public safety, noise, and health

RPC 2(d)(ii)

in this section

introduction

Public safety and community health are fundamental to long-term community stability. When people describe why they choose to live where they do, they often cite safety as a key factor. In cities with high levels of public safety services, residents and the business community can focus on productive activities: commerce, recreation, volunteerism, and education, among others. The purpose of the Safety, Noise, and Health Element is to identify and minimize risks associated with natural and human-generated hazards through land use decisions and allocation of City budgetary resources. A dual purpose is to shape the physical environment and public services in ways that allow community members to thrive and reach their greatest potential.

By proactively addressing potential hazards, the City looks to diminish threats posed to residents, businesses, and the local economy associated with flooding, earthquakes, wildfires, climate change and its effects, excessive noise levels, and the presence of hazardous materials.

Minimizing threats helps protect community health, but the City also has interest in actively promoting healthy lifestyles. Health practitioners support planning policies that encourage walkable and cohesive communities because such practices can improve individuals' health and may reduce heart disease, obesity, and asthma. A city with ample parks and open spaces community-wide promotes outdoor exercise and interactions among neighbors. Safe pedestrian and bicycle routes that link neighborhoods to shops, schools, parks, and restaurants provide opportunities for people to exercise and reduce reliance on cars for local trips, thus reducing associated pollutant emissions.

This element's noise section examines the local noise environment and establishes standards to encourage noise-compatible land use patterns. Noise concerns focus on stationary sources like manufacturing and construction as well as roadway noise.

key terms

Cool Pavements. Cool pavements refer to a range of established and emerging materials and technologies that tend to store less heat in asphalt and concrete to lower the materials surface temperatures. They can help address the problem of urban heat islands.

Crime Prevention Through Environmental Design. Crime Prevention Through Environmental Design (CPTED) is a multi-disciplinary approach of crime prevention that uses urban and architectural design and the management of built and natural environments.

Dam Inundation. The area downstream of the dam that would be flooded in the event of a failure (breach) or uncontrolled release of water.

Decibel. A degree of loudness, or a unit used to measure how powerful or loud a sound or signal is using a logarithmic formula.

Disadvantaged Communities. Areas and people throughout California suffering most from a combination of economic, health, and environmental burdens. These burdens include poverty, high unemployment, air and water pollution, presence of hazardous wastes, and high incidence of asthma and heart disease.

Environmental Justice. Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental regulations and policies implemented by local agencies.

Fuel Modification Zone. A strip of land between an improved property and a natural area, where combustible vegetation has been removed, thinned, or modified and may be partially or totally replaced with approved drought-tolerant, fire-resistant, and/or irrigated plants to provide an acceptable level of risk from vegetation fires.

Greenhouse Gas (GHG) Emissions. Greenhouse gases, or GHGs, are compound gases that trap heat or longwave radiation in the atmosphere. Their presence in the atmosphere makes the Earth's surface warmer. Sunlight or shortwave radiation easily passes through these gases and the atmosphere and is trapped below, creating a phenomenon known as the greenhouse effect. According to the U.S. Environmental Protection Agency, the largest source of GHGs in the U.S. is the burning of fossil fuels for electricity, heat, and transportation.

Large Quantity Generators (LQG). Large quantity generators are business or institutions that produce or emit more than 2,200 pounds of hazardous waste per month.

Liquefaction. Liquefaction is a condition resulting from earthquake-induced ground shaking of wet granular soils, whereby the soils change from a solid state to a liquid state, destabilizing the soil's ability to support structures.

Local Hazard Mitigation Plan. A local hazard mitigation plan (LHMP) identifies hazards, vulnerabilities, and risks affecting a local, state, or tribal government, and prioritizes actions to reduce the risks. Such plans are required by the Federal Emergency Management Agency (FEMA) for a jurisdiction to receive certain federal assistance in response to a disaster. The document is referred to interchangeably as a Natural Hazards Mitigation Plan (NHMP).

Particulate Matter. Particulate matter (or particle pollution) is a complex mixture of extremely small particles and liquid droplets. Particle pollution comprises several components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil, and/or dust particles. The size of particles is directly linked to their potential to cause health problems. Once inhaled, these particles can affect the heart and lungs and result in serious adverse health conditions.

Passive Solar Design. Passive solar design refers to the use of the sun's energy for the heating and cooling of living spaces by exposure to the sun. When sunlight strikes a building, the building materials can reflect, transmit, or absorb the solar radiation. In addition, the heat produced by the sun causes air movement that can be predictable in designed spaces. These basic responses to solar heat influence design elements, material choices, and placements that can provide heating and cooling effects in a home.

Small Quantity Generators (SQG). Small quantity generators are business or institutions that produce or emit between 220 pounds to 2,200 pounds of hazardous waste per month.

Superfund Site. A contaminated site created by the legal or illegal deposit of hazardous materials/waste, either above ground or buried, or otherwise improperly managed. These sites include manufacturing facilities, processing plants, and landfills.

Toxic Release Inventory. The Toxics Release Inventory (TRI) is a resource for learning about toxic chemical releases and pollution prevention activities reported by industrial and federal facilities.

Urban Heat Island. Heat islands are urbanized areas that experience higher temperatures than outlying open space or natural rural areas. Buildings, roads, and other infrastructure absorb and re-emit the sun's heat more than natural landscapes such as forests and water bodies, causing urban areas to be warmer.

Vulnerability Assessment. A vulnerability assessment is the process of identifying, quantifying, and prioritizing (or ranking) the vulnerabilities related to natural or human-caused disasters that could affect a community.

baseline considerations

Recognizing the presence and extent of the following local and regional hazards allows the City to shape policies and programs accordingly.

emergency preparedness and safety services

- Emergency preparedness and response responsibilities lie primarily with the Whittier Police Department and the Los Angeles County Fire Department, with which the City maintains a services contract (as do many cities within Los Angeles County). The Los Angeles County Fire Department provides a multitude of programs beyond fire and paramedic response, including hazardous materials response, fire hazard reduction (including brush clearance oversight in high-fire-hazard zones), urban search and rescue, and educational programs such as Community Emergency Response Team (CERT) training for community volunteers.
- Emergency preparedness planning occurs as an interdepartmental and interagency exercise guided by the City Manager, who serves as the City's Emergency Operations Center (EOC) manager in times of crisis. Response occurs as outlined in the Emergency Operations Plan (EOP),

which the City correlates with its Natural Hazards Mitigation Plan (NHMP), a document required by the federal government to qualify for federal aid following a disaster.

