

Noise Element

City of Mission Viejo

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INTRODUCTION TO THE NOISE ELEMENT

The Noise Element of a General Plan contains a comprehensive program for noise reduction and control. The City of Mission Viejo is affected by several sources of noise, including vehicular traffic, commercial and industrial activity, and periodic occurrences such as construction and aircraft. High noise levels associated with various activities can create stress and irritation. The City of Mission Viejo desires to achieve and maintain an environment free from objectionable, excessive, or harmful noise to protect and enhance the quality of life experienced by residents living and working within the community. The control of noise, therefore, is an essential component in creating a safe, compatible, and productive environment.

PURPOSE OF THE NOISE ELEMENT

The purpose of the Noise Element is to limit the exposure of the community to excessive noise levels. The Noise Element is to identify and appraise existing noise problems in the community, and to provide guidance to avoid noise and land use compatibility problems in the future. This Element addresses existing and projected noise sources in the community and identifies ways to reduce existing and potential noise impacts. In particular, the Noise Element contains policies and programs to achieve and maintain noise levels compatible with various types of land uses. These policies and programs emphasize the need to control noise through land use regulation, as well as enforcement of other City ordinances.

The Noise Element satisfies the requirements of state planning law and is a mandated component of the General Plan. Government Code section 65302(f) establishes the required components of the Noise Element. The Element also complies with California Health and Safety Code Section 56050.1 guidelines for Noise Elements.

SCOPE AND CONTENT OF THE NOISE ELEMENT

The Noise Element is a mandatory component of the General Plan as outlined in the State Government Code. Noise exposure contours in the Element present quantified projections of future noise conditions associated with both short and long term growth. This noise information serves as the basis for guidelines describing compatible land uses.

The Noise Element has three sections: 1) Introduction; 2) Goals and Policies; and 3) the Noise Plan. In the second section, goals and policies are established which address identified noise issues. The goals identify overall City desires and consist of broad statements of purpose and direction. The policies are guidelines aimed to reduce or avoid adverse noise effects on residents and businesses. The Noise Plan describes how goals and policies will be achieved, or implemented.

RELATED PLANS, PROGRAMS, AND OTHER REGULATORY DOCUMENTS

Many plans and programs enacted through federal, state and local legislation directly relate to the Noise Element. These plans and programs are administered by agencies with powers to enforce federal, state and local laws.

The intent of the Noise Element is to set goals to limit and reduce the effects of noise intrusion and to set acceptable noise levels for varying types of land uses. To this end, the City has the authority to set land use noise standards and place restrictions on private activities that generate excessive or intrusive noise. However, it should be recognized that the City does not have the authority to regulate all sources of noise within the City and various other agencies may supersede City authority.

Federal Highway Administration

State routes and freeways that run through the City are subject to federal funding and, as such, are under the purview of the Federal Highway Administration (FHWA). The FHWA has developed noise standards that are typically used for federally-funded roadway projects or projects that require either federal or Caltrans review.

U.S. Department of Housing and Urban Development

The Department of Housing and Urban Development (HUD) issues formal requirements related specifically to standards for exterior noise levels along with policies for approving HUD-supported or assisted housing projects in high noise areas.

Federal Railroad Administration

The EPA is charged with the regulation of railroad noise under the Noise Control Act. The EPA Office of Noise Abatement and Control was closed in 1982, leaving the enforcement of EPA regulations to the Federal Railroad Administration (FRA).

California Department of Health Services

The California Department of Health Services (DHS) Office of Noise Control studied the correlation of noise levels and their effects on various land uses. As a result, the DHS established four categories for judging the severity of noise intrusion on specified land uses. A land use compatibility chart for exterior community noise exposure prepared by the California Office of Noise Control and adopted in this Noise Element demonstrates land use compatibility. While the chart is presented in terms of the Ldn or CNEL, the City prefers the use of the CNEL descriptor, as it is slightly more conservative (i.e., restrictive), in protecting sensitive land uses.

It identifies “normally acceptable,” “conditionally acceptable,” “normally unacceptable,” and “clearly unacceptable” exterior noise levels for various land uses. A “conditionally acceptable” designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated in the design. By comparison, a “normally acceptable”

designation indicates that standard construction can occur with no special noise reduction requirements.

While this land use compatibility chart is based on a 24-hour value, the City is aware that some land uses are not occupied on a 24-hour basis, and a descriptor (such as Ldn or CNEL) may be overly restrictive in siting these types of sensitive land uses. Such uses may include, but are not limited to, schools, libraries, and churches. In these cases, a more appropriate standard would consider the time of occupancy of the land use. Here, the City recommends the use of a 65 dBA, 12-hour Leq (Lea(12)) that includes those hours of actual use. (If a facility is to be used in excess of 12 hours per day, the CNEL standard should be used.)

California Environmental Quality Act (CEQA) and Guidelines

The California Environmental Quality Act (CEQA) was adopted by the State legislature in response to a public mandate for thorough environmental analysis of projects that might affect the environment. The provisions of the law and environmental review procedure are described in the CEQA Statutes and the CEQA Guidelines. Excessive noise is considered an environmental impact under CEQA. Implementation of CEQA ensures that during the decision making stage of development, City officials and the general public will be able to assess the potential noise impacts associated with private and public development projects.

California Noise Insulation Standards (Title 24)

The California Commission of Housing and Community Development officially adopted noise insulation standards in 1974. In 1988, the Building Standards Commission approved revisions to the standards (Title 24, Part 2, California Code of Regulations). As revised, Title 24 establishes an interior noise standard of 45 dB(A) for residential space (CNEL or Ldn). Acoustical studies must be prepared for residential structures to be located within noise contours of 60 dB(A) or greater (CNEL or Ldn) from freeways, major streets, thoroughfares, rail lines, rapid transit lines, or industrial noise sources. The studies must demonstrate that the building is designed to reduce interior noise to 45 dB(A) or lower (CNEL or Ldn).

City of Mission Viejo Noise Ordinance

The City of Mission Viejo has the authority to set land use noise standards and place restrictions on private activities that generate excessive or intrusive noise.

The City of Mission Viejo has adopted noise referral zones as the criterion for assessing the compatibility of residential land uses with transportation related noise sources. The 60 dBA CNEL contour represents the noise referral zone for which any proposed noise sensitive land use within this zone should be examined on a project specific basis that may require mitigation to City or State (Title 25) standards. For Mission Viejo, the 60 dBA CNEL contour represents zones where residential development may require noise mitigation as part of the project. Typical noise standards for sensitive land uses include a 65 dBA CNEL for exterior areas and 45 dBA CNEL for interior areas.

The most effective method to control community noise impacts from non-transportation noise sources is through the application of a community noise ordinance. The adopted City of Mission

Viejo Noise Ordinance is designed to protect quiet residential areas from a variety of stationary noise sources.

RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

According to state planning law, the Noise Element must be consistent with the other General Plan elements. Each element is independent and all the elements together comprise the General Plan. All elements of the General Plan are interrelated to a degree, and certain goals and policies of one element may also address issues that are primary subjects of other elements. Table N-1 provided in the following section identifies the policies by General Plan element that are related to Noise Element issues. This integration of overlapping issues and policies provides a strong basis for implementation of plans and programs and achievement of community goals.

Policies and plans in the Noise Element are designed to protect existing and planned land uses from significant noise impacts. To do this, the Element identifies potential noise sources and establishes programs to avoid or mitigate noise impacts from community development. Concurrently, the Land Use Element contains policies to ensure that environmental conditions, including noise, are considered in all land use decisions. Planning for future residential and other sensitive land uses on the Land Use Policy Map is intended to avoid new noise sensitive development in areas where noise impacts cannot be reduced or mitigated to acceptable levels.

