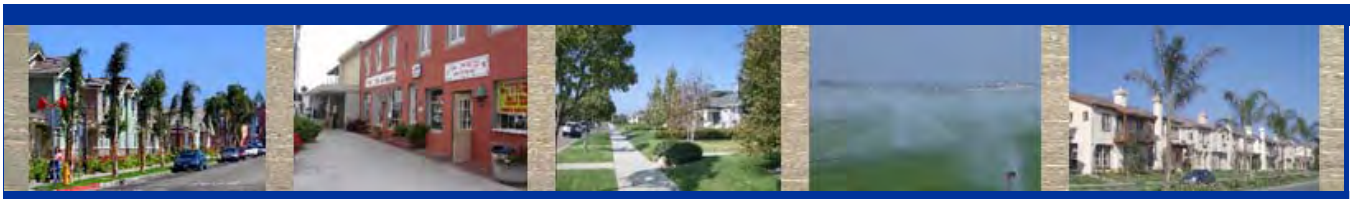


6. Safety and Hazards

6.1 Introduction

This section of the Background Report identifies hazards that currently affect the planning area and the development of policies designed to protect and enhance the public health and safety. Some of these hazards may occur naturally such as flooding, earthquakes, or wildfires. Other health and safety factors may be man-made such as noise or hazardous materials. This section is divided into the following topics:

- Geologic, Seismic, and Soil Hazards (6.2)
- Natural Hazards (6.3)
- Noise (6.4)
- Hazardous Materials and Uses (6.5)
- Transportation Hazards (6.6)

6.2 Geologic, Seismic, and Soil Hazards

This section describes the general topographical, geologic, and seismic conditions that characterize the City's Study Area. To provide a better understanding of the existing geologic and seismic conditions of the City, this section describes:

- Regulations associated with geologic and seismic issues;
- Locations of active and potentially active faults and associated seismic hazards, and
- Other geologic hazards unique to the Study Area.

Background information specific to the Planning Area's soil conditions and mineral resource issues are addressed in Section 5.5 "Agriculture and Soil Resources" and Section 5.6 "Mineral Resources".

Methods

This evaluation of geologic and seismic hazard conditions was completed using information collected from the United States Geological Survey and the California Department of Conservation – Division of Mines and Geology (CDMG).

Key Terms

Alquist-Priolo Fault Zone. The Alquist-Priolo Earthquake Fault Zoning Act, passed in 1972, requires the State Geologist to identify zones of special study around active faults.

An active fault is defined as a fault that has moved within the last 10,000 to 12,000 years (Holocene time).

Fault. A fault is a fracture in the Earth's crust that is accompanied by displacement between the two sides of the fault. An active fault is defined as a fault that has moved in the last 10,000 to 12,000 years (Holocene time). A potentially active fault is one that has been active in the past 1.6 million years (Quaternary period). A sufficiently active fault is one that shows evidence that Holocene displacement occurred on one or more of its segments or branches (Hart, 1997).

Landslide. Downslope movement of soil and/or rock, which typically occurs during an earthquake or following heavy rainfall.

Liquefaction. Liquefaction in soils and sediments occurs during some earthquake events, when material is transformed from a solid state into a liquid state because of increases in pressure in the pores (the spaces between soil particles). Earthquake-induced liquefaction most often occurs in low-lying areas with soils or sediments composed of unconsolidated, saturated, clay-free sands and silts, but it can also occur in dry, granular soils or saturated soils with some clay content.

Magnitude increases logarithmically in the Richter scale; thus, an earthquake of magnitude 7.0 is thirty times stronger than one of magnitude 6.0.

Magnitude. Earthquake magnitude is measured by the Richter scale, indicated as a series of Arabic numbers with no theoretical maximum magnitude. The greater the energy released from the fault rupture, the higher the magnitude of the earthquake. Magnitude increases logarithmically in the Richter scale; thus, an earthquake of magnitude 7.0 is thirty times stronger than one of magnitude 6.0. Earthquake energy is most intense at the point of fault slippage, which is called the epicenter because the energy radiates from that point in a circular wave pattern; the farther an area is from an earthquake's epicenter, the less likely that area is to be affected by groundshaking.

6.2.1 Regulatory Setting

Relevant State and local guidelines specific to geologic and seismic hazards are discussed in this section.

State Regulations

Alquist-Priolo Earthquake Fault Zoning Act. The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act), signed into law December 1972, requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the

hazards associated with fault rupture and to prohibit the location of most structures for human occupancy across these traces. Cities and counties must regulate certain development projects within these zones, which include withholding development permits until geologic investigations demonstrate that development sites are not threatened by future surface displacement (Hart, 1997). Surface fault rupture is not necessarily restricted to the area within an Alquist-Priolo Zone.

Seismic Hazards Mapping Act. The Seismic Hazards Mapping Act was developed to protect the public from the effects of strong groundshaking, liquefaction, landslides, or other ground failure, and from other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. Before a development permit is granted for a site within a seismic hazard zone, a geotechnical investigation of the site has to be conducted and appropriate mitigation measures incorporated into the project design.

California Building Code. The California Building Code is another name for the body of regulations known as the California Code of Regulations (C.C.R.), Title 24, Part 2, which is a portion of the California Building Standards Code. Title 24 is assigned to the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable (Bolt, 1988).

Published by the International Conference of Building Officials, the Uniform Building Code is a widely adopted model building code in the United States. The California Building Code incorporates by reference the Uniform Building Code with necessary California amendments. About one-third of the text within the California Building Code has been tailored for California earthquake conditions.

California Department of Transportation – Highway Design Manual. The California Department of Transportation (Caltrans) has developed roadway design standards including those for seismic safety. Consideration of earthquake hazards in roadway design is detailed in the Highway Design Manual published by Caltrans (1995). Modifications to local highways and roads would be required to adhere to Caltrans engineering standards.

Local Regulations

City of Oxnard - Oxnard 2020 General Plan. The Safety Element of the City's existing General Plan contains an objective and several policies pertinent to geologic and seismic hazard conditions.

6.2.2 Environmental Setting

The Study Area is situated on the Oxnard Plain which is located near the western edge of the Transverse Range Province. The Coastal Mountains and the Sierra Nevada Range are located to the north and the peninsular ranges to the south. Local geologic conditions of the Study Area consist of coastal lowland areas that range in elevation from sea level to about 115 feet above sea level. These areas are comprised of alluvial deposits of silt, sands and gravel, which extend to a depth of approximately 500 feet beneath the Study Area. The history of alluviation is related to the Santa Clara River and its flood patterns. Beneath the alluvium lies the San Pedro formation (approximately 4,000 feet thick beneath the City), which consists of moderately indurated sandstones and conglomerates.

Seismic Activity

The potential earthquake-induced hazards that may affect the City of Oxnard consist of fault rupture and strong ground motions, and the secondary effects of ground motion, such as liquefaction and tsunamis. Each of these is discussed below.

Seismicity and Regional Faults

The Study Area is located within Seismic Risk Zone 4. Earthquakes occurring in Seismic Risk Zone 4 have the potential to create the greatest impacts compared to the other risk zones. Areas within Seismic Zone 4, have a one in ten chance that an earthquake with an active peak acceleration level of 0.04g (4/10 the acceleration of gravity) will occur within the next fifty years.

The CDMG has determined the probability of earthquake occurrences and their associated peak ground accelerations throughout the State of California. According to the CDMG's probabilistic seismic hazard map for California, peak ground accelerations in the Study Area could range from 0.50 g to 0.80 g (California Geological Survey, 1998).

The City will probably experience ground shaking from earthquake activity that is most likely associated with the historically active faults in the surrounding area (see Figure 6-1). The resultant ground shaking could be severe with an earthquake of maximum credible or probable magnitude in one of the nearby faults. The estimated maximum (moment) magnitudes (Mw) represent characteristic earthquakes on particular faults. The maximum credible earthquake for a particular fault is the largest magnitude event that appears capable of occurring under the presently known tectonic framework. The maximum probable earthquake is the maximum earthquake likely to occur during a 100-year interval. It is

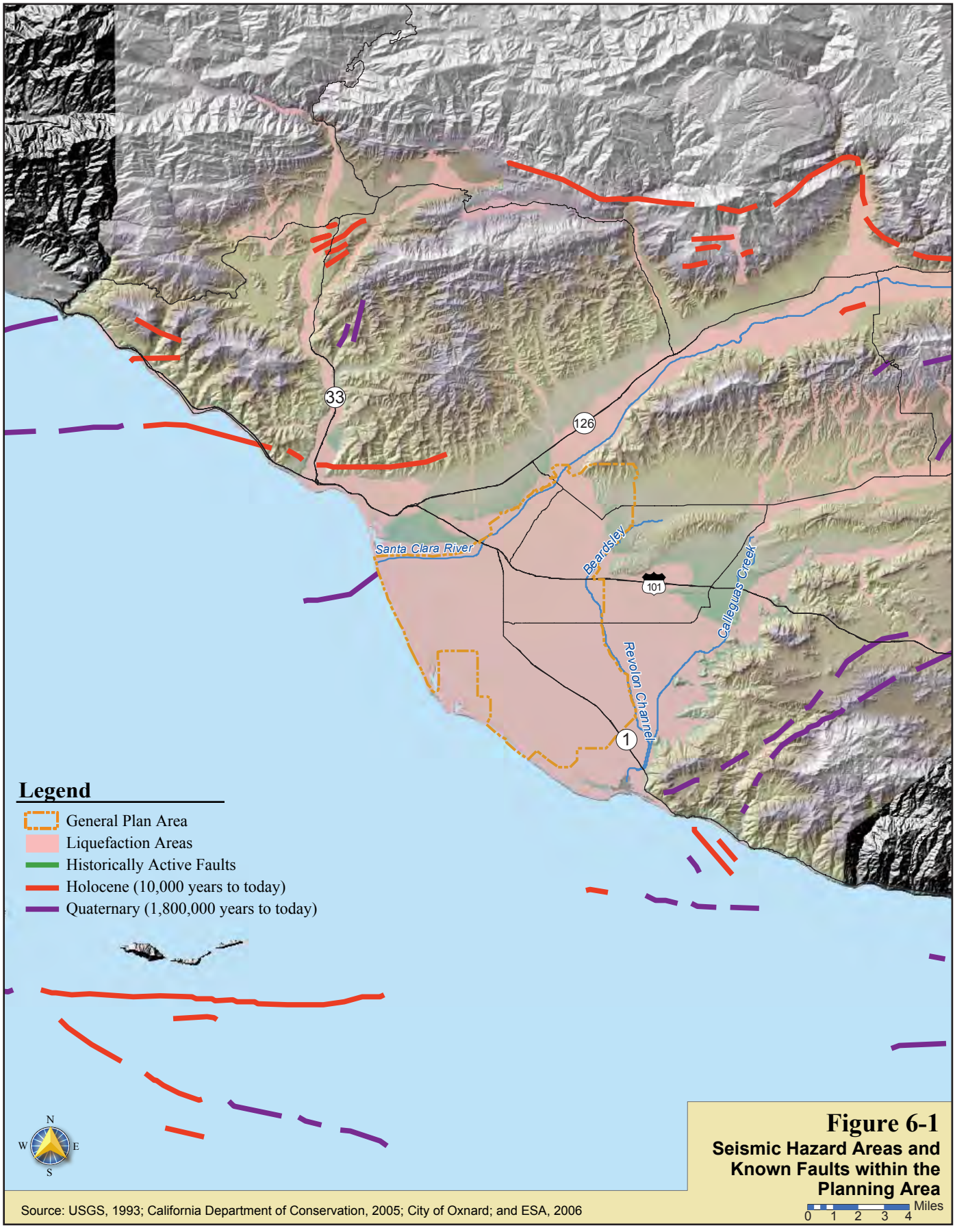


Figure 6-1
Seismic Hazard Areas and Known Faults within the Planning Area

Source: USGS, 1993; California Department of Conservation, 2005; City of Oxnard; and ESA, 2006

regarded as a probable occurrence, not as an assured event that will occur at a specific time. Table 6-1 provides a listing of faults in the proximity of the Study Area and the maximum magnitude of some of these nearby faults that may cause future ground shaking activity. As shown in Figure 6-1, several active and/or potentially active faults are located in the vicinity of the Study Area. The most regionally active faults are the Oak Ridge, Pitas Point-Ventura, Red Mountain, Acacapa, and Malibu Coast faults, all within 5 to 10 miles of the Study Area. Although the Study Area is not located within an Alquist-Priolo zone or no large-magnitude earthquakes greater than 6.0 have occurred historically along other major regional faults, the Study Area is situated within a seismically active region and is susceptible to several types of earthquake-related risks, including surface rupture, ground shaking, liquefaction and tsunamis.

Other Geologic Hazards in the Study Area

Surface Fault Rupture

A surface rupture is a break in the ground's surface and the associated deformation resulting from the movement of a fault. Fault activity is classified as active or potentially active. An active fault is one that has had surface displacement within the last 10,000 to 12,000 years (Holocene time) and a potentially active fault is one that has experienced surface displacement during the last 1.6 million years (Quaternary period).

Fault systems in the immediate vicinity of the Study Area are identified in Figure 6-1. Information specific to these local faults along with other regional faults not identified in the figure is provided in Table 6-1. As shown in Figure 6-1, no known active faults are present within the City's Study Area. However, active and/or potentially active faults are present in the surrounding region, and some of these may extend into the subsurface beneath the Study Area.

