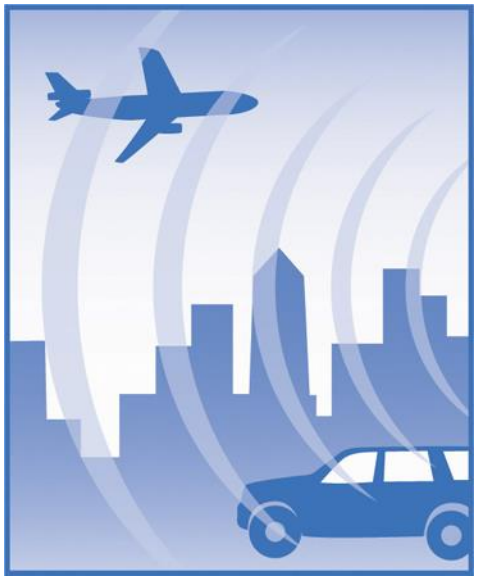
Noise Element



Noise Element

Purpose

To protect people living and working in the City of San Diego from excessive noise.

Introduction

Noise at excessive levels can affect our environment and our quality of life. Noise is subjective since it is dependent on the listener's reaction, the time of day, distance between source and receptor, and its tonal characteristics. At excessive levels, people typically perceive noise as being intrusive, annoying, and undesirable.

The most prevalent noise sources in San Diego are from motor vehicle traffic on interstate freeways, state highways, and local major roads generally due to higher traffic volumes and speeds. Aircraft noise is also present in many areas of the City. Rail traffic and industrial and commercial activities contribute to the noise environment.

The City is primarily a developed and urbanized city, and an elevated ambient noise level is a normal part of the urban environment. However, controlling noise at its source to acceptable levels can make a substantial improvement in the quality of life for people living and working in the City. When this is not feasible, the City applies additional measures to limit the effect of noise on future land uses, which include spatial separation, site planning, and building design techniques that address noise exposure and the insulation of buildings to reduce interior noise levels.

The Noise Element provides goals and policies to guide compatible land uses and the incorporation of noise attenuation measures for new uses to protect people living and working in the City from an excessive noise environment. This purpose becomes more relevant as the City continues to grow with infill and mixed-use development consistent with the Land Use Element.

Noise Scales

Noise is usually measured in decibels (dB), because of the great dynamic range of the human ear. Decibels (dB) are based on a logarithmic scale that compresses the

wide range in sound pressure levels to a more usable range of numbers. People judge a sound that is 10 dB higher than another sound as being twice as loud; and 20 dB higher four times as loud; and so forth. A-weighted decibels (dBA) measured on a sound level meter use the A-weighted filter, which de-emphasizes the very low, and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear. The A-weighted filter adjusts the scale or "fine-tunes" it for hearing by humans. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). Common indoor and outdoor noise levels are listed on Table NE-1.

Community Noise Equivalent Level (CNEL) is the predominant noise rating scale used in California for land use compatibility. The CNEL rating represents the average of equivalent noise levels at a location for a 24-hour period, based on an A-weighted decibel with upward adjustments added to account for increased noise sensitivity in the evening and night periods in order to account for the lower tolerance of individuals to noise during those periods. All noise levels used in the Noise Element are dBA CNEL, unless otherwise indicated.

Urban areas typically have a higher ambient noise level, which is the composite of noise from all normal background noise sources at a given location. Single event noises such as an aircraft flyover can affect the background noise level. Single-Event Noise Exposure Level (SENEL) or Sound Exposure Level (SEL) is a rating scale used to measure single event noises. The SENEL measures the duration between the initial and final times for which the sound level of the single event exceeded the background noise level. It takes into account the maximum noise level (LMax) and the duration of the event.

The amount of time noise exceeds a threshold level is another measure used to analyze single event noises. The threshold can be set at any noise level for instance, 65 or 75 dBA. It typically uses minutes per day that the noise level exceeds the threshold level.

Regulations

Many regulations, plans, and studies adopted by the state, the Airport Land Use Commission, the military, or the City directly relate to the Noise Element and assist in its implementation as listed on Table NE-2.

TABLE NE-1 Common Indoor and Outdoor Noise Levels

Noises	Sound Level dBA
Threshold of pain	140
Leaf blower/Car horn	110
Gas lawn mower at 3 feet	100
Diesel truck at 50 feet /Food blender at 3 feet	90
MD 80 Passenger Plane at 1,500 feet	85
Diesel truck at 50 feet at 40 mph	84
Garbage disposal at 3 feet/Motorcycle at 25 feet	80
Car at 25 feet at 65 mph	77
Vacuum cleaner at 10 feet	70
Heavy traffic at 300 feet/Air-conditioner at 100 feet	60
Dishwasher next room	50
Quiet residential area	40
Library	35
Threshold of hearing	0