- The City's water pumping plant has a capacity of 13,700 gallons per minute and has guidelines set for operational, fire, and emergency storage as stated in the 2018 Water Master Plan. Fire flow guidelines are established by land use type and are based on the local fire authority and requirements of the California Fire Code.
- The California Fire Code requires a minimum of 40-foot right-of-way and a grade less than six percent (or 10 percent if topographical constraints exist) to ensure adequate access for fire emergencies. For information on detailed street dimensions, see the Mobility and Infrastructure Element.
- To slow or stop the spread of wildfires and protect properties, the California Fire Code requires defensible space to be maintained around all buildings and structures. This is achieved by removing dead vegetation, upkeeping live vegetation, and installing fire-resistant landscaping.

natural hazards

- The City lies on the Whittier section of the Elsinore fault zone, one of several active fault zones throughout the seismically active Southern California region, shown in Figure PSNH-2. The 1987 Whittier Narrows earthquake, from its epicenter a few miles north in Rosemead, caused severe damage in the City, including to several notable buildings. Earthquakes and the effects of seismically induced landslides and liquefaction pose threats to unreinforced structures in the City.
- Destructive urban wildland fires are the most frequently occurring natural hazard, primarily impacting the neighborhoods in the Puente Hills foothills. At least nine wildfires have burned through the Puente Hills since the late 1960s, and the effects of climate change have made wildfires in Southern California a more common occurrence.
- Local urban flooding resulting from inadequate drainage systems and impermeable surfaces—such as streets and parking lots—creates conditions of ponding during period of intense precipitation, ponding that can adversely affect private properties and public infrastructure.
- The Whittier Narrows Dam in Pico Rivera poses inundation hazards to the

Whittier Narrows Dam
Courtesy of the US Army Corps of Engineers

RPC 2(d)(ii)

western portion of the City. A 2019 study prepared by U.S. Army Corp of Engineers concluded that a rare flood could fill the dam, putting the dam at risk of failure due to erosion underneath or by overtopping. Such events would pose flood risks to very large downstream populations including portions of Whittier.

pollution exposure

- One active Superfund site is located near the five-points intersection at Whittier Boulevard and Pickering Avenue. Large quantities of refrigerant and solvent chemicals from the former Omega Chemical Corporation facility contaminated the groundwater supply and continue to affect communities and water supplies.
- Industrial businesses in Whittier have the potential to emit hazardous air pollutants known to cause cancer and result in other serious health impacts. These emissions are stringently regulated by the South Coast Air Quality Management District (SCAQMD).
- Historic oil and gas drilling activities in the Puente Hills have had long-lasting and impacts on open spaces, ecological systems, native habitat, and wildlife. Consolidation of operations over time has reduced impact zones largely to active oil field areas.

climate adaption

- Excessive heat, droughts, and other weather-related conditions associated with a changing global climate have begun to adversely affect many habitats, animals, agricultural resources, and urban environments. In natural areas, excessive heat conditions could lead to water shortages and increased stress on plants. In cities, hotter and longer summers could require the need for cooling centers and adjustments to construction projects. Droughts could affect long-term potable water supplies in Whittier and the region.
- Natural hazards intensified by climate change include wildfires within the Puente Hills and flooding events along flood zones as the result of extreme storms.

environmental justice and community health

- The State has identified several so-called Disadvantaged Communities in Whittier and its Sphere of Influence—communities that experience combined high levels of economic, health, and environmental burdens. Neighborhoods in and around Uptown are included, but the highest impacted areas occur south of Whittier Boulevard, along both sides of Washington Boulevard, and west of Santa Fe Springs Road to the western City boundary.

- Pollution burdens affecting residents within Disadvantaged Communities include the permitted releases of hazardous materials from commercial and industrial businesses, a high level of particulate matters or tiny air pollutants found in the air, hazardous waste, and cleanup of contaminated sites such as the Superfund site noted above.
- Socioeconomic and health conditions of concern within the Disadvantaged Communities include cardiovascular disease, housing burden challenges for low-income households, higher percentages of households living in poverty, and lower educational attainment levels.
- Although the local Disadvantaged Communities areas generally have good park access, the health outcomes demonstrate that simply having access to parks and open space is not enough to mitigate health issues.
- Areas with high concentrations of Latino households and lower-income households lack access to healthy food outlets, but fast-food restaurants and other less-healthy food options abound. While the Uptown neighborhoods generally have variety and choice, families in South and West Whittier that make less than the Los Angeles County median income have the least access to healthy food retail stores.
- Whittier's Latino/Latina residents overwhelmingly live in areas with high rates of poor health outcomes and fewer public improvements, and with low socioeconomic status. While these neighborhoods appear to have good park access, more information is needed on the condition, access, amenities, size, and use of parks.
- The prevalence of chronic disease is highly concentrated in communities that are largely Latino/Latina, low-income, and have low educational attainment. Moreover, these populations are less likely to have access to health insurance, which may delay people from seeking treatment or not seek treatment at all.
- Maternal and child health outcomes are correlated with lack of insurance and rates of teen births. Although most neighborhoods are reported with higher rates of prenatal care than the area average, those that have slightly lower rates correspond with areas that have higher populations of uninsured and low birth weight outcomes. In addition, these same neighborhoods have slightly higher rates of teen pregnancy compared to the other Whittier neighborhoods.
- The correlation is strong between areas with high rates of death due to diabetes and communities with limited healthy food access.

noise

- Traffic noise from cars, trucks, and other motor vehicles traveling along the local roadway network, is the most pervasive noise source in Whittier. While the move toward electric cars and

RPC 2(d)(ii)

trucks will reduce engine noise, the sound of vehicle tires on roadways will continue to be a presence.