Liquefaction

Liquefaction is an unstable ground condition in which water-saturated soils change from a solid to semi-liquid state because of a sudden shock or strain. Liquefaction may occur in water-saturated sediment during moderate to great earthquakes. As shown in Figure 6-1, the potential for liquefaction occurs throughout most of the Study Area. Liquefaction conditions occur within the Study Area for several reasons, including underlying sections of thick alluvial deposits, high groundwater levels (0 feet near the coastline to approximately 40 feet at the northeastern corner of the City), and the potential for strong regional ground shaking. The combination of these factors constitutes a significant seismic hazard in the southern California region, including the Study Area.

Table 6-1 Fault Systems in the Vicinity of the Oxnard Planning Area

Fault Zone	Location Relative to Oxnard	Historical Seismicity and Recency of Faulting	Slip Rate (mm/year)	Maximum Credible Magnitude	Maximum Probable Magnitude
Oak Ridge	1 mile northwest	Holocene, in part; mainly Late Quaternary	3.5 to 6.0	7.5	6.7
Springville	1.5 miles northeast	N/A	N/A	N/A	N/A
Camarillo	3.5 miles northeast	N/A	N/A	N/A	N/A
Pitas Point-Ventura	6 miles northwest	Holocene, probably within the last 1500 years	0.5 to 1.5	6.1	6.6
Simi	7 miles northwest	Holocene	N/A	6.6	6.6
Red Mountain	10 miles northwest	Holocene to Late Quaternary	0.4 to 1.5	N/A	6.6
Anacapa	12 miles south	N/A	N/A	N/A	6.7
Orcutt Canyon	14 miles north	N/A	N/A	N/A	N/A
Javon	14 miles northwest	N/A	1.1	N/A	N/A
Carpenteria	14 miles northwest	N/A	N/A	N/A	N/A
Lion Canyon	14 miles north	Late Quaternary	N/A	N/A	N/A
Oakview	14 miles north	Late Quaternary	N/A	N/A	N/A
San Cayetano	15 miles north	Less than 5,000 years ago	1.3 to 9.0	6.75	6.7
Malibu Coast	15 miles southeast	Holocene, in part; otherwise Late Quaternary	0.3	7.5	6.6
Mission Ridge Arroyo Parida	16 miles northwest	30,000 years ago	about 0.37	N/A	6.6
Stepard Mesa-Rincon Creek	18 miles northwest	Late Quaternary	about 0.3	N/A	N/A
Santa Ynez	20 miles north	Late Quaternary; except for a short segment near the intersection with the Baseline fault, which is Holocene in age	0.1 to 0.7	7.5	6.7
Santa Susana	24 miles northeast	Late Quaternary Short segment ruptured during the 1971 San Fernando earthquake	5.0 to 7.0	6.6	6.6
Santa Cruz Island	24 miles southwest	Holocene, offshore; Late Quaternary on Santa Cruz Island	0.9	N/A	6.7
San Pedro Basin	24 miles southeast	N/A	N/A	N/A	6.6
Holser	25 miles northeast	Late Quaternary	0.4	N/A	6
Palos Verdes Hills	29 miles southeast	Holocene, offshore; Late Quaternary on shore.	0.1 to 3.0	7	6.6
Northridge	32 miles northeast	Late Quaternary; 1994 Northridge Earthquake.	N/A	6.5	6.2
San Jose	33 miles northwest	Late Quaternary Last significant quake: 2/28/90; No surface rupture found.	0.2 to 2.0	N/A	6.4
San Gabriel	34 miles northeast	Late Quaternary west of intersection with the Sierra Madre fault zone; Quaternary east of that intersection; Holocene only between Saugus and Castaic.	1.0 to 5.0	N/A	6.7

Table 6-1 Fault Systems in the Vicinity of the Oxnard Planning Area (Continued)

Fault Zone	Location Relative to Oxnard	Historical Seismicity and Recency of Faulting	Slip Rate (mm/year)	Maximum Credible Magnitude	Maximum Probable Magnitude
More Ranch	34 miles northwest	N/A	N/A	7.25	6.6
Santa Monica	35 miles southeast	Late Quaternary	0.27 to 0.39	7.5	6.6
San Fernando	38 miles northeast	Last occurrence: February 9, 1971	5	6.5	6.4
San Andreas	42 miles northeast	January 9, 1857 (Mojave Segment); April 18, 1906 (Northern Segment)	20 to 35	8.25	8.1

Source: *Hart, Fault Rupture Hazard Zones in California, 1997*

Subsidence and Uplift

Subsidence may be defined as the downward movement of a relatively large amount of land caused by the withdrawal of subsurface water and/or petroleum. Conversely, uplift is the upward movement of a relatively large amount of land caused by the injection of water or petroleum and/or by tectonic forces.

Portions of the City are subject to subsidence. Historic records show that the amount of much of this subsidence is at least one foot. In the area near Hueneme Road and Rice Avenue, which is adjacent to the southeast corner of the Study Area, the amount of subsidence has been up to 12 feet.

Landslides (Slope Failure)

Landslides (or slope failure) refer to the dislodging and falling of a mass of soil or rocks along a sloped surface. Although the potential for small-scale slope failure may exist locally, particularly along stream banks, margins of drainage channels, and similar settings where steep banks or slopes occur, the relatively flat terrain of the Study Area minimizes this potential geologic hazard.

Tsunamis

A tsunami is an ocean wave produced by offshore seismic activity. As a coastal city, there is always the potential for tsunami damage; development along the coast line has increased the risk. While most coasts along the Pacific Basin have a long history of tsunami damage, such damage to California has been relatively slight in recent historical times. The most recent tsunami to cause appreciable damage to California occurred with the great Alaskan earthquake on March 27, 1964. Please refer to Section 6.3.2 “Tsunami and Tidal Marine Hazards” for additional information regarding this potential hazard.

6.3 Natural Hazards

Within the past 10 years, natural disasters such as fires, earthquakes, landslides, and flooding have struck Ventura County. These disasters resulted in five Presidential disaster declarations in that time. Much more damage has been caused by natural hazards resulting in financial damages not warranting Presidential disaster declarations.

The natural hazards associated with Oxnard fall into several categories. These natural hazard categories include flooding and sea level rise, tsunami and tidal marine hazards, coastal wave and beach erosion, and wildfires and are detailed in the following sections.

6.3.1 Flooding and Sea Level Rise

Due to its low land profile, the City of Oxnard became a member of the National Flood Insurance Program (NFIP). The City also adopted a Master Plan of Drainage (2003) and a Floodplain Management Ordinance (Chapter 35 of the Oxnard City Code) to protect its residents and businesses. The City of Oxnard falls within the Santa Clara River's 1,600 square mile watershed. Areas along the northern border of the City fall within the river's 100-year floodplain with a larger portion of Oxnard's core falling within the 500-year floodplain. The *Multi-Jurisdictional Hazard Mitigation Plan for Ventura County* identifies one critical facility and 279 commercial and residential buildings as susceptible to coastal and riverine flooding.

Riverine flooding can occur as a result of heavy rains and melting snow. Heavy water volume can cause breaches of stream channels, river channels, or the structures designed to contain water (e.g., levees). The latter was the case in 1969 when 50- and 100-year peak discharge levels were reached in many channels of the Santa Clara and Ventura watersheds. During this episode, the City of Oxnard was threatened by a break in the Santa Clara River levee along the City's north border.

Flooding in Oxnard caused by rain water is most likely to occur in the winter months when Ventura County receives most of it precipitation. In 2005, the majority of Oxnard's rain fell between late January and mid-March. On average, however, rainfall in the Oxnard area increases sharply in early November and does not decrease until mid/late-March.

High winds or tides can cause seawater surges resulting in coastal flooding beyond the high tide line. Wave action can directly impact seaside homes and infrastructure. Indirectly, wave action can cause beach and bluff erosion resulting in damage to seaside homes and infrastructure.

Several dams are located at least 35 miles to the east and northeast of the City of Oxnard within Ventura and Los Angeles Counties. These include the Santa Felicia Dam at Lake Piru, the Castaic Lake Dam and the Pyramid Lake Dam. The major threat to Oxnard is upstream along the Santa Clara River corridor. Although the potential for a dam failure is considered low, should one or more of these dams fail, the entire city is located within the Dam Inundation Zone, also called Dam Failure Hazard Area. Damage to the city could be in the form of a wall of fast-moving water, mud, and debris. As identified in the *Multi-Jurisdictional Hazard Mitigation Plan for Ventura County*, 36,179 residential and commercial buildings and 99 critical facilities could be impacted by a dam failure.

6.3.2 Tsunami and Tidal Marine Hazards

A tsunami is a rapidly moving wave or series of waves caused by earthquakes or undersea landslides. Given its location along the Pacific Ocean coastline, the City of Oxnard could potentially be struck or impacted by a tsunami; however, the 2005 *Multi-Jurisdictional Hazard Mitigation Plan for Ventura County, California* considers this hazard to pose a remote threat to life and property in Ventura County due to the low likelihood of occurrence. Since 1946, only five major tsunamis have impacted the California coast, the most recent in 1964. Areas that are affected by flooding are also at risk for tsunamis. Oxnard's projected tsunami impact area extends inland from the shoreline approximately one mile.

The City's Channel Islands Harbor and Mandalay Bay could potentially be impacted by seiches. Seiches are oscillating waves in enclosed or partially enclosed bodies of water (e.g., lakes, bays, or gulfs) for varying lengths of time as a result of seismic or atmospheric disturbances.

6.3.3 Coastal Wave and Beach Erosion

Development and shoreline use from Point Mugu to Point Conception have been attributed to the loss of natural sand beaches and resulting beach erosion problems. Manmade structures such as breakwalls, piers, and oil platforms interrupt the natural cycle of sand being eroded and deposited along the shoreline. In response to the widespread impacts of beach erosion along the entire length of Southern California, the Beach Erosion Authority for Clean Oceans and Nourishment (BEACON) was formed. BEACON is a California Joint Powers agency established to deal with coastal erosion and beach problems on the Central Coast of California. Member agencies include the Cities of Carpinteria, Goleta, Oxnard, Port Hueneme, San Buenaventura, Santa Barbara, and the Counties of Santa Barbara and Ventura.

BEACON is currently working on a comprehensive sand management and opportunistic beach replenishment program called South Central Coast Beach Enhancement Program (SCCBEP). Also, at the direction of the

member agencies, BEACON has recently expanded its scope to include the problems of ocean water quality. It plans to coordinate activities by member agencies involving beach and ocean pollution.

Damage to Oxnard Shores, Oxnard's beachfront homes, flooding, as well as loss of beach sand and formation of extensive dunes due to blowing sand are some of the problems associated with the City of Oxnard's beach erosion.

6.3.4 Wildfires

Dense urban areas do not contain large amounts of continuous surface fuels to feed a wildfire. Therefore, these areas are generally more resistant to the spread of wildfires than other areas. The City of Oxnard is Ventura County's largest urban community and has limited exposed to the wildfire hazard. The *Multi-Jurisdictional Hazard Mitigation Plan for Ventura County, California* notes that no commercial buildings and only five residential building have potential exposure to high and very high wildfire hazards.

6.4 Noise

In technical terms, sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Simply, sound is what we hear. As sounds reach undesirable unacceptable levels, this is referred to as noise.

To develop goals and policies related to noise abatement in the updated General Plan, it is important to understand how sound, and noise, are measured and compared. It is also important to understand existing sources of sound within the Planning Area and their corresponding sound levels. To help understand these key concepts, this section:

- Describes key terms;
- Provides an overview of how noise is characterized (measured);
- Describes existing regulations that affect noise issues; and
- Discusses current noise conditions found through out the City's Planning Area.

Ambient noise levels are those associated with a given environment and usually comprise sounds from many sources, both near and far.

Methods

The methods used to assess noise are described throughout this section. A summary of noise standards was provided based on a review of all applicable Federal, State, and local noise regulations. Estimates of traffic noise were provided using recent average daily traffic volumes collected for the "Transportation and Circulation" section of this Background Report.

A discussion of other noise sources was based on noise measurements collected by Environmental Science Associates technical staff.

Key Terms

Ambient Noise. The total noise associated with a given environment and usually comprising sounds from many sources, both near and far.

Attenuation. Reduction in the level of sound resulting from absorption by the topography, the atmosphere, distance, barriers, and other factors.

A-weighted decibel (dBA). A unit of measurement for noise having a logarithmic scale and measured using the A-weighted sensory network on a noise-measuring device. An increase or decrease of 10 decibels (dB) corresponds to a tenfold increase or decrease in sound energy. A doubling or halving of sound energy corresponds to a 3-dBA increase or decrease.

Community Noise Equivalent Level (CNEL). Used to characterize average sound levels over a 24-hour period, with weighting factors included for evening and nighttime sound levels. Leq values (equivalent sound levels measured over a 1-hour period - see below) for the evening period (7:00 p.m. to 10:00 p.m.) are increased by 5 dB, while Leq values for the nighttime period (10:00 p.m. to 7:00 a.m.) are increased by 10 dB. For a given set of sound measurements, the CNEL value will usually be about 1 dB higher than the Ldn value (average sound exposure over a 24-hour period – see below). In practice, CNEL and Ldn are often used interchangeably.

Day-Night Average Sound Level (Ldn). Ldn refers to average sound exposure over a 24-hour period. Ldn values are calculated from hourly Leq values, with the Leq values for the nighttime period (10:00 p.m. to 7:00 a.m.) increased by 10 dB to reflect the greater disturbance potential from nighttime noises.