TABLE NE-2 Related Regulations and Plans Used to Implement the Noise Element

Regulation	Description
Airport Noise Compatibility Planning (Code of Federal Regulations, Part 150)	Part 150 identifies compatible land uses with various levels of noise exposure to noise by individuals for local jurisdictions to use as guidelines, since the federal government does not have local land use control.
California Environmental Quality Act (CEQA)	CEQA considers exposure to excessive noise an environmental impact. Implementation of CEQA ensures that during the decision-making stage of development, City officials and the public will be informed of any potentially excessive noise levels and available mitigation measures to reduce them to acceptable levels.
California Noise Insulation Standards (California Code of Regulations, Title 24)	Title 24 establishes an interior noise standard of 45 dBA for multiple unit and hotel/motel structures. Acoustical studies must be prepared for proposed multiple unit residential and hotel/motel structures within the Community Noise Equivalent Level (CNEL) noise contours of 60 dBA or greater. The studies must demonstrate that the design of the building will reduce interior noise to 45 dBA CNEL or lower.
California Airport Noise Standards (California Code of Regulations Title 21)	Title 21 establishes that the 65 dbA CNEL is the acceptable level of aircraft noise for persons living near an airport.
Air Installations Compatible Use Zones (AICUZ) Study (US Department of Defense)	The AICUZ study establishes land use strategies and noise and safety recommendations to prevent the encroachment of incompatible land use from degrading the operational capability of military air installations.
Airport Land Use Compatibility Plans (ALUCP) (Public Utilities Code, §21670, et seq.)	The ALUCPs promote compatibility between public use and military airports and the land uses that surround them to the extent that these areas are not already devoted to incompatible land uses. The City is required to modify its land use plans and ordinances to be consistent with the ALUCPs or to take steps to overrule the Airport Land Use Commission (ALUC).
The City of San Diego Noise Abatement and Control Ordinance (Municipal Code Section 59.5.0101 et seq.)	Provides controls for excessive and annoying noise from sources such as refuse vehicles, parking lot sweepers, watercraft, animals, leaf blowers, alarms, loud music, and construction activities.

A. Noise and Land Use Compatibility

Goal

- Consider existing and future noise levels when making land use planning decisions to minimize people's exposure to excessive noise.

Discussion

The Noise Element influences Land Use Element policies since excessive noise affects land uses, specifically, the quality of life of people working and living in the City. The planning of future noise-sensitive land uses should have a sufficient spatial separation or incorporate site design and construction techniques to ensure compatibility with noise-generating uses. Noise-sensitive land uses include, but are not necessarily limited to residential uses, hospitals, nursing facilities, intermediate care facilities, child educational facilities, libraries, museums, and child care facilities.

The City uses the Land Use - Noise Compatibility Guidelines shown on Table NE-3 for evaluating land use noise compatibility when reviewing proposed land use development projects. The land uses described provide examples of uses under each land use category. A more complete listing of use categories and subcategories is found in the Land Development Code Chapter 13, in the use regulation tables. A "compatible" land use indicates that standard construction methods will attenuate exterior noise to an acceptable indoor noise level and people can carry out outdoor activities with minimal noise interference. Evaluation of land use that falls into the "conditionally compatible" noise environment should have an acoustical study. In general, an acoustical study should include, but is not limited to the analysis listed on Table NE-4, Acoustical Study Guidelines, with consideration of the type of noise source, the sensitivity of the noise receptor, and the degree to which the noise source may interfere with speech, sleep, or other activities characteristic of the land use. For land uses indicated as conditionally compatible, structures must be capable of attenuating exterior noise to the indoor noise level as shown on Table NE-3. For land uses indicated as incompatible, new construction should generally not be undertaken. Due to severe noise interference, outdoor activities are generally unacceptable and for structures, extensive mitigation techniques are required to make the indoor environment acceptable. For uses related to motor vehicle traffic noise, refer to Section B for additional guidance. For uses affected by aircraft noise, refer to Section D, since noise compatibility policies in the Airport Land Use Compatibility Plans could be more or less restrictive for uses affected by aircraft noise than shown on Table NE-3. Refer to Section I for a discussion of typical noise attenuation measures.

Policies

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.

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.

NE-A.3. Limit future residential and other noise-sensitive land uses in areas exposed to high levels of noise.

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), so that noise mitigation measures can be included in the project design to meet the noise guidelines.

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.

NE-A.6. Limit the undertaking of new construction for land uses indicated as incompatible. Prohibit outdoor activities for the primary use and require noise mitigation measures to make the indoor environment acceptable.

