



CHAPTER 9

Noise Element





NOISE ELEMENT

INTRODUCTION

This Noise Element provides the policy framework for controlling, managing, and mitigating excessive noise in the city. These policies will protect land uses that are sensitive to noise, such as residences, schools, and libraries, while minimizing noise from the sources that create them.

RELEVANCE TO GENERAL PLAN THEMES



Sustainability in this Element:

- Reducing noise levels reduces stress for humans and animals, improving the health and well-being of our community and habitats.



Environmental Justice in this Element:

- Minimizing and mitigating noise impacts will help alleviate the harmful effects of noise pollution in neighborhoods close to freeways, the rail corridor, and other high-volume roadways, which already experience disproportionate impacts from multiple pollution sources.



Community Engagement in this Element:

- Informs the San Mateo community about upcoming land use projects that would contribute to or be affected by a noisy environment.
- Leverages creative outreach strategies to engage with all San Mateo residents, particularly those that live in equity priority communities, about development projects and new activities that could generate noise or mitigate existing noise nuisances.



NOISE IN SAN MATEO

Sounds can bring joy to the listener, but they can also be a nuisance. Loud sounds can become unwanted noise that could be harmful to our physical, mental, and emotional health. Stress and lost sleep from noise pollution contributes to cardiovascular and metabolic diseases. While noise pollution has the potential to affect all San Mateo residents, existing noise levels are highest in neighborhoods closest to freeways and the rail corridor, compounding the negative health effects of air pollution and other pollution sources in those communities.

San Mateo's vibrant urban environment generates noise on a daily basis. Vehicles create a rhythmic hum that is oftentimes punctuated by honks and other noises as they travel along the city's streets and thoroughfares. Trains traveling on the Caltrain/Southern Pacific rail corridor sound their horns to warn pedestrians, motorists, and others about their impending arrival. This safety measure also creates noise pollution for those that live or work near the rail corridor. Commercial activities and open spaces, such as restaurants, storefronts, and parks help to create a lively atmosphere for social interactions and economic activities. However, they also have the potential to generate noise nuisances, especially for entertainment uses that occur after normal business hours. Other noise sources in the community come from construction activities, aircraft flyovers, landscaping equipment, and fixed mechanical equipment, such as air conditioning units.

MEASURING ENVIRONMENTAL NOISE

Environmental noise level or intensity is measured in decibels (dB), which range from 0 dB, the threshold at which people can detect sound, to 140 dB, the threshold where it becomes painful to hear. For every increase of 10 dB, the perceived loudness of noise is doubled. For example, a motorcycle accelerating (90 dB) seems twice as loud as a power lawn mower (80 dB).