- The extension of Metro light rail service to Whittier will create a new noise source in neighborhoods and districts along the L Line route.
- Populations in Whittier particularly sensitive to noise are known as sensitive receptors: the elderly, young children, and people with chronic ill health conditions. For these populations, the presence of continuous and/or loud noises can disrupt daily activities and lead to long-term adverse health effects.

emergency preparedness and safety services

emergency preparedness

Emergency preparation helps tremendously to reduce property damage and loss of life in the event of a disaster. Whittier is susceptible to many types of disasters and emergencies that can have devastating effects. Local officials play a crucial role in educating residents and businesses about prevention—the most important tool in emergency preparedness—and appropriate, effective response.

Generally, response efforts and emergency management plans are created to address many types of hazards so that public officials are prepared with a plan adaptable to various potential hazards. These plans allow community members to work together with City, County, State, and federal partners and to get familiar with their roles in disaster mitigation, preparedness, response, and recovery before a disaster occurs.

natural hazard mitigation plan

The City has prepared a Natural Hazards Mitigation Plan (NHMP) in response to the Disaster Mitigation Act of 2000, as required by the Federal Emergency Management Agency (called a Local Hazard Mitigation Plan in the federal law). This law requires local governments to prepare a plan that identifies potential hazards, losses, mitigation needs, goals, and strategies. The City's NHMP supplements the City's comprehensive Emergency Operations Plan, or EOP.

Planning ahead helps residents, businesses, and government agencies effectively respond when disaster occurs and keeps the City eligible for federal funding. The long-term benefits of mitigation planning include:

- Greater understanding of local hazards
- Being able to prioritize use of limited resources on hazards that could have the most adverse and widespread impacts
- Financial savings through partnerships for planning and mitigation
- Reduced long-term impacts and damages to human health and structures, and lower repair costs
- A more sustainable, disaster-resistant City

RPC 2(d)(ii)

vulnerability risk assessment

The NHMP includes a vulnerability risk assessment that identifies risks associated with each hazard and the corresponding impacts to the community. This process involves five steps: identify hazards, profile hazards, inventory critical assets, assess risks, and assess vulnerability of future development. Table PSNH-1 identifies natural hazards that could potentially affect the City and specific hazards that may be intensified because of climate change.

Table PSNH-1: Vulnerability Assessment

Hazard	Location	Extent	Probability	Hazard Intensified Due to Climate Change?
Earthquake	Entire Planning Area	According to the USGS, within the next 30 years (as of 2014) the probability is: ▪ 60% that an earthquake measuring magnitude 6.7 ▪ 46% that an earthquake measuring magnitude 7.0 ▪ 31% that an earthquake measuring magnitude 7.5 will occur in the Los Angeles region.	1:100 years	No
Flood	Turnbull Canyon, Creek Canyon, San Gabriel River	Riverine flooding: 100-year floodplain (Zone A)	1:100 years	Yes
Wildfire	Residential areas interfacing Puente Hills	California Department of Forestry and Fire Protection's Fire and Resource Assessment Program rating is "Very High"	1:100 years	Yes
Drought	Entire Planning Area	Water conservation requirements and reduced water supply	1:10 years	Yes
Heat Waves[1]	Entire Planning Area	Stressed electrical grid and rolling blackouts	1:10 years	Yes

Source: City of Whittier Natural Hazards Mitigation Plan, 2015, and MIG, 2020.

See the Natural Hazards section of this element for goals and policies related to seismic, wildfire, and flooding hazards. See the Climate Adaptation section for goals and policies related to heat waves and drought.

emergency operations plan

The City maintains a detailed Emergency Operations Plan (EOP). The EOP is reviewed annually and approved by the federal government every five years. The EOP establishes the emergency organization, assigns tasks, specifies policies and general procedures, and provides for coordination of planning efforts

for the various emergency staff utilizing the State's Standardized Emergency Management System and National Incident Management.

police services

Law enforcement services are provided by the City of Whittier Police Department, which operates out of its headquarters adjacent to City Hall. Although the Whittier Police Department operates out of a single central headquarters located in the Civic Center, officer teams are each assigned to operate in four distinct areas of the City. Under this geographic policing structure, officers can develop familiarity with the community safety issues in the areas to which they are assigned. The City strives to provide each geographic area with "24-7" service, with at least one member of every geographical team always working.

Uptown Bike Patrol, Uptown Whittier

Whittier College operates its own Department of Campus Safety to protect the campus community and campus property. Campus Safety patrols the campus 24 hours a day, seven days a week.

Unincorporated areas of Whittier receive law enforcement services from the Los Angeles County Sheriff's Department, with the closest station locations in Pico Rivera and Norwalk.

achieving and maintaining a high level of police services

The Police Department's motto is "Quality People - Quality Services." As of 2019, the Police Department employed 121 sworn officers and 55 civilian staff, with a ratio of approximately 2.0 law enforcement employees (officers and civilians) per 1,000 Whittier residents. While this ratio is low compared to many comparably sized cities, it attests to a more limited need in Whittier for law enforcement services.

crime prevention

The Police Department focuses on enhancing community safety, particularly working intensely to reduce gang activity and drugs and property crimes. Gang-related crimes are a key issue of concern for residents. As a response, the Special Enforcement Team is responsible for identifying and impacting areas of recurring criminal activity and for directed gang enforcement. The Public Works Department Graffiti

RPC 2(d)(ii)

Abatement program aggressively remedies graffiti and vandalism to improve property appearances citywide—thus discouraging criminal presence.

fire prevention and response services

As noted above, the City contracts with the Los Angeles County Fire Department for a multitude of prevention and response services. The Fire Department operates three fire stations in Whittier and adjacent unincorporated areas. A fourth station designated as a Whittier fire station lies just outside the City's sphere. Nearly all areas of Whittier are located within two miles of one of these fire stations (see Figure PSNH-1). Nearby County fire stations in Santa Fe Springs and Pico Rivera also provide fire protection services to Whittier neighborhoods. In addition to the Los Angeles County Fire Department, the following agencies and organizations are involved with fire and emergency response: Los Angeles County Operational Area Emergency Management, Mutual Aid Region, State Emergency Management, City of Whittier Police.

