

10. Safety and Noise

Overview

Protecting people and property from a variety of hazards (both natural and manmade) is one of the key missions of any city. Like many communities in the Bay Area, the residents of East Palo Alto face risks from such natural and human-caused hazards as flooding, seismic events like earthquakes, sea level rise, and contaminated soils and groundwater.

Cities can take action to be more prepared for the dangers posed by natural hazards and more resilient when such unpredictable events occur. This element sets forth broad goals and policies to reduce harm to people and property from natural and manmade hazards as well as allow the community to be more resilient when such events occur.

In addition, area roadways and nearby airports expose East Palo Alto residents to high and potentially unhealthy noise levels. The Safety and Noise Element identifies major factors of concern as well as the City's goals and policies intended to reduce risks to people and property.

Statutory Requirements

California law requires that a general plan include elements (or chapters) specifically addressing both safety and noise. This element was prepared to meet these requirements (Government Code Section 65302(f) and 65302(g)).

The safety section of the element must contain goals and policies to address seismic risks, including ground shaking, landslides, tsunami and seiche; flooding; fire; evacuation routes; and water supply requirements.

The noise element must identify and appraise noise problems in the community from a variety of sources, establish a land use pattern that minimizes exposure of residents to excessive noise, and include possible solutions to address existing and foreseeable noise problems.

Issues and Opportunities

Safety

Seismic Risks

As in most of the San Francisco Bay Area, seismic events are considered a fact of life in East Palo Alto; more of a “when” than an “if.” Earthquakes cannot be reliably predicted or avoided, but communities like East Palo Alto can be prepared to face these risks and create a plan/policies to ensure the resilience of the community.

The United States Geologic Survey (USGS) considers most of the San Francisco Bay Area, including all of San Mateo County, to be at very high risk of experiencing a major earthquake within the next 50 years.

Geologists use the terms “magnitude” and “intensity” to describe and measure the degree of ground shaking in an earthquake. Magnitude measures the amount of energy released by an earthquake. Intensity is a more subjective measure of effects that people can perceive or see. Magnitude and intensity form the basis of the Modified Mercalli Intensity Scale (MMI). The MMI is a scale of 1 to 12 (I to XII) with higher numbers representing higher intensity. For reference, the 1906 San Francisco earthquake (whose epicenter was located in Marin County) is estimated to have resulted in an MMI of VII to VIII in East Palo Alto. The 1989 Loma Prieta earthquake (whose epicenter was in the Santa Cruz Mountains) registered an MMI of VIII in East Palo Alto.

As shown in Figure 10-1, all of East Palo Alto would experience severe ground shaking in a large earthquake. USGS predicts a 63% probability that the Bay Area will experience a magnitude 6.7 or greater earthquake before the year 2036. Of all Bay Area faults, USGS predicts that the San Andreas, Hayward, and Rodgers Creek faults have the greatest probability of activity. None of these faults run directly through East Palo Alto, reducing the potential for direct surface fault rupture. Surface rupture occurs when fault movement during an earthquake literally breaks or ruptures the ground. Therefore, East Palo Alto’s proximity to several known active faults represents an important factor in planning for a safer future.

Liquefaction

East Palo Alto’s location makes it particularly susceptible to liquefaction. Liquefaction occurs when soils take on liquid-like qualities during a seismic event. A key consequence of liquefaction is ground failure. This can have serious implications for older structures that were before state and local building codes were updated (in the early 1970s) to be more resilient against seismic and soils-related hazards. As shown in Figure 10-1, the areas at greatest risk of liquefaction are the baylands areas as well as the area along US 101/San Francisquito Creek.

Tsunami and Seiche

Coastal and shoreline portions of California must consider the potential for tsunamis and seiches. Tsunamis, like the surges generated by the March 11, 2011 Tōhoku earthquake in northeastern Japan, resulted in substantial damage to harbors in Crescent City and Santa Cruz. East Palo Alto’s position within San Francisco Bay limits the potential for tsunami damage, but sea surges may impact areas of the City directly adjacent to the Bay. The California Department of Conservation has identified the area around Ravenswood Slough and Cooley Landing as potential tsunami inundation areas.

Seiches are another Bay-related seismic hazard. Seiches are earthquake-generated waves within an enclosed body of water like a lake or a reservoir. East Palo Alto lacks major enclosed bodies of water, but seiche risks within the Bay need to be considered in planning. Figure 10-2 shows the inundation resulting from a tsunami or seiche.

Dam Failure

Dam failure - resulting from seismic or other causes - is another potential natural hazard. The failure of a dam can result in swift flooding and inundation of downstream areas, potentially causing harm to people and property within the path of released waters. San Mateo County has mapped areas susceptible to the failure of dams located in or near the County. The County has identified the Searsville Dam, which impounds a creek tributary to San Francisquito Creek, as posing a potential dam failure hazard to portions of the Stanford campus, the City of Palo Alto, and the lower reaches of San Francisquito Creek, which forms the boundary of East Palo Alto and Palo Alto as it enters San Francisco Bay, as shown in Figure 10-2.