TABLE NE-3 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. For uses affected by motor vehicle traffic noise, refer to Policy NE-B.10.*		45	45*		
Institutional					
Hospitals; Nursing Facilities; Intermediate Care Facilities; Kindergarten through Grade 12Educational Facilities; Libraries; Museums; Child Care Facilities		45			
Other Educational Facilities including Vocational/Trade Schools and Colleges and Universities		45	45		
Cemeteries					
Retail Sales					
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					50
Wholesale, Distribution, Storage Use Category					
Equipment & Materials Storage Yards; Moving & Storage Facilities; Warehouse; Wholesale Distribution					50
Industrial					

Land Use Category	Exterior Noise Exposure (dBA CNEL) 60	65	70	75	
Heavy Manufacturing; Light Manufacturing; Marine Industry; Trucking & Transportation Terminals; Mining & Extractive Industries					50
Research & Development				50	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.
45, 50	**Conditionally Compatible**	**Indoor Uses**	Building structure must attenuate exterior noise to the indoor noise level indicated by the number (45 or 50) for occupied areas, including residential habitable areas, commercial work/shopping areas, and office areas associated with industrial uses. ~~.~~ 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.

TABLE NE-4 Acoustical Study Guidelines

An acoustical study should include, but is not limited to the following analysis:
Provide noise level measurements to describe existing local conditions and the predominant noise sources.
Measure existing single event noise levels (SENEL, SEL, or Time Above) within airport influence areas.
Estimate existing and projected noise levels (CNEL) and compare them to levels on Table NE-3. For parks, may consider motor vehicle traffic noise measurements during the one-hour period where the worst-case traffic noise levels are expected to occur from dawn to dusk at a park.
Recommend appropriate mitigation measures to achieve acceptable noise levels on Table NE-3.
Estimate noise exposure levels with recommended mitigation measures.
Describe a post-project assessment to evaluate the effectiveness of the proposed mitigation measures.

B. Motor Vehicle Traffic Noise

Goal

- Minimal excessive motor vehicle traffic noise on residential and other noise-sensitive land uses.

Discussion

Motor vehicle traffic noise is a major contributor of noise within the City. Excessive noise levels along arterial roads, interstate freeways, and state highways affect much of the urban environment. Traffic noise level is dependent upon traffic volume, speed, flow, vehicle mix, pavement type and condition, the use of barriers, as well as distance to the receptor.

Local roadway design features and traffic management and calming techniques can minimize noise from traffic speed and frequent vehicle acceleration and deceleration, and innovative roadway paving material can further reduce traffic noise. Vehicles equipped with a properly functioning muffler system help to limit excessive exhaust noise. Future use of hybrid transit buses could help to reduce noise along mixed-use transit corridors.

At higher speeds, typically on freeways, highways and primary arterials, the noise from tire/pavement interaction can be greater than from vehicle exhaust and engine noise. The use of lower noise paving surfaces can reduce tire/pavement interaction noise. For noise-sensitive land uses adjacent to freeways and highways, these uses should be buffered from excessive noise levels by intervening, less sensitive, industrial-commercial uses or shielded by sound walls or landscaped berms. The City can, however, influence daily traffic volumes and reduce peak-hour traffic by promoting alternative transportation modes and integration of mixed-use infill development. The peak hour traffic may or may not be the worst-case noise levels since higher traffic volumes can lead to higher congestion and lower operating speeds. The worst-case noise levels may occur in hours with lower volumes and higher speeds. ~~Although not generally considered compatible, the City conditionally allows multiple unit and mixed-use residential uses up to 75 dBA CNEL in areas affected primarily by motor vehicle traffic noise with existing residential uses. Any future residential use above the 70 dBA CNEL must include noise attenuation measures to ensure an interior noise level of 45 dBA CNEL and be located in an area where a community plan allows multiple unit and mixed-use residential uses.~~

Policies

NE-B.1. Encourage noise-compatible land uses and site planning adjoining existing and future highways and freeways.

NE-B.2. Consider traffic calming design, traffic control measures, and low-noise pavement surfaces that minimize motor vehicle traffic noise (see also Mobility Element, Policy ME–C.5 regarding traffic calming).

NE-B.3. Require noise reducing site design, and/or traffic control measures for new development in areas of high noise to ensure that the mitigated levels meet acceptable decibel limits.

NE-B.4. Require new development to provide facilities which support the use of alternative transportation modes such as walking, bicycling, carpooling and, where applicable, transit to reduce peak-hour traffic.

NE-B.5. Designate local truck routes to reduce truck traffic in noise-sensitive land uses areas.

NE-B.6. Work with Caltrans to landscape freeway-highway rights-of-way buffers and install low noise pavement surfaces, berms, and noise barriers to mitigate state freeway and highway traffic noise.

NE-B.7. Promote the use of berms, landscaping, setbacks, and architectural design where appropriate and effective, rather than conventional wall barriers to enhance aesthetics.

NE-B.8. Enforce the state vehicle code to ensure that motor vehicles are equipped with a functioning muffler and are not producing excessive noise levels.

NE-B.9. When parks are located in noisier areas, seek to reduce exposure through site planning, including locating the most noise sensitive uses, such as children's play areas and picnic tables, in the quieter areas of the site; and in accordance with the other policies of this section.