The City has adopted the California Fire Code, with City amendments and exceptions to address specific local conditions and needs. These provisions include construction standards and fire hydrant requirements in new structures and remodels, road widths and configurations designed to accommodate the passage of fire trucks and engines, and requirements for minimum fire-flow rates for water mains.

goals and policies

emergency preparedness and safety services

Goal 1: A resilient community well prepared to minimize risks associated with natural hazards and disasters

- PSNH-1.1: Provide public education to promote community awareness and preparedness for self-action in the event of a major disaster or emergency.
- PSNH-1.2: Promote improved inter-jurisdictional consultation and communication regarding disaster or emergency plans of Los Angeles and Orange Counties, and for seismic safety upgrades of public facilities and infrastructure such as dams, reservoirs, and highway structures.
- PSNH-1.3: Partner with neighboring cities, regional agencies, local school districts, Whittier College, local businesses, and community organizations to conduct emergency and disaster preparedness exercises that test operational and emergency response plans.

- PSNH-1.4: Ensure operational readiness of the Emergency Operations Center (EOC) by conducting annual training for staff and maintaining, testing, and updating equipment to meet current standards.
- PSNH-1.5: Train and educate public volunteers in basic disaster response skills, such as fire safety, light search and rescue, team organization, and disaster medical operations.

Goal 2: Superior law enforcement and public safety services

- PSNH-2.1: Provide the highest possible quality of fire, police, and health protection for all Whittier residents.
- PSNH-2.2: Work with the Police Department and Los Angeles County Fire Department to determine and meet community needs for services.
- PSNH-2.3: Ensure that adequate safety lighting is provided at all City facilities and places the public uses frequently, including but not limited to parks, recreational facilities, City Hall, sidewalks/streets, plazas, paseos, and alleys.
- PSNH-2.4: Require elements of crime prevention through building design (CPTED) to be integrated into new construction and building modernization projects.
- PSNH-2.5: Involve public safety officials in the review of development plans.
- PSNH-2.6: Encourage multi-family building owners to provide active or onsite building management to promote and encourage adherence to the roles and regulations that govern the occupancy of multifamily buildings.
- PSNH-2.7 Enhance vehicular, pedestrian, and bicyclist traffic flow and safety, especially near sensitive sites such as schools to fulfill Safe Routes to School Plan and other mobility and safety plans.
- PSNH-2.8: Coordinate with residents, businesses, school districts, and community and neighborhood organizations to develop and expand partnerships to prevent crime, build public trust, and proactively address public safety issues.
- PSNH-2.9: Maintain Police Department programs that support residents and businesses in community efforts to prevent crime and improve neighborhood safety.
- PSNH-2.10: Coordinate with school districts to provide services that help at-risk youth avoid making poor choices or facing adverse life conditions, with services including on-site counseling, crisis intervention services, emergency hotlines, case management services, job and internship opportunities, and recreation programs.

- PSNH-2.11: Maintain and implement programs that address property maintenance conditions that foster crime or the fear of crime, such as blight, litter, graffiti, illegal dumping, and abandoned vehicles.