The Noise Element is linked to the transportation policies in the Circulation Element. Transportation noise is largely responsible for excessive noise levels in certain locations within Mission Viejo. The projected noise contours identified in this Element directly correspond to the Circulation Plan and the projected traffic generated from the proposed land uses. Both the Noise and Circulation Elements contain policies and programs to minimize the effects of transportation noise on existing and planned land uses. Noise exposure is a key consideration when locating and designing new arterials.

The Noise Element also relates to the Conservation / Open Space Element. Excessive noise can diminish enjoyment of parks and other designated open space. Because of this, noise levels are considered in the planning of new recreational and open space areas. Additionally, open space areas can be used to separate and buffer noise sensitive land uses from noise producers.

NOISE ELEMENT GOALS AND POLICIES

The goals and policies in this Element address reduction of noise impacts from transportation noise sources, integration of noise impact considerations in land use planning decisions, and control of non-transportation related noise impacts. The following goals, policies and implementation measures focus on minimizing noise impacts by use of both post-development remedial actions and pre-development planning actions.

TRANSPORTATION RELATED NOISE

The primary source of noise impacting Mission Viejo results from transportation-related noise. Both Interstate 5 and the railroad, along with other major roadways, create high levels of noise that affect the overall quality of life in the community. Reduction in transportation-related noise is necessary to deal with the detrimental effects attributable to excessive noise.

GOAL 1: Minimize noise impacts from transportation noise sources.

Policy 1.1: Require the construction of noise barriers to mitigate sound emissions where necessary or where feasible. Actively participate in the development of noise abatement plans for freeways, tollroads, and railroads.

Policy 1.2: Employ noise mitigation practices, as necessary, when designing future streets and highways, and when improvements occur along existing road segments. Mitigation measures should emphasize the establishment of natural buffers or setbacks between the arterial roadways and adjoining noise-sensitive areas.

Policy 1.3: Control truck traffic routing to reduce transportation-related noise impacts to sensitive land uses.

Policy 1.4: Continue to enforce the noise standards of the State Motor Vehicle Code and other state and federal legislation pertaining to motor vehicle noise.

Policy 1.5: Require that development generating increased traffic and subsequent increases in the ambient noise level adjacent to noise-sensitive land uses provide appropriate mitigation measures.

Policy 1.6: Maintain roadways so that the paving is in good condition to reduce noise-generating cracks, bumps, and potholes.

Policy 1.7: Require sound walls, berms and landscaping along freeways, tollroads, and railroad rights-of-way to beautify the landscape and reduce noise, where appropriate.

- Policy 1.8:** Require private heliports/helistops to comply with the City noise regulations and Federal Aviation Administration standards.
- Policy 1.9:** Encourage the development and use of alternative transportation modes and technologies that minimize noise impacts.
- Policy 1.10:** Monitor proposals for future transit systems and require noise control to be considered in the selection of transportation systems that may affect the City.

NOISE AND LAND USE PLANNING

Certain areas within Mission Viejo are subject to high noise levels as discussed in the Noise Contour Map (Figures N1 and N2). Consideration of the sources and recipients of noise early in the land use planning process can be an effective method of minimizing the impact of noise on population in the community. Consideration may be given to both reducing noise in areas already severely impacted by noise through rehabilitative improvements and avoiding potential noise impacts through proper land use planning.

- GOAL 2:** Minimize the effects of noise through proper land use planning.
- Policy 2.1:** Ensure that new development and reuse/revitalization projects can be made compatible with the noise environment by utilizing noise/land use compatibility standards and the Noise Contour Map as a guide.
- Policy 2.2:** Require the inclusion of design features in development and reuse/revitalization projects to reduce the impact of noise on residential development.
- Policy 2.3:** Ensure proposed development meets noise insulation standards for construction and residential development.

NON-TRANSPORTATION RELATED NOISE

Noise sources that are not directly related to transportation include: construction noise, manufacturing or business operations noise, and property maintenance activities. Such noise sources should be controlled to minimize exposure to excessive noise levels.

- GOAL 3:** Minimize non-transportation related noise impacts.
- Policy 3.1:** Reduce the impacts of noise-producing land uses, activities, and businesses on noise-sensitive land uses.
- Policy 3.2:** Incorporate sound-reduction design in new construction or rehabilitation projects impacted by non-transportation-related noise.

Policy 3.3: Minimize stationary noise sources and noise emanating from construction activities and special events.

RELATED GOALS AND POLICIES

The goals and policies contained in this Noise Element are supported by policies of other elements that correspond with the major issue areas considered in this element. Table N-1 illustrates the consistency between these General Plan elements.

**TABLE N-1
NOISE POLICIES BY ELEMENT**

| ISSUE AREA | POLICIES BY ELEMENT | | | | | | | |
|--|---------------------|----------|--------------------------------|---------------------------|---------------|-------------------|---------------------|------------------|
| | Land Use | Housing | Circulation | Conservation / Open Space | Public Safety | Public Facilities | Economic Developmt. | Growth Managemt. |
| Transportation Noise Control | 2.9, 3.1 | 4.4 | 2.1, 8.3, 9.2, 9.3, 10.3, 20.5 | 1.6, 3.7 | 5.3 | | | |
| Noise and Land Use Planning Integration | 2.8 | 4.4 | 9.2, 20.5 | 1.6 | | | | |
| Noise Control for Non-Transportation Noise Sources | 2.9, 3.1, 3.6 | 2.1, 4.4 | | 1.6 | | | | |

NOISE PLAN

This section of the Noise Element identifies predominate noise sources within the City and methods to reduce noise. Sources of noise and threshold noise levels are described, as well as actions to be taken to reduce impacts resulting from different types of noise.

Mission Viejo, like most urbanized areas, is experiencing increased noise levels associated with transportation and other sources of noise. As the noise level in various parts of the community rises, the City must seek ways to safeguard its population from excessive noise levels. The goals and policies identified in the previous section establish an agenda to reduce overall noise levels within the City. This Noise Plan defines the City's approach to achieve the agenda and generally outlines the action programs.

Noise in the community is the cumulative effect of noise from transportation activities and stationary sources. Transportation noise refers to noise from automobile use, trucking, airport operations, and rail operations. Non-transportation noise typically refers to noise from stationary sources such as commercial establishments, machinery, air conditioning systems, compressors, residential and recreational uses, and landscape maintenance equipment.

Regardless of the type of noise, the noise levels are highest near the source and decrease with distance. Noise is problematic when noise sensitive land uses are affected. Noise sensitive land uses (i.e., activities that are interrupted by noise) include residences, schools, hospitals, churches, and recreation areas. Most noise impacts can be avoided when noise sources, sensitive land uses, and information about the future noise environment are considered in land use planning and development decisions.

NOISE FUNDAMENTALS

Noise is defined as unwanted or undesired sound. Airborne sound is the result of a very rapid change in air pressure from the surrounding "normal" atmospheric pressure. The combination of noise from all sources near and far is the Ambient Noise Level. For purposes of this discussion, the ambient noise level at a given location is termed "environmental noise".

Understanding environmental noise requires some familiarity with the physical description of noise. The important physical characteristics of sound include its frequency range, intensity/loudness and temporal/time-varying aspect. The decibel (dBA), A-weighted level, and Community Noise Equivalency Level (CNEL) are all units of measurements used to describe and numerically weight noise.

The decibel is a unit of measurement describing the amplitude or strength of sound. The Community Noise Equivalent Level (CNEL) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m.,

and the addition of ten decibels to sound levels at night between 10:00 p.m. to 7:00 a.m. These additions are made to the sound levels at these time periods because during the evening and night hours there is a decrease in overall amount of loudness of noise generated, when compared to daytime hours; therefore, there is an increased sensitivity to sounds. For this reason, the sound is perceived as louder and it is weighted accordingly.