NE-B.10. For ~~Ensure that~~ future multi-home residential uses located in areas above 70 dBA CNEL ~~in areas~~ affected primarily by motor vehicle traffic noise ~~are located in areas where a community plan allows multiple-unit and mixed-use residential uses~~, ensure the following:~~.~~

A. Limit the amount of outdoor areas subject to exposure above the 70 dBA CNEL; and

~~A.~~B. Provide noise attenuation to ensure an interior noise level that does not exceed 45 dBA CNEL.

C. Trolley and Train Noise

Goal

- Minimal excessive fixed rail-related noise on residential and other noise-sensitive land uses.

Discussion

Daily traffic from passenger and freight train and trolley operations produces noise that may disrupt adjacent noise-sensitive uses. Trains can generate high, yet relatively brief, intermittent noise events. The interaction of the steel wheels and rails is a major component of train noise. Factors that influence the overall rail noise include the train speed, train horns, type of engine, track conditions, use of concrete cross ties and welded track, the intermittent nature of train events, time of day, and sound walls or other barriers. When operating in residential areas, trains are required to travel at a reduced speed to minimize noise.

Federal regulations require trains to sound their horns at all roadway-rail grade crossings and the warning sound of train horns is a common sound experienced by communities near the rail corridor. In an effort to minimize excess train horn noise, the federal government allows local jurisdictions to establish train horn "quiet zones." This requires the implementation of supplementary and alternative safety measures to compensate for the loss of the train horn usage.

The state is planning for high-speed rail service that would connect the San Diego region to other regions in the state. Air turbulence noise generated from high-speed train traffic may affect noise-sensitive uses along the potential rail corridors.

Policies

NE-C.1. Use site planning to help minimize exposure of noise sensitive uses to rail corridor and trolley line noise.

NE-C.2. Work with the San Diego Association of Governments (SANDAG), Caltrans, Metropolitan Transit System (MTS), California High-Speed Rail Authority, and passenger and freight rail operators to install noise attenuation features to minimize impacts to adjacent residential or other noise-sensitive uses. Such features include rail and wheel maintenance, grade separation along existing and future rail corridors, and other means.

NE-C.3. Establish train horn "quiet zones" consistent with the federal regulations, where applicable.

NE-C.4. Work with SANDAG, Caltrans, MTS, and passenger and freight rail

operators to install grade separation at existing roadway-rail grade crossings as a noise and safety measure.

D. Aircraft Noise

Goal

- Minimal excessive aircraft-related noise on residential and other noise-sensitive land uses.

Discussion

Aircraft noise primarily affects communities within an airport influence area. The noise impact or the perceived annoyance depends upon the noise volume, length of the noise event and the time of day. In general, aircraft noise varies with the type and size of the aircraft, the power the aircraft is using, and the altitude or distance of the aircraft from the receptor. Another variable affecting the overall impact of noise is a perceived increase in aircraft noise at night. The City evaluates the potential aircraft noise impacts on noise sensitive land uses when considering the siting or expansion of airports, heliports, and helistops/helipads as addressed in the Land Use Element.

Aircraft noise is one of the factors that the state-required Airport Land Use Compatibility Plans address with established policies for land use compatibility for each public use airport and military air installation. The Airport Land Use Compatibility Plans, as discussed in the Land Use Element, incorporates the California Airport Noise Standards that establishes the 65-dBA CNEL as the boundary for the normally acceptable level of aircraft noise for noise-sensitive land uses including residential uses near airports. The land use noise compatibility policies in the compatibility plans could be more or less restrictive for uses affected by aircraft noise than shown on Table NE-3. The City implements the noise policies contained in the compatibility plans through development regulations and zoning ordinances in the Land Development Code.

Since CNEL represents averaged noise exposure over a 24-hour period, there can be single event noise levels that may exceed the reported CNEL. Although there is no single event standard for aircraft noise exposure, the measurement of the duration and maximum noise levels during single event noises can assist in evaluating potential affects on future noise sensitive land uses.

Uses that have outdoor areas exposed to high levels of aircraft noise cannot mitigate noise levels to an acceptable level due to overflights. Noise-sensitive uses that have outdoor areas used daily by the occupants, such as schools for children and child care centers, are incompatible in areas that exceed the 65 dBA CNEL since mitigation

measures cannot reduce exposure to outdoor play areas from prolonged periods of high aircraft noise.

San Diego International Airport (SDIA)

San Diego International Airport (SDIA) at Lindbergh Field is the commercial air carrier airport serving the region located in the City's urban center and is adjacent to downtown. Although various industrial, commercial, and residential uses surround the airport, residential is the primary use and the most affected by the airport. Primarily commercial air carrier aircraft with a limited number of general aviation corporate jet aircraft use SDIA. Normally, aircraft arrive from the east and depart to the west. Noise from aircraft taking off and climbing affect more areas west or adjacent to SDIA, whereas noise from aircraft approaching and landing affects fewer areas east of the airport. Commercial aircraft noise has been declining due to advances in engine technology. However, noise will affect more areas as operations at SDIA increase in the future.

