

Chapter 11
Noise

Overview of Chapter

This element of the General Plan describes noise conditions in the City and provides goals and policies for addressing noise issues. Topics covered in this element include noise standards, current and projected noise levels, key issues and opportunities, and goals and policies.

Statutory Requirements

California law requires that a General Plan include an Element that addresses noise. This Chapter was prepared to meet the requirements of Government Code Section 65302(f) and identifies and appraises noise problems in the City. Citywide noise contours are shown in terms of the Community Noise Equivalent Level (CNEL) and are used to establish a pattern of land uses that minimizes exposure of residents to excessive noise.⁴⁴ This chapter also includes possible solutions that address existing and foreseeable noise problems.

⁴⁴ CNEL is the average sound level over a 24-hour period, with a penalty of 5 dB added between 7 pm and 10 pm and a penalty of 10 dB added for the nighttime hours of 10 pm to 7 am. CNEL is frequently used to gauge overall community noise. CNEL is presented in terms of the a-weighted decibel (dBA), a unit used to measure how powerful or loud a sound or signal is using a logarithmic formula. The term decibel (dB) is commonly used when referring to measuring sound; however, because humans do not hear all frequencies equally, the dBA was developed to take into account how the human ear actually perceives sound.

Background

Thousand Oaks has evolved from a small town since its incorporation in September of 1964. This evolution, along with steady growth, has occurred throughout southern California and has increased noise levels in the community, particularly traffic-related noise. Although noise remains relatively low in most of the City, noise along freeways and other major travel corridors exceeds normally acceptable levels at some locations. Non-vehicular noise sources generally are not a major concern in the City. However, intermittent construction activity can generate temporary noise issues and the introduction of additional residential development on or adjacent to commercial corridors has the potential to expose new residents to relatively high noise levels.

City Noise Standards

The City of Thousand Oaks enforces noise limits through the Municipal Code, which prohibits loud, unnecessary, and unusual noise as well as audible noise from radios, television sets, and other similar devices, and powered equipment in residential areas. The Code Compliance Division of the Community Development Department and the Ventura County Sheriff's Office are responsible for the enforcement of noise restrictions. The Community Development Department is responsible for reviewing new development applications for consistency with the General Plan Noise Element.

Current and Projected Noise Levels

Noise in the community is generally low and elevated noise is limited to specific areas with high levels of vehicular or commercial activity. Table 11.1 and Figure 11.1 show noise levels measured at key locations in the City in terms of a-weighted decibels (dBA) using the Equivalent Noise Level (L_{eq}) and the maximum noise level (L_{max}).⁴⁵ Figure 11.2 and Figure 11.3 show current and projected future noise contours associated with major noise sources in the community in terms of CNEL. As indicated in these figures, noise levels vary depending largely on proximity to major roadways. Noise levels are not projected to change dramatically over the next 20-plus years.

⁴⁵ L_{eq} is the constant noise level that would result from the overall total sound energy being produced over a given period. L_{max} is the highest sound level measured during a measurement period.