The Day-Night Average Level (LDN) is the average equivalent A-weighted sound level during a 24-hour day, obtained after addition of 10 decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is approximately at 60 dBA, while loud jet engine noises equate to 110 dBA, which can cause serious discomfort. Due to the logarithmic nature of the sound measuring (decibel) scale, doubling the sound energy of a noise source only increases the decibel rating by 3 dBA. However, due to the internal mechanism of the human ear and how it receives and processes noise, a sound must be nearly 10 dBA higher than another sound to be judged twice as loud. Physical health, psychological well-being, social cohesion, property values and economic productivity can all be affected by excessive amounts of noise.

Typical noise levels in terms of the CNEL scale for different types of noise impacts are presented on Table N-2. The effects of noise on people can be grouped into three general categories: subjective effects (such as annoyance and nuisance), interference with activities (such as conversation and sleep), and physiological effects (such as stress or even hearing loss).

In community noise assessment, changes in noise levels greater than 3 dBA are often identified as significant, while changes less than 1 dBA will not be discernible to the human ear. In the range of 1 dBA to 3 dBA, people who are very sensitive to noise may perceive a slight change in noise level. No scientific evidence is available to support the use of 3 dBA as the significance threshold. In laboratory testing situations, humans are able to detect noise level changes of slightly less than 1 dBA. However, in a community situation the noise exposure is extended over a long time period, and changes in noise levels occur over years, rather than immediately as in the comparison made in a laboratory situation. Therefore, the level at which changes in community noise levels become discernible is likely to be some value greater than 1 dBA, and 3 dBA appears to be appropriate for most people.

NOISE IMPACT ANALYSIS

Noise Sources

The existing noise environment surrounding the City of Mission Viejo is influenced primarily by transportation related noise sources. The transportation related noise sources include traffic noise from nearby freeways, toll roads, roadways and additional noise impacts can be attributed to passenger and freight railway and random aircraft overflights.

The San Diego Freeway (I-5) is oriented in a north/south direction and runs along the western boundary just inside the City. The portion of the freeway that is within the City boundary lies

between La Paz Road and Avery Parkway freeway interchanges. The San Diego Freeway is primarily below grade in relation to adjacent land uses within the boundaries of the City of Mission Viejo. A number of single family residences exist along the east side of the San Diego Freeway between La Paz Road and Crown Valley Parkway. A number of these homes are adjacent to the freeway are exposed to noise levels in excess of 65 CNEL. The CNEL noise contours for the freeway are shown on the existing noise contour map identified in Figure N-1. The rear yards of the homes (rear yards face the freeway) are protected from the freeway by noise barriers in the form of block walls, fences, or shielding provided by natural topography. The noise barriers were designed at the time of residential development to mitigate existing and projected noise impacts associated with the San Diego Freeway. In the past, the City worked with Caltrans to have a rear yard sound wall installed at single family residences along the east side of the San Diego Freeway between Alicia Parkway and La Paz Road. Other sensitive land uses along the San Diego Freeway include Mission Viejo High School generally located at the southeast corner of the freeway and La Paz Road. In addition, the Foothill Transportation Corridor (SR-241) runs in a northwest/southeast direction through northern Mission Viejo. Existing residential developments near this toll road had mitigation measures incorporated into their project designs to protect those residences from noise impacts.

Traffic noise on surface streets is a significant source of noise within the community. The major roadways in the City include: El Toro Road, Los Alisos Boulevard, Alicia Parkway, La Paz Road, Oso Parkway, Crown Valley Parkway, Santa Margarita Parkway, Trabuco Road, Jeronimo Road, Muirlands Boulevard, Marguerite Parkway, Olympiad Road, Felipe Road, and Avery Parkway. Noise levels along roadways are determined by a number of traffic characteristics, most importantly, average daily traffic (ADT). Additional factors include the percentage of trucks, vehicles speed, and the time distribution of traffic and gradient of the roadway.

Noise levels along roadway are determined by a number of traffic characteristics, but most importantly, by the average daily traffic (ADT). Additional factors include the percentage of trucks, vehicle speed, the time and distribution of traffic, and gradient of the roadway.

The land uses along the major freeways are commercial, industrial, residential, and open space. The residential land uses that are adjacent to the major roadways are of primary importance when evaluating the noise environment within the City. Many of these homes are located within the 65 CNEL contour; however, residential developments within the City have been required to include measures to mitigate roadway noise levels to below 65 CNEL at the outdoor living area. Therefore, actual mitigated noise levels at residences throughout the City are less than 65 CNEL. The unmitigated CNEL noise contours for the arterial roadways are shown on the existing noise contour map identified as Figure N-1.

A railroad line runs along the western boundary of the City. The railroad line is used as a primary track by both freight and passenger trains (Amtrak and Metrolink). The line enters the City at the southwest corner City boundary, and runs north along the San Diego Freeway. The railroad lines continue north along the western City boundary to where it leaves the City near Los Alisos Boulevard and Jeronimo Road. Approximately 8 freight, 24 Amtrak and 25 Metrolink operations occur per day along the portion of line within Mission Viejo. Land uses along the railroad lines include single family residences and Mission Viejo High School. Existing residences are set back from the tracks and are protected by solid block walls, which lower the CNEL levels at rear yards to below the 65 CNEL. In some areas, the block wall acts as

the noise barrier for both the railroad line and the San Diego Freeway. The CNEL noise contours for the railroad lines are shown on the existing noise contour map identified as Figure N-1.

In the past, an additional noise source affecting the City of Mission Viejo was aircraft over flights from the El Toro Marine Corp Air Station (MCAS); however, this facility has been closed since Year 2000. In addition, Orange County voters rejected a measure to build a commercial airport at the MCAS site. Therefore, there is no significant aircraft noise is projected to occur within the City of Mission Viejo. The City of Irvine is currently developing the former MCAS with a new planned community development called the “Great Park.”

Mission Hospital has an existing heliport for medical emergencies on top of west wing of their five story bed tower building on the upper hospital campus off Medical Center Road, south of Crown Valley Parkway. No helicopters are based at the hospital. The site plan permit approved by the City’s Planning Commission in 1989 for the bed tower building conditioned that the helicopter flight paths be directed away from residential areas, and sound baffling be installed along the edge of the helicopter pad. The overall volume of flights is not substantial and noise levels are single events with limited and short duration.

The City of Mission Viejo has commercial sources of noise at a number of locations throughout the City. These include commercial centers that range in size from small corner shopping centers to the Shops at Mission Viejo mall. The City has a number of locations with residential land uses adjacent to commercial land uses. The primary noise associated with commercial centers in the City involves loading activities, haul truck noise, air conditioning and refrigeration compressors, traffic and parking lot activity. Residences bordering commercial centers are protected from loading activities and haul truck noise by noise barriers. Planned communities such as Mission Viejo are able to incorporate mitigation measures into the design prior to construction in order to assure land use compatibility. In addition, the City’s noise regulations in the Mission Viejo Development Code ensures that these activities will not exceed specified noise levels at certain times of the day.

Although the City of Mission Viejo is nearly built-out, future noise levels are projected to increase as a result of increased traffic volumes and growth in surrounding areas.

Noise Measurements

To determine the existing noise level environment and to assess potential noise impacts on the adjacent residential areas, noise measurements were taken at various locations throughout the City. The results of the survey and the methodology used in the measurement are summarized in the Noise Element Technical Report. A copy of this report may be obtained in the City’s Community Development Department.

Noise Contours

The community noise contours for the City of Mission Viejo are presented in Figures N-1 and N-2 for both existing and future Year 2025 conditions, respectively. The existing conditions are based upon existing traffic volumes, railroad volumes, and other sources of noise in the community. Future conditions are estimated for Year 2025 conditions. A combination of traffic

volumes, roadway classifications, speed, distances, and vehicle mix were used to estimate the traffic noise contours. Railroad contours were determined including but not limited to railroad volumes, train type, train length, speed, and distances.