The SDIA requires a variance from the California Airport Noise Standards in order to operate with noise in excess of the 65 dBA CNEL affecting residential uses. As the airport operator, the San Diego County Regional Airport Authority has implemented monitoring and mitigation measures to minimize aircraft noise affecting residential areas. The SDIA prohibits most late night takeoffs to help limit noise impacts. As a mitigation measure, the Quieter Home Program retrofits affected homes to reduce interior noise levels to an acceptable level. The variance requires that the Airport Authority obtain avigation easements for new residential uses and other noise sensitive uses above the 60 dBA CNEL and for participating homes in the Quieter Home Program.

Communities surrounding SDIA contain existing and planned areas for residential uses including higher-density residential uses. Higher-density residential structures use construction materials that can mitigate higher exterior noise levels to acceptable levels. Higher-density residential uses also contain limited outdoor areas, which limit the length of outdoor exposure to higher noise levels. Given the geographic extent of the areas above the 65 dBA CNEL within the SDIA airport influence area and the desire to maintain and enhance the character of these neighborhoods, the City conditionally allows future single ~~unit~~home, multiple ~~unit~~home, and mixed-use residential uses in the areas above the 65 dBA CNEL. Although not generally considered compatible with aircraft noise, the City conditionally allows multiple home~~unit~~ development and mixed-use residential uses above the 65 dBA CNEL only in areas with existing residential uses, and single ~~unit~~ home residential uses only on existing single ~~unit~~ home lots. Any future residential use above the 65 dBA CNEL must include noise attenuation measures to ensure an interior noise level of 45 dBA CNEL, provision of an avigation easement, and be located in an area where a community plan and the Airport Land Use Compatibility

Plan allow residential uses.

Marine Corps Air Station (MCAS) Miramar

MCAS Miramar operates a mixture of jet fighter, transport, and helicopter aircraft. Noise from military air installations presents different noise issues compared to civilian airports. Military readiness requires constant training. Aircraft training includes touch and goes (takeoffs and landings with a close-in circuit around the airport), aircraft carrier simulated landings, practice instrument approaches, and normal departures to and arrivals from other installations or training areas. As a result, noise can affect more areas than from civilian airports. Helicopter noise can be an annoyance since helicopter noise events last longer and pulsate.

As indicated by the Air Installations Compatibility Use Zones (AICUZ) study, adjacent industrial and commercial uses are compatible with MCAS Miramar's noise levels. Noise from MCAS Miramar affects residential areas in surrounding communities. To minimize aircraft noise impact on residential areas, the Marine Corps implements noise abatement and monitoring programs as described in the AICUZ study.

Brown Field and Montgomery-Gibbs Executive Airport ~~Field~~

Noise levels from municipal airports, Brown Field and Montgomery-Gibbs Executive Airport, ~~Field~~ ~~municipal airports~~ are not as extensive as the noise levels from SDIA and MCAS Miramar. Typically, the smaller general aviation aircraft, both propeller and jet aircraft operate from Brown and Montgomery-Gibbs Executive Airport ~~Fields~~.

Due to the length of its runways, Montgomery-Gibbs Executive Airport ~~Field~~ cannot accommodate all types of general aviation aircraft. Noise-compatible commercial and industrial uses are adjacent to the airport. Aircraft noise affects residential areas in surrounding communities. To minimize the impact on surrounding residential areas, Montgomery-Gibbs Executive Airport ~~Field~~ has a noise-monitoring program to assess aircraft noise and regulations, including a nighttime noise limits and a weight limit for aircraft using the airport.

General aviation propeller and jet aircraft, as well as law enforcement and military aircraft, use Brown Field. Noise-compatible open space and industrial uses are primarily adjacent to Brown Field. Aircraft noise affects residential uses to the west of the airport.

Airports Outside of the City

Aircraft noise from airports outside of the City is also less extensive than noise from SDIA and MCAS Miramar. Military aircraft operations at Naval Air Station (NAS) North Island and Naval Outlying Field (NOLF) Imperial Beach primarily use the

airspace over the Pacific Ocean and the San Diego Bay. The primary traffic pattern for helicopters training at NOLF Imperial Beach is along the Tijuana River Valley and then offshore. Overflight noise from general aviation aircraft operating at Gillespie Field has the potential to affect residential areas in the City west of the airport. Aircraft noise from commercial air carrier operations at the Tijuana International Airport in Mexico primarily affect open space and industrial uses adjacent to the international border in the Otay Mesa area.

Helicopter Operations

The noise levels associated with operations at a heliport or helipad/helistop depend upon the flight path, the helicopter types used, the number of operations, and the time of day. Helicopter activity from military helicopters, private, police, fire/rescue, medical, and news/traffic monitoring helicopters contribute to the general noise environment in the City. In particular, low-flying helicopters are a source of noise complaints in the City, especially at night. Within the City, most helicopters operate from existing airports. Emergency medical or public safety helicopters primarily use the few certified off-airport heliports.