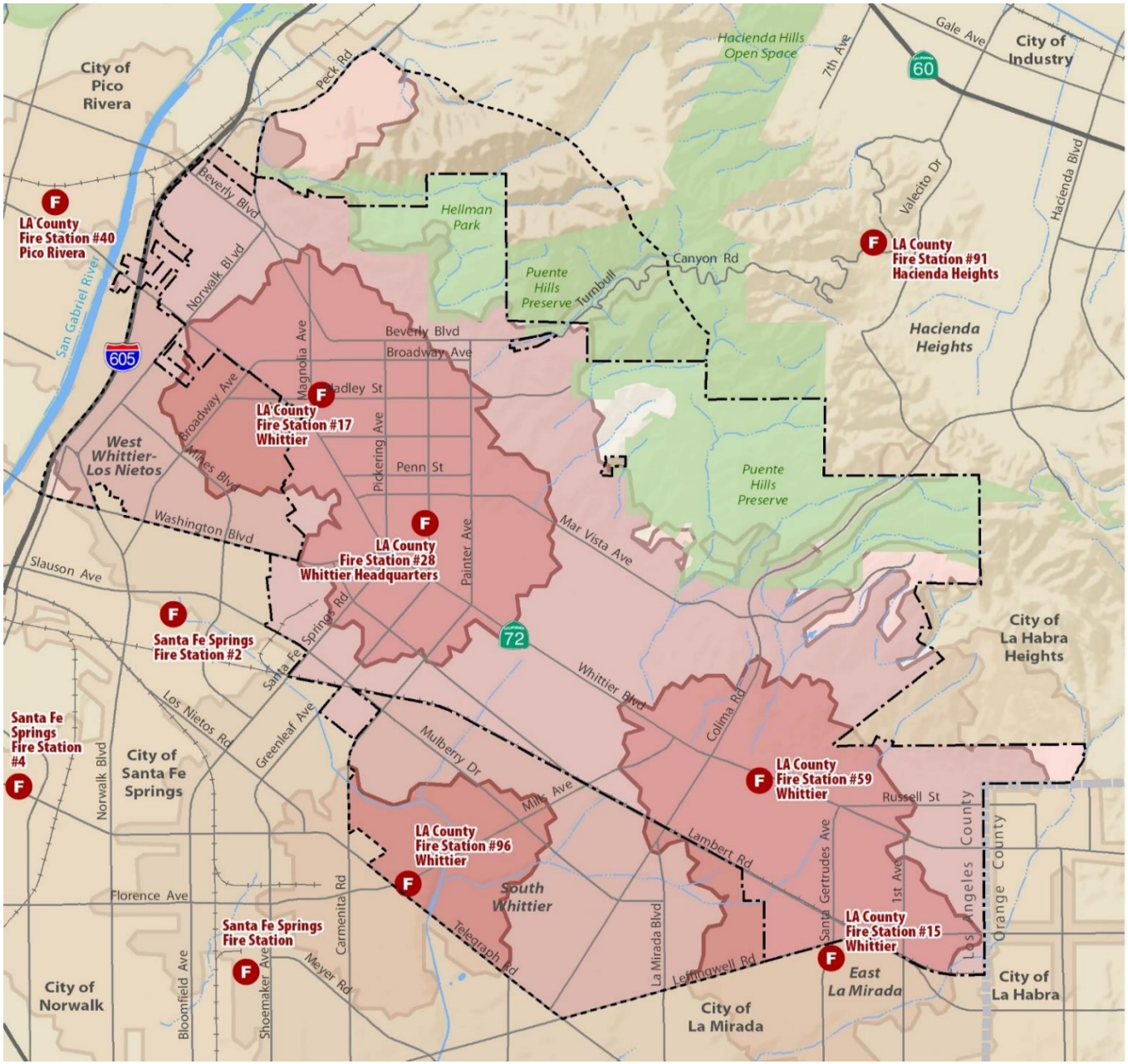


Figure PSNH-1: Fire Stations

Los Angeles County Fire Stations

- Fire Stations

Service Areas

- One-Mile Service Area
- Two-Mile Service Area
- Three-Mile Service Area

Base Map Features

- Whittier City Boundary
- Whittier Sphere of Influence
- County Boundary
- Major Streets
- Freeways
- Railroads
- River and Creeks
- Waterbodies
- Open Space/Natural Areas

The City-owned parcel near Whittier Narrows is not included in this map to improve readability.

0 1,000 2,000 4,000 6,000 8,000 Feet

RPC 2(d)(ii)

- PSNH-2.12: Ensure that Police Department equipment and facilities are maintained at levels that meet modern standards of safety, dependability, and efficiency.
- PSNH-2.13: Ensure that all Police officers receive comprehensive cultural competency training to better serve the needs of Whittier's diverse population.

Goal 3: Reduced risk of fire and minimized consequences from fire events

- PSNH-3.1: Prevent fires by conducting routine inspections, incorporating fire safety features in new development, and educating the public to take proactive action to minimize fire risks.
- PSNH-3.2**:** Ensure that the City has adequate Fire Department resources (fire stations, personnel, and equipment) to meet response time standards, keep pace with growth, and provide a high level of service to the community.
- PSNH-3.3: Enforce fire standards and regulations in the course of reviewing building plans and conducting building inspections.
- PSNH-3.4: Require new development projects to have adequate water supplies to meet the fire-suppression needs of the project without compromising existing fire suppression services to existing uses.
- PSNH-3.5: Maintain code enforcement programs that require private and public property owners to minimize fire risks by maintaining buildings and properties to prevent blighted conditions, removing excessive or overgrown vegetation (e.g., trees, shrubs, weeds), and removing litter, rubbish, and illegally dumped items from properties.

.

natural hazards

- **seismic hazards**
- **wildfire hazards**
- **flooding and dam inundation hazards**

Natural hazards refer to natural phenomena that, because of their location, severity, and frequency, have the potential to adversely affect humans and structures. Earthquakes and intensive storm events are examples of natural hazards. Although humans can do little or nothing to change the incidence or intensity of most natural phenomena, we play an important role in ensuring that natural events do not evolve into disasters due to our inattention or malfeasance.

Climate change affects global temperature and precipitation patterns. These effects, in turn, influence the intensity and, in some cases, the frequency of extreme environmental events such as wildfires, heat waves, floods, droughts, and storms.

Emergency preparation and response strategy for both first responders and the community can prevent or mitigate adverse consequences.

seismic hazards

Seismic hazards refer to the physical phenomenon associated with and precipitated by earthquakes, including ground shaking, landslides, and liquefaction, among others. The intensity of these unfavorable consequences resulting from seismic shifts vary depending upon the epicenter location, locally occurring geologic conditions, and the density and type of development in the impacted area. Whittier lies within a region crisscrossed by faults, and these fault systems—notably the San Andreas fault system—have the potential to unleash tremendous tectonic forces.

earthquakes (ground shaking)

Earthquakes in California occur with some frequency. The most significant historical earthquakes affecting Whittier was the October 1, 1987, Whittier Narrows Earthquake (magnitude 5.9) and its October 4, 1987, aftershock (magnitude 5.5). The Uptown area, with its many unreinforced masonry buildings, was by far the hardest hit. At least 200 residences and 30 businesses were badly damaged.

Most of the severe damage was to structures built before 1930. The City's Building and Safety Department found that 5,100 buildings were damaged by the quake, and of those, about 200 were deemed unsafe.

Whittier has a predominantly older housing stock, with most of the housing built prior to 1960. These older structures could be vulnerable to considerable damage in the event of a significant seismic event. A major earthquake occurring in or near Whittier could cause many deaths and injuries, extensive

property damage, fires, hazardous material spills, and other dangers. Aftershocks and the secondary effects of fire, hazardous material/chemical accidents, and possible failure of dams and waterways could aggravate the situation.

landslides and liquefaction

Landslides and liquefaction represent two seismically induced hazards. Both are secondary earthquake hazards that occur from ground shaking. Seismically induced slope failure can be expected within the Puente Hills, where slopes are 35 degrees or greater. During the Whittier Narrows earthquake, dust clouds rose over the southern flank of the San Gabriel Mountains from rock falls and surface land sliding from road cuts. Landslides also occurred in Turnbull Canyon (see Figure PSNH-3).