Figure 10-1: Liquefaction and Ground Shaking

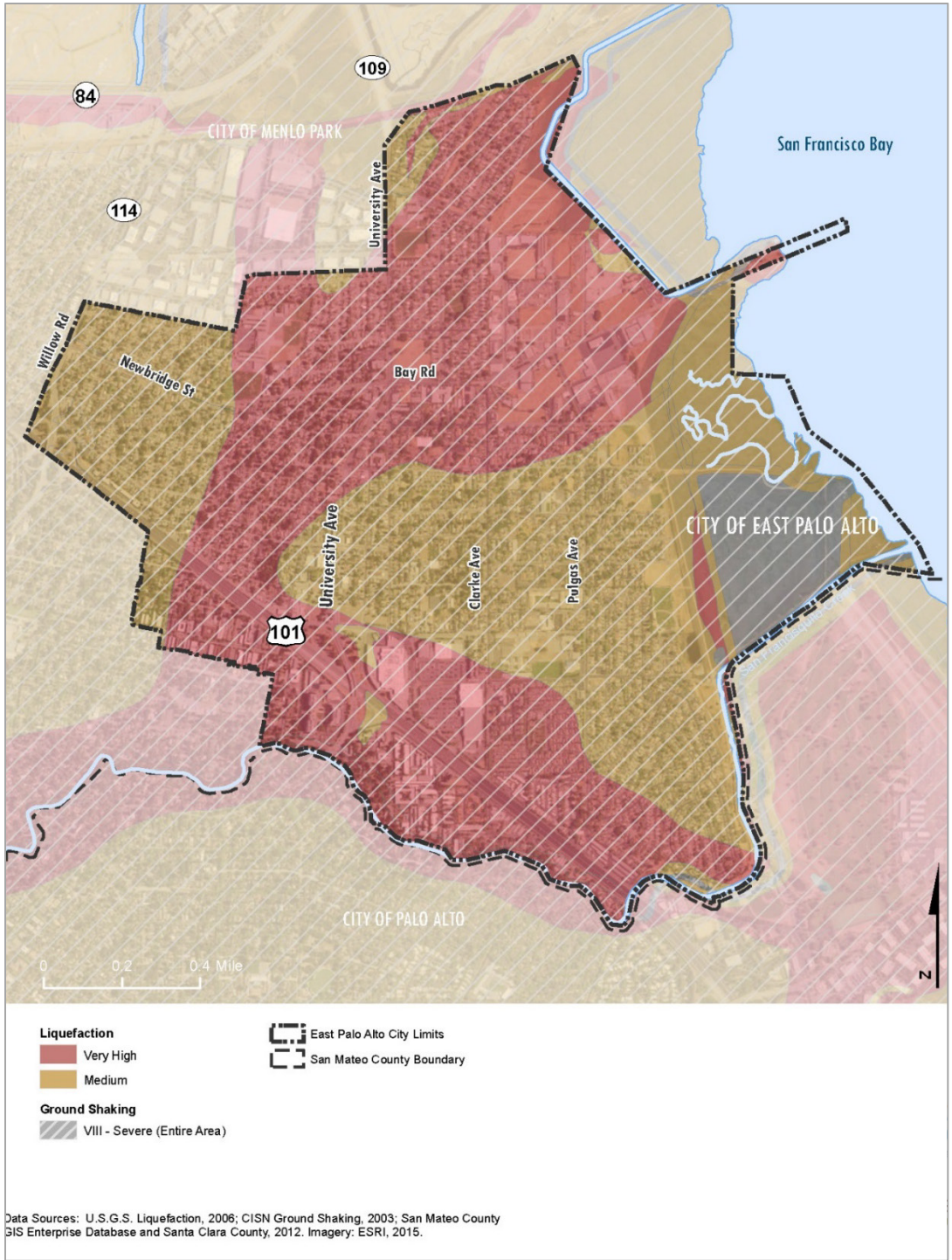
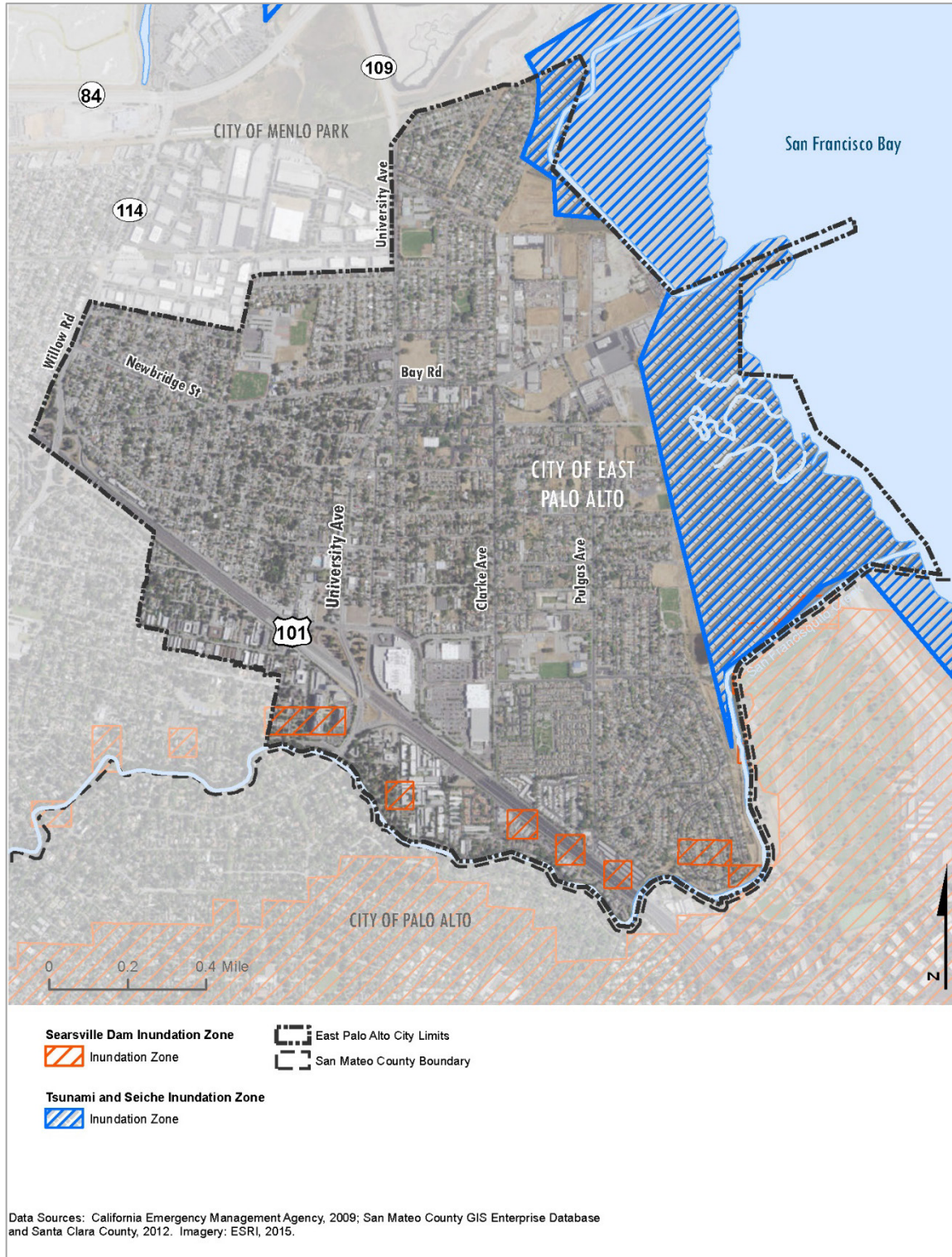


Figure 10-2: Tsunami and Dam Inundation Zones



Soils-Related Hazards

While seismic hazards pose the most acute risk to safety in East Palo Alto, a number of other soils-related hazards can also result in harm to people and damage to property.

Subsidence means a failure or collapse of the existing ground surface. This is usually caused when subsurface materials are extracted or dissolve, which can create a subsurface void leading to a surface failure. Subsidence can occur when groundwater is extracted or when subsurface organic soils decompose and shrink. Groundwater extraction in East Palo Alto has been minimal, allowing groundwater recharge to limit the potential for subsidence to occur.

Differential settlement is a type of subsidence. Differential settlement describes a condition in which adjacent areas of soil sink or settle at different rates. When buildings or structures straddle lands with differing settlement rates, the portion of the building or structure below the sinking soil can be damaged. Typically, differential settlement occurs slowly so that acute harm to humans is not generally a concern. However, over time, differential settlement can result in substantial damage to buildings and structures. Areas of East Palo Alto that are comprised of former tidal flats could be susceptible to differential settlement where low-strength native soils are immediately adjacent to loose or unconsolidated fill.

Due to its relatively flat topography, the City faces little risk of landslides or other seismic-related debris flows.

Flooding Potential and Sea Level Rise

East Palo Alto has a history of flooding problems due to its low-lying location along the Bay, particularly in areas along San Francisquito Creek. The City has experienced eight major flood events since 1940.

Flooding has occurred primarily as a result of high tides, rain flowing down the San Francisquito Creek, and an inadequate storm drain system. High tides combined with winds from the east that create storm surge or wave run-up could lead to widespread and significant flooding, especially if precipitation exceeds the Creek's capacity to carry floodwaters to the Bay.

As of 2015, many of the streets in East Palo Alto lack storm drains. Where storm drains exist, they lack the capacity to

handle stormwater during heavy rain events. During 10 and 20 year storm events in East Palo Alto, storm drains can overflow, flooding the streets, and in the case of the 1998 floods, parts of the City were effectively stranded. A heavy rain event in December 2012 led to significant flooding in multiple parts of the City. Low-lying areas face extra risk of floods related to levee breaks, ruptures or overtopping. Tidal flood waters completely submerged some streets in the University Village neighborhood in 1972.