Equivalent Sound Level (Leq). The level of a steady-state sound that, in a stated time period and at a stated location, has the same sound energy as the time-varying sound (approximately equal to the average sound level). The equivalent sound level measured over a 1-hour period is called the hourly Leq or Leq (h).

Lmax and Lmin. The maximum and minimum sound levels, respectively, measured during the measurement period with a sound meter. When a sound meter is set to the “slow” response setting, as is typical for most community noise measurements, the Lmax and Lmin values are the maximum and minimum levels measured over a 1-second period.

Percentile-Exceeded Sound Level (Lx). The sound level exceeded during a given percentage of a measurement period. Examples include L10, L50, and L90. L10 is the A-weighted sound level that is exceeded 10% of the measurement period, and so on. L50 is the median sound level measured during the measurement period. L90, the sound level exceeded 90% of the time, excludes high localized sound levels produced by nearby sources such as single car passages or bird chirps. L90 is often used to represent the background sound level. L50 is also used to provide a less conservative assessment of the background sound level.

Sensitive receptors are defined to include residential areas, hospitals, convalescent homes, schools and other similar land uses.

Sensitive Receptors. Sensitive receptors are defined to include residential areas, hospitals, convalescent homes and facilities, schools, and other similar land uses.

6.4.1 Regulatory Setting

Noise issues are subject to various Federal, State and local regulations. This section begins with a brief introduction to the characteristics of sound and follows with a brief overview of key regulations.

Characteristics of Sound

The human ear can detect changes in sound levels of approximately 3 dBA under normal conditions.

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude) of a particular sound. The sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. The decibel or dB scale is used to quantify sound intensity. Because sound pressure can vary by over one trillion times within the range of human hearing, a logarithmic loudness scale (i.e., dB scale) is used to keep sound intensity numbers at a convenient and manageable level.

Since the human ear is not equally sensitive to all frequencies within the entire spectrum, noise measurements are weighted more heavily within those frequencies of maximum human sensitivity in a process called “A-weighting” written as dBA. The human ear can detect changes in sound levels of approximately 3 dBA under normal conditions. Changes of 1 to 3 dBA are typically noticeable under controlled conditions, while changes of less than 1 dBA are only discernable under controlled, extremely quiet conditions. A change of 5 dBA is typically noticeable to the general public in an outdoor environment. Table 6-2 summarizes typical A-weighted sound levels.

Table 6-2 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock Band
Jet Fly-Over at 300 meters (1000 feet)		
	— 100 —	
Gas Lawn Mower at 1 meter (3 feet)		
	— 90 —	
Diesel Truck at 15 meters (50 feet)		Food Blender at 1 meter (3 feet)
Diesel Truck at 80 kilometers/hour (50 miles/hour)	— 80 —	Garbage Disposal at 1 meter (3 feet)
Noisy Urban Area, Daytime		
Gas Lawn Mower, 30 meters (100 feet)	— 70 —	Vacuum Cleaner at 3 meters (10 feet)
Commercial Area		Normal Speech at 1 meter (3 feet)
Heavy Traffic at 90 meters (300 feet)	— 60 —	
		Large Business Office
Quiet Urban Daytime	— 50 —	Dishwasher Next Room
Quiet Urban Nighttime	— 40 —	Theater, Large Conference
Quiet Suburban Nighttime		Room (Background)
	— 30 —	Library
Quiet Rural Nighttime		Bedroom at Night, Concert
	— 20 —	
		Broadcast/Recording Studio
	— 10 —	
Lowest Threshold of Human Hearing	— 0—	Lowest Threshold of Human Hearing

Source: *California Department of Transportation, 1998a*

Environment noise fluctuates over time. While some noise fluctuations are minor, others can be substantial. Some noise levels occur in regular patterns, others are random. Some noise levels fluctuate rapidly, others slowly. Some noise levels vary widely, others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels, and are listed above under the "Key Terms" section.

Calculating Attenuation

Noise may be generated from a point source, such as a piece of construction equipment, or from a line source, such as a road containing moving vehicles. Because of spreading losses, noise attenuates (decreases) with distance. The typical atmospheric attenuation rate for point source noise is 6 dBA per doubling of the distance as predicted by the equation:

$$\text{dBA Reduction} = 20 \text{ Log } [\underline{\text{measured distance}}]$$

(Lower bracket to include both reference distance quantities)

Noise from a line source will also attenuate with distance, but the rate of attenuation is a function of both distance and the type of terrain over which the noise passes. Hard sites, such as developed areas with paving,

attenuate noise at a rate of 3 dBA per doubling of the distance as predicted by the following equation:

$$\text{dBA Reduction} = 10 \text{ Log } \frac{[\text{measured distance}]}{\text{reference distance}}$$

Soft sites, such as undeveloped areas, open space, and vegetated areas attenuate line-source noise at a rate of 4.5 dBA per doubling of the distance, as predicted by the following equation:

$$\text{Attenuated dBA} = 15 \text{ Log } \frac{[\text{measured distance}]}{\text{reference distance}}$$

True hard sites are fairly rare, particularly in rural areas. Accordingly, soft site attenuation is typically assumed for planning level analyses in rural areas.

Objects such as walls, topography, and buildings which block the line-of-sight between a source and a receptor will attenuate the noise source.

Objects such as walls, topography, and buildings which block the line-of-sight between a source and a receptor will attenuate the noise source. If a receptor is located behind the object, but has a view of the source, the wall will do little to attenuate the noise. Additionally, a receptor located on the same side of the object as the noise source may experience an increase in the perceived noise level as the object may reflect noise back to the receptor, possibly increasing the noise.

Noise Contours

The interpretation of noise contours is a generalization, not an exact science. The measurements by sophisticated instruments are affected by many variables in a particular area. However, these individual effects are generalized so that noise contours describe the impact that can generally be expected. Noise contour lines themselves are not specific boundaries of noise tolerance. A contour line denoting a 65 dBA limit, for example, does not imply that residents on one side of the line are seriously affected, while on the other side of the line tolerable conditions exist. Rather, the area between 75 dBA and 65 dBA indicates that residents within this vicinity may experience a high level of noise and potential interference with daily functions.

Effects of Noise

High noise levels can interfere with a broad range of human activities in a way which degrades public health and welfare. Such activities may include:

- Speech communication in conversation and teaching;
- Telephone communication;

- Listening to television and radio;
- Listening to music;
- Concentration during mental and physical activities;
- Relaxation; and
- Sleep.

Interference with listening situations can be determined in terms of the level of the environmental noise and its characteristics. The amount of interference in non-listening situations is often dependent upon factors other than the physical characteristics of the noise. These may include attitude toward the source of an identifiable noise, familiarity with the noise, characteristics of the exposed individual, and the intrusiveness of the noise.

Hearing loss, total or partial, and either permanent or temporary, is a well established effect of noise on human health. The primary measure of hearing loss is the hearing threshold level - the level of a tone that can just be detected by an individual. As a person is exposed to increased noise levels, that person may experience a shift in the threshold at which sound can be detected. Exposure to very high noise levels for lengthy periods of time can generate threshold shifts, which can be temporary or permanent. In general, A-weighted sound levels must exceed 60-80 decibels before a person will experience temporary threshold shifts. The greater the intensity level above 60-80 decibels and the longer the exposure, the greater length of the temporary threshold shift.

Federal Regulations

Federal Highway Administration (FHWA). The Federal Highway Administration (FHWA) has developed noise abatement criteria that are used for federally funded roadway projects or projects that require Federal review. These criteria are discussed in detail in Title 23 Part 772 of the Federal Code of Regulations (23CFR772). These noise criteria are based on Leq (h) and are summarized in Table 6-3.

Table 6-3 FHWA Noise Abatement Criteria

Activity Category	Design Noise Levels	Description of Activity Category
	LEQ (H) (DBA)	
A	57 (exterior)	Lands on which serenity and quiet are of extraordinary significance
B	67 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas
C	72 (exterior)	Developed lands
D	---	Undeveloped lands
E	52 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: *Federal Highway Administration, 1982*

The EPA has set 55 dBA Ldn as the goal for residential environments. However, other agencies generally accept 65 dBA as a realistic standard that can be achieved.

Environmental Protection Agency (EPA). The EPA has identified the relationship between noise levels and human response. The EPA has determined that over a 24-hour period, an Leq of 70 dBA will result in some hearing loss. Interference with activity and annoyance will not occur if exterior levels are maintained at an Leq of 55 dBA and interior levels at or below 45 dBA. Although these levels are relevant for planning and design and useful for informational purposes, they are not land use planning criteria because they do not consider economic cost, technical feasibility, or other needs of the community.

The EPA has set 55 dBA Ldn as the basic goal for residential environments. However, other Federal agencies, in consideration of their own program requirements and goals, as well as the difficulty of actually achieving a goal of 55 dBA Ldn, have generally agreed on the 65 dBA Ldn level as being appropriate for residential uses. At 65 dBA Ldn activity interference is kept to a minimum, and annoyance levels are still low. It is also a level that can realistically be achieved.

Department of Housing and Urban Development (HUD). HUD was established in response to the Urban Development Act of 1965 (Public Law 90-448) and was tasked by the Housing and Urban Development Act of 1965 (Public Law 89-117) "to determine feasible methods of reducing the economic loss and hardships suffered by homeowners as a result of the depreciation in the value of their properties following the construction of airports in the vicinity of their homes."

HUD first issued formal requirements related specifically to noise in 1971 (HUD Circular 1390.2). These requirements contained standards for exterior noise levels along with policies for approving HUD-supported or assisted housing projects in high noise areas. In general, these requirements established the following three zones:

- 65 dBA Ldn or less - an acceptable zone where all projects could be approved.
- Exceeding 65 dBA Ldn but not exceeding 75 dBA Ldn - a normally unacceptable zone where mitigation measures would be required and each project would have to be individually evaluated for approval or denial. These measures must provide 5 dBA of attenuation above the attenuation provided by standard construction required in a 65 to 70 dBA Ldn area and 10 dBA of attenuation in a 70 to 75 dBA Ldn area.
- Exceeding 75 dBA Ldn - an unacceptable zone in which projects would not, as a rule, be approved.

HUD's regulations do not include interior noise standards. Rather a goal of 45 dBA Ldn is set forth and attenuation requirements are geared towards achieving that goal. HUD assumes that using standard construction practices, any building will provide sufficient attenuation so that if the exterior level is 65 dBA Ldn or less, the interior level will be 45 dBA Ldn or less. Thus, structural attenuation is assumed at 20 dBA. However HUD regulations were promulgated solely for residential development requiring government funding and are not related to the operation of schools or churches.

The Federal government regulates occupational noise exposure common in the workplace through the Occupational Health and Safety Administration (OSHA) under the USEPA. Noise exposure of this type is dependant on work conditions and is addressed through a facility's or construction contractor's health and safety plan. With the exception of construction workers involved in facility construction, occupational noise is irrelevant to this study and is not addressed further in this document.

State Regulations

California Department of Transportation (Caltrans). Caltrans has adopted policy and guidelines relating to traffic noise as outlined in the Traffic Noise Analysis Protocol (Caltrans 1998b). The noise abatement criteria specified in the protocol are the same as those specified by FHWA.

California Department of Health Services. The Office of Noise Control in the State Department of Health Services has developed criteria and guidelines for local governments to use when setting standards for human exposure to noise and preparing noise elements for General Plans (Office of Planning and Research, 2003). These guidelines include noise exposure levels for both exterior and interior environments. In addition, the California Code of Regulations sets forth requirements for the insulation of multiple-family residential dwelling units from excessive and potentially harmful noise. The State indicates that locating units in areas where exterior ambient noise levels exceed 65 dBA is undesirable. Whenever such units are to be located in such areas, the developer must incorporate into building design various construction features which reduce interior noise levels to 45 dBA CNEL. A summary of the various State standards is provided in Tables 6-4 and 6-5. Table 6-4 presents criteria used to assess the compatibility of proposed land uses with the noise environment. Table 6-5 indicates standards and criteria that specify acceptable limits of noise for various land uses.