Soil liquefaction is a seismically induced form of ground failure, which has been a major cause of earthquake damage in Southern California. In Whittier, liquefaction hazards are present along drainage channels and on properties south of Lambert Road where high groundwater conditions exist (see Figure PSNH-3).

minimizing risk

These high-level approaches minimize risk and help the community prepare for earthquakes:

- **Prepare.** Preparation at all levels of government and by residents, businesses, schools, and institutions is vital. Earthquake preparedness can include obtaining medical supplies and food for several days, knowing how to respond during an earthquake, and creating a family or business evacuation plan and/or safety plan. Medical and safety service staff are required to consistently conduct training in response to large disaster, with the City responsible for coordinating with other agencies and medical facilities.
- **Protect.** New construction projects are required to meet building codes to ensure new buildings are earthquake resistant. Thus, “protect” initiatives focus on addressing older buildings and critical infrastructure. Whittier has few remaining unreinforced masonry buildings; many older structures collapsed or were destroyed during the 1987 Whittier Earthquake. Seismic retrofitting of older existing buildings is critical, not just for the remaining unreinforced masonry buildings but also homes on raised foundations that have not been strengthened. Due to the cost, most homeowners do not carry earthquake insurance (only about 10 percent statewide do), and the costs of addressing earthquake damage likely will be incredibly high following a major event. “Protect” extends to critical

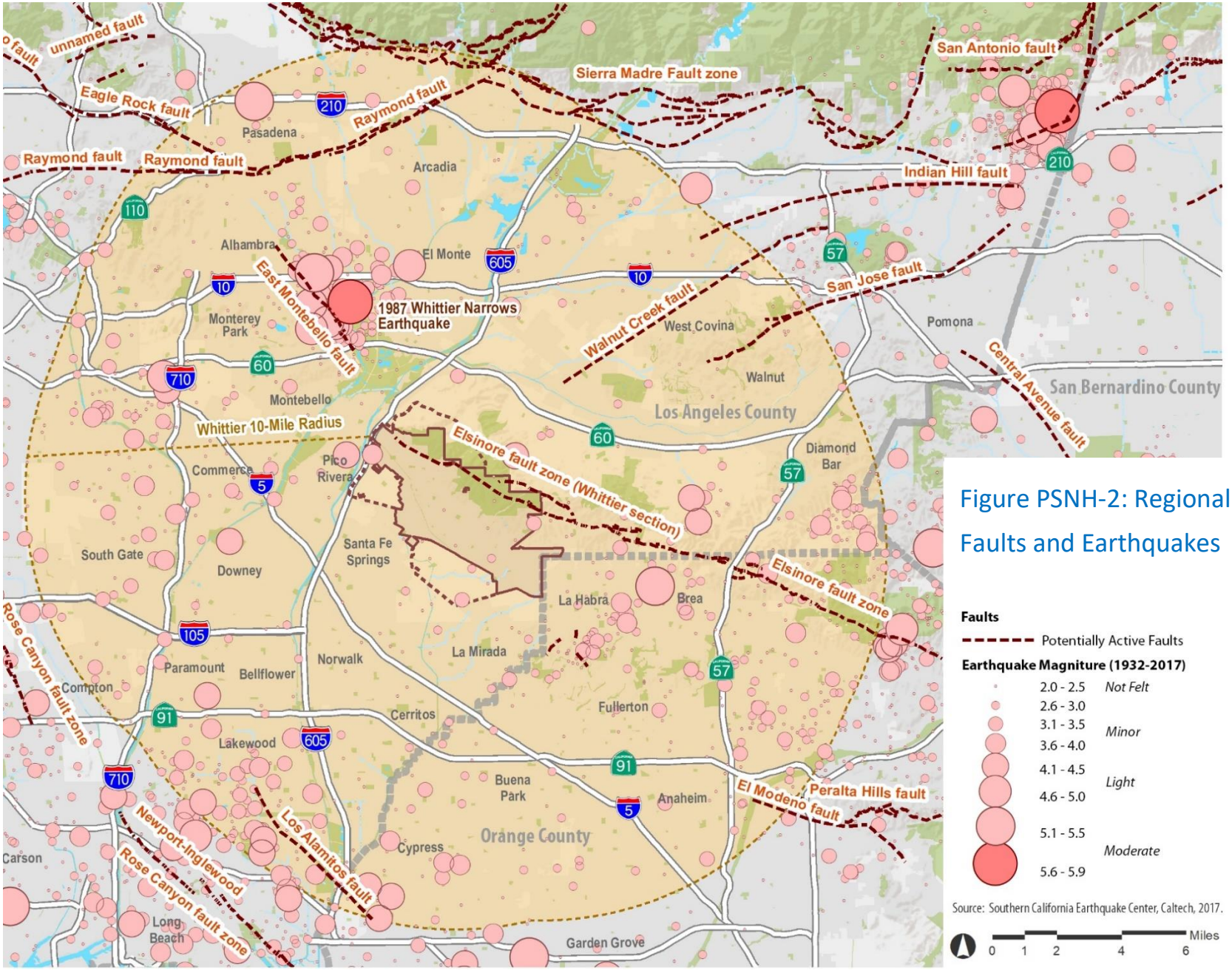


Figure PSNH-2: Regional Faults and Earthquakes

RPC 2(d)(ii)

Figure PSNH-3: Local Seismic Hazards and Earthquake Faults

Whittier Fault (Elsinore Fault Zone)

- Fault, Certain Location
- Reverse Fault, Certain
- Fault, Approximately Located
- Fault, Concealed

Seismically Induced Hazard Zones

- Landslides
- Liquefaction

Base Map Features

- Whittier City Boundary
- Whittier Sphere of Influence
- County Boundary
- Major Streets
- Freeways
- Railroads
- River and Creeks
- Waterbodies

The City-owned parcel near Whittier Narrows is not included in this map to improve readability.

0 1,000 2,000 4,000 6,000 8,000 Feet

infrastructure to ensure that roads, utility lines, communications networks can continue to function post-earthquake.