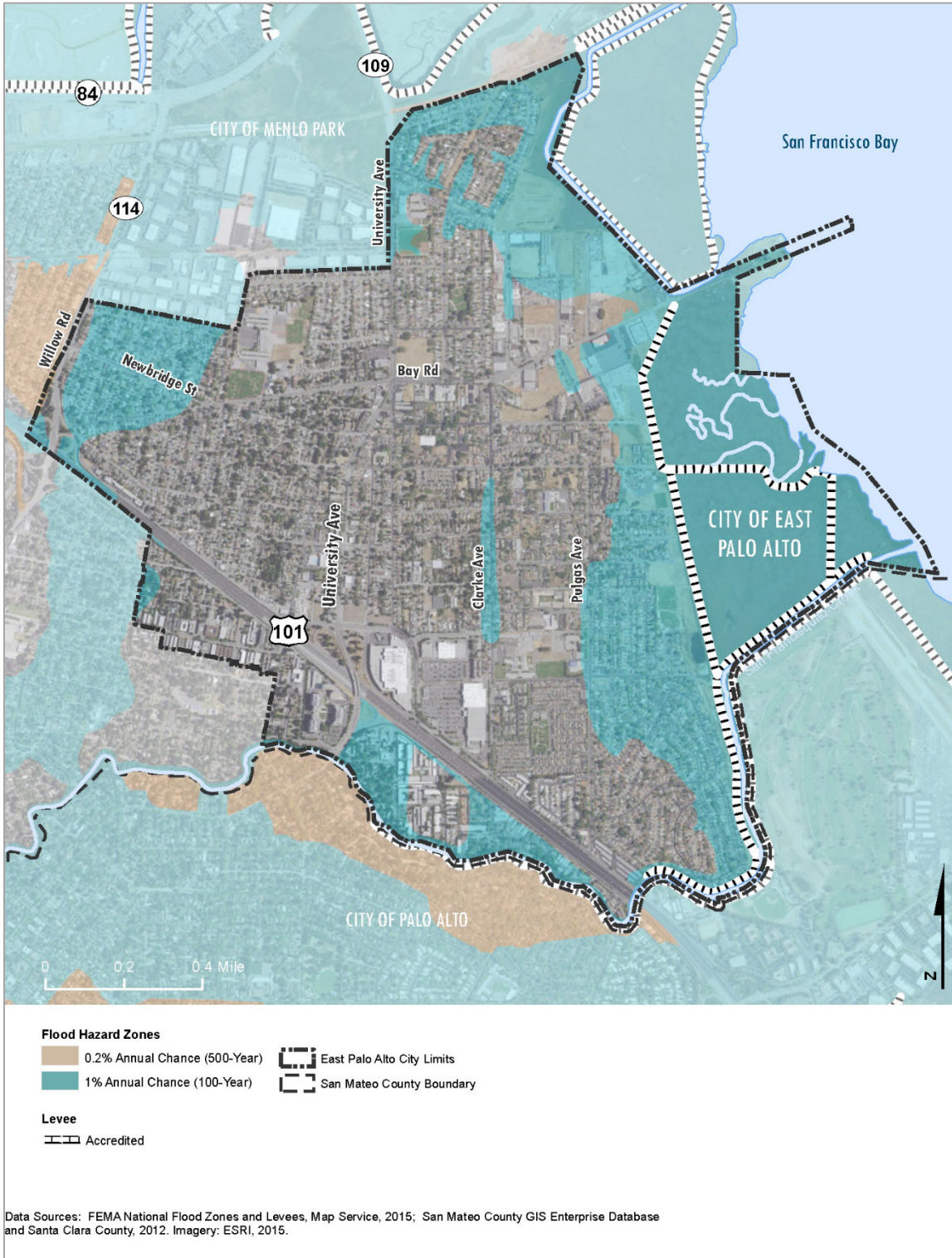
Special Flood Hazard Areas

The Federal Emergency Management Agency (FEMA) prepares a detailed technical study, known as the Flood Insurance Study, and maintains maps of floodways and floodplains for the entire United States. FEMA maps these areas on Flood Insurance Rate Maps (FIRM). A typical FIRM will show Special Flood Hazard Areas (SFHA) within reach of a 100 year flood, estimate the height of floodwaters, and delineate areas subject to high velocity wave action and a 500 year flood. Cities and other jurisdictions use FIRMs to establish zoning districts, buffers, or other regulatory requirements intended to protect people and property from flood damage and minimize the cost of physical flood control mechanisms.

As illustrated in Figure 10-3, data from the relevant FIRMs indicates that areas along the Bay and near the San Francisquito Creek face the highest flood risks during storm events and/or high tide events. Based on this analysis and past flooding incidents, the following areas within the City are particularly vulnerable to flooding:

- The Weeks and Garden Neighborhoods, east of Pulgas Avenue;
- The Woodland Neighborhood, between San Francisquito Creek and the Bayshore Freeway;
- The University Village Neighborhood, north of Notre Dame Avenue;
- The portion of the Ravenswood Employment District closest to the Baylands;
- The Kavanaugh Neighborhood; and
- The Palo Alto Park Neighborhood, west of Menaltoa Avenue.

Figure 10-3: Flood Hazard Zone



While approximately 49 percent of the City is currently located within a FEMA designated SFHA, sea level rise and climate change area likely to further expand the SFHA. As identified by the new preliminary FIRMs published in August 2015, 56% of the City may soon be designated as SFHA, and more by the turn of the century. The brown areas shown in Figure 10-3 have been assigned a 0.2 percent annual chance of flooding, known as a 500-year flood. While a much larger portion of the City would be inundated in such a flood, it would be a very rare event.

It is important to note that many structures inside the SFHA have a much higher than one percent probability of being flooded. For instance, some areas near San Francisquito Creek have been flooded several times in the last 60 years. It is also possible that properties outside the flood zones could be subject to flooding even though FEMA's hydrologic models do not predict such flooding. With this in mind, the City of East Palo Alto has taken great strides to alleviate hazards related to flooding.

The City has undertaken many actions and activities to avoid or reduce flood risks. These activities include the mailing of a relevant brochure to all properties in the community on an annual basis, explaining the risks and hazards related to flooding and establishing benchmarks so developers have accurate elevation figures. The City also requires more stringent building codes, such as the mandatory elevation of structures to 18 inches above the height of flood waters, which mitigate risk due to inundation. Additionally, East Palo Alto reviews the effectiveness of these activities annually, and provides FEMA a progress report each year that identifies action taken to reduce the potential for loss of life and damage to property.

FEMA rewards voluntary actions that reduce potential loss of life and damage to property in a flood by reducing flood insurance premiums. In 2012, 910 property owners in the City paid \$1,060,141 for flood insurance. Due to activities undertaken by the City to alleviate potential flooding hazards, residents collectively received a yearly savings on insurance premiums of \$174,927, or \$191 per household.

San Francisquito Creek Joint Powers Authority

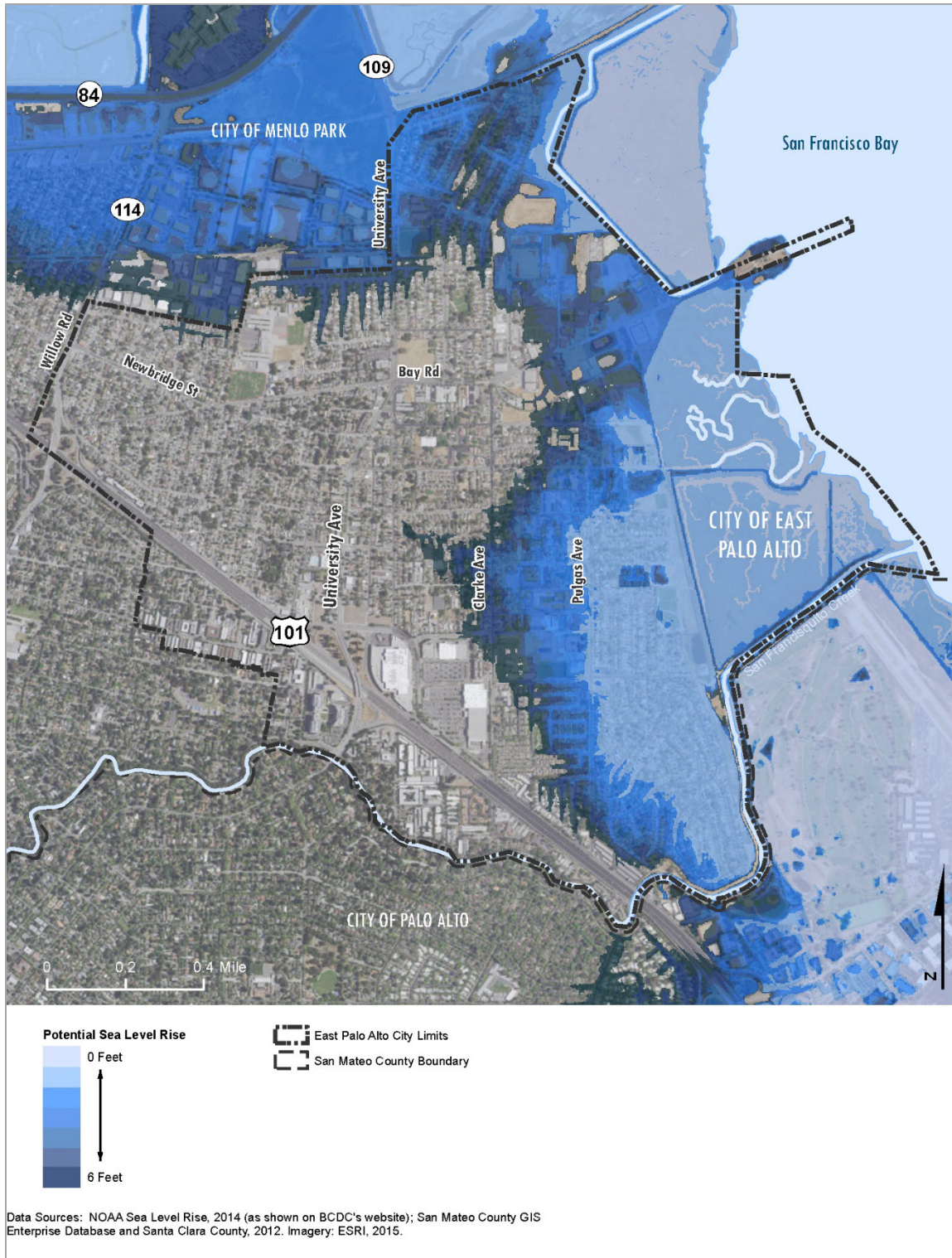
A proactive step the City has taken to reduce flooding risk involves joining with the cities Menlo Park and Palo Alto, along with the San Mateo County Flood Control District and the Santa Clara Valley Water District in a joint powers authority (JPA) intended to develop and maintain projects along the creek that reduce flood threats and benefit the environment. Formed in 1999, the JPA's first major project would improve the lower reaches of the creek, from Highway 101 to the Bay. This project would widen the creek to better convey 100 year storm flows (also taking into account high tides and up to 26 inches of sea level rise), excavate sediment from the mouth of the Bay, and construct new floodwalls.

Many Bayfront areas in and near East Palo Alto feature earthen levees intended to protect against tidal influx. Figure 10-3 shows the incomplete system which generally follows the shoreline but also upland portions of San Francisquito Creek. Notwithstanding that FEMA has accredited many of the levees along the Bayfront, SFHAs are still present throughout substantial portions of the community as noted above.