The contours shown in Figures N-1 and N-2 include 55, 60, 65, and 70 dBA CNEL noise levels. Because the City of Mission Viejo uses the 60 dBA CNEL contour to define the noise referral zone, this is the noise level for which noise considerations should be included when making land use policy decisions.

The existing and future noise contours are also described in Tables N-5, N-6, and N-7 respectively. Table N-8 shows the difference in CNEL levels between existing and buildout conditions. It should be noted that the noise contours are conservative, since they do not take into consideration topographic conditions, existing noise barriers or building structures. The methodology used for computing the noise contours is presented in the Noise Element Technical Report.

Noise and Land Use

The compatibility of different land uses is directly related to the user's sensitivity to noise and the potential for impacts to be mitigated. Particularly sensitive land uses include residences, schools, libraries, places of worship, hospitals, and nursing homes. In addition, parks, golf courses and other outdoor activity areas can be sensitive to noise disturbances. Less sensitive land uses include commercial and industrial uses, hotels and motels, playgrounds and neighborhood ballparks, and outdoor spectator sports arenas. Least sensitive to noise are heavy commercial and industrial uses, transportation, communication and utility land uses.

Table N-3 illustrates the ranges of allowable exterior noise levels for various land uses.

Short-Term Construction Noise Impacts

Construction noise represents a short-term impact on ambient noise levels. Noise generated by construction equipment, including trucks, graders, back-hoes, bull-dozer, concrete mixers and portable generators can reach high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and limiting hours of construction to normal weekday working hours.

Noise levels for equipment, which might be used for the excavation and construction of the proposed project, are presented in Table N-4. Note that the noise levels presented are for a distance of 50 feet. The noise levels in Table N-4 decrease at a rate of approximately 6 dBA per doubling of the distance. Therefore, at 100 feet the noise levels will be about 6 dBA less than reported in the exhibit. Similarly, at 200 feet, the noise levels would be 12 dBA less than indicated in Table N-4. Intervening structures or topography will act as a noise barrier, and further reduce noise levels.

Since construction noise is of a temporary nature, the City of Mission Viejo does not require noise mitigation. Section 9.22.035(d) of the City's Development Code regarding noise control provides an exemption for noise sources associated with construction. However, this noise code

does require operational considerations (i.e., hours of construction, mufflers on construction equipment, etc.) to minimize noise impacts during the construction process.

Noise Mitigation

The most effective method the City has to mitigate transportation noise is through reducing the impact of the noise onto the community (i.e. noise barriers and site design review). Noise concerns should be incorporated into land use planning in order to reduce future noise and land use incompatibilities. This can be achieved by establishing standards and criteria that specify acceptable limits of noise for various land uses throughout the City. These criteria are designed to integrate noise considerations into land use planning to prevent noise/land use conflicts.

As the rail operations expand, additional noise mitigation measures may be necessary to meet the City noise standards. The City should work with the rail operators to further mitigate increasing rail operations.

Noise impact reports are required for all new construction in the City of Mission Viejo that may be adversely impacted by noise sources. In addition, the City's Noise Ordinance provides a means to insure that stationary source noise does not adversely impact noise sensitive uses.

The City has little direct control over noise produced by transportation sources since the State is responsible for regulating motor vehicle noise. Therefore, City noise programs focus on reducing the impact of transportation noise on the community.

The most effective ways to mitigate transportation noise impacts on the community are through utilization of a design review process, and implementation of the California Environmental Quality Act (CEQA). Identification of potential impacts from transportation noise will occur during these stages of the development process and mitigation measures may be required to meet City noise standards identified in this Element. The most common ways to reduce transportation-related noise impacts are through site planning, landscaping, use of natural topography, and the design and construction of noise barriers. Small noise reductions can also be achieved by use of setbacks and landscaping.

Noise barriers should be included in roadway and freeway designs and improvements. The City supports efforts by Caltrans, OCTA, and other transportation providers to provide acoustical protection for noise sensitive uses along transportation corridors. Additionally, the City will request that barriers be included in any future improvement projects constructed as part of future freeway, roadway, and rail projects to mitigate identified or potential long and short term noise impacts to nearby residence and businesses. The City continues to promote the use of berms, embankments, landscaping, setbacks, and architectural design where appropriate and effective, rather than conventional wall barriers to enhance community aesthetics.

Noise Control at the Source

Reducing noise at the source is the most efficient and effective way to control noise from transportation systems. The California Vehicle Code contains noise regulations pertaining to the operation of all vehicles on public roads, which are enforced through coordination with the California Highway Patrol and the Orange County Sheriff's Department. While the City is

ultimately limited in its ability to restrict noise at the source, Mission Viejo regulates traffic flow and coordinates with the California Highway Patrol and the Orange County Sheriff's Department to enforce speed limits to reduce traffic noise.