- **Recover.** After an earthquake, returning the community to normal functioning operations and services will be critical to mitigate potential economic and social stresses. In the short term, communications and multi-agency coordination is critical to respond to aid and evaluation of damage to infrastructure. Recovery should then focus on the repair and rebuilding of public facilities and services, businesses, and housing. The Governor's Office of Emergency Services provides detailed information for governments in post-recovery responses and approaches.

goals and policies

natural hazards

Goal 4: A community well prepared to respond to a major seismic event and to minimize risk of injury, loss of life, property damage, and social service and economic impacts

- PSNH-4.1: Educate the community on actions to take before, during, and after a major earthquake.
- PSNH-4.2: Encourage residents and businesses to undertake seismic retrofitting of existing structures.
- PSNH-4.3: Ensure that all new development abides by current City and State seismic and geotechnical requirements.
- PSNH-4.4: Identify a plan of action and consult with different responsible agencies to respond to and recover from a major earthquake.
- PSNH-4.5: Strive to ensure that all utility and infrastructure systems have continued functionality during and after a major earthquake.
- PSNH-4.6: Require that projects in areas susceptible to liquefaction, landslides, and other geologic hazards demonstrate that all appropriate engineering and planning mitigations are implemented.

RPC 2(d)(ii)

wildfire hazards

2020 Brush Fire in hills northeast of Whittier
Courtesy of NBC Los Angeles

The brush-covered Puente Hills historically have burned and continue to pose wildland fire hazards to the adjoining foothill residential neighborhoods. Long, dry summers and climate change combined with the highly flammable vegetation, Santa Ana wind conditions, and steep slopes significantly increase wildfire potential. Rising global temperature have extended Southern California's fire season, requiring extra vigilance through December. Understanding the risks associated with development in and near fire-prone areas can help advance planning to reduce the risks associated with major wildland fires.

Properties along the hillslopes are designated as having a "high" fire hazard, with some areas even classified "very high" fire hazard (see Figure PSNH-4: Wildfire Hazards). As historical fires in the areas have shown, the hillside terrain, vegetation, and potential for high winds create conditions where wildfires present a major risk to structures and people within and adjoining Fire Hazard Severity Zones.

Figure PSNH-4 includes identification of disaster and evacuation routes generally to be used in the event of a wildfire. However, the County may use alternative routes depending upon a fire's location and anticipated spread, local traffic conditions, and size of the population to be evacuated.

puente hills habitat preservation authority wildfire prevention

The Puente Hills Habitat Preservation Authority (Habitat Authority) is dedicated to the restoration and management of open space in the Puente Hills, including implementing wildfire preparedness approaches. The Habitat Authority contracts with the Mountains Recreation and Conservation Authority (MRCA) to provide ranger services, with the rangers trained as wildland firefighters. During fire season, fire patrol ranger units stand ready to extinguish fires and protect structure. In partnership with the Los Angeles County Fire Department, the MRCA has developed an Emergency Response Map to provide firefighters with pertinent information about the Puente Hills Preserve to be used at Incident Command, such as locations of drivable trails and roads, sensitive habitat, helipads, and gates. Additionally, the Habitat Authority proactively conducts fuel modification to create defensible space through the removal of dead and flammable trees within modification zones and has conducted habitat restoration with the goal of removing "flashy fuels" and replacing them with less combustible native plants.

minimizing risk

The City's key strategies for minimizing the toll of seasonal wildfires are as follows.

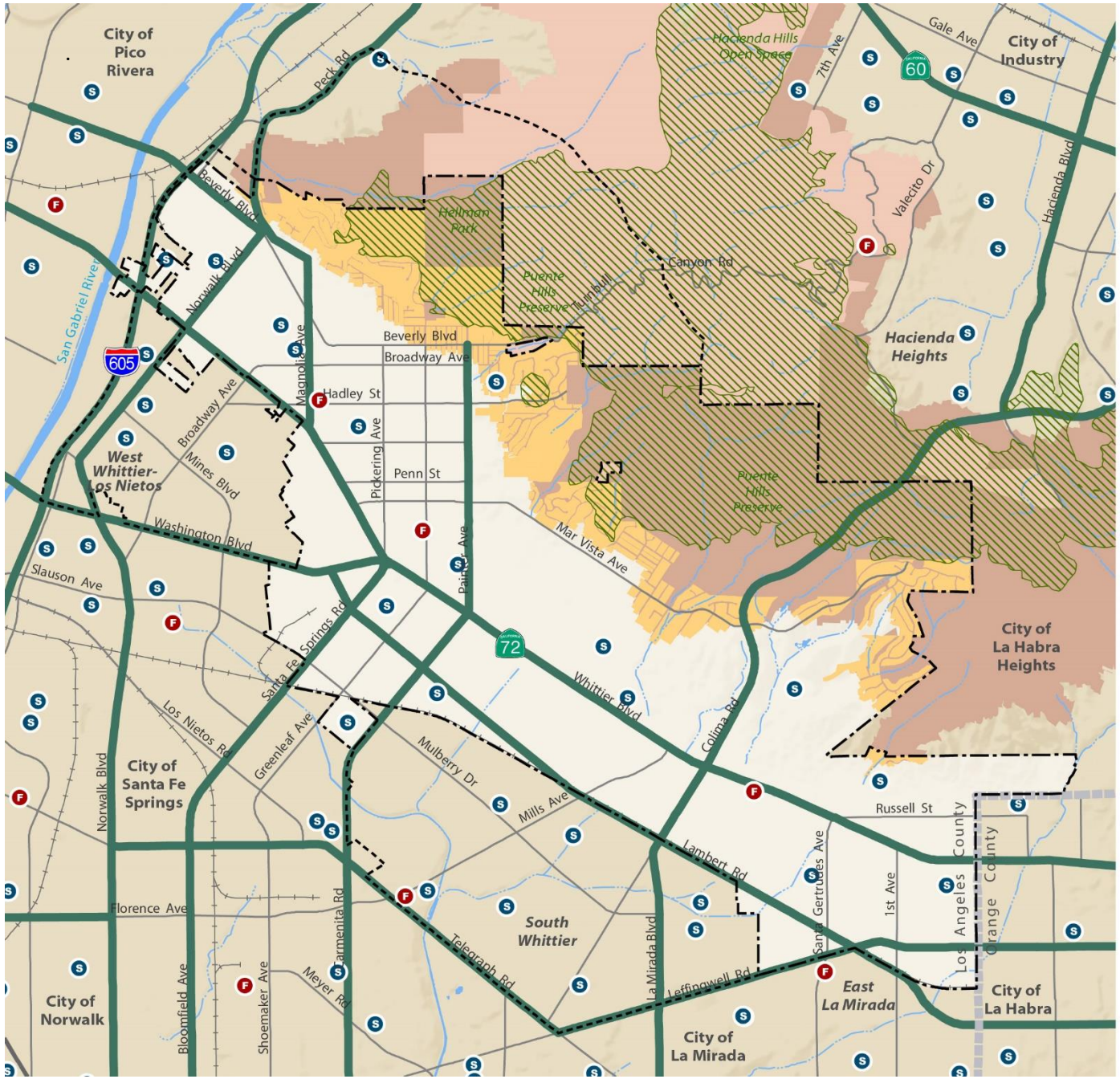
- **Prevention and Awareness.** Neighborhoods in Whittier exist along the urban/wildfire interface. Because these interface conditions will continue, educating the public about the natural role of fire and measures they can take to best protect properties from wildfires will be critical to minimizing potential property damage and loss of life. Education and enforcement campaigns need to occur year-round, with extra effort expended prior to the fire season. Prevention can include fuel medication and defensible space strategies, restricting construction of new structures in wildfire zones, building wildfire resistance structures, and modifying existing structures.