Policies

NE-D.1. Encourage noise-compatible land use within airport influence areas in accordance with federal and state noise standards and guidelines.

NE-D.2. Limit future residential uses within airport influence areas to the 65 dBA CNEL airport noise contour, except for multiple-home~~unit~~, mixed-use, and live work residential uses within the San Diego International Airport influence area in areas with existing residential uses and where a community plan and the Airport Land Use Compatibility Plan allow future residential uses.

NE-D.3. Ensure that future multiple-home~~unit~~, mixed-use, and live work residential uses within the San Diego International Airport influence area that are located greater than the 65 dBA CNEL airport noise contour are located in areas with existing residential uses and where a community plan and Airport Land Use Compatibility Plan allow future residential uses.

A. Limit the amount of outdoor areas subject to exposure above the 65 dBA CNEL; and;

B. Provide noise attenuation to ensure an interior noise level that does not exceed 45 dBA CNEL.

NE-D.4. Discourage outdoor uses in areas where people could be exposed to prolonged periods of high aircraft noise levels greater than the 65 dBA CNEL airport noise contour.

NE-D.5. ~~Minimize~~ Monitor excessive aircraft noise from aircraft operating at Montgomery-Gibbs Executive Airport ~~Field~~ to surrounding residential areas. To the extent practical, implement noise reducing operation measures and promote pilot awareness of where aircraft noise affects noise sensitive land uses.

~~a. Implement a noise monitoring program to assess aircraft noise.~~

~~b. Implement nighttime aircraft noise limits and a weight limit for aircraft using the airport.~~

NE-D.6. Encourage civilian and military airport operators, to the extent practical, to monitor aircraft noise, implement noise-reducing operation measures, and promote pilot awareness of where aircraft noise affects noise-sensitive land uses.

NE-D.7. Limit future uses within airport influences areas when the noise policies in the compatibility plans are more restrictive for uses affected by aircraft noise than shown on Table NE-3.

E. Commercial and Mixed-Use Activity Noise

Goal

- Minimal exposure of residential and other noise-sensitive land uses to excessive commercial and mixed-use related noise.

Discussion

Noise generated by ground floor commercial operations, maintenance, truck deliveries, and vehicular and pedestrian traffic can affect adjacent and aboveground floor residential areas. Noise attenuation methods in mixed-use buildings are essential to minimize excessive noise associated with nonresidential uses. Day and night commercial/entertainment activities and special and sporting events in the Downtown and other mixed residential/commercial-use areas located citywide can generate urban noise throughout the year. The City requires bars and nightclubs over five thousand square feet to minimize excessive noise to surrounding uses by limiting their hours of operation. The City's noise ordinance also limits noise levels to 65 dBA during the day and 60 dBA during the night generated on-site by commercial uses to minimize the effect of noise on adjacent sensitive land uses.

Policies

NE-E.1. Encourage the design and construction of commercial and mixed-use

structures with noise attenuation methods to minimize excessive noise to residential and other noise-sensitive land uses.

NE-E.2. Encourage mixed-use developments to locate loading areas, parking lots, driveways, trash enclosures, mechanical equipment, and other noisier components away from the residential component of the development.

NE-E.3. Encourage daytime truck deliveries to commercial uses abutting residential uses and other noise-sensitive land uses to minimize excessive nighttime noise unless there is no feasible alternative or there are overriding transportation benefits by scheduling deliveries at other hours.

NE-E.4. Encourage commercial/entertainment uses to utilize operational measures that minimize excessive noise where it affects abutting residential and other noise-sensitive uses.

NE-E.5. Implement night and daytime on-site noise level limits to address noise generated by commercial uses where it affects abutting residential and other noise-sensitive uses.

NE-E.6. Encourage disclosure of potential noise problems for mixed-use and residential developments adjacent to commercial/entertainment uses at the time of sale. This would include notification of noise from related activities such as music, delivery vehicles, pedestrian and vehicular traffic, and other urban noise that may affect them.

F. Industrial Activity Noise

Goal

- Minimal exposure of residential and other noise-sensitive land uses to excessive industrial-related noise.

Discussion

Industrial land uses have the potential to be a noise source. The degree of noise generated by industrial uses is dependent upon various factors, including type of industrial activity, hours of operation, and the location relative to other land uses. Outdoor truck activity, air compressors, and generators are potential noise sources associated with industrial use that can interfere with noise-sensitive uses, which include residential uses. The City enforces the Noise Abatement and Control ordinance, which limits noise levels to 75 dBA generated on-site by industrial uses to minimize the effect of excessive industrial-related noise. ~~Although not generally considered compatible, the City conditionally allows industrial uses except for research and development up to the 80 dBA CNEL in areas where community plans allow for industrial uses, surrounding industrial uses exist, and existing noise levels~~

~~exceed 75 dBA CNEL, but ensure that industrial uses do not generate noise levels above 75 dBA.~~

Policies

NE-F.1. Provide for sufficient spatial separation between industrial uses and residential and other noise-sensitive uses. This would include utilizing other feasible mitigation measures to reduce the noise source, such as noise attenuation methods, interrupting the noise path, or insulating the receptor to minimize the exposure of noise-sensitive uses to excessive industrial-related noise.