Sea Level Rise

The FIRM does not take into account potential flooding related to sea level rise. The Bay Conservation and Development Commission (BCDC) have mapped areas throughout the Bay region susceptible to inundation from potential sea level rise scenarios. Figure 10-4 shows the areas along the Central Bay West Coast that BCDC has identified as being potentially exposed to inundation related to sea level rise. Even in the low sea level rise scenario (16 inches), substantial Bayside portions of the City would be at risk of inundation if no inundation protections are implemented. The risk of damage from sea level rise could be lessened by the incomplete system of levees on Bayfront areas (see Figure 10-3). However, sea level rise will continue to be an important issue in long-range land use planning all along San Francisco Bay as well as other low-lying areas world-wide.

Figure 10-4: Sea Level Rise



Fire/Wildfire Hazards

The Menlo Park Fire Protection District (MPFPD) provides a variety of life safety related services to the entirety of East Palo Alto. These services include fire prevention, inspection, and investigation, as well as firefighting, hazardous materials response, search-and-rescue, and paramedic services. MPFPD serves a 33 square mile service area comprising the cities of East Palo Alto, Menlo Park, Atherton, and portions of unincorporated San Mateo County. MPFPD operates a station (Station 2) within East Palo Alto at 2290 University Avenue. Station 2 staff responds to approximately 2,000 incidents annually, comprising about one-quarter of all of MPFPD's annual emergency responses. More than half of annual calls are medical emergencies.

Each of MPFPD's seven stations provides at least one heavy fire engine and is continuously staffed by at least three crew members.

MPFPD reconstructed Station 2 starting in 2012 as an essential service building, meaning that it is being reconstructed to be able to withstand and continue to operate throughout any type of major emergency.

The predominant fire-related concern in East Palo Alto is structural fire. MPFPD notes that higher density occupancies and industrial structures – both of which figure prominently within East Palo Alto – are at elevated fire risk. In particular, industrial structures are at heightened risk due to the fact that many industries handle hazardous materials and fuels which, if mishandled, can result in unwanted releases.

Most people assume wildfire risks only apply in heavily forested areas. Indeed, data compiled by the State Fire Marshal indicates that most of the County's large wildfires have occurred in hilly, forested areas well to the west and north of East Palo Alto. However, though the city itself is not designated as a high fire hazard severity zone, the State Fire Marshal has identified portions of the Bay shoreline (outside city limits and populated areas) as having an elevated risk from grass fires. MPFPD has had a long-standing weed abatement program intended to minimize such risks.

While MPFPD is able to meet its response and service goals, ongoing and increasing traffic in the service area

pose operational challenges, particularly along University Avenue in East Palo Alto and other nearby major routes like Willow Road and Marsh Road. In many circumstances, emergency responders must drive against the flow of traffic. The Belle Haven and east sides of East Palo Alto can be more challenging to access when traffic is congested.

Transportation Hazards: Airport Operations

Safety risks associated with airport operations comprise a distinct hazards category. Lands surrounding or near an airport have an increased risk of experiencing accidents involving aircraft.

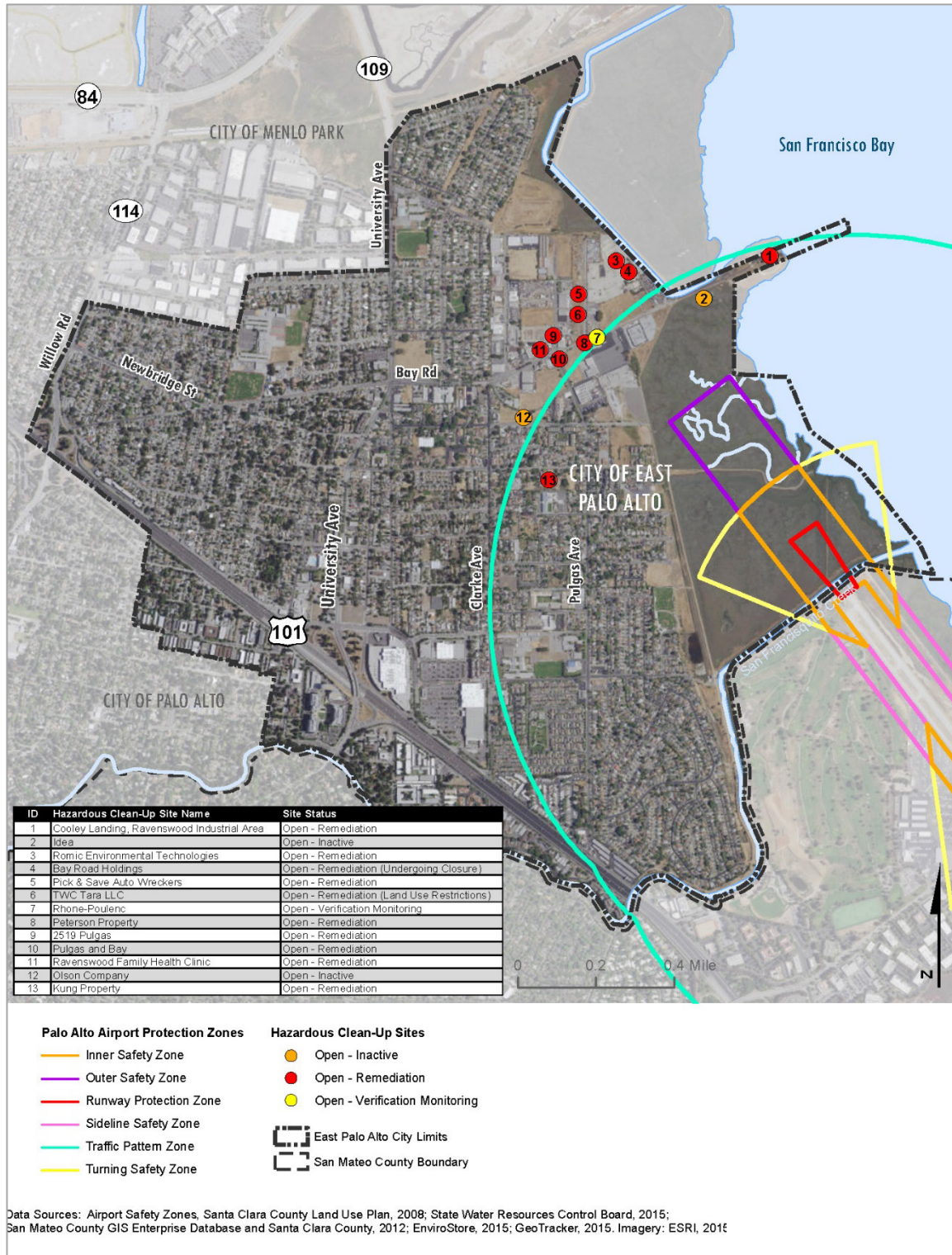
The Palo Alto Airport is a general aviation facility located just south of East Palo Alto. The airport is owned by the City of Palo Alto, but Santa Clara County will manage the airport until 2017. Airport and land use compatibility issues are overseen by the Santa Clara County Airport-Land Use Commission.

As shown in Figure 10-5, the northern edge of the airport's runway is immediately adjacent to San Francisquito Creek, which in this location serves as both City and County boundary. The County has prepared a comprehensive land use plan (CLUP) for the Palo Alto Airport, which identifies zones around the airport where land use and building height restrictions are needed to guard against potential conflicts with airport operations.

California law (Government Code 65302.3) requires that a local general plan be consistent with the applicable airport land/use plan compatibility criteria in the relevant adopted airport land use plan.

The Palo Alto Airport land use plan identifies building height restrictions (pursuant to Federal Aviation Regulations part 77) to ensure no obstructions to air navigation are created. A portion of the height restriction zone extends into the Baylands area of East Palo Alto which is commonly known as the Faber-Laumeister Tract and is part of the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge). The Baylands are the only portion of East Palo Alto within the Palo Alto Airport Influence Area (AIA). This General Plan maintains the refuge in open space use. The open space designation is focused on maintaining and preserving open space and other public recreational uses. The General Plan proposes no new residential or commercial development in the

Figure 10-5: Airport Safety Zones and Hazardous Sites



Baylands area. Given the open space designation, there would be no navigation obstruction.

Surface Transportation/Pedestrian Safety

Surface transportation also poses risks to the safety and well-being of people. According to data compiled by the California Office of Traffic Safety, East Palo Alto ranked third out of 97 California cities surveyed for the number of pedestrian collisions per daily vehicle miles traveled. A 2007 study showed that the City experienced 74 fatal or injury causing traffic collisions. Of these incidents, 13 involved pedestrians and 17 were of a “hit and run” nature.