TABLE 11.1 Sound Level Measurement Results

Measurement Location		Primary Noise Source	Sample Time	L _{eq}	L _{max}
NM 1	Rancho Conejo Boulevard between Teller Road and West Hillcrest Drive	Traffic along Rancho Conejo Boulevard	7:08 – 7:23 p.m.	65	77
NM 2	South Reino Road between Kimber Drive and Maurice Drive	Traffic along South Reino Road	8:00 – 8:15 p.m.	69	81
NM 3	Old Conejo Road between Lois Avenue and North Wendy Drive	Traffic along Highway 101	7:35 – 7:50 p.m.	71	87
NM 4	Lynn Road between Camino Manzanitas and Portofino Place	Traffic along Lynn Road	4:26 – 4:41 p.m.	72	81
NM 5	East Hillcrest Drive between North Moorpark Road and Hodencamp Road	Traffic along East Hillcrest Drive	5:29 – 5:44 p.m.	70	86
NM 6	Janss Road between North Moorpark Road and Montgomery Road	Traffic along Janss Road	4:58 – 5:12 p.m.	75	84
NM 7	North Moorpark Road between Thousand Oaks High School and Calle Entrar	Traffic along North Moorpark Road	3:02 – 3:17 p.m.	71	80
NM 8	Olsen Road between Calle Contento and Erbes Road	Traffic along Olsen Road	10:12 – 10:27 a.m.	68	81
NM 9	State Route 23 South (South Westlake Boulevard) between Bridgegate Street and Triunfo Canyon Road	Traffic along State Route 23 North	6:31 – 6:46 p.m.	68	86
NM 10	Rolling Oaks Drive between South Moorpark Road and Los Padres Drive	Traffic along Highway 101	6:00 – 6:15 p.m.	64	75
NM 11	Golf Course Drive between Royal Saint George Drive and Tam O Shanter Drive	Traffic along Golf Course Drive	11:27 – 11:42 a.m.	52	71
NM 12	Thousand Oaks Boulevard between Fairview Road and Hampshire Road	Traffic along Thousand Oaks Boulevard and Highway 101	1:53 – 2:08 p.m.	66	78
NM 13	East Avenida de las Flores between State Route 23 North and Bamboo Court	Traffic along State Route 23 North and East Avenida de las Flores	10:47 – 11:02 a.m.	61	76
NM 14	North Westlake Boulevard between Valley Spring Drive and Cresthaven Drive	Traffic along Westlake Boulevard	1:07 – 1:22 p.m.	72	86
NM 15	West Janss Road between Lynnmere Drive and Hopewell Court	Traffic along Lynnmere Drive	3:46 – 4:01 p.m.	51	72
NM 16	Lynn Road	Traffic along Lynn Road	10:06 – 10:21 p.m.	68	82
NM 17	Hillcrest Drive between Citation Way and Kalinda Plance	Traffic along U.S. 101 and Hillcrest Drive	6:00 – 6:15 a.m.	73	88
NM 18	Walnut Grove Park	Traffic along U.S. 101	6:26 – 6:41 a.m.	70	73
NM 19	Fox Ridge Drive between Quails Trail and Hunters Point Drive	Traffic along U.S. 101	6:51 – 7:06 a.m.	62	67
NM 20	Intersection of Hillcrest Drive and Erbes Road	Traffic along Hillcrest Drive and Erbes Road	7:29 – 7:44 a.m.	70	90
NM 21	Conejo Creek Park South	Traffic along U.S. 101	8:02 – 8:17 a.m.	58	62
NM 22	Whitecliff Road between Sussex Circle and Dorchester Street	Traffic along U.S. 101	8:35 – 8:50 a.m.	60	70

To characterize ambient sound levels throughout the City, 15 minute sound level measurements were conducted on August 28, 2019, February 21, 2022, and April 6, 2023. The sound meter was calibrated prior to measurements.

L_{eq} is the energy average noise level over a period of time and is one of the most frequently used noise metrics that considers the noise level over time.

L_{max} is the highest RMS (root mean squared) sound pressure level within the measuring period.

Noise Contours

Figure 11.3 Future Noise Contours shows the projected noise contours for the transportation noise sources in the City. These contours are calculated using predicted traffic data for the city roadways and do not factor in topography, other buildings, or noise attenuation. As such, the contours may not predict noise, but are used as a general guide to ensure that noise is considered with new projects.