Table 6-4 Community Noise Exposure Ldn or CNEL, Db

Land Use Category	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential – Low Density, Single Family, Duplex, Mobile Homes	<60	55-70	70-75	>80
Residential – Multi Family	<65	60-70	70-75	>75
Transient Lodging – Motels, Hotels	<65	60-70	70-80	>80
Schools, Libraries, Churches, Hospitals, Nursing Homes	<70	60-70	70-80	>80
Auditoriums, Concert Halls, Amphitheatres	NA	<70	NA	>65
Sports Arena, Outdoor Spectator Sports	NA	<75	NA	>70
Playgrounds, Neighborhood Parks	<70	67.5-75	NA	>72.5
Golf Courses, Riding Stables, Water Recreation, Cemetaries	<75	NA	70-80	>80
Office Buildings, Business Commercial and Professional	<70	67.5-77.5	>75	NA
Industrial, Manufacturing Utilities, Agriculture	<75	70-80	>75	NA

Notes:

Normally Acceptable *– Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements*

Conditionally Acceptable *– New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design – Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice*

Normally Unacceptable *– New construction or development should generally be discouraged – If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design*

Clearly Unacceptable *– New construction or development should generally not be undertaken*

NA *– Not applicable*

Source: *California Office of Planning and Research, General Plan Guidelines, 2003*

Table 6-5 State Interior and Exterior Noise Standards

	Land Use	CNEL	
Categories	Uses	Interior[1]	Exterior[2]
Residential	Single-Family, Duplex, Multiple-Family	45[3]	65[4]
	Mobile Homes	--	65
Commercial Industrial Institutional	Hotel, Motel, Transient Lodging	45	--
	Commercial Retail, Bank, Restaurant	55	--
	Office Building, Research and Development, Professional Office, City Office Building	50	--
	Amphitheatre, Concert Hall, Auditorium, Meeting Hall	45	--
	Gymnasium (Multipurpose) Sports Club	50	--
	Manufacturing, Warehousing, Wholesale, Utilities	55	--
	Movie Theaters	65	--
Institutional	Hospitals, Schools, Classrooms/Playgrounds	45	--
		45	65
	Church, Library	45	--
Open Space	Parks	--	65

Notes:

1. *Indoor environment including: Bathrooms, closets, corridors*
2. *Outdoor environment limited to: Private yard of single family; Multi-family private patio/balcony which is served by a means of exit from inside the dwelling; Balconies six feet deep or less are exempt; Mobile Home Park; Park's picnic area; School's playground*
3. *Noise level requirement with closed windows. Mechanical ventilating systems or other means of natural ventilation shall be provided as of Chapter 12, Section 1205 of the Uniform Building Code*
4. *Exterior noise levels should be such that interior noise levels will not exceed 45 dBA CNEL*

Source: *California Office of Planning and Research, General Plan Guidelines, 2003*

Table 6-6 City of Oxnard Exterior and Interior Noise Ordinance Standards

Sound Zone	Type of Land Use	Allowable Exterior Sound Level	
		7 AM to 10 PM	10 PM to 7 AM
I	Residential	55 dBA	50 dBA
II	Commercial	65 dBA	60 dBA
III	Industrial	70 dBA	70 dBA
IV	As identified in Figure IX-2 of the 2020 General Plan.		

Sound Zone	Type of Land Use	Allowable Exterior Sound Level	
		7 AM to 10 PM	10 PM to 7 AM
All	Residential	50 dBA	45 dBA

Source: *City of Oxnard Municipal Code, Article XI (Sound Regulation) of Chapter 7*

Local Regulations

City of Oxnard - Oxnard 2020 General Plan. The Noise Element of the City's existing General Plan contains several goals, objectives, and policies pertinent to noise issues.

City of Oxnard Noise Ordinance. Article XI (Sound Regulation) of Chapter 7 in the Oxnard Municipal Code is designed to, "protect classes of land use from excessive sound because the city council has determined that such excessive sound is detrimental to the public health, safety and welfare and contrary to the public interest." The adopted Noise Ordinance sets standards for noise levels and provides the means to enforce the reduction of obnoxious or offensive noises. The Noise Ordinance sets interior and exterior noise levels for all properties within designated noise zones, unless exempted. The Noise Ordinance standards are identified in Table 6-6.

6.4.2 Environmental Setting

The main noise generators within the City consist of vehicular traffic along the Ventura Freeway, other major roadways, the Oxnard Airport, the Union Pacific Railroad line, and a variety of stationary noise sources. Each of these noise sources is described in greater detail below.

Traffic Noise

Local Regulations

City of Oxnard - Oxnard 2020 General Plan. The Noise Element of the City's existing General Plan contains several goals, objectives, and policies pertinent to noise issues.

City of Oxnard Noise Ordinance. Article XI (Sound Regulation) of Chapter 7 in the Oxnard Municipal Code is designed to, "protect classes of land use from excessive sound because the city council has determined

that such excessive sound is detrimental to the public health, safety and welfare and contrary to the public interest." The adopted Noise Ordinance sets standards for noise levels and provides the means to enforce the reduction of obnoxious or offensive noises. The Noise Ordinance sets interior and exterior noise levels for all properties within designated noise zones, unless exempted. The Noise Ordinance standards are identified in Table 6-6.

As in most typical urbanized areas, the most pervasive noise sources in the City are motor vehicles, including automobiles, trucks, buses, and motorcycles. The noise generated from vehicles using roads within the Planning Area is governed primarily by the number of vehicles, type of vehicles (mix of automobiles, trucks, and other large vehicles), and their speed.

The highest noise levels are adjacent to the Ventura Freeway. Noise levels that would affect noise sensitive land uses such as residences, schools, and hospitals also occur along major arterials including Victoria Avenue, Channel Islands Boulevard, Ventura Road, and Oxnard Boulevard.

Traffic Noise Measurements

As with most communities, vehicular traffic generates the major source of noise in the City. The traffic noise levels were computed using the Federal Highway Administration Traffic (FHWA) Noise Prediction Model (FHWA-RD-77-108). The model uses traffic volume, vehicle mix, vehicle speed, and roadway geometry to compute Leq. The Leq values were converted into CNEL using FHWA methodology. The traffic volumes are based on traffic data more fully described in Section 4.2 "Circulation, Traffic, and Transportation" of Chapter 4 "Infrastructure and Community Services" of this report.

Roadway noise levels for various streets within the City are provided in Table 6-7. Information provided in the table summarizes the daily traffic volumes, the predicted CNEL at 100 feet from the roadway centerline, and the distance from the roadway centerline to the 60-, 65-, and 70 CNEL contours. The contour levels correspond to the land use compatibility levels specified in Table 6-4. Because these calculated contours do not take into account shielding caused by local buildings, walls, or topographical features, the distances should be considered worst case estimates of noise exposure along roadways in the Planning Area. The highest roadway noise levels are adjacent to the Ventura Freeway. Noise levels that would impact noise sensitive land uses such as residences, schools, and hospitals also occur along major arterials including, Victoria Avenue, Channel Islands Boulevard, Ventura Road, and Oxnard Boulevard.

Table 6-7 Traffic Noise Levels Along Roadways in the Planning Area

Roadway Segment	Daily Traffic Volume	CNEL @ 100 feet from Roadway Centerline	Distance (feet) to 70 CNEL Contour from Roadway Centerline	Distance (feet) to 65 CNEL Contour from Roadway Centerline	Distance (feet) to 60 CNEL Contour from Roadway Centerline
3rd (w/o) Rose	13,125	64	25	78	247
4th (e/o) SR1 (Oxnard)	6,142	61	12	38	120
5th (e/o) Del Norte	11,108	6.8	58	184	580
5th (e/o) Rice	12,951	69	72	228	720
5th (e/o) Rose	15,644	68	60	189	599
5th (e/o) SR1 (Oxnard)	12,046	67	45	141	447
5th (w/o) SR1 (Oxnard)	15,944	66	36	114	361
5th (e/o) Ventura	6,330	67	53	168	530
5th (w/o) Victoria	17,230	63	21	65	207
C St (n/o) 2nd	10,183	66	36	114	360
C St (s/o) 3rd	14,944	65	28	90	285
C St (s/o) 5th	14,153	64	27	86	273
C St (n/o) Wooley	34,991	69	75	237	748
C St s/o) Wooley	18,252	66	37	117	371
Channel Islands (w/o) J St	33,734	70	109	345	1,091
Channel Islands (e/o) SR1 (Oxnard)	13,462	68	57	181	571
Channel Islands (w/o) Ventura	35,633	71	127	402	1,270
Channel Islands (w/o) Victoria	20,720	69	73	232	734
Channel Islands (e/o) Victoria	29,843	70	99	313	990
Colonia (e/o) SR1 (Oxnard)	6,614	61	13	40	125
Cooper (e/o) SR1 (Oxnard)	7,701	62	16	51	162
Del Norte (s/o) US101	14,970	68	46	147	465
Doris (e/o) H St	5,573	62	16	51	162
Doris (w/o) Ventura	4,077	64	22	70	223
Entrada (s/o) Gonzales	8717	64	24	76	239
Gonzales (w/o) Rice	20,885	71	124	393	1,244
Gonzales (w/o) Rose	20,641	70	108	343	1,084
Gonzales (w/o) SR1 (Oxnard)	42,293	70	88	279	881
Gonzales (e/o) SR1 (Oxnard)	27,736	72	173	546	1,727
Gonzales (e/o) Ventura	18,232	67	50	158	501
Gonzales (w/o)Ventura	17,226	68	58	184	583
Gonzales (w/o)Victoria	5,880	66	37	116	367
H St (s/o) Gonzales	10,408	65	28	88	277
Harbor (n/o) 5th	12,546	70	94	297	940
Harbor (n/o) Gonzales	22,313	71	123	390	1,234
Hobson (n/o) Wooley	12,027	64	25	78	246
Hueneme (w/o) Arcturus	15,876	65	32	103	325
Hueneme (e/o) Rice	12,473	64	27	86	272
J St (s/o) Hemlock	7,587	62	16	51	162
Pleasant Valley (w/o) C St	22,061	69	73	231	730
Pleasant Valley (e/o) Hailes	11,190	67	45	143	451
Pleasant Valley (w/o) SR1 (Oxnard)	20,668	68	65	207	655
Pleasant Valley (e/o) Ventura	14,871	70	48	152	480
Rice (s/o) 5th	33,888	71	192	607	1,920
Rice (n/o) Auto Center	10,207	69	79	249	786

Table 6-7 Traffic Noise Levels Along Roadways in the Planning Area (Continued)

Roadway Segment	Daily Traffic Volume	CNEL @ 100 feet from Roadway Centerline	Distance (feet) to 70 CNEL Contour from Roadway Centerline	Distance (feet) to 65 CNEL Contour from Roadway Centerline	Distance (feet) to 60 CNEL Contour from Roadway Centerline
Rice (s/o) Auto Center	45,868	72	171	540	1,709
Rice (s/o) Gonzales	42,237	74	222	703	2,222
Rice (n/o) Hueneme	4,573	63	21	68	215
Rice (s/o) US101	51,437	72	172	544	1,720
Rose (s/o) 5th	35,823	71	111	350	1,106
Rose (n/o) Auto Center	22,567	69	79	249	786
Rose (s/o) Central	12,138	66	36	114	360
Rose (s/o) Channel Islands	25,233	69	84	265	837
Rose (s/o) Gonzales	52,698	72	156	493	1,558
Rose (s/o) US101	54,331	72	170	538	1,702
Saviers (n/o) Hueneme	7,503	64	24	77	243
Saviers (n/o) Pleasant Valley	15,990	67	53	166	526
Saviers (s/o) Wooley	30,142	70	92	290	918
SR1 (Oxnard) (n/o) 1st	40,132	69	70	222	702
SR1 (Oxnard) (n/o) 7th	37,081	68	63	200	632
SR1 (Oxnard) (s/o) Gonzales	39,528	69	69	219	692
SR1 (Oxnard) (n/o) Hueneme	12,650	70	95	300	948
SR1 (Oxnard) (n/o) Pleasant Valley	13,531	70	87	274	867
SR1 (Oxnard) (n/o) Statham	18,209	70	103	324	1,025
SR1 (Oxnard) (n/o) Vineyard (SR232)	14,515	68	65	206	650
SR1 (Oxnard) (n/o) Wooley	32,722	69	72	227	719
Sturgis (e/o) Del Norte	5,244	60	10	33	104
Teal Club (w/o) Ventura	3,043	62	15	47	147
Ventura (s/o) 2nd	33,034	70	102	321	1,016
Ventura (s/o) Channel Islands	34,248	70	101	318	1,006
Ventura (s/o) Doris	27,198	69	82	259	818
Ventura (n/o) Gonzales	17,355	67	54	172	544
Ventura (s/o) Gonzales	25,205	69	77	245	774
Ventura (s/o) Hemlock	23,086	68	59	187	592
Ventura (s/o) Holly	15,371	67	49	156	493
Ventura (s/o) Town Center	305	50	1	3	11
Ventura (n/o) Vineyard (SR232)	2,941	61	12	37	117
Ventura (n/o) Wooley	31,410	68	68	217	685
Victoria (n/o) Doris	40,803	73	205	648	2,050
Victoria (n/o) Gonzales	52,067	74	241	762	2,409
Victoria (n/o) Wooley	37,309	73	180	571	1,805
Vineyard (SR232) (s/o) Esplanade	48,154	74	239	756	2,390
Vineyard (SR232) (n/o) Myrtle	30,886	72	150	474	1,499
Wooley (w/o) C St	25,443	69	79	249	787
Wooley (e/o) Pacific	15,219	67	53	169	534
Wooley (w/o) Patterson	16,907	67	54	170	539

Table 6-7 Traffic Noise Levels Along Roadways in the Planning Area (Continued)

Roadway Segment	Daily Traffic Volume	CNEL @ 100 feet from Roadway Centerline	Distance (feet) to 70 CNEL Contour from Roadway Centerline	Distance (feet) to 65 CNEL Contour from Roadway Centerline	Distance (feet) to 60 CNEL Contour from Roadway Centerline
Wooley (e/o) Rose	11,845	68	55	175	554
Wooley (e/o) SR1 (Oxnard)	15,563	67	47	149	471
Wooley (w/o) Ventura	16,411	68	61	192	609
Wooley (w/o) Victoria	6,292	63	19	61	193

Source: *ESA, 2006*

Airport Noise

The greatest potential for noise intrusion occurs when aircraft land, take off, or run their engines while on the ground. There are three primary sources of noise in a jet engine: the exhaust, the turbomachinery, and the fan. The noise associated with general aviation propeller aircraft (piston and turbo-prop) is produced primarily by the propellers and secondarily from the engine and exhaust.

Aircraft noise affecting the City is primarily generated by the Oxnard Airport and the Point Mugu Naval Air Station. The Oxnard Airport is situated upon 216 acres of land located in the southwest corner of the City. The Oxnard Airport is served primarily by general aviation and commuter aircraft. In 2000, the last year for which figures are available, the Airport was base to approximately 150 aircraft and 88,277 annual operations.