Hazardous Materials

As cities age and patterns of development change, former industrial properties, gasoline stations, and other parcels with land uses associated with hazardous materials (which can include agricultural uses) are often abandoned. These properties, where soils and groundwater are known or suspected to be contaminated, are often referred to as “brownfields.” The threat of contamination and potential liability for cleanup costs drives developers away from brownfields and encourages growth on previously undeveloped parcels at the outskirts of urban areas. This results in the inefficient use of land, blight in older portions of cities and, most importantly, the potential for adverse health impacts to nearby residents.

Several different types of hazardous material contamination have been documented in East Palo Alto in numerous previous studies (including but not limited to the Ravenswood TOD Specific Plan EIR, the Facebook EIR, and the 1999 General Plan EIR), as shown in Figure 10-5.

The greatest concentration of affected sites is in the Ravenswood TOD Specific Plan Area, centered around Bay Road and the Cooley Landing area. This area was historically home to numerous industrial uses dating back to the 19th century. The handling, use, and disposal of hazardous materials were not as tightly regulated as they are today; consequently, many historic industrial sites are marked with moderate to substantial contamination of soils and groundwater.

PCBs, metals, petrochemicals, and other harmful materials can be found at such sites. Many of these sites are

currently undergoing clean-up activities, and others have restrictions that prohibit sensitive uses like homes or schools to be placed on top.

Besides industrial sites, other documented sources of hazardous materials in the City include areas of uncontrolled fill, former gas stations (particularly if underground storage tanks leaked), and areas formerly in agricultural use. Though agricultural uses may sound relatively benign when compared to industrial uses or gas stations, former agricultural properties will often have pesticide residue in the top two feet or more of soil. In addition, buildings constructed and/or painted before the late 1970s may contain asbestos and/or lead-based paint; demolition or removal of such buildings must conform to federal and state policies to ensure the safe handling and disposal of hazardous materials.

As a result of a cluster of agricultural, heavy manufacturing, chemical manufacturing and auto wrecking uses, the City of East Palo Alto was nominated a Brownfields Showcase Community in 1997. The Gateway 101 and University Circle area brownfields were redeveloped, and now contribute significant revenue to the City’s general fund. The adoption of the Ravenswood TOD Specific Plan is the first major step to remediate the City’s remaining brownfields, which are clustered in the Ravenswood Employment District.

Noise

Noise is typically defined as unwanted sound and is usually objectionable because it is disturbing or annoying. Excessive noise may result in hearing loss, interference with normal activities such as sleep, speech communication, work, and recreation, or annoyance, which may impact quality of life.

The City’s noise ordinance is designed to protect people from non-transportation noises sources such as music, construction activity, machinery and pumps, and air conditioners. The Noise Ordinance does not apply to railroad operation, maintenance and construction activities occurring with the Union Pacific right-of-way or the permitted hours for such activities. The ordinance also does not apply to noise generated by aircraft activity at Palo Alto Municipal Airport.

Noise from transportation activity is the primary component of the noise environment in East Palo Alto. Transportation corridors that traverse East Palo Alto, such as Highway 101; major arterial roadways, such as Willow Road, University Avenue, and Bay Road; and collector roadways, such as Clarke Avenue and Pulgas Avenue, are the predominant sources of environmental noise. Figure 10-6 shows existing noise exposure generated by traffic in East Palo Alto. Figure 10-7 shows estimated 2040 noise exposure generated by traffic in East Palo Alto, accounting for conditions resulting from new development proposed by this General Plan.

The most effective methods for mitigating transportation noise impacts on new noise-sensitive land uses involve appropriate planning, such as the site design review process and CEQA (when applicable). During these stages of the development process, potential impacts from transportation noise will be identified and mitigation measures will be required as needed to meet City noise standards. Site planning, topography and the design and construction of noise barriers (walls, berms or combination of walls/berms) are the most common methods of alleviating traffic and train noise impacts. Setbacks and buffers can also be used to achieve small noise reductions. Careful consideration should be given to proposed projects that qualify for statutory or infill exemptions in order to avoid potential noise impacts due transportation noise. The noise contour maps contained in the noise element should be reviewed by planning staff to ensure that the noise environment at a particular project site is appropriate for the proposed land use.

Aircraft activity from the Palo Alto Municipal Airport forms the primary source of noise in the eastern portion of the City, where roadway traffic noise sources are limited. This area is located below the flight path for the Palo Alto Municipal Airport. In addition to local airplane activity, overflight from jet aircraft is another source of noise associated with aircraft. Aircraft noise primarily affects people who live, work, or play in the vicinity of the airport. Bayfront areas are also home to certain animals that can be sensitive to noise. Figure 10-8 shows the aircraft noise contours generated by the Palo Alto Municipal Airport.

The Union Pacific Railroad tracks (Dumbarton Rail Corridor) are located along the northern boundary of the City. These

tracks are currently not in use, although there are plans to extend commuter rail service between the Peninsula and the East Bay.

Commercial and industrial operations are the primary stationary noise sources that make a significant local contribution to community noise levels. Such uses can generate noise due to the regular operation of equipment, including fans, blowers, chillers, compressors, boilers, pumps, and air conditioning systems that may run continuously. Other intermittent sources of noise include horns, buzzers, and loading activities. In general, these stationary noise sources are often located in areas that are isolated from noise sensitive land uses. However, the possibility of sensitive development encroaching on some of these stationary noise sources remains, which could result in some land use conflicts.

Noise sources that affect sensitive receptors within the community also include commercial land uses or those normally associated with and/or secondary to residential development. These include entertainment venues, nightclubs, outdoor dining areas, gas stations, car washes, fire stations, drive-thru restaurants, air conditioning units, swimming pool pumps, residential gatherings or parties, school playgrounds, athletic and music events, and public parks. These non-transportation noise sources are local and typically only affect their adjacent neighbors.

Another source of noise in East Palo Alto relates to intermittent construction activities. Construction noise can be significant for short periods of time at any particular location as a result of public improvement projects, private development projects, remodeling, etc. The highest construction noise levels are normally generated during grading and excavation, with lower noise levels occurring during building construction.

Ground-borne Vibration

Ground-borne vibration consists of rapidly fluctuating motions or waves with an average motion of zero. In urban environments, sources of ground-borne vibration include construction activities such as pile driving and the movement of heavy equipment, light and heavy rail transit, and heavy trucks and buses. Low-level vibrations at a structure frequently cause irritating secondary vibration, such as a slight rattling of windows, doors or stacked

dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

There are currently no active rail lines within the City of East Palo Alto; however, Union Pacific reserves the right to run freight operations on these tracks and there are plans to extend commuter rail service between the Peninsula and the East Bay as previously noted.

Ground-borne vibration would occur in areas adjacent to the rail lines when railroad trains pass through East Palo Alto. Ground vibration levels along the railroad corridor would be proportional to the speed and weight of the trains, as well as the condition of the tracks, train engine, and car wheels. Vibration levels resulting from railroad trains vary by site, but are generally perceptible within 100 feet of the tracks.

Construction activities such as demolition, site preparation, excavation, and foundation work can generate ground-borne vibration at land uses adjoining construction sites. Impact pile driving has the potential of generating the highest ground vibration levels and is of primary concern to structural damage. Other project construction activities, such as caisson drilling, the use of jackhammers, rock drills, and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) can generate substantial vibration levels in the immediate vicinity.

