration-intensive equipment in proximity to sensitive receptors.
2. Install low soil displacement piles (e.g., H-piles) instead of high soil displacement piles (e.g., concrete piles) for pile-driving.
3. Pre-drill for pile-driving.

# 8 Significance after Mitigation

This report documents the estimated noise and vibration impacts from the proposed CPU. Sources of non-traffic related noise in Mira Mesa would be noise from stationary equipment, construction noise, vibration, and operations. The overall noise environment in Mira Mesa is dominated by vehicular traffic on the area's surface streets, arterials and freeways, and military aircraft noise from MCAS Miramar activities. Future development should continue to use compatibility guidelines provided in the City's General Plan Noise Element to ensure incompatible development does not occur in high noise levels.

## 8.1 Issue 1: Ambient Noise; and Issue 2: Land Use Compatibility

Traffic noise levels under the proposed CPU are expected to exceed the land use – noise compatibility levels for NSLUs. Therefore, implementation of the proposed CPU would result in a significant increase in noise levels along various segments of major roadways. While existing structures may be retrofitted with acoustically rated windows and walls featuring higher Sound Transmission Class ratings (a measure of exterior noise reduction performance), there is no City procedure in place to ensure that exterior noise affecting existing NSLUs is adequately attenuated to City standards. Additionally, new development projects under the proposed CPU could place sensitive receptors in locations where the exterior noise levels exceed the Land Use – Noise Compatibility Guidelines. Although new development would be subject to Title 24 noise requirements, as well as General Noise Element policies, there is no feasible way to ensure compliance with established noise guidelines at the program-level. Therefore, impacts to existing and proposed NSLUs would be significant and unavoidable. No feasible mitigation is available to reduce this impact to less than significant.

## 8.2 Issue 3: Airport Noise

Title 24 of the CBC requires that projects must demonstrate that interior noise levels would be reduced to acceptable levels (45 CNEL or less) through submission and approval of a Title 24 Compliance Report. General Plan Noise Element policy NE-A.4 requires an acoustical study consistent with the Acoustical Study Guidelines (Table NE-4 of the General Plan) for proposed developments in areas where the existing or future noise level exceeds or would exceed the "compatible" noise level thresholds as indicated on the City's Land Use – Noise Compatibility Guidelines. However, because new residential development may be exposed to exterior noise levels from aircrafts that exceed the Land Use – Noise Compatibility Guidelines, aircraft noise impacts would remain significant and unavoidable and there are no feasible mitigation measures available.

## 8.3 Issue 5: Construction Noise

Implementation of mitigation measure (MM)-NOI-1 would reduce construction-related noise impacts. However, even with implementation, significant construction noise impacts may still occur because it is not feasible to ensure and enforce implementation for all projects developed per the proposed project. Construction-related noise impacts would therefore be significant and unavoidable.

## 8.4 Issue 6: Vibration

Implementation of MM-NOI-2 would reduce potential construction vibration-related impacts. However, even with implementation, significant construction vibration-related impacts may still occur because it is not feasible to ensure and enforce implementation for all projects developed per the proposed CPU. Vibration impacts would therefore be significant and unavoidable.

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