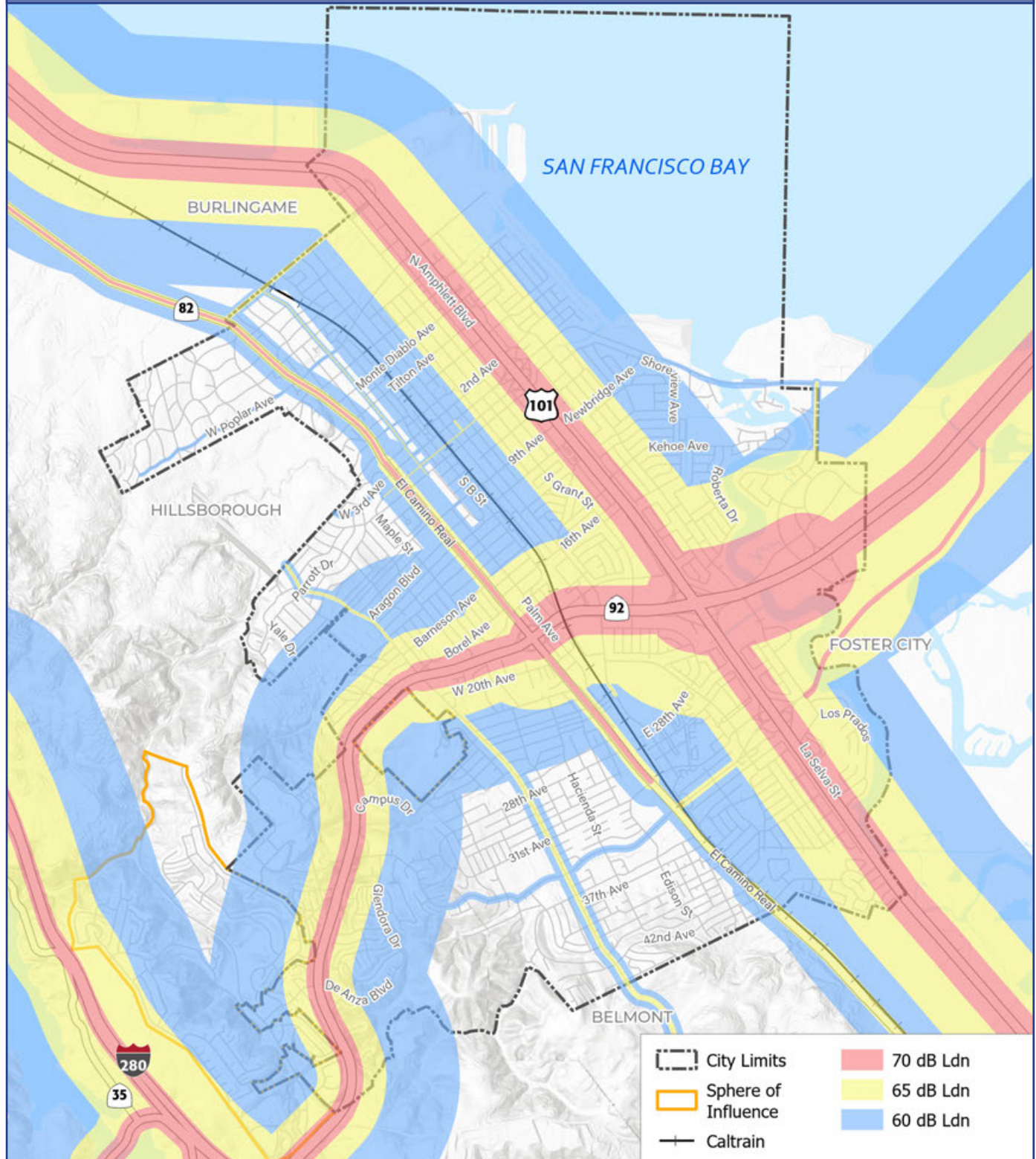
This Noise Element uses a unit of measurement called the "A-weighted" decibel scale, which is sometimes expressed as dBA. Humans do not hear all frequencies equally. As a result, this measurement takes into consideration that human hearing decreases at extremely low and high frequencies. State law requires general plans to use the Community Noise Equivalent Level (CNEL) or the Day/Night Average Sound Level (L_{dn}) to describe the community noise environment and its effects on the population. The City of San Mateo uses the Day/Night Average Sound Level (L_{dn}), which represents a 24-hour average sound level, with an additional 10 dB added for nighttime noise between the hours of 10:00 p.m. and 7:00 a.m., as shown in the land use compatibility standards for noise in Table N-1.

Table N-1 is used to determine whether the existing exterior noise levels that would surround a proposed new use are acceptable or unacceptable and to identify where a proposed project may need to incorporate noise mitigation features. Roadway noise is the primary contributor to the average exterior noise levels in San Mateo. Existing and projected average exterior noise levels in San Mateo are shown in Figures N-1, N-2, and N-3.