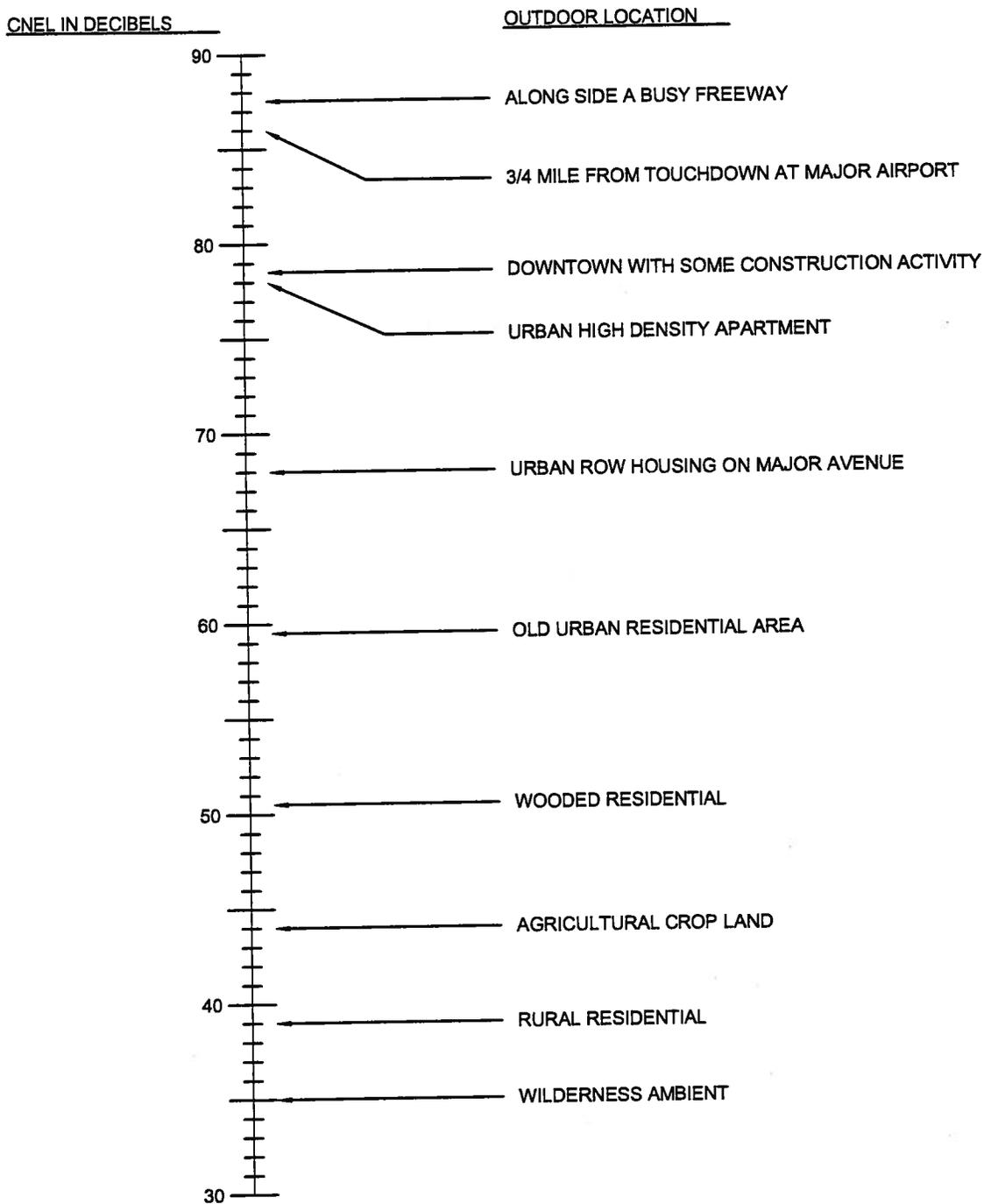
NON-TRANSPORTATION RELATED NOISE

In addition to transportation related noise, excessive noise generated by non-transportation sources, such as commercial and industrial centers, agricultural activities, and restaurants and bars, have the potential to impact sensitive receptors. Enforcement of City noise requirements, analysis of potential noise impacts during the site design review process, and compliance with CEQA are the best means to protect sensitive receptors. Potential noise impacts can be identified during the preliminary stages of the development process and mitigation measures can be imposed.

When reviewing proposed non-residential projects, the City considers noise generation and potential impacts to surrounding development. New development can be made compatible with the noise environment by utilizing noise/land use compatibility standards and standards contained in the Housing Element as a guide for future planning and development decisions. An acoustical analysis is required for projects that will generate noise potentially affecting sensitive receptors. Where significant impacts are identified, mitigation measures are required. Mitigation measures that could be applied when reviewing projects include acoustically treated and/or quiet designs for furnaces, fans, motors, compressors, valves, pumps and other mechanical equipment. Noise resulting from special one-time events should be minimized as well. The City may also require limited delivery hours and/or hours of operation in order to minimize impacts to adjacent residential uses. In addition, all City departments must comply with state and federal OSHA standards. Any new equipment or vehicles purchased by the City will comply with local, state and federal noise standards, and the City will encourage landscaping contractors to utilize modern noise-reducing equipment.

Typical Outdoor Community Noise Equivalent Levels

TABLE N-2

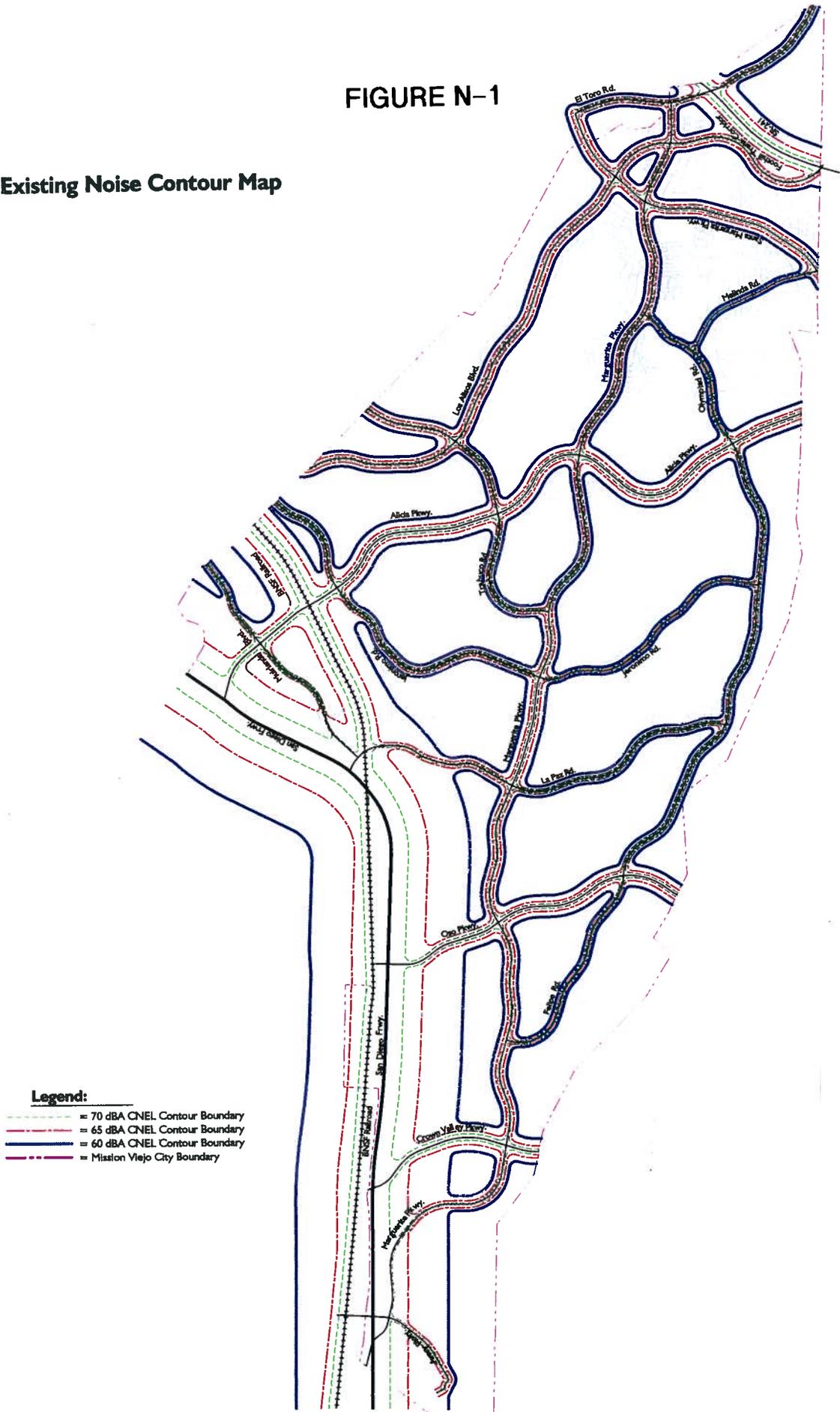


SOURCE: U.S. ENVIRONMENTAL PROTECTION AGENCY, PROTECTIVE NOISE LEVELS.