Construction Noise

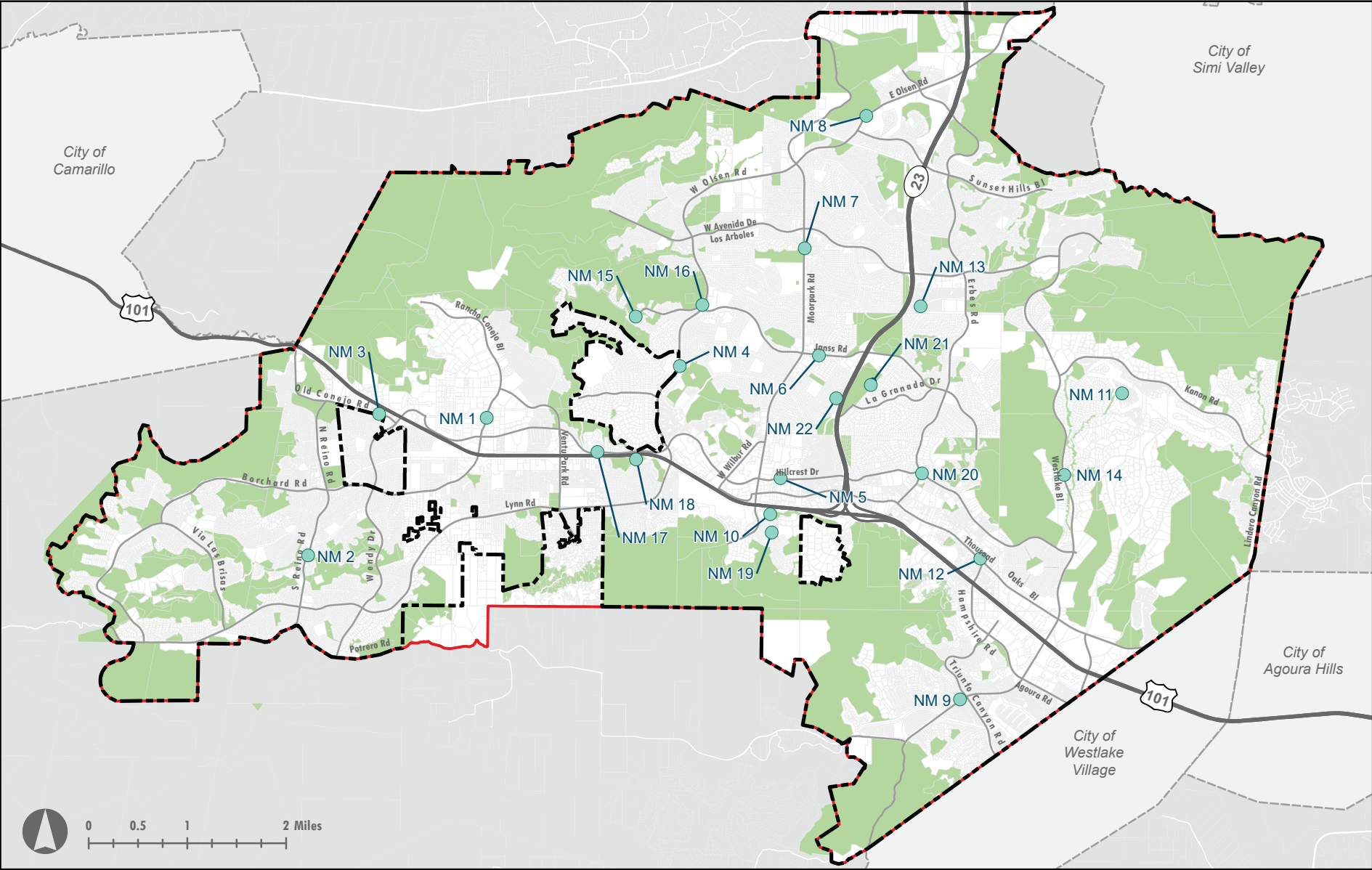
Construction noise typically involves the loudest common urban noise events. Construction equipment involves large diesel engines, operating at high power to move heavy loads. It involves the extensive use of power and air tools, impact noise from hammering and use of explosive drivers for masonry nails and anchors.

Construction activity is temporary at any given location but can be substantially disruptive to adjacent uses during the construction period. Construction results from both private land development activity, and from public agency activity to construct utilities, streets, and public buildings.