Table N-1 Land Use Compatibility Guidelines						
Land Use Category of Proposed New Use		Day-Night Average Exterior Noise Level, L _{dn} (dBA)				
		0 - 59	60 - 65	66 - 70	71 - 80	over 81
Noise-Sensitive Land Uses	Residential (all densities) *		Blue	Blue	Black	Black
	Multifamily Common Open Space for Residents			Blue	Black	Black
	Hotels, Motels, and Other Lodging		Blue	Blue	Black	Black
	Schools, Libraries, Hospitals, Churches, Long-Term Care Facilities		Blue	Blue	Black	Black
	Parks, Playgrounds, Privately Owned Publicly Accessible Open Space				Blue	Blue
Office and Commercial					Blue	Black
Research and Development, Industrial					Blue	Blue
	<p>Normally Acceptable. Specified land use is satisfactory based on the assumption that any buildings involved are of normal, conventional construction, without any special noise mitigation requirements.</p>					
	<p>Conditionally Acceptable. New construction or development should be undertaken only after a detailed analysis of the noise-reduction requirements is made and needed noise mitigation features have been included in the design.</p>					
	<p>Normally Unacceptable. New construction or development should not be undertaken.</p>					

* See residential land use designations in the Land Use Element of this General Plan.

Figure N-1 Existing Traffic Noise Contours

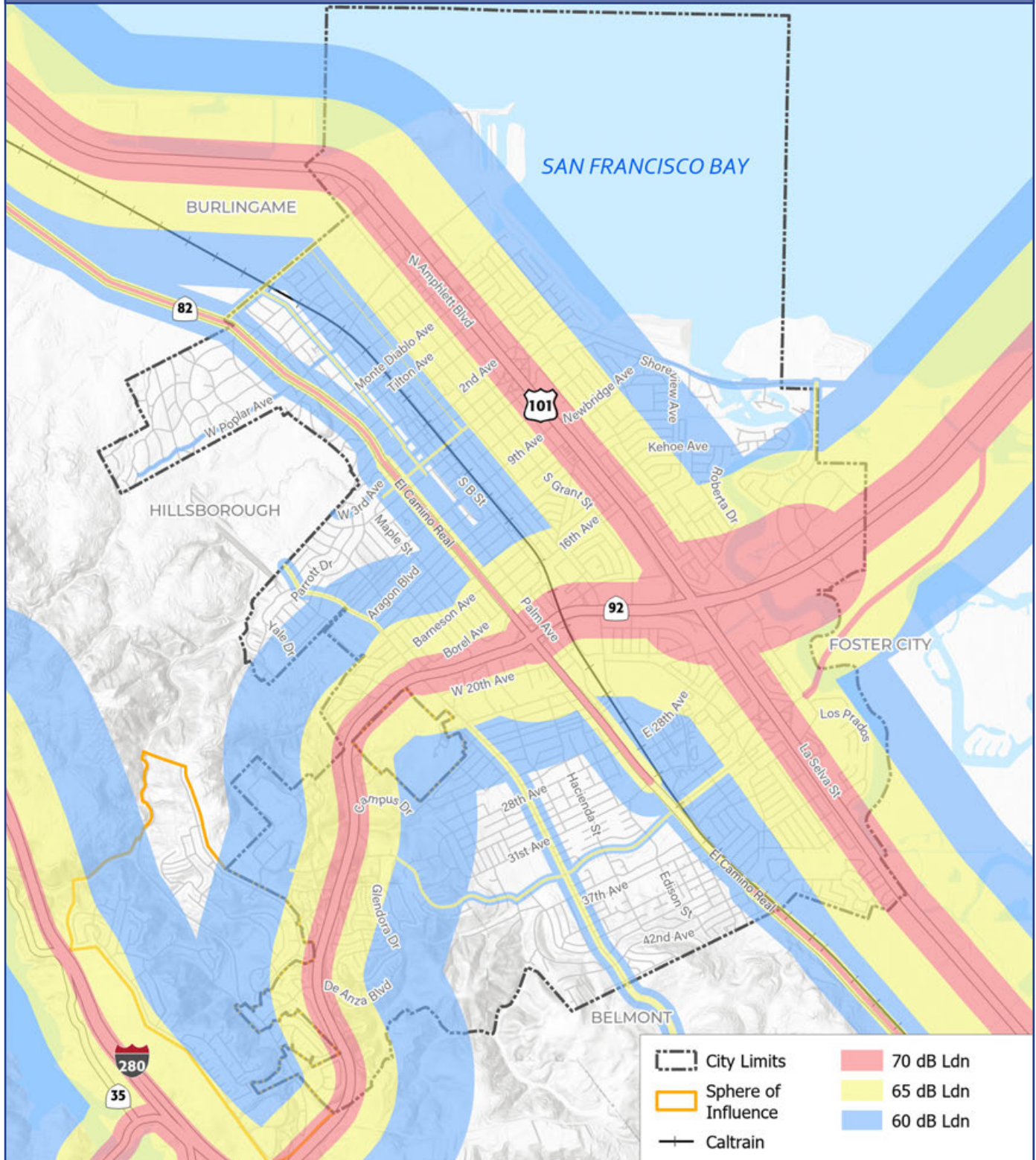


Source: ESRI, 2022; ECORP, 2023; PlaceWorks, 2023.

Note: This map is included for informational purposes and is not adopted as part of this General Plan.



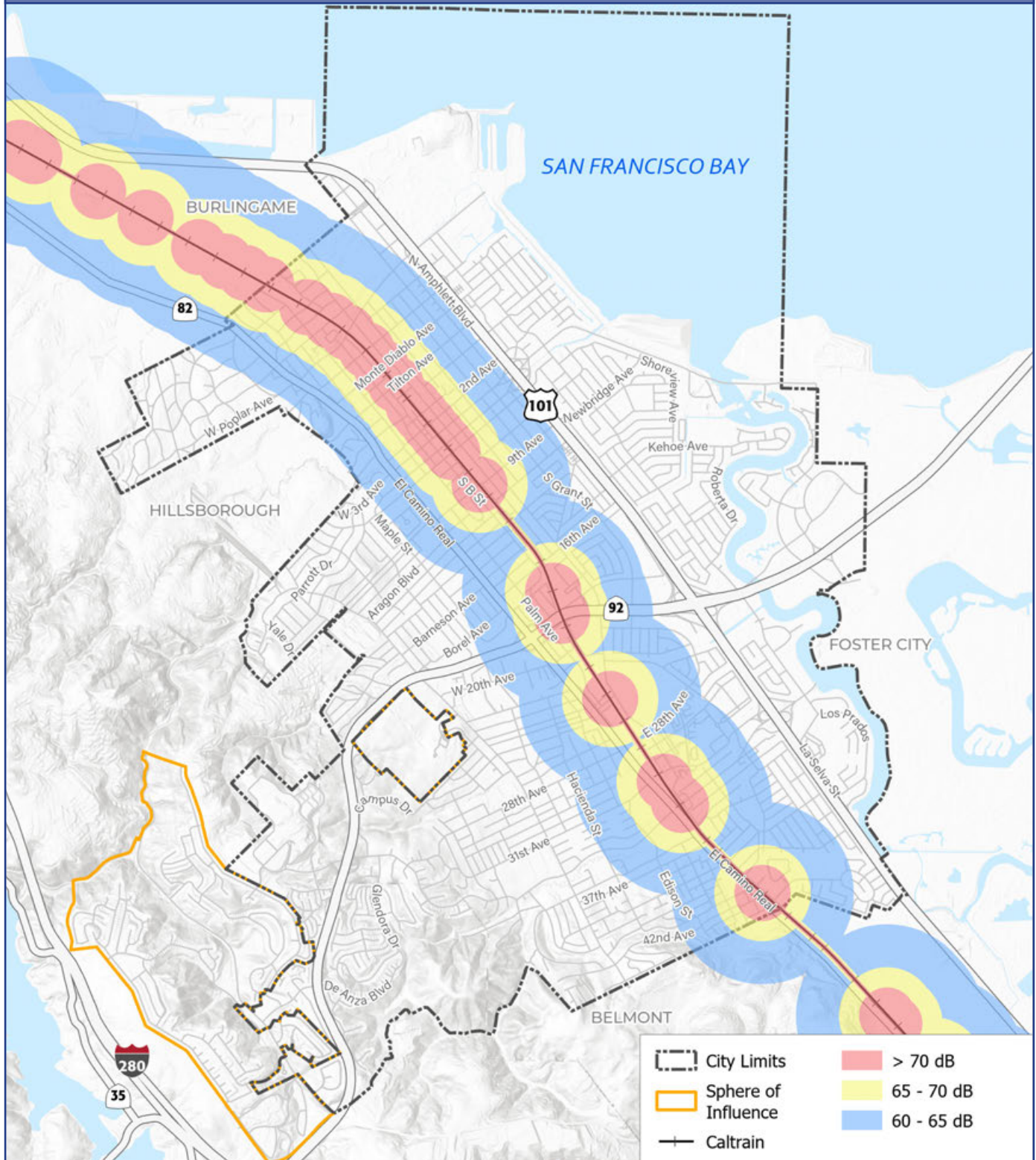
Figure N-2 Future Traffic Noise Contours