FIGURE N-1

Existing Noise Contour Map



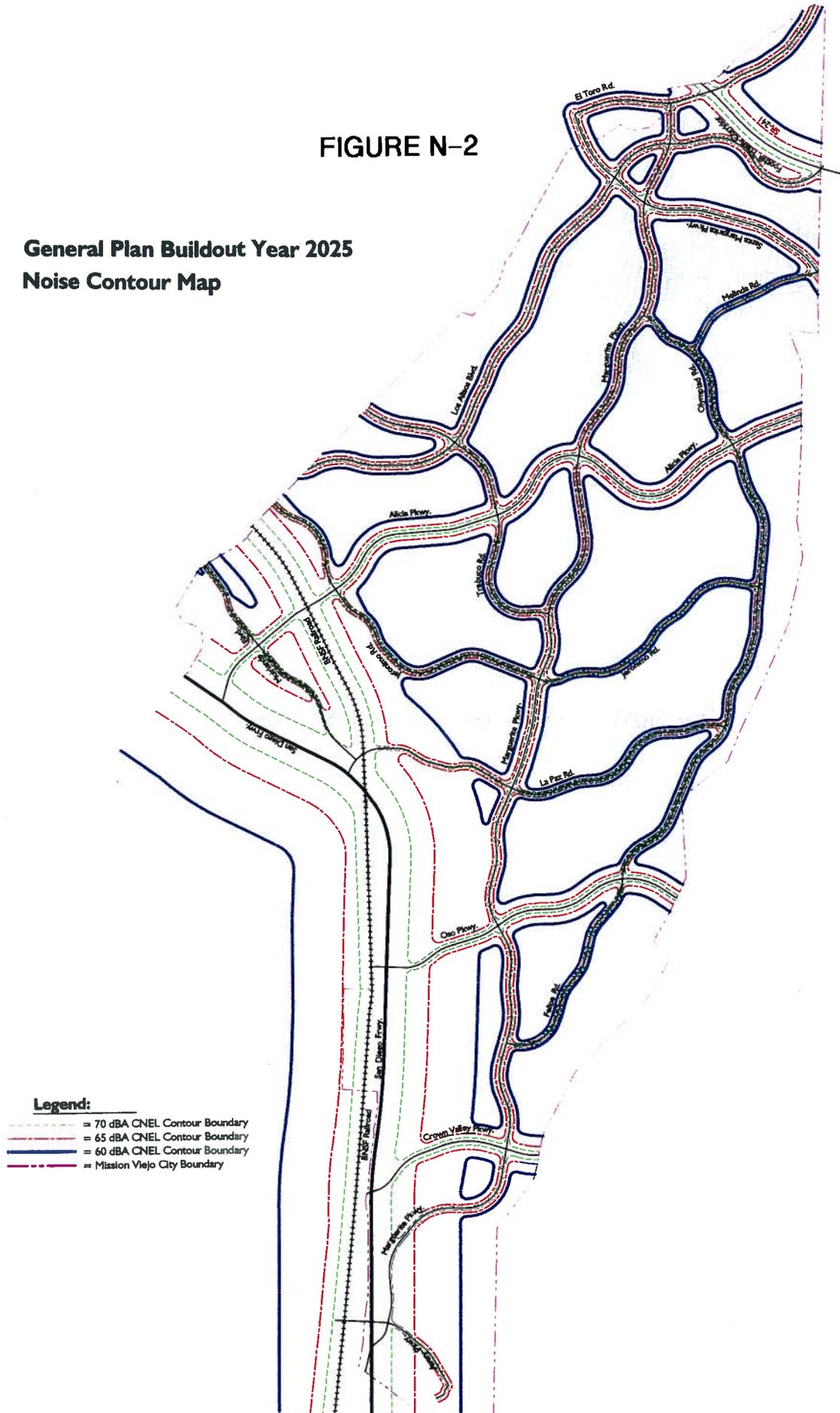
Legend:

- - - - - = 70 dBA CNEL Contour Boundary
- - - - - = 65 dBA CNEL Contour Boundary
- - - - - = 60 dBA CNEL Contour Boundary
- - - - - = Mission Viejo City Boundary



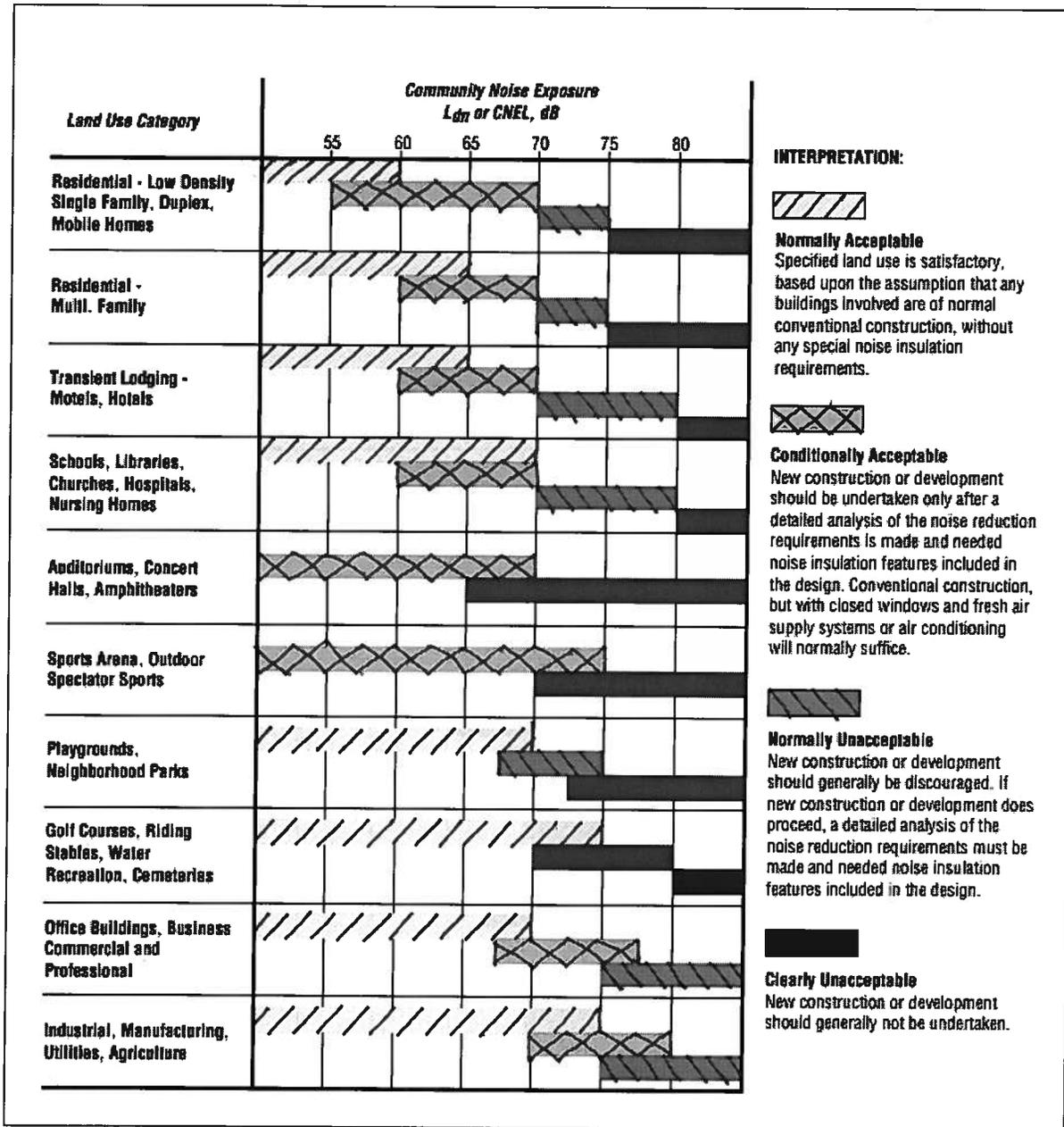
FIGURE N-2

General Plan Buildout Year 2025
Noise Contour Map



Noise Compatibility Matrix

TABLE N-3



SOURCE: STATE OF CALIFORNIA GENERAL PLAN GUIDELINES,

0041-06-02 (ExD)

CITY OF MISSION VIEJO NOISE ELEMENT TECHNICAL REPORT, Mission Viejo, California

Construction Equipment Noise

TABLE N-4

Noise Ranges of Typical Construction Equipment¹

| Construction Equipment | Noise Levels in dBA Leq at 50 feet ¹ |
|----------------------------|---|
| Front Loader | 73-86 |
| Trucks | 82-95 |
| Cranes (moveable) | 75-88 |
| Cranes (derrick) | 86-89 |
| Vibrator | 68-82 |
| Saws | 72-82 |
| Pneumatic Impact Equipment | 83-88 |
| Jackhammers | 81-98 |
| Pumps | 68-72 |
| Generators | 71-83 |
| Compressors | 75-87 |
| Concrete Mixers | 75-88 |
| Concrete Pumps | 81-85 |
| Back Hoe | 73-95 |
| Pile Driving (peaks) | 95-107 |
| Tractor | 77-98 |
| Scraper/Grader | 80-93 |
| Paver | 85-88 |

¹ Source: U.S. EPA 1971 as presented in City of Los Angeles 1998

² Machinery equipped with noise control devices or other noise-reducing design features does not generate the same level of noise emissions as that shown in this table.