The Point Mugu Naval Air Station is located within the jurisdictional boundaries of the County of Ventura, which designates the site as "Institutional Use." The property is also within the City of Oxnard Planning Area. While no major established flight patterns pass over the City, infrequently used patterns do pass over residential areas of the City.

The Camarillo Airport is also located within Ventura County. According to the Ventura County, the Camarillo Airport does not have any flight paths over the City of Oxnard. However, the northeast portion of the City may experience noise generated by Camarillo Airport operations.

Airport Noise Measurements

The California Division of Aeronautics has adopted the CNEL as their methodology for describing airport noise exposure. The Federal Aviation Administration and Environmental Protection Agency use the Ldn for

quantifying community noise levels. As noted above, the Ldn and the CNEL are closely related, with computed noise levels typically differing by less than 1 dBA.

The California Division of Aeronautics requires land uses within a 65 dBA CNEL contour around airports to be compatible with airport operations. Otherwise, the airport operator is required to obtain a variance from the State to continue airport operations. Land uses which are considered incompatible within the 65 dBA CNEL are single- and multi-family residences, trailer parks, schools, hospitals, and childcare facilities.

As part of the current Oxnard Airport Master Plan (Coffman Associates, 2003), aircraft noise contours were generated for both existing and future year airport operations. Figures 6-2, 6-3, and 6-4 depict these noise contours, with the specific shapes and coverage of each contour reflective of the proposed flight track and runway use percentages estimated for each modeled year.

Figure 6-2 provides a noise contour for 2002 operating conditions. As shown in the figure, the 65 CNEL noise exposure contour extends beyond the airport property boundary approximately 1,000 feet west and 175 feet east along the extended centerline of Runway 7-25. The contour extends southwest beyond airport property at varying distances and the northern extension of the 65 CNEL contour extends beyond the airport boundary approximately 400 feet. Table 6-8 summarizes contour coverage (in acres) for each modeled year.

Table 6-8 CNEL Contour Coverage (in acres)

Modeled Year	65 CNEL	70 CNEL	75 CNEL
2002	265 acres	131 acres	69 acres
2010	236 acres	116 acres	58 acres
2025	201 acres	99 acres	44 acres

Source: *Coffman Associates, 2003*

As shown in Figure 6-3, the 65 CNEL, under 2010 operations, extends beyond the airport property boundary approximately 400 feet to the west. To the north, the noise contour extends off airport property slightly less than 400 feet. The noise contour to the south extends in a similar fashion to the 2002 noise contour.

Figure 6-4 identifies the 2025 noise contour. As shown in the figure, the western and eastern extents of all noise contours are contained within the airport boundary. To the north and south, the 65 CNEL contour extends beyond the boundary, although slightly less than under the 2010 operating

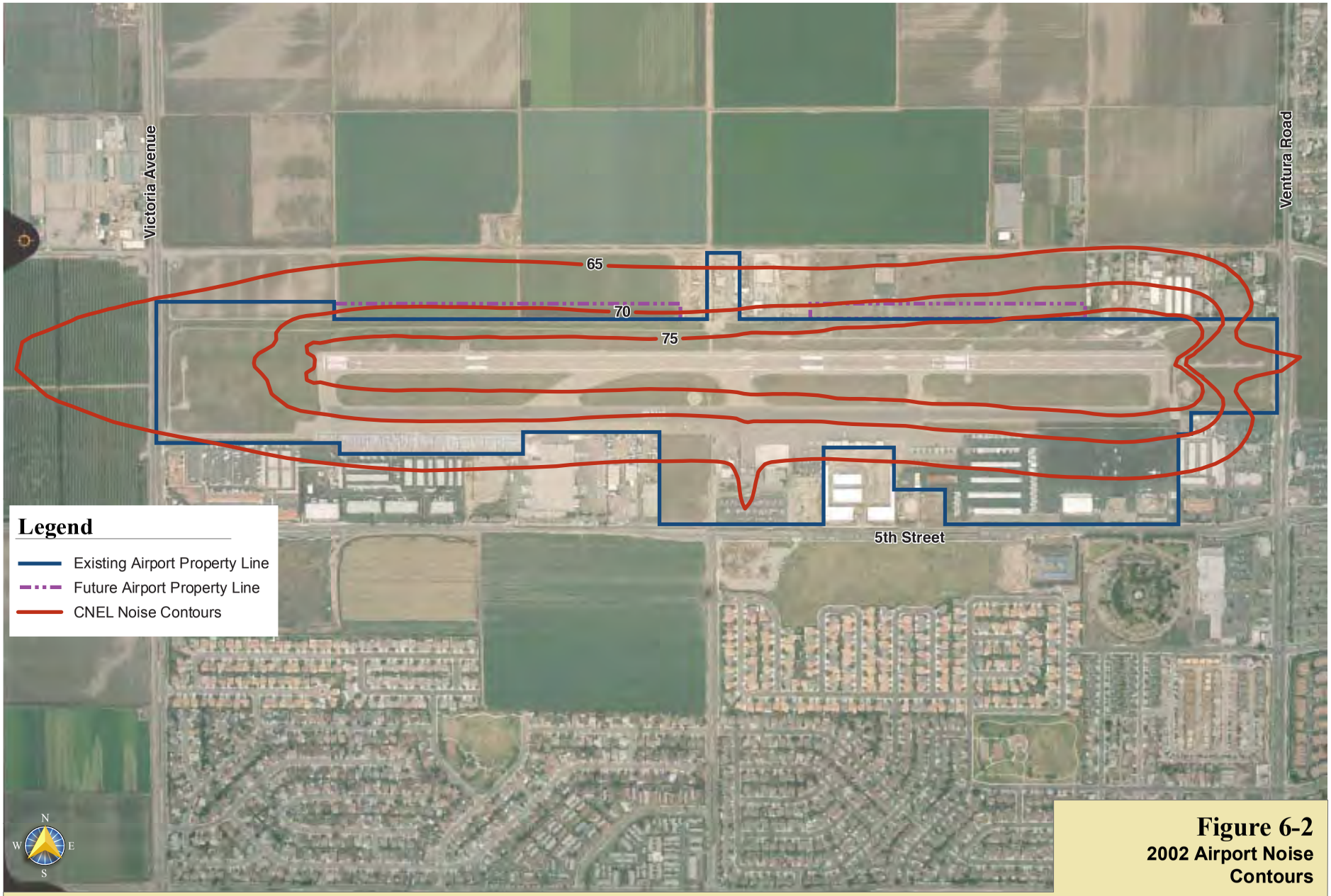
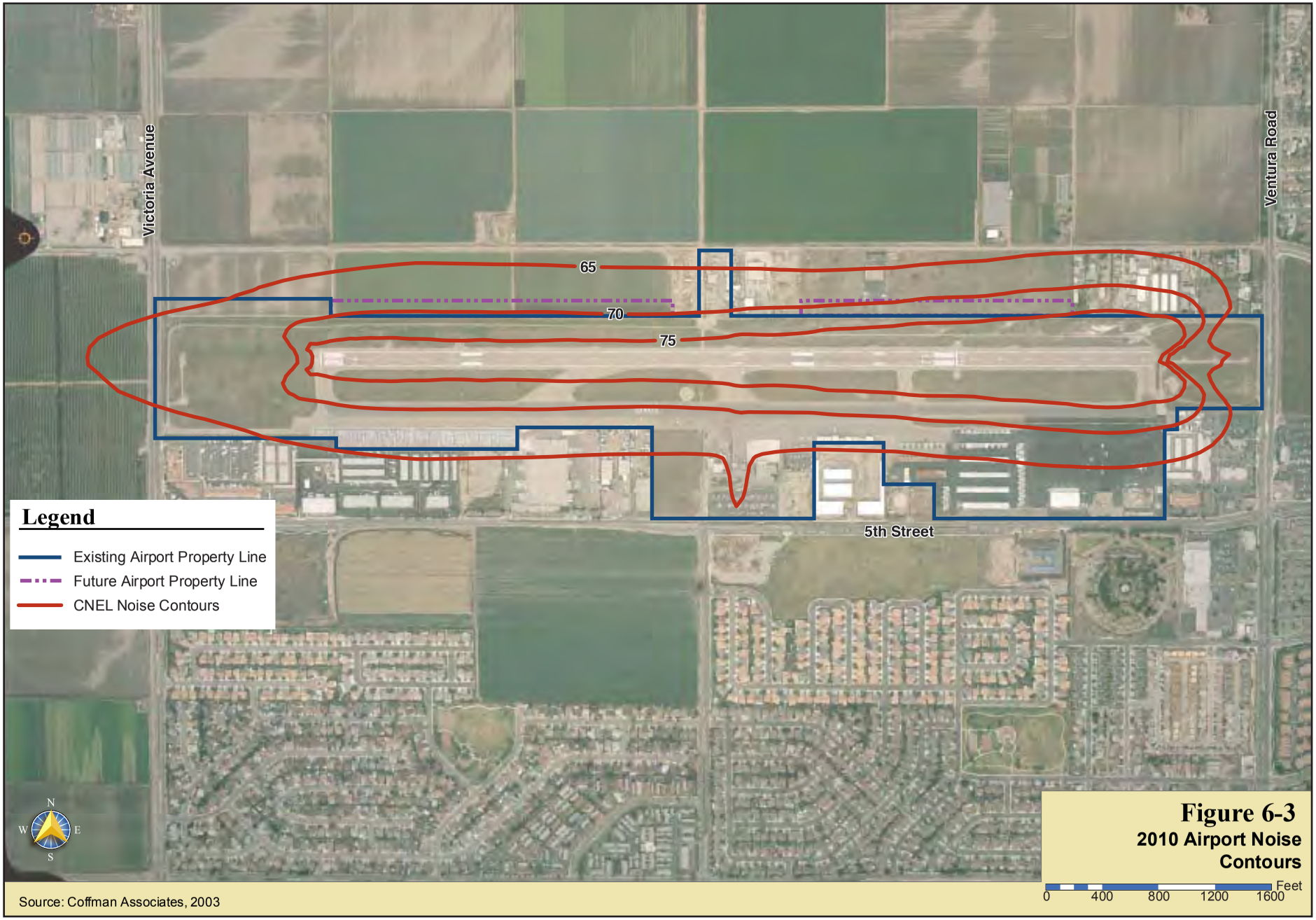


Figure 6-2
2002 Airport Noise Contours

Source: Coffman Associates, 2003


Victoria Avenue
Ventura Road
65
70
75
5th Street
Legend
Existing Airport Property Line
Future Airport Property Line
CNEL Noise Contours
N
W
E
S
Figure 6-3
2010 Airport Noise Contours
Feet
0
400
800
1200
1600
Source: Coffman Associates, 2003

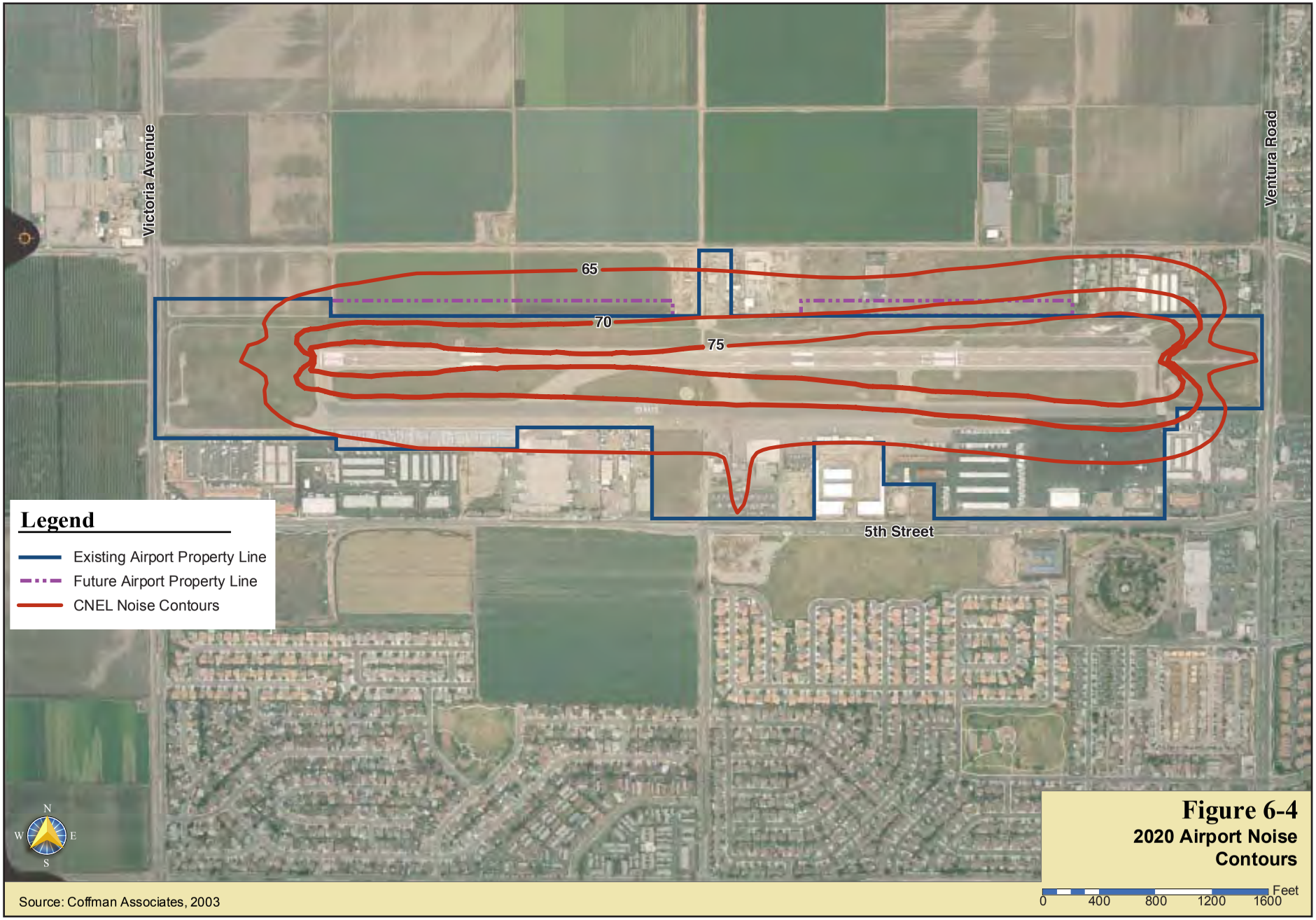


Figure 6-4
2020 Airport Noise Contours

Source: Coffman Associates, 2003

condition. Overall, these reductions in the noise contours are the result of the airport's transition from Stage II type aircraft to the quieter Stage III aircraft (Coffman Associates, 2003).