Source: ESRI, 2022; ECORP, 2023; PlaceWorks, 2023.



Figure N-3 Rail Noise Contours



Source: ESRI, 2022; ECORP, 2023; PlaceWorks, 2023.



MITIGATING NOISE IMPACTS

Excessive noise in the city can be addressed in three ways: land use planning, physical mitigation, and administrative regulation. Land use planning means considering the existing and future noise environment when reviewing proposed development and locating new uses in a way that minimizes the exposure of new community members to excessive noise. Most of San Mateo is within the “conditionally acceptable” range of between 60 dB and 70 dB (L_{dn}), so some form of noise mitigation will likely need to be incorporated into building and site design for any new noise-sensitive land uses listed in Table N-1.

San Mateo’s residential neighborhoods that border US Highway 101, State Route 92, El Camino Real, and the railroad corridor are subject to sound levels exceeding 70 dB (L_{dn}), as shown in Figures N-1 and N-3. The Land Use Element allows residential and other types of development in these areas, and this Noise Element provides policy guidance to mitigate noise impacts on that new development, such as through site design and construction methods.

Physical mitigation refers to reducing the noise level by controlling how buildings are built and where they are located. For instance, buildings could use sound-absorbing materials to absorb the noise, install walls or windows to reduce the noise indoors, or be located in areas away from sources that produce substantial noise, such as freeways or train tracks. Trees and other vegetation can also help to absorb, deflect, and mask unwelcome noise, while also offering shade and absorbing carbon.

The City’s Noise Control Ordinance is an example of administrative regulations. This ordinance, which is part of the Municipal Code, limits the operating hours and duration of noise sources by decibel level. For example, construction activities are restricted at night so residents can have a quiet and peaceful night of sleep.

Noise mitigation in the city requires a collaborative approach between the City of San Mateo and other agencies. The City has the power to enact the policies in this Noise Element and the regulations in the Noise Control Ordinance. However, many sources of noise pollution are outside of the City’s control. Noise generated from trains that use the Caltrain/Southern Pacific rail corridor, particularly the train horns, is regulated by safety standards set by the Federal Rail Administration. While there is noise pollution from the San Francisco International Airport (SFO), the City has limited influence on flight paths, which are determined by the Federal Aviation Administration (FAA). Additionally, freeways are under the jurisdiction of the California Department of Transportation (Caltrans). Moving forward, the City will continue to work closely with agencies such as Caltrain, Caltrans, and SFO to reduce noise impacts to all those that live, work, and play in San Mateo.



GOALS, POLICIES, AND ACTIONS

GOAL N-1 Protect noise-sensitive land uses from excessive noise levels.

POLICIES

- Policy N 1.1 Noise and Land Use Planning.** Integrate noise considerations into land use planning decisions to minimize noise impacts to or from new development.
- Policy N 1.2 Interior Noise Level Standard.** Require submittal of an acoustical analysis and interior noise insulation for all noise-sensitive land uses listed in Table N-1 that have an exterior noise level of 60 dBA (L_{dn}) or above, as shown on Figure N-2. The maximum interior noise level shall not exceed 45 dBA (L_{dn}) in any habitable rooms, as established by the California Building Code.
- Policy N 1.3 Exterior Noise Level Standard for Residential Uses.** Require an acoustical analysis for new multifamily common open space for residents that have an exterior noise level of 60 dBA (L_{dn}) or above, as shown on Figure N-2. Incorporate necessary mitigation measures into residential project design to minimize common open space noise levels. Maximum exterior noise should not exceed 65 dBA (L_{dn}) for residential uses.
- Policy N 1.4 Exterior Noise Level Standard for Parks and Playgrounds.** Require a feasibility analysis of noise-reduction measures for public parks and play areas that have an exterior noise level of 70 dBA (L_{dn}) or above.
- Policy N 1.5 Inclusive Outreach.** Notify the community when new land uses that would result in excessive noise levels are being considered and inform community members about how they can engage in the process. Use outreach and engagement methods that encourage broad representation and are culturally sensitive, particularly for equity priority communities.