Construction is a temporary source of localized noise in the City

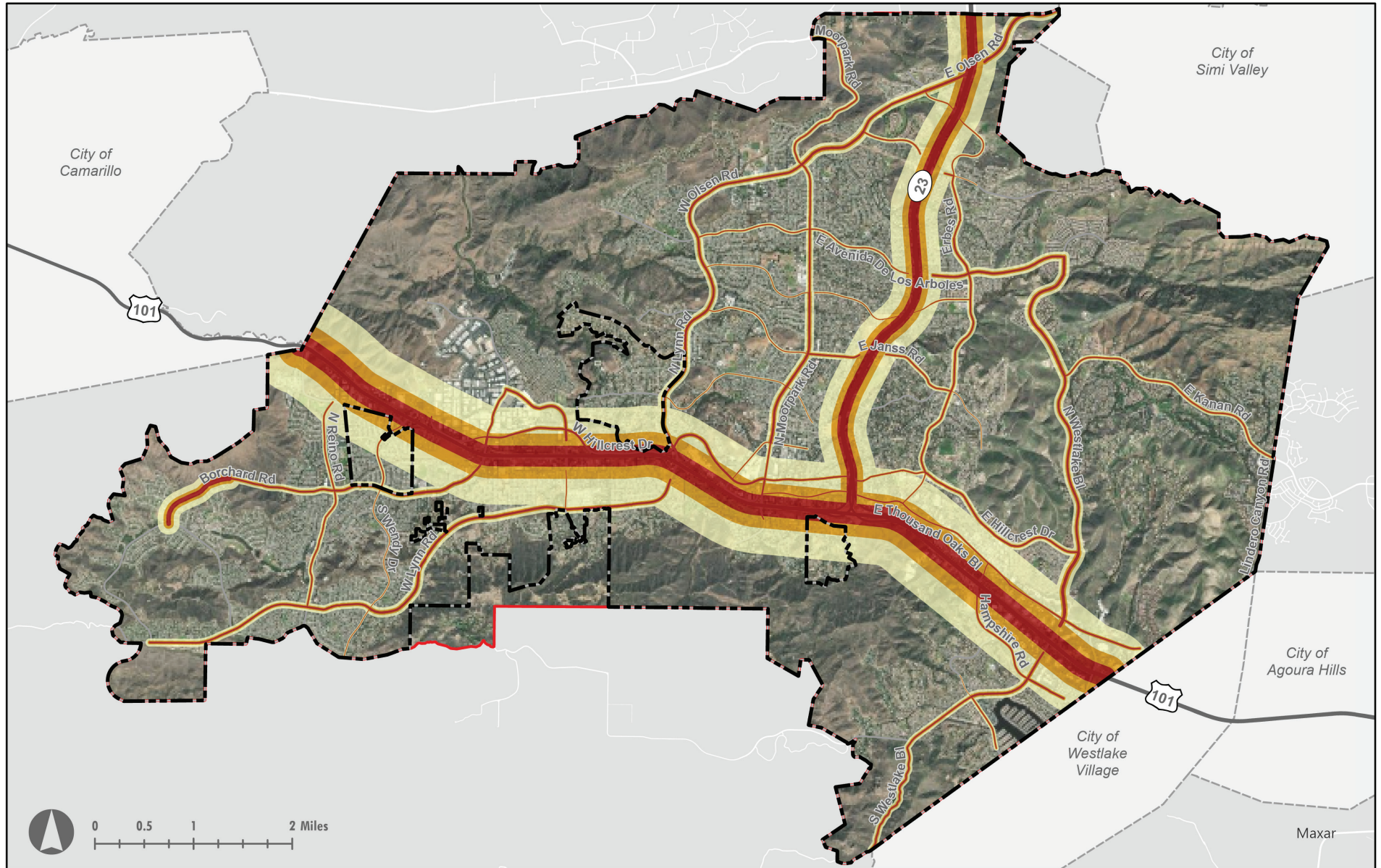
FIGURE 11.1 Noise Measurement Locations



Raimi + Associates 2023 | Data Source: City of Thousand Oaks, County of Ventura, County of Los Angeles

- City Limits
- City Sphere
- Noise Measurement Locations
- Major Roads
- Freeways
- Parks and Open Space
- Unincorporated Counties Land
- Adjacent cities

FIGURE 11.2 Existing Noise Contours



Raimi + Associates 2023 | Data Source: City of Thousand Oaks, County of Ventura, County of Los Angeles; ESRI