As shown in the figures, the 65 CNEL noise contours extend beyond the existing airport boundaries into areas of existing and developing residential areas to the northeast of the airport.

Railroad Noise

The Union Pacific Railroad line running across the Planning Area is the only railroad line utilized on a regular basis. The line enters the Planning Area at its eastern boundary, runs west along East Fifth Street to the Transportation Center where it turns north and runs adjacent to Oxnard Boulevard, and eventually crosses the northern City boundary at the Ventura Freeway.

Several factors combine to produce railroad noises, including length of train, speed, grade, type of track, number of engines, and number of trips. The Union Pacific Railroad line operates approximately eight trains in the Planning Area within a 24-hour period. Four trains are scheduled Amtrak passenger trains, and the other four are nonscheduled freight trains that could pass through the City anytime during a 24-hour period. The older residential neighborhoods within the central portion of the City are subject to the greatest noise effects from local railroad activity, particularly the nighttime freight trains.

Railroad Noise Measurements

A 24-hour noise measurement was completed to determine railroad noise levels within the central portion of the City. The measurement location is identified in Table 6-9. The noise meter was located north of the City center and east of Oxnard Boulevard. This noise meter was approximately 30 feet east of the railroad tracks. As shown in Table 6-8, the CNEL along the railroad tracks was 65 dBA. The reference CNEL of 65 dBA at 30 feet from the railroad and an attenuation rate of 3 dBA for every doubling of distance were used to develop the railroad noise contours shown on Figures 6-2 and 6-3. Noise events from individual train movements are above City ambient noise levels. However, because the railroad tracks generally run adjacent to a major roadway, Oxnard Boulevard, the average daily noise level generated by railroad operations does not significantly rise above the average daily traffic noise contour. Using distance attenuation, railroad noise levels near the City center would be 65 and 60 dBA CNEL at 30 and 100 feet, respectively. Noise contours along the railroad are shown in Figures 6-5 and 6-6.

Existing Noise Conditions and Stationary Noise Sources

A series of short- and long-term noise measurements were completed to help describe existing noise levels within the City. The short-term Leq noise measurements were completed to characterize typical noise levels at various locations within the City. Noise measurements were taken along heavily traveled roadway corridors and in downtown Oxnard, residential neighborhoods, and City parks. As shown in Table 6-9 ambient noise levels ranged from 50.7 to 74.2 dBA Leq. The lowest noise level, 50.7 dBA, occurred in a residential neighborhood. The highest noise level, 74.2 dBA, occurred along Victoria Avenue, which is a heavily trafficked City roadway.

Industrial land uses have the potential to generate high noise levels within their immediate operating environments. The scope and degree of noise generated by industrial uses is dependent upon various factors, including type of industrial activity, hours of operation, and their location relative to sensitive land uses. Most of the industrial stationary noise sources within the Planning Area are located within two industrial areas known as the Hueneme Road Industrial Area and the Central Industrial Area.

Table 6-9 Community Noise Measurement Summary

Land Use	Location	Time	Leq (dBA)
Short-Term Community Measurements			
1. Roadway	Oxnard Boulvard, north of Roderick Road	6:45 – 7:00	71.3
2. Roadway	Channel Island Boulvard, west of Saviers Road	7:22 – 7:37	69.6
3. Roadway	Victoria Avenue, south of Nantucket Parkway	8:00 – 8:15	74.2
4. Park	Oxnard State Beach Park	8:35 – 8:50	52.4
5. Residential	6th Avenue, west of F street	9:20 – 9:35	54.3
6. Downtown Oxnard	Plaza Park	10:01 – 10:16	60.7
7. Downtown Oxnard	A street, north of 4th Street	10:29 – 10:44	62.6
8. Park	Community Center Park	11:01 – 11:16	52.6
9. Residential	Patricia Street, north of Rhona Road	11:29 – 11:44	50.7
10. Roadway	Snow Avenue, south of Highway 101	12:30 - 1245	64.2
		Day	**CNEL (dBA)**
Long-Term Airport Measurement			
11. Airport	Little Farms Road, west of Ventura Boulevard	12/19-12/20	60
		12/20-12/21	60
12. Airport			
	North of 5th Street, west of Ventura Boulevard	12/19-12/20	61
		12/20-12/21	61
Long-Term Railroad Measurement			
13. Railroad	Oxnard Boulevard, south of Gonzales Road	12/28	65

Source: *ESA, 2005*

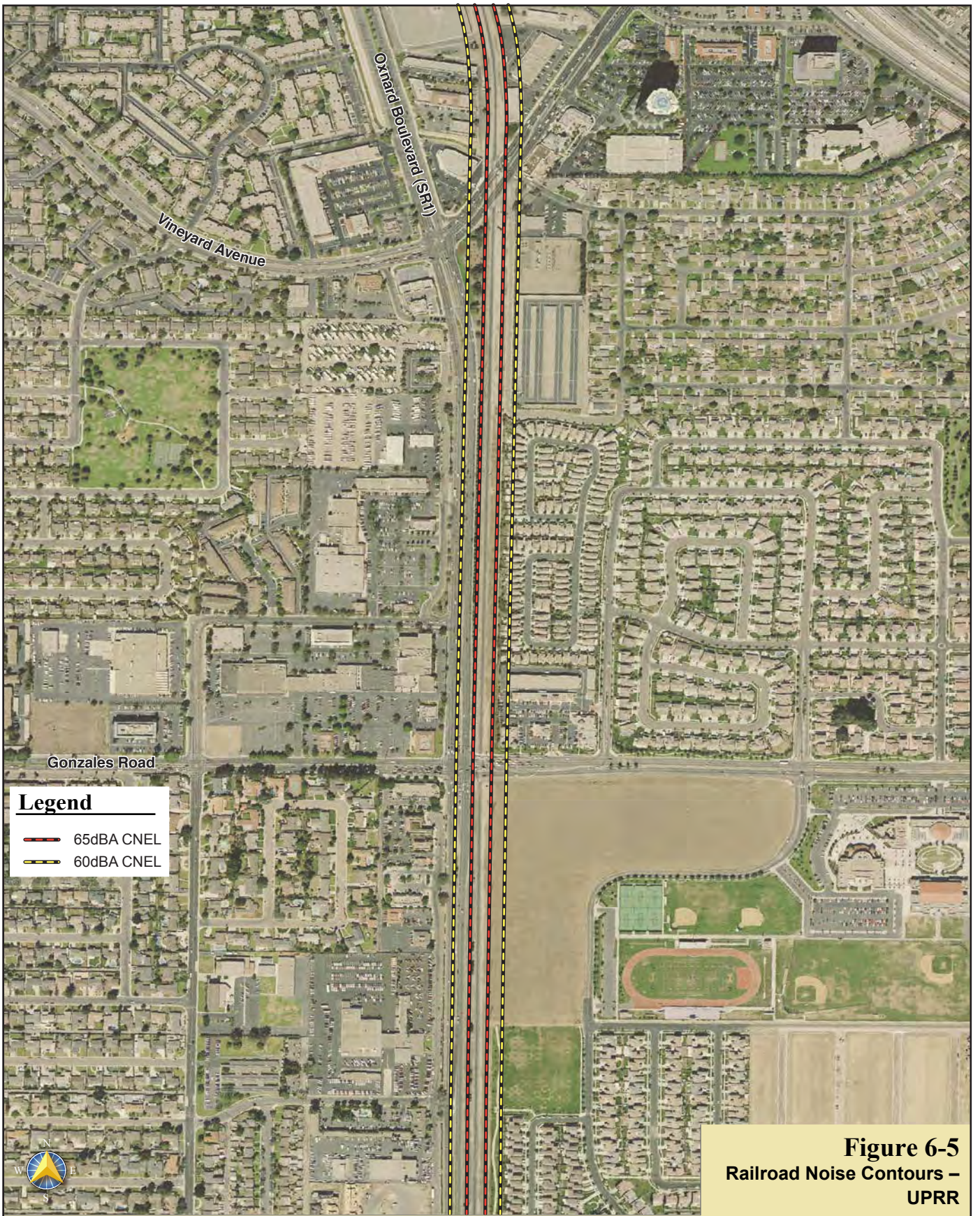


Figure 6-5
Railroad Noise Contours – UPRR

Source: City of Oxnard, 2005; and ESA, 2006

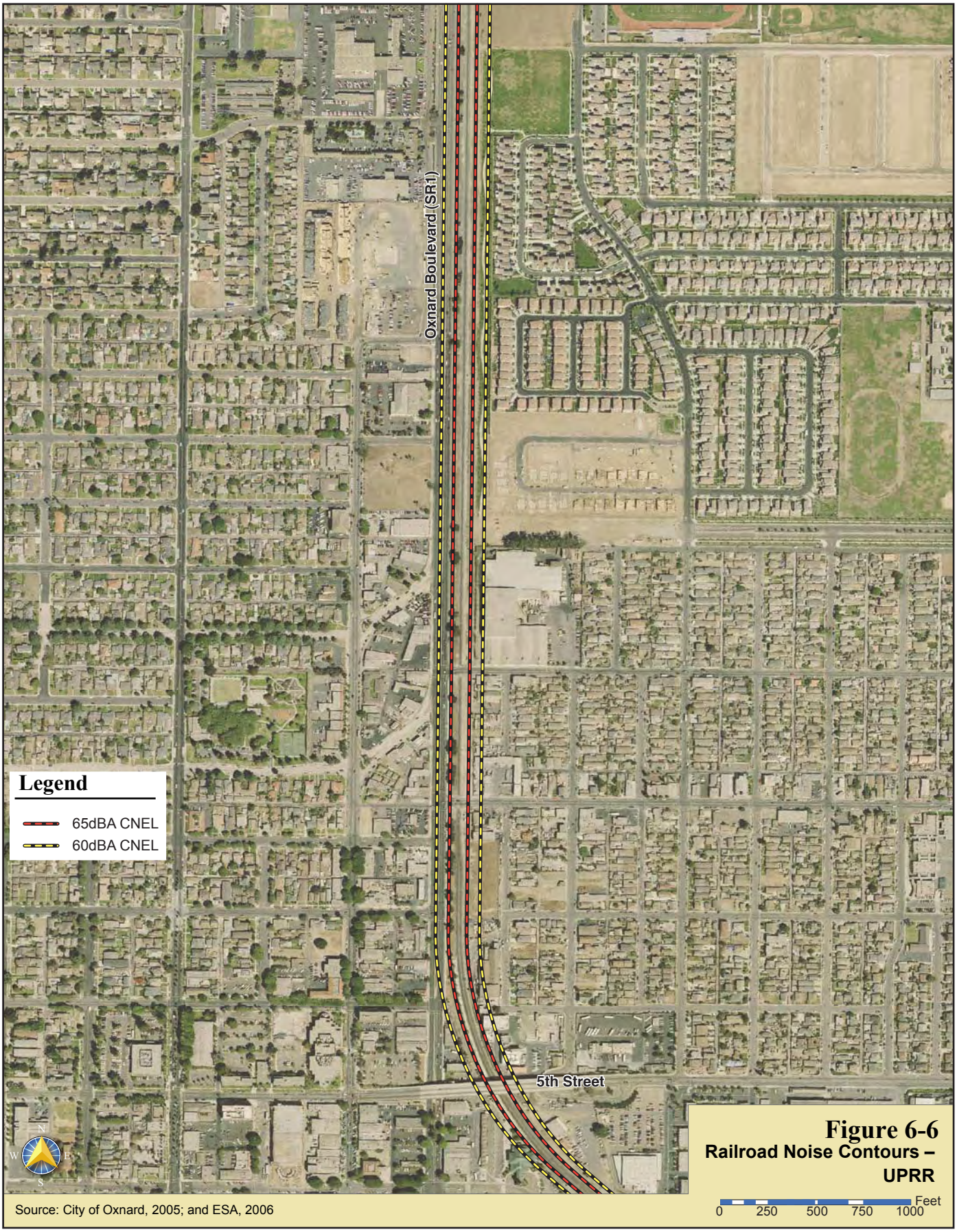


Figure 6-6
Railroad Noise Contours – UPRR

Source: City of Oxnard, 2005; and ESA, 2006

6.5 Hazardous Materials and Uses

This section focuses on those human-made hazards associated with the potential exposure to hazardous materials. Additional public safety concerns (e.g., fire suppression capabilities, law enforcement response times, etc.) are discussed in Public Services". To provide a better understanding of the extent of existing human-made hazard concerns within the Planning Area, topics covered in this section include the following:

- Federal, State, and local regulations; and
- Existing human-made hazards in the Planning Area

Methods

The information provided in this section was obtained from various State agencies (e.g., California Department of Toxic Substances Control, etc.) that monitor or compile information related to the locations of hazardous waste generators, hazardous materials treatment, storage and disposal facilities, and underground storage tank locations.