NE-F.2. Encourage the design and construction of industrial development to minimize excessive off-site noise impacts to residential and other noise-sensitive uses.

NE-F.3. Encourage industrial uses to utilize operation measures that minimize excessive noise where it affects abutting residential and other noise-sensitive uses.

NE-F.4. Encourage daytime truck deliveries to industrial uses abutting residential uses and other noise-sensitive land uses to minimize excessive nighttime noise unless there is no feasible alternative or there are overriding transportation benefits by scheduling deliveries at other hours.

NE-F.5. Ensure that future industrial uses, except for research and development, are located in areas up to 80 dBA CNEL where community plans allow for industrial uses, surrounding industrial uses exist, and existing noise levels exceed 75 dBA CNEL; and ensure industrial uses do not generate noise levels above 75 dBA CNEL.

G. Construction, Refuse Vehicles, Parking Lot Sweepers, and Public Activity Noise

Goal

- Minimal exposure of residential and other noise-sensitive land uses to excessive construction, refuse vehicles, parking lot sweeper-related noise and public noise.

Discussion

Construction, refuse vehicle, and parking lot sweeper activity in all land use areas will temporarily elevate noise levels. The City recognizes that construction, refuse vehicle, and parking lot sweeper activities are necessary and noise control of these activities is limited. In an urban environment, excessive public noise such as barking dogs, leaf blowers, loud music, or car alarms can be disturbing and annoying. The City enforces the Noise Abatement and Control Ordinance, which addresses and limits excessive noise from these activities.

Policies

NE-G.1. Implement limits on the hours of operation for non-emergency construction and refuse vehicle and parking lot sweeper activity in residential areas and areas abutting residential areas.

NE-G.2. Implement limits on excessive public noises that a person could reasonably consider disturbing and/or annoying in residential areas and areas abutting residential areas.

H. Event Noise

Goal

- Balance the effects of noise associated with events with the benefits of the events.

Discussion

Events can enhance the lifestyle and provide benefits to the City's residents through the creation of unique venues for expression and entertainment. Events have the potential to generate noise within the communities where they are being held. This includes normal events at the ballpark and stadium as well as special events on City streets or parks. The noise levels for these activities are highly variable because the number of events occurring and the noise levels experienced from the events can

fluctuate, especially for special events. The City enforces the Special Event Ordinance, which addresses and seeks to limit excessive noise from special events.

Policies

NE-H.1. Coordinate special events with event promoters and organizers to minimize the effects of noise on adjacent residential uses to the degree feasible.

NE-H.2. Ensure that the future residential and other noise-sensitive land uses adjacent to the ballpark and stadium are compatible with event noise levels.

I. Typical Noise Attenuation Methods

Goal

- Attenuate the effect of noise on future residential and other noise-sensitive land uses by applying feasible noise mitigation measures.

Discussion

Noise impacts can typically be abated by four basic methods: reducing the sound level of the noise generator, interrupting the noise path between the source and receiver, increasing the distance between the source and receiver, and insulating the receiver (building material and construction methods). All of the methods help to reduce interior noise levels, but only the first three help to reduce outside noise levels with the exception of aircraft noise. Tables NE-5 and NE-6 contain a list of the potential noise mitigation methods.

Reducing the Source Noise

Structure, vehicle, engine design or the use of mufflers may successfully quiet certain noise sources. Although the City has little direct control over noise produced by vehicles because state and federal noise regulations pre-empt local regulations, the most efficient and effective means of abating noise from transportation systems is to reduce the noise at the source. Noise generated by aircraft, motor vehicles, and trains, for example, may be abated through improved engine design. Traffic calming and traffic management techniques and the use of low-noise road pavement surfaces can help to reduce traffic noise from motor vehicles. Noise generated by land uses, such as industrial uses, may be abated through site design, structure design and construction, quieter machinery, and the limiting of noise-producing operations. This method most directly assigns the responsibility to the generator of the noise. Table NE-6 identifies potential methods to reduce noise

generation at the source.

Interrupting the Noise Path

Strategically placing walls and/or landscaped berms, utilizing natural land and/or built forms or a combination of two or more of these methods, between the noise source and the receptor may minimize noise. Generally, effective noise shielding requires a continuous, solid barrier with a mass which is large enough to block the line of sight between source and receiver. Variations may be appropriate in individual cases based on distance, nature, and orientation of buildings behind the barrier, and a number of other factors. Garages or other structures can help to shield residential ~~units~~ homes and outdoor living areas from non-aircraft noise. The shape and orientation of buildings can also help to avoid reflecting the noise from a building surface to adjacent noise-sensitive buildings. Sound walls are the least preferable method due to the aesthetic concerns. Table NE-6 identifies potential methods to interrupt the noise path between the source and the receptor.