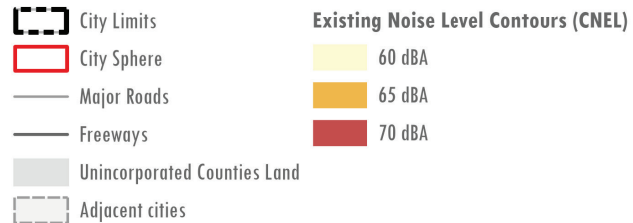
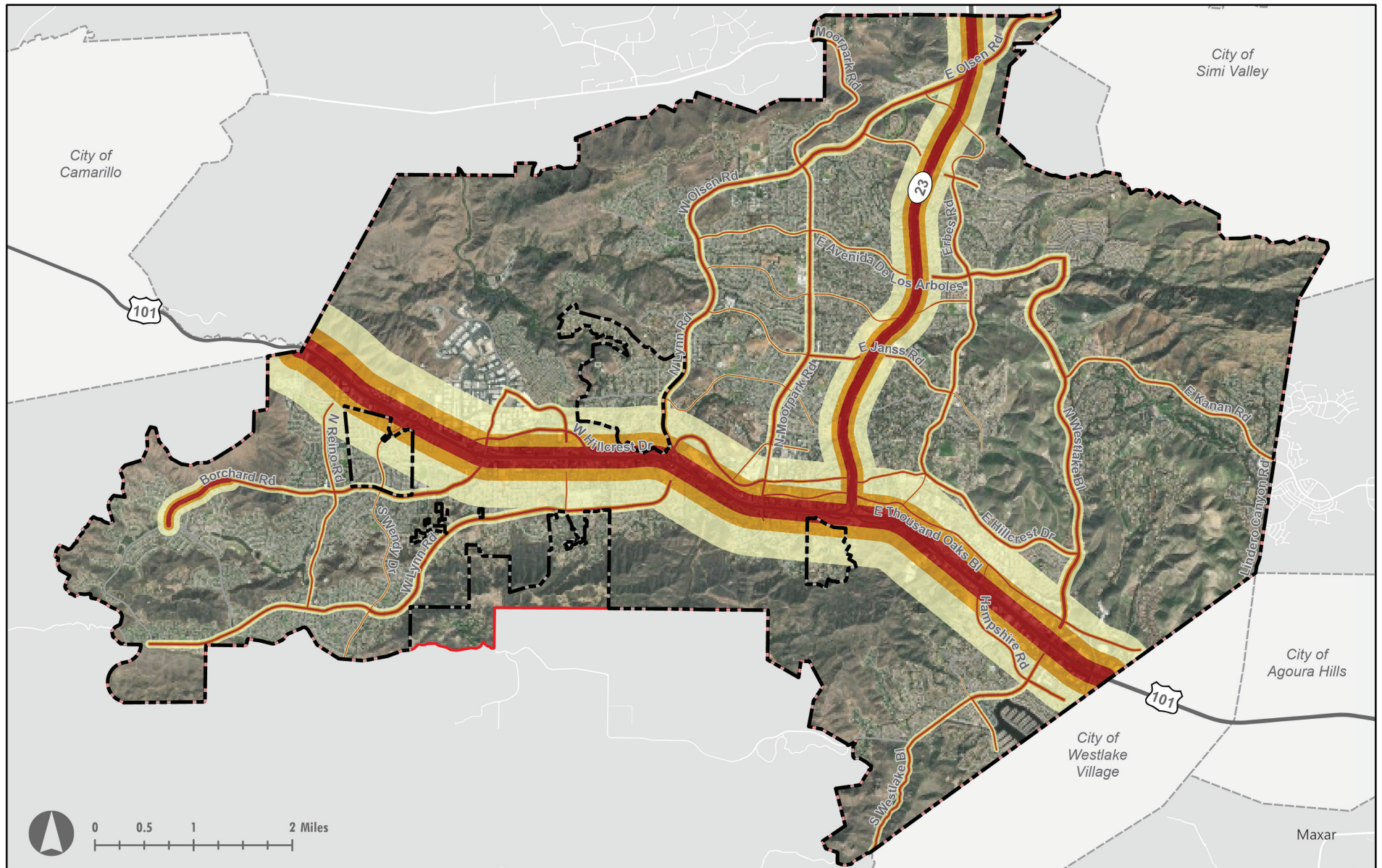


FIGURE 11.3 Future Noise Contours



Raimi + Associates 2023 | Data Source: City of Thousand Oaks, County of Ventura, County of Los Angeles; ESRI.