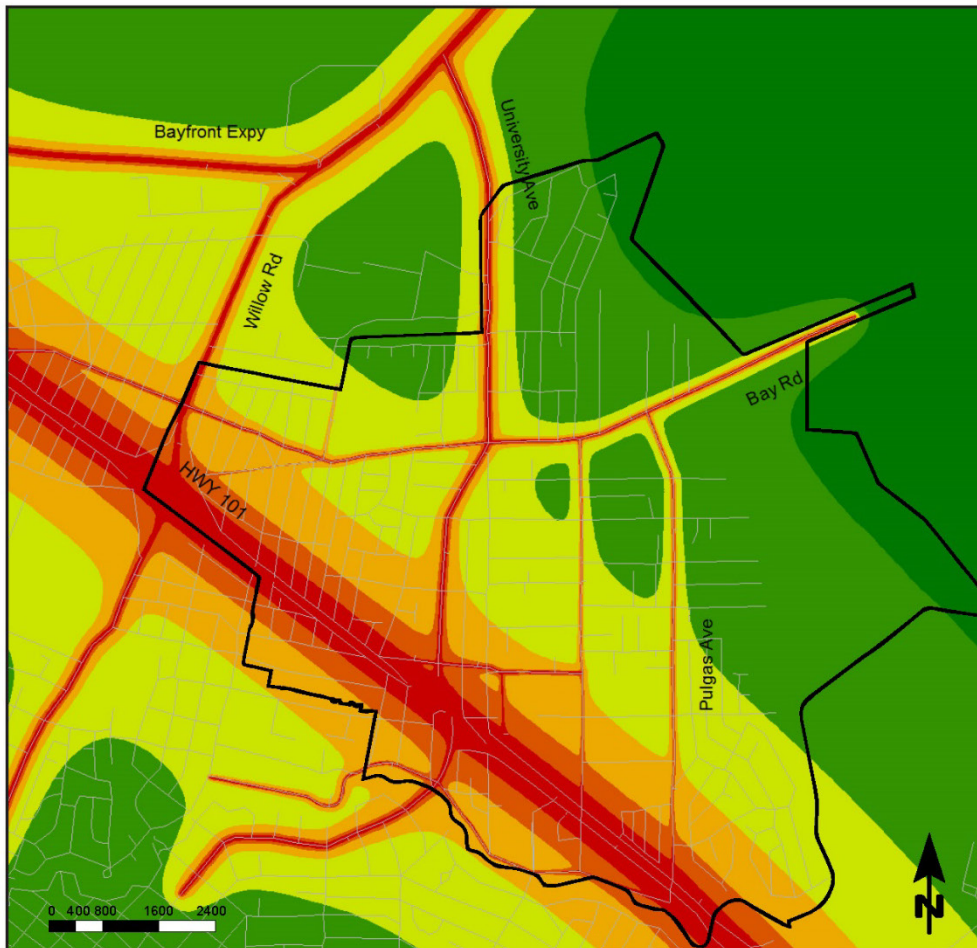
Options for Noise Reduction

Because ground transportation noise is the dominant source of noise in East Palo Alto, it is unlikely that proposed actions would cause a substantial increase in noise in the community. There is currently ongoing research on the effects of different types of pavement surfaces on the noise generated by vehicular traffic. The interaction of tires and pavement is the main source of traffic noise. The City of East Palo Alto has no jurisdiction over the noise generated by automobiles, the types of tires drivers select, etc., but the City can select the type of pavement that it uses to repave its streets. The consideration of quiet pavement surfaces in the City's repaving plans provides an opportunity to make a noticeable reduction in traffic noise along City streets in East Palo Alto.

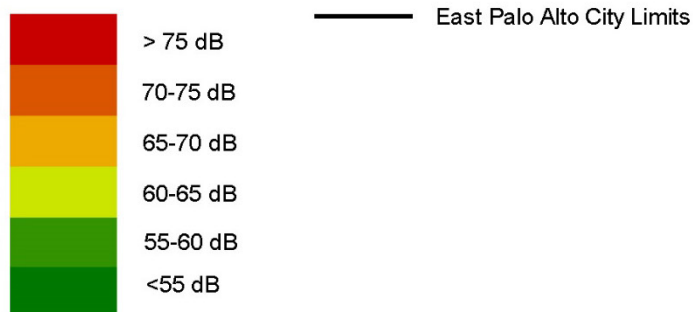
Placing residents in proximity to non-residential land uses can result in isolated noise problems. For instance, music played at outdoor dining areas or bars can annoy adjacent residences and be a source of ongoing complaints. Other urban noise sources, such as the collection of large garbage dumpsters early in the morning, the noise of heating, ventilating, and air conditioning equipment, and outdoor maintenance activities, are all more frequent in an urban setting. The purpose for a quantitative noise ordinance is to address these types of issues. Reviewing and updating applicable City ordinances is something the City could consider in the future if the change in land use patterns results in conflicts that cannot be resolved through existing regulations.

The most common noise issue that is likely to be faced by the City can be addressed as it has been historically by evaluating land use proposals in noisy areas and incorporating noise control treatments to these projects.

Figure 10-6 - Existing (2015) Traffic Noise

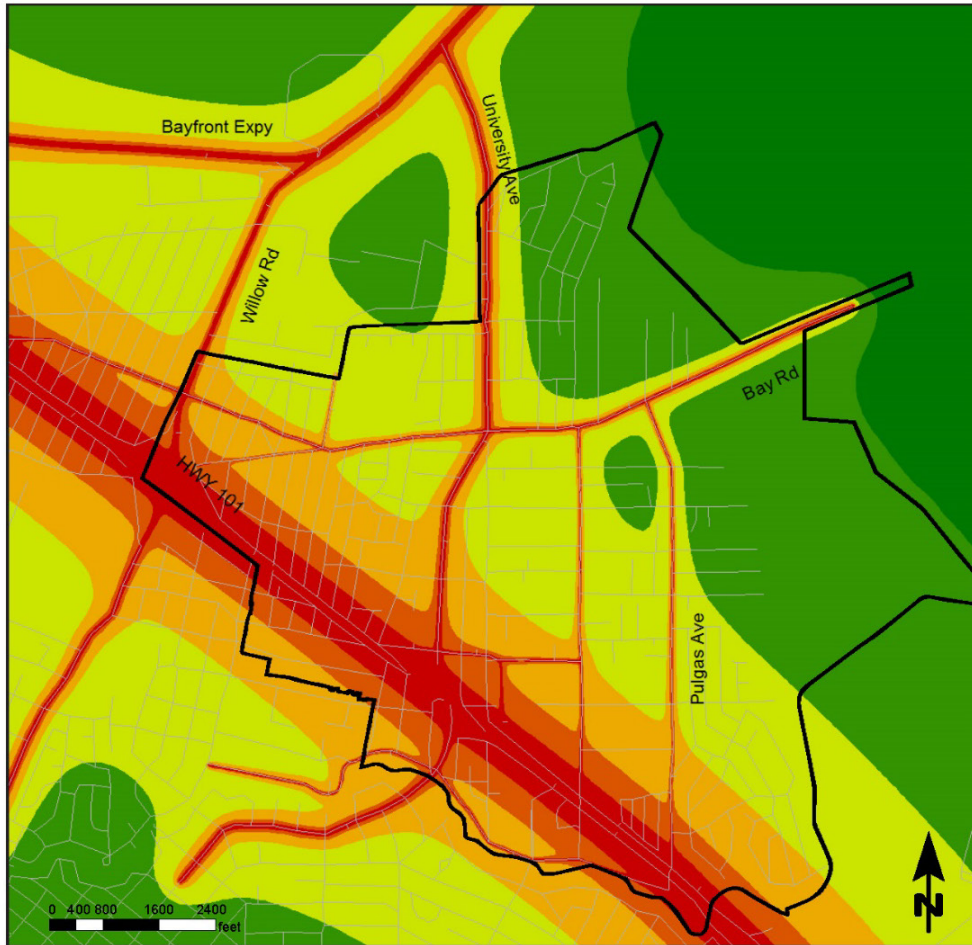


Existing Noise Levels from Vehicle Traffic along Major Roadways in decibels (dB)

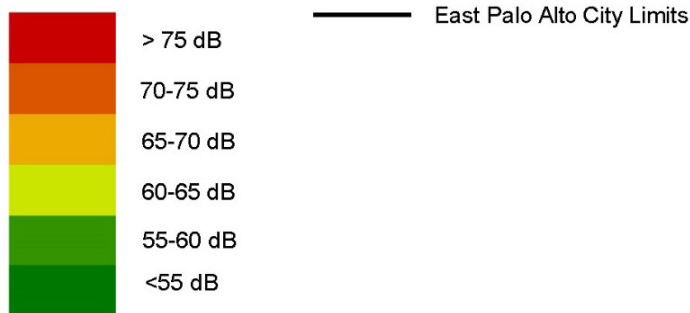


Data Source: City of East Palo Alto General Plan Update EIR Draft, Noise and Vibration Assessment, 2015.