Separating the Noise Source

Spatial separation or isolation of the noise source from the potential receiver may minimize the effects of noise. Site planning techniques that incorporate spatial buffers along freeways, for example, may reduce the noise level affecting adjacent noise-sensitive land uses. Developing noise-compatible commercial or industrial uses in these buffer areas may also help to interrupt the noise path. Due to overflights, sufficient isolation of aircraft noise is impractical. Table NE-6 identifies potential site planning methods that can be used to separate noise sources from noise-sensitive uses.

Insulating the Noise Receiver

Acoustical structures, enclosures, or construction techniques can help to abate the noise problem by insulating the receiver. The proper design and construction of buildings can help to reduce interior noise levels. Nearby noise sources should be recognized in determining the location of doors, windows, and vent openings. Sound-rated windows (extra thick or multi-paned), doors and wall construction materials and insulation are also effective as specified in CCR Title 24 in reducing interior noise levels. The difference in sound (noise) levels from the exterior to the interior of a structure indicates the sound transmitted loss through the window, door, or wall. A Sound Transmission Class (STC) rating specifies the noise level reduction that windows, doors, wall construction materials, and insulation provide. For example, if the exterior of a structure is exposed to 75 dBA and 45 dBA is measured on the interior of the structure, then a reduction of 30 dBA is achieved. Typically, higher STC ratings indicate greater interior noise reductions.

The use of proper construction methods should make certain that doors and windows are fitted properly; openings sealed; joints caulked; and plumbing constructed to ensure adequate insulation from structural members. Sound-rated doors and windows will have little effect if left open. This may require installation of air conditioning for adequate ventilation. Table NE-3 indicates the acceptable interior noise level for land use types. Table NE-5 depicts potential noise mitigation methods to insulate the noise receiver.

Policies

NE-I.1. Require noise attenuation measures to reduce the noise to an acceptable noise level for proposed developments to ensure an acceptable interior noise level, as appropriate, in accordance with California's noise insulation standards (CCR Title 24) and Airport Land Use Compatibly Plans.

NE-I.2. Apply CCR Title 24 noise attenuation measures requirements to reduce the noise to an acceptable noise level for proposed single-home~~family~~, mobile homes, senior housing, and all other types of residential uses not addressed by CCR Title 24 to ensure an acceptable interior noise level, as appropriate.

NE-I.3. Consider noise attenuation measures and techniques addressed by the Noise Element, as well as other feasible attenuation measures not addressed as potential mitigation measures, to reduce the effect of noise on future residential and other noise-sensitive land uses to an acceptable noise level.

NE-I.4. Support state regulation streamlining to allow standardized noise attenuation building and construction materials as an option to current requirements for acoustical evaluation.

TABLE NE-5 Typical Noise Attenuation Methods to Insulate the Noise Receiver

Noise Level Reduction	Typical Mitigation Methods
15-20 dBA	*Mitigation 1, 2, and 3* 1. Air conditioning or mechanical ventilation. 2. Double-paned glass. 3. Solid core doors with weather stripping and seals.
20-25 dBA	*Mitigation 1, 2, and 3 plus* 4. Stucco or brick veneer exterior walls or wood siding w/one-half inch thick fiberboard underlayer. 5. Glass portions of windows/doors not to exceed 20 percent. 6. Exterior vents facing noise source shall be baffled.
25-30 dBA	*Mitigation 1 through 6 plus* 7. Interior sheetrock of exterior wall attached to studs by resilient channels or double walls. 8. Window assemblies, doors, wall construction materials, and insulation shall have a lab-tested STC rating of 30 or greater.

TABLE NE-6 Potential Noise Attenuation Methods

Reducing the Source Noise*
Traffic Noise
Traffic Calming/Traffic Management Techniques
Low-Noise Road Pavement Surfaces
Commercial and Industrial Noise
Sound insulation of buildings, for walls, windows, doors, opening, ventilations etc.
Screens and Enclosures
Silencers, attenuators, or mufflers in connection with rotating machinery and ducts/pipes leading to and from building
Limiting of noise-producing operations
*Interrupted the Noise Path**
Landscaped Berms
Natural Land Forms
Noise-Compatible Structures/Buildings
Landscaping/Vegetation
Walls
*Separating the Noise Source**
Provide distance buffer between the noise source and the noise-sensitive use
Locate noise-compatible uses such as vehicle parking, open spaces, or commercial uses between the noise source and the noise-sensitive areas
Insulate the Noise Receiver
Refer to Table NE-5

*These methods are not applicable for aircraft noise