- | | |
|------------------------------|---|
| City Limits | Future Noise Level Contours (CNEL) |
| City Sphere | 60 dBA |
| Major Roads | 65 dBA |
| Freeways | 70 dBA |
| Unincorporated Counties Land | |
| Adjacent cities | |

Key Issues & Opportunities

This section identifies the key issues and opportunities facing the City, relative to noise. This concise list was developed in combination of the public engagement phase and existing data to address issues facing the City now, and in the future, and the opportunities for positive change. The topics below inform the overall direction identified in the goals and policies listed in the following section.

Traffic Noise

Traffic along Highway 101 and State Route 23, and major arterials such as Westlake Boulevard, Thousand Oaks Boulevard, Lynn Road, Hillcrest Drive, and Moorpark Road are sources of noise that affects noise-sensitive land uses such as residential neighborhoods, schools, churches, hospitals, and nursing homes. The Noise Element addresses potential noise conflicts between traffic and noise-sensitive uses through land use planning and use of noise attenuation strategies as necessary and feasible.

New Housing Along Commercial Corridors

The General Plan allows new mixed-use development with residential components along certain commercial corridors in the City. This could potentially expose such residences to high noise levels due to proximity to the freeway, arterial roadways, or commercial uses. To mitigate this, the Noise Element identifies policies and strategies to insulate noise-sensitive residential uses from excessive noise.

Intermittent Noise

Though generally not a major source of concern in the City, intermittent noise related to construction activity, loud parties, and use of noisy equipment can result in temporary disturbance of tranquility in discrete areas. Effective enforcement of restrictions on the timing and nature of such activities is key to avoiding issues related to intermittent noise.

Goals and Policies

This section includes goals and policies for the Noise Element. Noise related implementation actions can be found in Chapter 13: Implementation.

Goal N-1: Promote a pattern of land uses that is compatible with current and future noise levels.

1.1 Acoustical studies.

Require an acoustical study and, as necessary, noise attenuation for proposed developments that may be exposed to noise exceeding the normally acceptable range identified Table 11.2 or where a project has the potential to result in a significant increase in noise, as defined in Table 11.3.

1.2 Noise-reducing design features.

Incorporate design features into land use projects that can be used to shield residents from noise exceeding the normally acceptable ranges included in Table 11.2. Design features may include, but are not limited to berms, walls, and sound attenuating building configuration, architectural design, and construction method and materials.

1.3 Mixed-use developments.

Require design and construction of mixed-use developments to achieve noise levels in the conditionally acceptable range or lower per Table 11.2 for outdoor recreation areas associated with residential components and to achieve interior noise levels in residences of 45 CNEL or lower, consistent with Title 24 interior noise standards.

1.4 Sensitive noise receptors.

Maintain acceptable noise levels near sensitive receptors such as residences, hospitals, schools, and places of worship through review of new development in accordance with Policy N-1.1 and enforcement of the Municipal Code.

1.5 Noise studies.

Require noise studies for new development located in areas where the contour maps on figures Figure 11.2 and Figure 11.3 indicate the potential for exposure to noise exceeding the normally acceptable range for the proposed use and/or where the proposed use would have the potential to expose existing uses to significant operational noise impacts per the thresholds included in policies N-1.1 and N-3.2. If the proposed project would or could be exposed to noise exceeding the normally acceptable range, require appropriate noise reduction techniques to minimize noise exposure. Depending on the noise source, such techniques may include but are not limited to building construction standards to reduce interior noise, building orientation that blocks noise, increased setbacks from noise source(s), and use of sound barriers. If the project would or could generate significant operational noise impacts to existing uses, require mitigation to minimize impacts.

TABLE 11.2 Land Use Compatibility Guidelines with Urban Noise Environments

Land Use Category	Community Noise Equivalent Level (CNEL), dB				
	Clearly Acceptable	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential – Low-Density Single-Family, Duplex, Mobile Homes	< 55	55-60	60-65	65-75	< 75
Residential – Multifamily (including residential components of mixed-use developments)	< 55	55-60	60-65	65-75	< 75
Commercial – Motels, Hotels, Transient Lodging	< 60	60-65	65-70	70-80	< 80
Schools, Libraries, Churches, Hospitals, Nursing Homes	-	< 60	60-70	70-80	< 80
Amphitheatres, Concert Halls, Auditoriums, Meeting Halls	-	-	< 65	65-70	<70
Sports Arenas, Outdoor Spectator Sports	-	-	< 70	70-75	> 75
Playgrounds, Neighborhood Parks	< 55	55-67	67-75	-	> 75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	< 55	55-75	75-80	-	>80
Office Buildings, Business, Commercial and Professional	< 60	60-65	65-75	< 75	-
Industrial, Manufacturing, Utilities, Agriculture	< 65	65-70	70-80	< 80	-