GOAL N-2 Minimize unnecessary, annoying, or unhealthful noise.

POLICIES

Policy N 2.1 Noise Regulation. Regulate noise in San Mateo to prohibit noise that is annoying or injurious to community members.

Policy N 2.2 Minimize Noise Impacts. Incorporate necessary mitigation measures into new development design to minimize short-term noise impacts. Determine whether new development has the potential to result in a significant noise impact on existing development based on the following standards. Impacts will be analyzed based on long-term operational noise increases at the sensitive receptor property line, or new uses that generate noise levels at the sensitive receptor property line, as follows:

Ldn Category of Existing Development Per Figures N-1, N-2, and/or N-3	Noise Increase Considered “Significant” over Existing Noise Levels
Normally Acceptable	An increase of more than 5 dBA and the total Ldn exceeds the “normally acceptable” category
Conditionally Acceptable	An increase of more than 5 dBA
Unacceptable	An increase of more than 5 dBA

Policy N 2.3 Minimize Commercial Noise. Protect land uses other than those listed as “noise sensitive” in Table N-1 from adverse impacts caused by the on-site noise generated by new developments. Incorporate necessary mitigation measures into development design to minimize short-term and long-term noise impacts. Prohibit new uses that generate noise levels of 65 dBA (L_{dn}) or above at the property line, excluding existing ambient noise levels.

Policy N 2.4 Traffic Noise. Recognize projected increases in ambient noise levels resulting from future traffic increases, as shown on Figure N-2. Promote reduced traffic speeds and the installation of noise barriers or other methods to reduce traffic noise along highways and high-volume roadways where noise-sensitive land uses (listed in Table N-1) are adversely impacted by excessive noise levels (60 dBA [L_{dn}] or above).

Policy N 2.5 Railroad Noise. Support the installation of noise barriers and other mitigations along the railroad corridor where noise-sensitive land uses are adversely impacted by excessive noise levels (60 dBA [L_{dn}] or greater), as shown in Figure N-3.

- Policy N 2.6 Railroad Vibration.** Require that new residential projects (or other sensitive uses) within 200 feet of existing railroad lines conduct a ground-borne vibration and noise evaluation consistent with Federal Transit Administration-approved methodologies.
- Policy N 2.7 Construction Noise and Vibration Monitoring.** Require construction noise limits and vibration monitoring around sensitive receptors, including through limiting construction hours and individual and cumulative noise from construction equipment. For larger development projects that demand intensive construction periods and/or use equipment that could create vibration impacts, require a vibration impact analysis, as well as monitoring and reporting of noise/vibration levels throughout construction, consistent with industry standards.

ACTIONS

- Action N 2.8 Conditions of Approval for Noise Monitoring.** Establish conditions of approval for larger development projects to ensure that requirements for construction noise and vibration monitoring include a requirement for a monitoring plan that provides information on the monitoring locations, durations and regularity, the instrumentation to be used, and appropriate noise and vibration control measures to ensure compliance with the noise ordinance and any applicable vibration limits.
- Action N 2.9 Railroad Noise Reductions.** Implement projects necessary to achieve Quiet Zones in the city, such as elimination of at-grade rail crossings or other mitigation measures to decrease horn and other operational noise levels, with a focus on achieving Quiet Zones as part of any substantial expansions of the rail service.
- Action N 2.10 Railroad Noise Barriers.** Work with the Peninsula Corridor Joint Powers Board to promote and encourage adequate noise mitigations and barriers to be incorporated into any rail service expansion or track realignment.