Figure 10-7: 2040 Future Plus Project Traffic Noise Contours

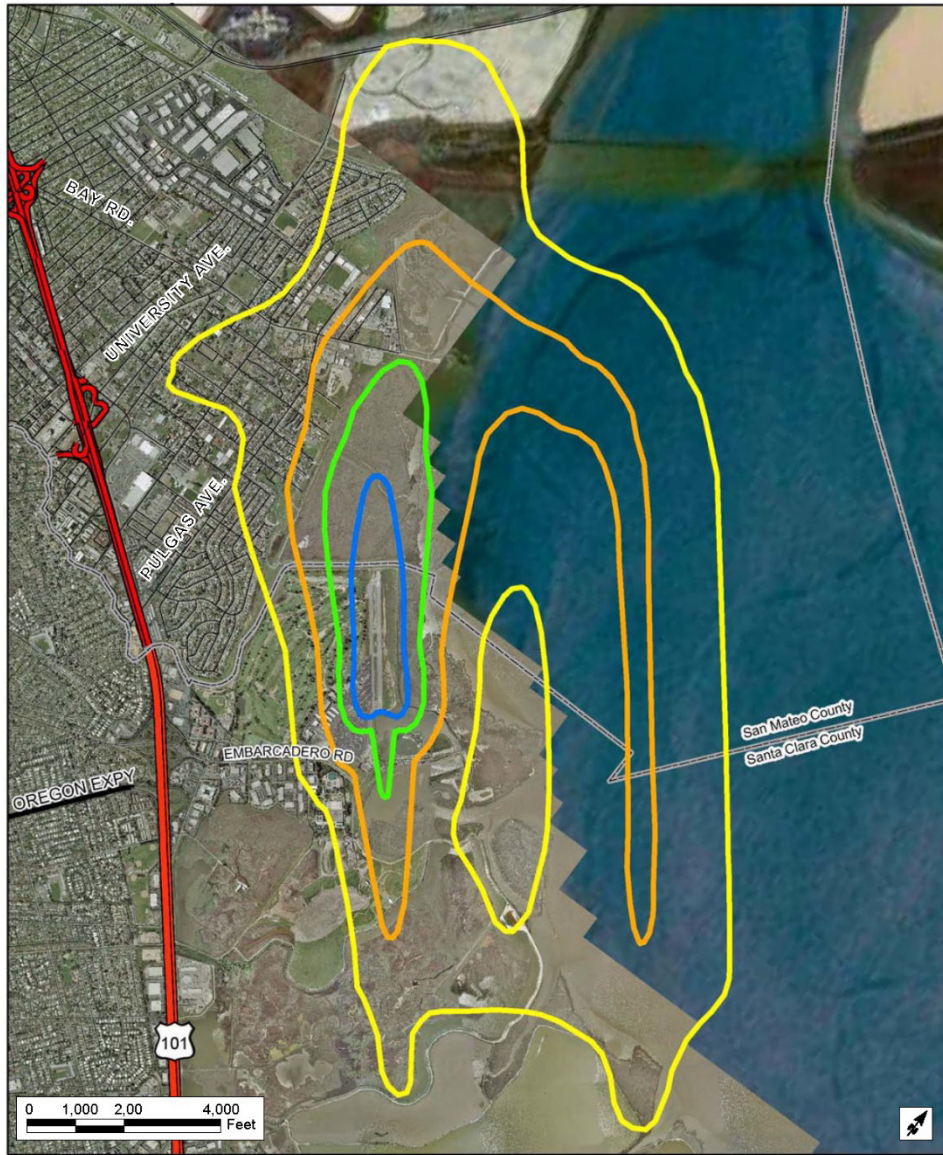


Existing Noise Levels from Vehicle Traffic along Major Roadways in decibels (dB)



Data Source: City of East Palo Alto General Plan Update EIR Draft, Noise and Vibration Assessment, 2015.

Figure 10-8: Palo Alto Airport Noise Contours



This map created by Santa Clara County Planning Office. The GIS data was compiled from various sources. All boundaries shown are for informational purposes only. © 2008 Santa Clara County Planning Office.

Noise Contours (CNEL)*



*Community Noise Equivalent Level (CNEL) is a method of averaging single-event noise levels occurring during a typical 24-hour day. This system is used to measure community exposure to airport noise.

Data Source: Comprehensive Land Use Plan—Palo Alto Airport, Santa Clara County Airport Land Use Commission, 2008.

Goals and Policies

Goal SN-1. Reduce the risk to people and property from earthquakes and other geologic hazards.

Intent: To lessen the impacts of earthquakes and geologic threats on City residents.

Policies:

- 1.1 Construction requirements.** Apply the proper development engineering and building construction requirements to avoid or minimize risks from seismic and geologic hazards.
- 1.2 Robust seismic guidance.** Utilize and enforce the most recent State guidance for seismic and geologic hazards when evaluating development proposals.
- 1.3 Licensed geologist.** Require that a state licensed engineering geologist prepare and/or review development proposals involving grading, unstable soils, and other hazardous conditions. Incorporate recommendations of the geologist into design plans, potentially including building modifications and open space easements.
- 1.4 Seismic upgrades.** Examine necessity of seismic upgrades to existing public facilities as well as existing multi-family housing constructed prior to 1971.

Goal SN-2. Provide adequate flood control and storm drainage facilities to minimize the risk of flooding.

Intent: To lessen the impacts of flood events on City residents by avoiding placing residents in harm's way.

Policies:

- 2.1 Flood Insurance Program.** Continue to participate in the National Flood Insurance Program and FEMA's voluntary programs, such as the Community Rating System.

- 2.2 Flooding related to sea level rise.** Consider expanding boundaries of development control particularly where sea level rise could worsen flooding above predicted conditions.

- 2.3 Development in floodways.** Continue to control development in the floodway and floodway fringe.

- 2.4 Floodplain Management Ordinance.** Continue to enforce and consider strengthening the City's Floodplain Management Ordinance.

- 2.5 Location of essential public facilities.** Continue to avoid placing essential services and critical facilities in areas of elevated risk of flood. If essential services and critical facilities cannot be located outside of risk zones, ensure that facilities are constructed to appropriate standards to maintain operations during and after disaster events.

- 2.6 Public buildings.** Work to enhance flood protection for essential public buildings and associated parking areas.

- 2.7 San Francisquito Creek Joint Powers Authority (JPA):** Continue to work with the JPA on projects that will reduce the risk of flooding in East Palo Alto.

Goal SN-3. Reduce the risk of fire and wildfire hazards in the community.

Intent: To lessen the impacts of fire on City residents by decreasing likelihood of fire and improving response time.

Policies:

- 3.1 Response times.** Continue to support MPFPD in helping maintain adequate emergency response times. Work with MPFPD to identify choke points to help ensure continuation of adequate emergency response in all of East Palo Alto.

- 3.2 Fuel reduction strategies.** Continue to coordinate with the Mid-Peninsula Regional Open Space District and other bayfront property owners to consider implementing fuel reduction/weed abatement in areas of highest risk.

- 3.3 Location of critical services and facilities.** Continue to avoid placing, essential services and critical facilities in areas of elevated risk of wildfire. If critical facilities cannot be located outside of risk zones, ensure that facilities are constructed to appropriate standards to maintain operations during and after disaster events.
- 3.4 Fire Safe San Mateo County.** Continue to support Menlo Park Fire Protection District's participation in the Fire Safe San Mateo County program.
- 3.5 Fire buffer zones.** Encourage property owners near hazard areas to implement and maintain buffer zones from the riskiest areas.
- 3.6 Development Impact Fee.** Coordinate with MPFPD in examining an impact fee on new development in order to help ensure provision of services in the event of demand increases.

Goal SN-4. **Protect the community from public safety hazards related to aircraft, surface transportation, and hazardous materials.**

Intent: To help City residents avoid human-made hazards and maintain lives of maximum security and freedom from harm

Policies:

- 4.1 Contamination.** Avoid or minimize risk to the community from exposure to contaminated soils or groundwater.
- 4.2 Management of hazardous materials.** Continue to cooperate with federal, state, and county agencies to effectively regulate the management of hazardous materials and hazardous waste.
- 4.3 Risk Management Plans.** Continue to cooperate with the Certified Unified Program Agency (CUPA) for East Palo Alto (the County of San Mateo Health System) and the Menlo Park Fire Protection District to administer Risk Management Plans for businesses within the City.

- 4.4 Transportation safety.** Minimize transportation accidents by considering pedestrian safety in all land use planning decisions and working closely with CHP, Caltrans, SamTrans, and other relevant agencies to identify safety problems and implement corrective measures
- 4.5 Airport land use plan.** Coordinate with the Santa Clara County ALUC and Palo Alto Airport Comprehensive Land Use Plan (CLUP) and consider the CLUP in making any land use decisions in airport influence area.
- 4.6 Gas pipeline emergency prevention and planning.** The City shall coordinate with the Menlo Park Fire Protection District, and other local, regional, and state agencies to ensure that emergency evacuation plans are in place and any major pipelines in the community are appropriately inspected and marked to prevent accidental rupture.

Goal SN-5. **Provide efficient and effective emergency response in the immediate aftermath of a natural or human caused disaster.**

Intent: To ensure a safe and timely response by City residents and services during emergency events.

Policies:

- 5.1 Community preparedness.** Reduce harm from natural hazards by promoting a culture of preparedness in the community to help residents be more responsive to seismic and flooding events when they occur. Provide public education relating to these hazards.
- 5.2 Hazard mitigation planning.** Continue to participate in Local Hazard Mitigation Planning through the Association of Bay Area Governments (ABAG), San Mateo Office of Emergency Services, FEMA, and surrounding jurisdictions.
- 5.3 Risk evaluation.** Encourage business and property owners to evaluate and minimize their risks to fire, flooding, and other hazards.