Key Terms

Hazardous Materials. A hazardous material is defined by the California Code of Regulations (CCR) as a substance that, because of physical or chemical properties, quantity, concentration, or other characteristics, may either (1) cause an increase in mortality or an increase in serious, irreversible, or incapacitating, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of (CCR, Title 22, Division 4.5, Chapter 10, Article 2, Section 66260.10).

Hazardous Wastes. Similarly, hazardous wastes are defined as materials that no longer have practical use, such as substances that have been discarded, discharged, spilled, contaminated, or are being stored prior to proper disposal. According to Title 22 of the CCR, hazardous materials and hazardous wastes are classified according to four properties: toxic, ignitable, corrosive, and reactive (CCR, Title 22, Chapter 11, Article 3).

6.5.1 Regulatory Setting

The storage, use, and handling of hazardous materials by industries and businesses are subject to various Federal, State and local regulations. A brief overview of these regulations follows.

Federal Regulations

The principal Federal legislation is the Resource Conservation and Recovery Act (RCRA), which is administered by the United States

Environmental Protection Agency (EPA). RCRA imposes reporting, permitting, and operational control requirements on those who generate, treat, store, or dispose of hazardous waste. The Federal Hazardous Materials Transport Act, administered by the U.S. Department of Transportation, requires detailed manifesting and reporting of hazardous materials shipped on the U.S. highway system; it also contains packaging requirements for shipped materials. The Clean Water Act, also administered by the EPA, controls the discharge of hazardous materials or hazardous waste to waters of the U.S. or to local wastewater treatment plants.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLA, commonly referred to as Superfund, was enacted on December 11, 1980. The purpose of CERCLA was to provide authorities the ability to respond to uncontrolled releases of hazardous substances from inactive hazardous waste sites that endanger public health and the environment. CERCLA established prohibitions and requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at such sites, and established a trust fund to provide for cleanup when no responsible party could be identified. Additionally, CERCLA provided for the revision and republishing of the National Contingency Plan (NCP) that provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The NCP also provides for the National Priorities List, a list of national priorities among releases or threatened releases throughout the United States for the purpose of taking remedial action.

The Superfund Amendments and Reauthorization Act (SARA). SARA amended CERCLA on October 17, 1986. This amendment increased the size of the Hazardous Response Trust Fund to $8.5 billion, expanded EPA's response authority, strengthened enforcement activities at Superfund sites; and broadened the application of the law to include Federal facilities. In addition, new provisions were added to the law that dealt with emergency planning and community right to know. SARA also required EPA to revise the Hazard Ranking System to ensure that it accurately assesses the relative degree of risk to human health and the environment posed by sites and facilities subject to review for listing on the National Priorities List.

Resource Conservation and Recovery Act of 1976 (RCRA). RCRA is the nation's hazardous waste control law. It defines hazardous waste, provides for a cradle-to-grave tracking system and imposes stringent requirements on treatment, storage and disposal facilities. RCRA requires environmentally sound closure of hazardous waste management units at

treatment, storage, and disposal facilities. The EPA is the principal agency responsible for the administration of RCRA, SARA, and CERCLA.

Occupational Safety and Health Administration (OSHA). Through the enactment of the Occupational Safety and Health Act, OSHA was obligated to prepare and enforce occupational health and safety regulations with the goal of providing employees a safe working environment. OSHA regulations apply to the work place and cover activities ranging from confined space entry to toxic chemical exposure. OSHA regulates workplace exposure to hazardous chemicals and activities through the specification of work place procedures and equipment.

U.S. Department of Transportation (DOT). The DOT regulates the interstate transport of hazardous materials and wastes through implementation of the Hazardous Materials Transportation Act. This act specifies driver-training requirements, load labeling procedures, and container design and safety specifications. Transporters of hazardous wastes must also meet the requirements of additional statutes such as RCRA, discussed previously.

State Regulations

At the State level, State agencies accept delegation of Federal responsibility for the administration of hazardous materials and hazardous waste management. The Porter-Cologne Water Quality Control Act allows the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB) to accept implementation responsibility for the Clean Water Act. The Hazardous Waste Control Act of 1977, and recent amendments to its implementation regulations, has given the Department of Health Services (DHS) the lead role in administering the RCRA (RCRA) program. The Hazardous Substances Highway Spill Containment Act gives the California Highway Patrol (CHP) the authority to respond to spills of hazardous materials on the State's highway system.

Hazardous Substance Account Act (1984), California Health and Safety Code Section 25300 ET SEQ (HSAA). This act, known as the California Superfund, has three purposes: 1) to respond to releases of hazardous substances; 2) to compensate for damages caused by such releases; and 3) to pay the State's 10% share in CERCLA cleanups. Contaminated sites that fail to score above a certain threshold level in the EPA's ranking system may be placed on the California Superfund list of hazardous wastes requiring cleanup.

California Environmental Protection Agency (CAL/EPA). The Cal/EPA was created in 1991 to coordinate State environmental programs, reduce administrative duplication, and address the greatest environmental and health risks. Cal/EPA unifies the State's environmental authority under a

single accountable, cabinet-level agency. The Secretary for Environmental Protection oversees the following agencies: Air Resources Board, Integrated Waste Management Board, Department of Pesticide Regulation, State Water Resources Control Board, Department of Toxic Substances Control, and the Office of Environmental Health Hazard Assessment.

Department of Toxic Substance Control (DTSC). Cal/EPA has regulatory responsibility under Title 22 of the California Code of Regulations (CCR) for administration of the State and Federal Superfund programs for the management and cleanup of hazardous materials. The DTSC is responsible for regulating hazardous waste facilities and overseeing the cleanup of hazardous waste sites in California. The Hazardous Waste Management Program (HWMP) regulates hazardous waste through its permitting, enforcement and Unified Program activities. HWMP maintains the EPA authorization to implement the RCRA program in California, and develops regulations, policies, guidance and technical assistance/training to assure the safe storage, treatment, transportation and disposal of hazardous wastes. The State Regulatory Programs Division of DTSC oversees the technical implementation of the State's Unified Program, which is a consolidation of six environmental programs at the local level, and conducts triennial reviews of Unified Program agencies to ensure their programs are consistent statewide and conform to standards.

State Water Resources Control Board (SWRCB). Acting through the RWQCB, the SWRCB regulates surface and groundwater quality pursuant to the Porter-Cologne Water Quality Act, the Federal Clean Water Act, and the Underground Tank Law. Under these laws, RWQCB is authorized to supervise the cleanup of hazardous waste sites referred to it by local agencies in those situations where water quality may be affected.

Depending on the nature of contamination, the lead agency responsible for the regulation of hazardous materials at the site can be the DTSC, RWQCB, or both. DTSC evaluates contaminated sites to ascertain risks to human health and the environment. Sites can be ranked by DTSC or referred for evaluation by the RWQCB. In general, contamination affecting soil and groundwater is handled by RWQCB and contamination of soils is handled by DTSC.

California Occupational Safety and Health Administration (Cal/OSHA). Cal/OSHA and the Federal OSHA are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. Pursuant to the Occupational Safety and Health Act of 1970, Federal OSHA has adopted numerous regulations pertaining to worker safety, contained in the Code of Federal Regulations Title 29 (29 CFR). These regulations set standards for safe workplaces and

work practices, including standards relating to hazardous material handling. Cal/OSHA assumes primary responsibility for developing and enforcing State workplace safety regulations. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 CFR. Cal/OSHA standards are generally more stringent than Federal regulations.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace, as detailed in Title 8 of the CCR, include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that Material Safety Data Sheets (MSDSs) be available to employees and that employee information and training programs be documented.

Hazardous Materials Transport. California law requires that Hazardous Waste (as defined in California Health and Safety Code Division 20, Chapter 6.5) be transported by a California registered hazardous waste transporter that meets specific registration requirements. The requirements include possession of a valid Hazardous Waste Transporter Registration, proof of public liability insurance which includes coverage for environmental restoration, and compliance with California Vehicle Code registration regulations required for vehicle and driver licensing. Additional requirements can be found in Title 22 CCR, Chapter 13.

State agencies with primary responsibility for enforcing Federal and State regulations and responding to hazardous materials transportation emergencies are the CHP and Caltrans. Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roads. The CHP designates State and Federal roadways as hazardous materials truck routes. The CHP classifies hazardous materials into three categories: explosives, poisons that can be inhaled, and radioactive material. U.S. Route 101 and Hueneme Road from Port Hueneme to Las Posas Road in Ventura County are the only locally designated truck routes for hazardous materials.

Local Regulations

Ventura County – Hazardous Waste Management Plan. Assembly Bill 2948 (Tanner, 1986) established procedures for the preparation of a County Hazardous Waste Management Plan (CHWMP). The CHWMP is

intended to serve as the primary planning document for hazardous waste management within a County, and contains goals, policies and recommended programs for the management, recycling and disposal of hazardous wastes. The CHWMP principally governs the coordination and planning of hazardous waste disposal capacity between the County and State. The California Department of Health Services must give its approval to the plan before the document becomes effective.

A Hazardous Waste Management Plan (HWMP) was developed in 1988 and adopted in 1989 by Ventura County in response to the Tanner Act (AB 2948). In accordance with Tanner Act requirements, the HWMP includes information on current and projected hazardous waste generation in the County, including household hazardous waste, an inventory of contaminated sites and hazardous waste treatment, storage, and disposal facilities. The HWMP contains descriptive background information and policy guidance for: current hazardous waste generation; hazardous waste treatment, storage, or disposal facilities; and hazardous waste reduction. The HWMP also identifies a comprehensive set of siting criteria for hazardous waste facilities and proposes designated routes for the transportation of hazardous wastes and materials through the County. The following section (6.6 "Transportation Hazards") provides additional information related to these designated routes.

City of Oxnard - Oxnard 2020 General Plan. The Safety Element of the City's existing General Plan contains two objectives and several policies pertinent to human-made hazards.

City of Oxnard – Fire Department. The Oxnard Fire Department administers the City's Environmental Health Hazardous Materials Program and is a Certified Unified Program Agency (CUPA). A CUPA is a single local agency designated by the California Environmental Protection Agency as having regulatory authority for six environmental programs. These programs are Hazardous Waste, Hazardous Waste On-site Treatment, Spill Prevention Countermeasure Plan (aboveground tanks), Underground Storage Tanks, Hazardous Materials Business Plan and Inventory, and Risk Management Plan. As the City's CUPA, the Oxnard Fire Department implements the Hazardous Materials Ordinance and monitors the use of hazardous materials throughout the Planning Area.

6.5.2 Environmental Setting

Hazardous wastes generated by both residents and businesses within the Planning Area contribute to environmental and human health hazards that have become an increasing public concern. However, proper waste management and disposal practices can minimize public concern over toxicity and the contamination of soils, water, and the air. This section

provides information on numerous locations known to generate hazardous materials or other hazardous conditions within the Planning Area. This information is based on existing information from a variety of Federal and State agency databases including those maintained by the SWRCB and DTSC.

Underground Storage Tanks

As previously described, the Oxnard Fire Department administers the CUPA/Hazardous Materials Ordinance and has regulatory authority over the local Underground Storage Tank Program. The Leaking Underground Storage Tank Incident Report (LUST) contains an inventory of reported leaking underground tank incidents and is compiled from data provided by the SWRCB Leaking Underground Storage Tank Information System. A review of the current list indicates that there are currently 340 LUST sites within the Planning Area. These sites are predominately clustered around the City's primary transportation corridors including Oxnard Boulevard and Hueneme Road and are predominately associated with retail and commercial uses (e.g., gas stations, convenience stores, car washes, etc.). However, additional sites are associated with local industrial and agricultural uses. A summary of these sites by roadway are provided in Table 6-10.