- Clearly Acceptable = The noise environment is suitable for this use.
- Normally Acceptable = Noise may be considered a problem by some people, but normal building construction will usually provide adequate protection of interior spaces.
- Conditionally Acceptable = New construction or development should be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features included in design. Conventional construction, but with closed windows and fresh air supply or air conditioning, will normally suffice.
- Normally Unacceptable = New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in design.
- Clearly Unacceptable = New construction or development should generally not be undertaken.

This chart is a variation of a chart found in the California General Plan Guidelines (accessed February 2022).

TABLE 11.3 Thresholds of Significance for Long-Term Noise Increases

If the CNEL for existing + proposed project + cumulative conditions at a noise-sensitive land use is projected to be:	A project or cumulative noise impact would be significant if the CNEL would increase by the following amounts at a noise-sensitive land use:	The project alone would make a substantial contribution to a significant cumulative impact if the CNEL would increase by the following amounts at a noise-sensitive land use:
Less than 55 dBA	Not significant for any change in noise level	Not significant for any change in noise level
55-60 dBA	Equal to or greater than 3.0 dBA	Equal to or greater than 1.0 dBA
60-70 dBA	Equal to or greater than 1.5 dBA	Equal to or greater than 0.5 dBA
Greater than 70 dBA	Equal to or greater than 1.0 dBA	Equal to or greater than 0.5 dBA

A noise-sensitive use is a use for which the upper limit for the “normally acceptable” noise level range shown in Table 11.2 is 65 CNEL or lower.

Goal N-2: Minimize adverse noise impacts associated with transportation.

2.1 Freeway noise reduction. 

Work with Caltrans and VCTC to construct soundwalls and implement other measures to achieve locally acceptable levels from Highway 101 and State Route 23 whenever there are major freeway projects.

2.2 Noise sensitive receptors and roadway noise. 

Protect sensitive receptors from freeway and roadway noise through minimization techniques, including building configuration and design, sound walls, traffic calming, traffic diversion, or rubberized asphalt.

Goal N-3: Minimize excessive intermittent noise.

3.1 Construction noise.

Use the noise levels shown in Table 11.4, adopted from Federal Transit Administration (FTA) standards, as thresholds of significance for construction noise and, as necessary, require mitigation for construction activities that would result in significant noise impacts.

TABLE 11.4 Construction Noise Thresholds of Significance

Land Use	Leq (8-hour)		CNEL
	Day	Night	
Residential	80 dBA	70 dBA	75
Commercial	85 dBA	85 dBA	80
Industrial	90 dBA	90 dBA	85

A noise-sensitive use is a use for which the upper limit for the “normally acceptable” noise level range shown in Table 11.2 is 65 CNEL or lower.

3.2 Noise reduction for construction.

Require the following noise reduction techniques for all construction activity in the City:

- Require power construction equipment with noise shielding and silencing devices consistent with manufacturer’s standards or the Best Available Control Technology
- Prohibit use of driven (impact), sonic, or vibratory pile drivers, except in locations where the underlying geology renders alternative methods infeasible, as determined by a soils or geotechnical engineer and documented in a soils report
- Utilize noise attenuating measures or screening for all outdoor mechanical equipment from off-site noise-sensitive uses
- Locate construction staging areas as far from noise-sensitive uses as reasonably possible and feasible in consideration of site boundaries, topography, intervening roads and uses, and operational constraints
- For construction activity that even with the above requirements would or may still generate noise exceeding the significance thresholds in Policy N-3.2, investigate the use of additional feasible noise reduction techniques, including but not limited to the use of temporary sound barriers between the noise-generating activity and affected sensitive uses

3.3 Noise complaint response.

Track and respond to noise complaints and, as necessary, take action to address violations of noise restrictions. For repeat violators, investigate the potential to require systemic changes to the activity generating the Municipal Code violation.