TABLE N-5

Existing Noise Contours

| Roadway | Segment | CNEL at 100 Feet (dBA) ¹ | Distance to Noise Contour (feet) | | |
|---------------------------------|--|-------------------------------------|----------------------------------|-------------|-------------|
| | | | 70 dBA CNEL | 65 dBA CNEL | 60 dBA CNEL |
| El Toro Road | Santa Margarita Pkwy to Painted Trails | 64.7 | 44 | 95 | 204 |
| Los Alisos Boulevard | Trabuco Rd to Vista Del Lago | 66.4 | 57 | 123 | 265 |
| | Vista Del Lago to Santa Margarita Pkwy | 66.4 | 58 | 125 | 269 |
| Alicia Parkway | Jeronimo Rd to Trabuco Rd | 69.0 | 86 | 185 | 399 |
| | Trabuco Rd to Marguerite Pkwy | 68.0 | 73 | 158 | 340 |
| | Marguerite Pkwy to Olympiad Rd | 68.9 | 84 | 182 | 391 |
| | Olympiad Rd to City Boundary | 68.4 | 79 | 170 | 365 |
| La Paz Road | Chrisanta Dr to Marguerite Pkwy | 65.7 | 52 | 112 | 241 |
| | Marguerite Pkwy to Olympiad Rd | 63.7 | 38 | 82 | 177 |
| Oso Parkway | I-5 Freeway to Marguerite Pkwy | 69.3 | 90 | 194 | 418 |
| | Marguerite Pkwy to Felipe Pkwy | 68.5 | 79 | 170 | 366 |
| Felipe Parkway | Marguerite Pkwy to Oso Pkwy | 62.6 | 32 | 69 | 150 |
| Crown Valley Parkway | I-5 Freeway to Marguerite Pkwy | 70.4 | 107 | 230 | 496 |
| | Marguerite Pkwy to City Boundary | 69.7 | 95 | 206 | 443 |
| Avery Parkway | East of Marguerite Pkwy | 59.0 | 19 | 40 | 86 |
| Santa Margarita Parkway | El Toro Rd to Los Alisos Blvd | 67.1 | 64 | 138 | 298 |
| | Marguerite Pkwy to Melinda Rd | 67.3 | 66 | 143 | 307 |
| Melinda Road | Olympiad Rd to Santa Margarita Parkway | 60.4 | 23 | 50 | 107 |
| Olympiad Road | Marguerite Pkwy to Melinda Rd | 62.1 | 30 | 64 | 137 |
| | Melinda Rd to Alicia Pkwy | 62.6 | 32 | 70 | 150 |
| | Alicia Pkwy to Jeronimo Rd | 63.8 | 39 | 84 | 180 |
| | Jeronimo Rd to La Paz Rd | 64.0 | 40 | 86 | 186 |
| | South of La Paz Rd | 64.0 | 40 | 86 | 185 |
| Trabuco Road | Los Alisos Blvd to Alicia Pkwy | 65.1 | 47 | 101 | 218 |
| | Alicia Pkwy to Marguerite Pkwy | 64.3 | 42 | 90 | 193 |
| Jeronimo Road | Alicia Pkwy to Marguerite Pkwy | 64.6 | 43 | 94 | 201 |
| | Marguerite Pkwy to Olympiad Rd | 61.4 | 27 | 57 | 123 |
| Muirlands Boulevard | Alicia Pkwy to La Paz Rd | 63.3 | 36 | 78 | 167 |
| Marguerite Parkway | Santa Margarita Pkwy to Olympiad Rd | 65.5 | 50 | 108 | 233 |
| | Olympiad Rd to Alicia Pkwy | 65.3 | 49 | 105 | 226 |
| | Alicia Pkwy to Trabuco Rd | 64.8 | 45 | 97 | 208 |
| | Trabuco Rd to Jeronimo Rd | 66.6 | 59 | 128 | 275 |
| | Jeronimo Rd to La Paz Rd | 68.2 | 76 | 165 | 355 |
| | La Paz Rd to Oso Pkwy | 66.4 | 58 | 124 | 267 |
| | Oso Pkwy to Crown Valley Pkwy | 66.4 | 57 | 123 | 266 |
| | Crown Valley Pkwy to Avery Pkwy | 66.1 | 55 | 118 | 254 |
| San Diego Freeway | Alicia Pkwy to La Paz Rd | 81.6 | 589 | 1270 | 2736 |
| | La Paz Rd to Oso Pkwy | 81.4 | 578 | 1246 | 2684 |
| | Oso Pkwy to Crown Valley Pkwy | 81.2 | 560 | 1207 | 2601 |
| Foothill Trans. Corridor/SR-241 | Los Alisos Blvd to El Toro Rd | 72.4 | 145 | 311 | 671 |

¹ Distance from centerline of roadway

TABLE N-6

General Plan Buildout Year 2025 Noise Contours (Projected)

| Roadway | Segment | CNEL at 100 Feet (dBA) ¹ | Distance to Noise Contour (feet) | | |
|---------------------------------|--|-------------------------------------|----------------------------------|-------------|-------------|
| | | | 70 dBA CNEL | 65 dBA CNEL | 60 dBA CNEL |
| El Toro Road | Santa Margarita Pkwy to Painted Trails | 66.5 | 58 | 125 | 270 |
| Los Alisos Boulevard | Trabuco Rd to Vista Del Lago | 66.7 | 60 | 130 | 280 |
| | Vista Del Lago to Santa Margarita Pkwy | 67.0 | 64 | 137 | 295 |
| Alicia Parkway | Jeronimo Rd to Trabuco Rd | 70.2 | 103 | 222 | 479 |
| | Trabuco Rd to Marguerite Pkwy | 69.1 | 87 | 187 | 402 |
| | Marguerite Pkwy to Olympiad Rd | 69.4 | 91 | 196 | 422 |
| | Olympiad Rd to City Boundary | 68.6 | 80 | 173 | 372 |
| La Paz Road | Chrisanta Dr to Marguerite Pkwy | 66.2 | 56 | 121 | 260 |
| | Marguerite Pkwy to Olympiad Rd | 63.8 | 39 | 84 | 180 |
| Oso Parkway | I-5 Freeway to Marguerite Pkwy | 70.1 | 102 | 220 | 474 |
| | Marguerite Pkwy to Felipe Pkwy | 70.5 | 107 | 231 | 498 |
| Felipe Parkway | Marguerite Pkwy to Oso Pkwy | 62.9 | 33 | 72 | 155 |
| Crown Valley Parkway | I-5 Freeway to Marguerite Pkwy | 71.4 | 123 | 266 | 573 |
| | Marguerite Pkwy to City Boundary | 72.3 | 143 | 308 | 664 |
| Avery Parkway | East of Marguerite Pkwy | 59.8 | 21 | 45 | 97 |
| Santa Margarita Parkway | El Toro Rd to Los Alisos Blvd | 68.3 | 77 | 166 | 358 |
| | Marguerite Pkwy to Melinda Rd | 68.4 | 79 | 169 | 365 |
| Melinda Road | Olympiad Rd to Santa Margarita Parkway | 61.1 | 26 | 55 | 118 |
| Olympiad Road | Marguerite Pkwy to Melinda Rd | 63.2 | 35 | 76 | 164 |
| | Melinda Rd to Alicia Pkwy | 63.5 | 37 | 80 | 172 |
| | Alicia Pkwy to Jeronimo Rd | 63.8 | 39 | 84 | 180 |
| | Jeronimo Rd to La Paz Rd | 64.1 | 41 | 87 | 188 |
| | South of La Paz Rd | 64.4 | 42 | 91 | 196 |
| Trabuco Road | Los Alisos Blvd to Alicia Pkwy | 65.5 | 50 | 108 | 233 |
| | Alicia Pkwy to Marguerite Pkwy | 64.9 | 45 | 98 | 211 |
| Jeronimo Road | Alicia Pkwy to Marguerite Pkwy | 64.8 | 45 | 96 | 208 |
| | Marguerite Pkwy to Olympiad Rd | 61.6 | 28 | 59 | 128 |
| Muirlands Boulevard | Alicia Pkwy to La Paz Rd | 63.8 | 39 | 83 | 179 |
| Marguerite Parkway | Santa Margarita Pkwy to Olympiad Rd | 66.2 | 56 | 121 | 260 |
| | Olympiad Rd to Alicia Pkwy | 65.7 | 52 | 111 | 240 |
| | Alicia Pkwy to Trabuco Rd | 65.1 | 47 | 101 | 218 |
| | Trabuco Rd to Jeronimo Rd | 66.8 | 62 | 133 | 286 |
| | Jeronimo Rd to La Paz Rd | 68.5 | 80 | 171 | 369 |
| | La Paz Rd to Oso Pkwy | 67.0 | 63 | 136 | 294 |
| | Oso Pkwy to Crown Valley Pkwy | 66.6 | 59 | 128 | 275 |
| | Crown Valley Pkwy to Avery Pkwy | 67.0 | 63 | 136 | 294 |
| San Diego Freeway | Alicia Pkwy to La Paz Rd | 82.8 | 712 | 1535 | 3307 |
| | La Paz Rd to Oso Pkwy | 82.6 | 696 | 1500 | 3232 |
| | Oso Pkwy to Crown Valley Pkwy | 82.4 | 670 | 1444 | 3111 |
| Foothill Trans. Corridor/SR-241 | Los Alisos Blvd to El Toro Rd | 73.6 | 173 | 372 | 802 |