- 5.4 Emergency access routes.** Ensure the City’s designated system of emergency access routes is coordinated with regional activities for both emergency operations and evacuation.
- 5.5 Fire suppression.** Ensure potable water and water for fire suppression can be available in an emergency.
- 5.6 Reconstruction.** Following a major disaster, ensure expedient, sound, and equitable reconstruction of the affected community through measures such as development of a Pre-Disaster and Recovery Action Plan
- 5.7 Partnerships for disasters.** Promote partnerships with government and nongovernmental agencies, including public/private partnerships, to ensure support is ready to step in after a disaster.
- 5.8 Coordinated emergency response.** Ensure coordinated emergency response with the Menlo Park Fire Protection District, major transportation agencies, and adjacent jurisdictions.

Goal SN-6. **Minimize the effects of noise through proper land use planning.**

Intent: To ensure that new noise-sensitive land uses in the City are located in a compatible noise environment or adequately mitigated in order to provide a compatible exterior and interior noise environment.

Policies:

- 6.1 Noise standards.** Use the Interior and Exterior Noise Standards (Table 10-1) for transportation noise sources. Use the City’s Noise Ordinance for evaluating non-transportation noise sources when making planning and development decisions. Require that applicants demonstrate that the noise standards will be met prior to project approval.
- 6.2 Compatibility standards.** Utilize noise/land use compatibility standards and the Noise Ordinance as guides for future development decisions.
- 6.3 Noise control.** Provide noise control measures, such as berms, walls, and sound attenuating construction in areas of new construction or rehabilitation.
- 6.4 Vibration impacts.** The City shall require new development to minimize vibration impacts to adjacent uses during demolition and construction. For sensitive historic structures, a vibration limit of 0.08 in/sec PPV will be used to minimize the potential for cosmetic damage to the building. A vibration limit of 0.30 in/sec PPV will be used to minimize the potential for cosmetic damage at buildings of normal conventional construction.
- 6.5 Airport-adjacent land uses.** Maintain the non-residential designation for land near the airport in order to prevent new noise sensitive residential uses from being constructed in areas with excessive aircraft noise.

Goal SN-7. **Minimize transportation- and non-transportation-related noise impacts, especially on noise-sensitive land uses.**

Intent: To maintain and improve the noise environment at noise-sensitive land uses throughout the City.

Policies:

- 7.1 Noise ordinance.** Continually enforce and periodically review the City’s Noise Ordinance for adequacy (including requiring construction activity to comply with established work schedule limits). Amend as needed to address community needs and development patterns.
- 7.2 CEQA acoustical analysis.** Require an acoustical analysis to evaluate mitigation measures for noise generating projects that are likely to cause the following criteria to be exceeded or to cause a significant adverse community response:
 - Cause the Ldn/CNEL at noise-sensitive uses to increase by 3 dBA or more and exceed the “normally acceptable” level.

- Cause the Ldn/CNEL at noise-sensitive uses to increase 5 dBA or more and remain “normally acceptable.”

- 7.3 Highway noise barriers.** Require that noise barriers are included in the design of roadway, freeway and rail improvements to mitigate significant noise impacts. Support efforts by Caltrans and other transportation providers to provide acoustical protection for noise sensitive development (especially along Highway 101).
- 7.4 Vehicle noise standards.** Coordinate with the California Highway Patrol and other law enforcement agencies to enforce noise standards for cars, trucks, and motorcycles.
- 7.5 Traffic and truck noise.** Regulate traffic flow to enforce speed limits to reduce traffic noise. Periodically evaluate and enforce established truck and bus routes to avoid noise impacts on sensitive receptors.
- 7.6 Coordination with Airport Land Use Commission.** Work with the Santa Clara County Airport Land Use Commission and the Palo Alto Airport to reduce aircraft noise in East Palo Alto.
- 7.7 Site design review.** Utilize site design review to identify potential noise impacts on new development, especially from nearby transportation sources. Encourage the use of noise barriers (walls, berms or landscaping), setbacks and/or other buffers.
- 7.8 Quiet asphalt.** Consider a “quieter” pavement that also meets other criteria established by the City for pavements for use in resurfacing roadways. Encourage its use in future capital projects.
- 7.9 Noise barriers along future rail.** Should commuter rail service or other significant intensification of rail use be initiated, the City shall require that Union Pacific construct noise barriers adjacent to existing unprotected residential areas near the rail line.
- 7.10 Airport noise.** Work with regional partners to minimize general aviation and commercial airport noise over East Palo Alto.

7.11 Construction noise. The City shall require that contractors use available noise suppression devices and techniques and limit construction hours near residential uses. Reasonable noise reduction measures shall be incorporated into the construction plan and implemented during all phases of construction activity to minimize the exposure of neighboring properties. The City considers significant construction noise impacts to occur if a project located within 500 feet of residential uses or 200 feet of commercial or office uses would:

- Involve substantial noise generating activities (such as building demolition, grading, excavation, pile driving, use of impact equipment, or building framing) continuing for more than 12 months.

For such large or complex projects, a construction noise logistics plan that specifies hours of construction, noise and vibration minimization measures, posting or notification of construction schedules, and designation of a noise disturbance coordinator who would respond to neighborhood complaints will be required to be in place prior to the start of construction and implemented during construction to reduce noise impacts on neighboring residents and other uses. A typical construction noise logistics plan would include, but not be limited to, the following measures to reduce construction noise levels as low as practical:

- Limit construction activity to weekdays between 7:00 am and 7:00 pm and Saturdays and holidays between 9:00 am and 7:00 pm, with no construction on Sundays;
- Utilize ‘quiet’ models of air compressors and other stationary noise sources where technology exists;
- Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment;
- Locate all stationary noise-generating equipment, such as air compressors and

portable power generators, as far away as possible from adjacent land uses;

- Locate staging areas and construction material areas as far away as possible from adjacent land uses;
- Prohibit all unnecessary idling of internal combustion engines;
- If impact pile driving is proposed, multiple-pile drivers shall be considered to expedite construction. Although noise levels generated by multiple pile drivers would be higher than the noise generated by a single pile driver, the total duration of pile driving activities would be reduced;
- If impact pile driving is proposed, temporary noise control blanket barriers shall shroud pile drivers or be erected in a manner to shield the adjacent land uses. Such noise control blanket barriers can be rented and quickly erected;
- If impact pile driving is proposed, foundation pile holes shall be pre-drilled to minimize the number of impacts required to seat the pile. Pre-drilling foundation pile holes is a standard construction noise control technique. Pre-drilling reduces the number of blows required to seat the pile. Notify all adjacent land uses of the construction schedule in writing;
- Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented; and
- Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction.

Goal SN-8. **Coordinate land use planning to prevent new odor complaints.**

Intent: To avoid conflicts related to bad odors, especially between incompatible uses.

- 8.1 Identify potential for odor complaints.** Use BAAQMD Odor Screening Distances or City-specific screening distances to identify odor potential. Evaluate odors from sources within these screening distances based on odor potential, wind conditions, setback distance and receptor type.
- 8.2 Odor sources.** Prohibit new sources of odors that have the potential to result in frequent odor complaints unless it can be shown that potential odor complaints can be mitigated.
- 8.3 Sensitive receptors near odor sources.** Prohibit sensitive receptors from locating near odor sources where frequent odor complaints would occur, unless it can be shown that potential odor complaints can be mitigated.

Table 10-1. Interior and Exterior Noise Standards		
Land Use	Noise Standards ¹	
	Interior ^{2, 3}	Exterior
Residential – Single family, multifamily, duplex, mobile home	CNEL 45 dB	CNEL 65 dB ⁴
Residential – Transient lodging, hotels, motels, nursing home, hospitals	CNEL 45 dB	CNEL 65 dB ⁴
Private offices, church sanctuaries, libraries, board rooms, conference rooms, theaters, auditoriums, concert halls, meeting halls, etc.	Leq(12) 45 dB(A)	-
Schools	Leq(12) 45 dB(A)	Leq(12) 67 dB(A) ⁵
General offices, reception, clerical, etc.	Leq(12) 50 dB(A)	-
Bank lobby, retail store, restaurant, typing pool, etc.	Leq(12) 55 dB(A)	-
Manufacturing, kitchen, warehousing, etc.	Leq(12) 65 dB(A)	-
Parks, playgrounds	-	CNEL 65 dB ⁵
Golf courses, outdoor spectator sports, amusement parks	-	CNEL 70 dB ⁵

Notes:

1. CNEL: Community Noise Equivalent Level; Leq (12): The A-weighted equivalent sound level averaged over a 12-hour period (usually the hours of operation).
2. Noise standard with windows closed. Mechanical ventilation shall be provided per UBC requirements to provide a habitable environment.
3. Indoor environment excluding bathrooms, toilets, closets, and corridors.
4. Outdoor environment limited to rear yard of single family homes, multifamily patios, and balconies (with a depth of 6’ or more) and common recreation areas.
5. Outdoor environment limited to playground areas, picnic areas and other areas of frequent human use.

Source: Title 24, California Code of Regulations