Table 6-10 Leaking Underground Storage Tank Listings in the Planning Area

Roadway	Number of Sites
5th Street	11 sites – Various
A Street	1 site – A Street Arco
Arcturus Avenue	5 sites – Various
Arnold Road	1 site – Del Norte Foods
Auto Center Drive	2 sites – Various
Bernoulli Circle	1 site – Wilma Pacific, Inc.
Bevra Avenue	1 site – Strathmore Homes
Buena Vista Avenue	2 sites – Various
C Street	5 sites – Various
Camino Avenue	1 site – Power Machinery
Channel Islands Boulevard	6 sites – Various
Colonia Road	2 sites – Various
Commercial Avenue	6 sites – Various
Cooper Road	2 sites – Various
Cypress	1 site – Miguel Ramos
Date Street	1 site – Celso Cerri
Del Norte	3 sites – Various
Diaz Avenue	2 sites – Various
Doris Avenue	3 sites – Various
Edison Drive	3 sites – Various
El Rio Drive	2 sites – Various
Etting Road	4 sites – Various
Gonzales Road	6 sites – Various
Hueneme Road	10 sites – Various
Industrial Avenue	3 sites – Various
J Street	1 site – Wooley Gas Service

Table 6-10 Leaking Underground Storage Tank Listings in the Planning Area (Continued)

Roadway	Number of Sites
K Street	1 site – Oxnard Fire Station #1
Lambert Street	4 sites – Various
Los Altos Street	1 site – Berdan Holding LLC
Lockwood Street	3 sites – Various
Magnolia Street	1 site – Oxnard Roofing Company
Mallard Way	1 site – Ven Oaks Plumbing
Marquita	1 site – City of Oxnard
Maulhardt Avenue	9 sites – Various
Mercantile Street	2 sites – Various
Meta Street	1 site – Tri-County Yellow Cab
Montgomery	1 site – Tri-County Truck Company
Mountain View Avenue	6 sites – Various
Oxnard Boulevard	33 sites – Various
Pacific Avenue	3 sites – Various
Paseo Mercado	1 site – Federal Express
Pelican Way	1 site – ARCO Fuel Docks
Peninsula Road	1 site – City of Oxnard Firehouse #6
Perkins Road	3 sites – Various
Pine Street	3 sites – Various
Pleasant Valley Road	5 sites – Various
Rice Avenue	2 sites – Various
Richmond Avenue	1 site – Western Technical
Roosevelt Boulevard	1 site – Stark Realty Inc.
Rose Avenue	11 sites – Various
Sandy Circle	1 site – Tri County Truck
Santa Clara Avenue	4 sites – Various
Saviers Road	18 sites – Various
Solar Drive	1 site – GTE California Inc.
Statham Boulevard	3 sites – Various
Sturgis Road	2 sites – Various
Sunkist Circle	1 site – Morse Signal Devices
Teal Club Road	2 sites – Various
Ventura Boulevard	10 sites – Various
Ventura Road	16 sites – Various
Victoria Avenue	8 sites – Various
Vineyards Avenue	17 sites – Various
Violeta Street	3 sites – Various
Wagon Wheel Road	3 sites – Various
Wells Road	1 site – Westerdale Trust
Winchester	2 sites – Various
Wolff Road	1 site – Hailwood, Inc.
Wooley Road	9 sites – Various
Wright Road	1 site – Ventura School

Source: *Environmental Data Resources, Inc. 2005*

Aboveground Storage Tanks

Similarly, the Oxnard Fire Department has regulatory authority over the Spill Prevention Countermeasure Plan for aboveground storage tanks. The Aboveground Storage Tank database provides a list of registered

aboveground storage tanks. This information comes from the SWRCB's Hazardous Substance Storage Container Database. A review of the current list indicates that there are currently 28 aboveground storage tanks in the Planning Area, with many associated with industrial and agricultural uses. A summary of these locations by address is provided in Table 6-11.

Table 6-11 Aboveground Storage Tanks in the Planning Area

Address	Site
1230 E 5th Street	Silvas Oil Company
1000 23rd Avenue	Naval Construction Battalion
1631 Auto Center Drive	Toyota of Oxnard
5900 Arctures Road	BMW Engineering and Emissions
5901 Arctures Road	Spare Parts Warehouse
501 Del Norte Boulevard	PTI Technologies Inc.
801 Del Norte Boulevard	Quinn Company
5601 Edison Drive	Wallenius Lines
251 S. Hayes Avenue	Water Division
201 N. Harbor Boulevard	Mandalay Onshore Facility
393 N. Harbor Boulevard	Mandalay Generating Station
2001 Lockwood Street	Former Autonation USA
666 Pacific Avenue	Oxnard Pest Control
1060 South Pacific Avenue	City of Oxnard Equipment Yard
5936 Perkins Road	Hueneme Mill
6001 South Perkins Road	Oxnard Waste Water Treatment Facility
6200 Perkins Road	Halaco Engineering Company
800 N. Rice Avenue	Procter & Gamble Paper Products
635 S. Rose Avenue	Helena Chemical Company
4000 S. Rose Avenue	Oxnard College
2934 Teal Club Road	Tri-County Builders Supply
2800 Sturgis Road	HAAS Automation
1500 E. Ventura Boulevard	Honda of Oxnard
3555 E. Vineyard Avenue	Hanson Aggregates
6029 Vineyard Avenue	Saticoy Facility
1015 E. Wooley Road	Oxnard Facility
1757 E. Wooley Road	Silvas Oil Company

Source: *Environmental Data Resources, Inc. 2005*

Landfill and Recycling Site Locations

The California Integrated Waste Management Board (CIWMB) is responsible for managing California's solid waste stream. The CIWMB works in partnership with local government, industry, and the public to reduce waste disposal and ensure environmentally safe landfills are maintained. The CIWMB maintains a Solid Waste Information System database that contains information on solid waste facilities, operations, and disposal sites throughout the State. The types of facilities found in this

database include landfills, transfer stations, material recovery facilities, composting sites, transformation facilities, waste tire sites, and closed disposal facilities. Table 6-12 provides a list of solid waste facilities or landfills (including closed facilities) identified by the CIWMB as occurring in the Planning Area. A list of recycling facilities is also provided in Table 6-13.

Table 6-12 Solid Waste and Landfill Sites in the Planning Area

Address	Site
6352 Beardsley Road	Rancho Del Tio
Del Norte Boulevard & Sturgis Road	Oxnard MRF Joint Powers
111 South Del Norte Boulevard	Del Norte Regional Recycling
4105 Gonzales Road	Bailard Landfill (closed facility)
6200 Perkins	Halaco Engineering Company
1234 South Rice Road	Earth Care Compost
800 South Victoria Avenue	Oxnard Dump/Mandalay Bay Development
2401 West Vineyard Avenue	Santa Clara and Coastal Landfill (closed facility)

Source: *Environmental Data Resources, Inc. 2005*

Table 6-13 Recycling Facilities in the Planning Area

Address	Site
111 South Del Norte Boulevard	Del Norte Regional Recycling
1111 E. Channel Islands Boulevard	Oxnard Recycling
1441 Mountain View	Oxnard Metals Inc.
1610 Pine Street	Eddies Recycling
521 N. Rice Avenue	California Public Recycling
2101 N. Rose Avenue	Vons Companies #436
2401 Saviers Road	Sav On Drug #3709
4220 Saviers Road	California Recycling Services
872 N. Ventura Road	California Recycling Services
920 N. Ventura Road	Tomra Pacific Inc./Albertsons
440 S. Ventura Road	California Recycling Services
3380 E. Vineyard Avenue	California Recycling Services
818 W. Wooley Road	California Recycling Services

Source: *Environmental Data Resources, Inc. 2005*

6.6 Transportation Hazards

The transportation diversity in the City of Oxnard is characterized by one U.S. Highway, four State Highway routes, arterial roadways, a mainline railroad and a smaller operation, several public transit operators, one port, and a commuter airport. These are the main modes of transportation for

Oxnard. Automobile, bus and truck travel that comprise motor vehicle traffic, represent a critical method of public transport in the City of Oxnard. Railroads constitute a less used mode of personal transportation but still highly critical to goods movement for Oxnard.

6.6.1 Existing Transportation Hazard Conditions

Transportation accidents are perhaps the most common occurrence associated with loss of life and property in the City of Oxnard. Fortunately, these numerous incidents seldom become a disaster or hazard requiring multi-agency coordination. A transportation accident involving a passenger train, airliner, multi-vehicle traffic accident, or the release of toxic material near a residential area is the most likely worst case multi-casualty event within the City of Oxnard related to transportation. An additional concern is if primary transportation routes are disrupted, detouring major transportation routes could increase the potential for hazardous material spills, or a multi-casualty incident.

During periods of inclement weather or fog, travel on such heavily congested roads in Oxnard can be extremely hazardous. Although unlikely, roadway accidents during fog or other inclement weather have the potential to result in multi-casualty incidents, hazardous material spills and fires involve buses, trains, trucks and automobiles. For the history of the City of Oxnard and transportation hazards, it would be difficult to envision a circumstance where more than a few people would become casualties as the result of a single incident outside of a major earthquake.

6.6.2 Transportation Response for Other Hazards

The City of Oxnard is involved in the coordination of all transportation hazards that impact Oxnard

It should be noted that hazards of all kinds require an emergency response to inform the public and often generally redirect or evacuate residents to safer locations. Transportation choices and communication to residents utilizing public transportation routes play a vital role in the emergency response effort. Other Oxnard hazards including earthquake, geologic, flooding, tsunami, coastal waves, noise, hazardous materials and potential terrorist acts related to the Department of Homeland Security utilize transportation communication, corridor maps and routing to help mitigate the particular hazard.

6.6.3 Responsibilities for Transportation Hazards

The City of Oxnard's policies for safety and the evacuation of residents during a large scale incident are managed through the Oxnard Fire Department. Transportation hazards involving interstates or California maintained facilities, such as State routes, are managed through the State of California Department of Transportation (Caltrans) District 7 located in Los Angeles with the California Highway Patrol (CHP) usually the first to respond to the location of the hazard. The California Highway Patrol and

other Oxnard law, fire and medical emergency response agencies are routinely involved at the scene of transportation accidents. If the accident requires the coordination of additional agencies and resources, the Oxnard Fire Department coordinates emergency services and responses. Generally, daily traffic accidents do not involve any coordination of emergency management.

Transportation hazards involving the Port of Hueneme and goods movement are coordinated through the City of Port Hueneme, the City of Oxnard, and appropriate ancillary agencies involved with goods movement. Because the Port of Hueneme is an international water port, more hazards can be introduced into Oxnard from foreign locations, including the movement of hazardous materials which can require the involvement of various Federal agencies.

The City of Oxnard Fire Department is a main coordinator of emergency responses along with the Ventura County Fire Department

For incidents involving railroads in Oxnard, the State of California Public Utilities Commission coordinates the investigation and implementation of improvements along with the individual railroad agency. For transportation hazards involving transit in Oxnard, the South Coast Area Transit (SCAT) coordinates all efforts in coordination with the City of Oxnard Transportation Center (OTC).

If the traffic hazard involves resources in Ventura County, the Oxnard Fire Department contacts the Ventura County Fire Department. All emergency management service units in Ventura County, other than the Oxnard Fire Department and Gold Coast Ambulance, are dispatched by Ventura County Fire Department. Air ambulances are the only resource needed outside of Ventura County. In most cases, transportation accidents are handled by local Oxnard agencies without a need for mutual aid from outside the City of Oxnard. Table 6-14 illustrates the lead agencies that are involved in the various transportation and circulation mode choices. The City of Oxnard is involved in some aspect of the coordination and mitigation of all transportation hazards impacting the various mode choice of transportation.

6.6.4 Existing Implementation Measures

It is a goal of the City of Oxnard to avoid worst case scenarios for transportation hazards and decrease upon the rate and severity of traffic accidents along with increasing overall community safety. For example, a study in 2002 by the Insurance Institute for Highway Safety found that red light cameras in Oxnard reduced crashes involving injuries at the intersections where they located by up to 46%. The City of Oxnard continues to study the benefits of red light cameras throughout Oxnard.

For incidents involving railroads in Oxnard, the State of California Public Utilities Commission coordinates the investigation and implementation of improvements. An example of an investigation and implementation for railroads include a 2002 fatality of an Oxnard woman by a Metrolink train as she was walking on a railroad bridge. The cause of the fatality is listed as trespassing by the California Public Utilities Commission. The recommendation to avoid future passenger rail fatalities by the California Public Utilities Commission is to post a sign reading "No Trespassing" placed on railroad right of ways.

Table 6-14 Lead Agencies for Transportation Hazards in Oxnard

Mode Choice	Oxnard Impact	Lead Agencies Involved
U.S. Highway	US-101	Caltrans District 7, California Highway Patrol
State Routes	SR-1, SR-34, SR-118, SR-232	Caltrans District 7, California Highway Patrol, City of Oxnard
Major Arterials	5th Street, Camino Del Sol, Channel, Island Blvd, Del Norte Blvd, Gonzales Road, Harbor Boulevard, Hueneme Road, Oxnard Blvd, Pleasant Valley Rd, Rice Avenue, Rose Avenue, Saviers Road, Ventura Road, Victoria Avenue, Vineyard Avenue, Wooley Road	City of Oxnard
Ports	Port of Hueneme	City of Port Hueneme, Individual commercial vehicle operators
Passenger Rail	Amtrak, Metrolink	State of California Public Utilities Commission, Amtrak / Metrolink
Freight Rail	Union Pacific Railroad	State of California Public Utilities Commission, Union Pacific Railroad
	Santa Paula Branch Line	State of California Public Utilities Commission, Santa Paula Branch Line (Ventura County Transportation Commission)
	Ventura County Railway	State of California Public Utilities Commission, Ventura County Railway (Port of Hueneme)
Public Transit	South Coast Area Transit	South Coast Area Transit, Oxnard Transportation Center
	Oxnard Harbors and Beaches Dial a Ride	City of Oxnard, City of Port Hueneme, Ventura County
	Inter City Express Service, VISTA, Conejo Connection	Individual transit operators
Private Bus Operators	Greyhound	Greyhound
	Transportes Intercalifornias	Individual transit operators
	Ventura County Airporter	Individual transit operators
Parking Facilities	Oxnard Transportation Center, Street Parking	City of Oxnard
	Parking for business or specific purposes	Individual developer of property requiring parking, i.e. shopping mall
Bicycling Routes	Any	City of Oxnard
Pedestrian Routes	Any	City of Oxnard
Airport	City of Oxnard Airport	City of Oxnard

Source: *URS Corporation, 2006*

Please see the next page.