¹ Distance from centerline of roadway

TABLE N-7

Railroad Noise Contours in the Vicinity of The City of Mission Viejo

| Location | Segment | CNEL at 100 Feet | Distance (Feet) CNEL Contour ¹ | | | |
|--------------------|---------------------------------|---------------------|--|----------------|----------------|----------------|
| | | | 70 dBA CNEL | 65 dBA CNEL | 60 dBA CNEL | 55 dBA CNEL |
| Mission Viejo | | | | | | |
| Existing | Avery Parkway to Alicia Parkway | 74.7 | 232 | 495 | 1,050 | 2,225 |
| Projected Buildout | Avery Parkway to Alicia Parkway | 78.0 | 385 | 820 | 1,725 | 3,700 |

¹ From the center of tracks

TABLE N-8

Increase in Noise Levels (dBA) For Future Year 2025

| Roadway | Segment | Existing CNEL at 100 Feet (dBA) | Buildout CNEL at 100 Feet (dBA) | Change in Noise Level (dBA CNEL) |
|---------------------------------|--|---------------------------------|---------------------------------|----------------------------------|
| El Toro Road | Santa Margarita Pkwy to Painted Trails | 64.7 | 66.5 | 1.8 |
| Los Alisos Boulevard | Trabuco Rd to Vista Del Lago | 66.4 | 66.7 | 0.3 |
| | Vista Del Lago to Santa Margarita Pkwy | 66.4 | 67.0 | 0.6 |
| Alicia Parkway | Jeronimo Rd to Trabuco Rd | 69.0 | 70.2 | 1.2 |
| | Trabuco Rd to Marguerite Pkwy | 68.0 | 69.1 | 1.1 |
| | Marguerite Pkwy to Olympiad Rd | 68.9 | 69.4 | 0.5 |
| | Olympiad Rd to City Boundary | 68.4 | 68.6 | 0.1 |
| La Paz Road | Chrisanta Dr to Marguerite Pkwy | 65.7 | 66.2 | 0.5 |
| | Marguerite Pkwy to Olympiad Rd | 63.7 | 63.8 | 0.1 |
| Oso Parkway | I-5 Freeway to Marguerite Pkwy | 69.3 | 70.1 | 0.8 |
| | Marguerite Pkwy to Felipe Pkwy | 68.5 | 70.5 | 2.0 |
| Felipe Parkway | Marguerite Pkwy to Oso Pkwy | 62.6 | 62.9 | 0.2 |
| Crown Valley Parkway | I-5 Freeway to Marguerite Pkwy | 70.4 | 71.4 | 0.9 |
| | Marguerite Pkwy to City Boundary | 69.7 | 72.3 | 2.6 |
| Avery Parkway | East of Marguerite Pkwy | 59.0 | 59.8 | 0.8 |
| Santa Margarita Parkway | El Toro Rd to Los Alisos Blvd | 67.1 | 68.3 | 1.2 |
| | Marguerite Pkwy to Melinda Rd | 67.3 | 68.4 | 1.1 |
| Melinda Road | Olympiad Rd to Santa Margarita Parkway | 60.4 | 61.1 | 0.7 |
| Olympiad Road | Marguerite Pkwy to Melinda Rd | 62.1 | 63.2 | 1.1 |
| | Melinda Rd to Alicia Pkwy | 62.6 | 63.5 | 0.9 |
| | Alicia Pkwy to Jeronimo Rd | 63.8 | 63.8 | 0.0 |
| | Jeronimo Rd to La Paz Rd | 64.0 | 64.1 | 0.1 |
| | South of La Paz Rd | 64.0 | 64.4 | 0.4 |
| Trabuco Road | Los Alisos Blvd to Alicia Pkwy | 65.1 | 65.5 | 0.4 |
| | Alicia Pkwy to Marguerite Pkwy | 64.3 | 64.9 | 0.6 |
| Jeronimo Road | Alicia Pkwy to Marguerite Pkwy | 64.6 | 64.8 | 0.2 |
| | Marguerite Pkwy to Olympiad Rd | 61.4 | 61.6 | 0.3 |
| Muirlands Boulevard | Alicia Pkwy to La Paz Rd | 63.3 | 63.8 | 0.5 |
| Marguerite Parkway | Santa Margarita Pkwy to Olympiad Rd | 65.5 | 66.2 | 0.7 |
| | Olympiad Rd to Alicia Pkwy | 65.3 | 65.7 | 0.4 |
| | Alicia Pkwy to Trabuco Rd | 64.8 | 65.1 | 0.3 |
| | Trabuco Rd to Jeronimo Rd | 66.6 | 66.8 | 0.2 |
| | Jeronimo Rd to La Paz Rd | 68.2 | 68.5 | 0.3 |
| | La Paz Rd to Oso Pkwy | 66.4 | 67.0 | 0.6 |
| | Oso Pkwy to Crown Valley Pkwy | 66.4 | 66.6 | 0.2 |
| | Crown Valley Pkwy to Avery Pkwy | 66.1 | 67.0 | 0.9 |
| San Diego Freeway | Alicia Pkwy to La Paz Rd | 81.6 | 82.8 | 1.2 |
| | La Paz Rd to Oso Pkwy | 81.4 | 82.6 | 1.2 |
| | Oso Pkwy to Crown Valley Pkwy | 81.2 | 82.4 | 1.2 |
| Foothill Trans. Corridor/SR-241 | Los Alisos Blvd to El Toro Rd | 72.4 | 73.6 | 1.2 |
| Railroad | Avery Pkwy to Alicia Pkwy | 74.7 | 78.0 | 3.3 |