Los Angeles County Station 59
Courtesy of LA County Fire Department

- **Protection.** The goal in any firefighting operation is to provide adequate supplies and fire suppression services to protect buildings and infrastructure in immediate danger from a wildfire. In Whittier, at least 3,000 structures lie within the Very High Fire Hazard Severity Zone. Coordination among multiple firefighting agencies and mutual aid agreements are needed to fight major wildfires in the Puente Hills. Ensuring adequate water supplies and pressure is critical. Additionally, warning systems and clear delineation of evacuation routes can protect lives.
- **Recovery.** Following a major fire, the community may face the need to fix damaged infrastructure. Addressing repair/replacement of burned homes needs to include a thorough assessment of how to minimize recurrences. Consultation with the Habitat Authority will support restoration of habitat areas and trails and provide for rapid replanting (with appropriate species) to guard against mudslides.

RPC 2(d)(ii)

Figure PSNH-4: Wildfire Hazards



The City-owned parcel near Whittier Narrows is not included in this map to improve readability.

RPC 2(d)(ii)

goals and policies

wildfire

Goal 5: A community that proactively prevents wildfires and protects life, property, infrastructure, and habitats from wildfire impacts

- PSNH-5.1: Minimize new residential development within the Very High Fire Hazard Severity Zones.
- PSNH-5.2: Require special on-site fire protection measures to be specified during project review for areas where wildfire hazards potential exists, specifically areas of hilly areas with slopes of 10 percent or greater, access problems, lack of water or sufficient pressure, and/or excessively dry brush.
- PSNH-5.3: Ensure new development adheres to California Government Code sections 51175 to 51189 related to Very High Fire Hazard Severity Zones, all requirements in the California Building Code and California Fire Code, and the Board of Forestry and Fire Protection Fire Safe Regulations.
- PSNH-5.4: Regulate and enforce the installation of fire protection water system standards for all new construction projects within Very High Fire Hazard Severity Zones, including the installation of fire hydrants providing adequate fire flow, fire sprinkler, or suppression systems.
- PSNH-5.5: Require new development within Very High Fire Hazard Severity Zones to include a fire protection plan that addresses landscape/fuel modification installation, incorporates open areas to complement defensible spaces, identifies possible refuge areas, and maps multiple ingress and egress routes.
- PSNH-5.6: Require new development within Very High Fire Hazard Severity Zones to provide pre-plans for fire risk areas that address resident evacuation and ways to effectively communicate those plans, including identifying the location and direction of evacuation routes and at least two points of ingress and egress.
- PSNH-5.7: Require new development within and adjoining Very High Fire Hazard Severity Zones to prepare a roadside fuel reduction plan to prevent fires along public roads caused by vehicles
- PSNH-5.8: Require new development, and as feasible with existing development, to provide long-term maintenance of defensible space clearances around structures, subdivisions, and fuel breaks within Very High Fire Hazard Severity Zones.

RPC 2(d)(ii)

- PSNH-5.9: Conduct a survey of existing residential structures within the Very High Fire Hazard Severity Zones to identify non-conforming buildings related to fire safety standards and consult with property owners to bring those properties into compliance with the most current building and fire safety standards.
- PSNH-5.10: Identify at-risk populations that would be vulnerable during wildfire evacuations and provide information regarding defensible space and evacuation routes.~~.~~
- PSNH-5.11: Identify measures to preserve undeveloped ridgelines to reduce fire risk and improve fire protection.
- PSNH-5.12: Locate essential public facilities out of high-risk, wildfire-prone areas unless additional mitigation measures are put into place above the minimum fire protection standards.
- PSNH-5.13: Collaborate with the regional fire agencies and the Puente Hills Landfill Habitat Preservation Authority on different strategies available to maintain diverse plant composition (e.g., less combustible native plants), undertake appropriate thinning of vegetation, and maintain fuel breaks without permanently damaging native habitat. As appropriate, refer to and implement appropriate strategies of the Los Angeles County Fire Department Strategic Fire Plan.
- PSNH_5.14: Conduct a survey of public and private streets to determine those that lack two means of ingress and egress and inadequate evacuation routes. Identify and implement measures to mitigate the single access.
- PSNH-5.15: Require all structures re-developed/re-built in the VHFSZs after a large fire to comply with building and fire codes in effect at the time of the re-development.
- PSNH-5.16: Conduct a study to establish re-development policy for all structures in VHFSZs after large fires.

PSNH-5.17: Continue to work with Los Angeles County Fire Department to ensure that fire services are maintained at adequate levels. While working with the Los Angeles County Fire Department, monitor the City of Whittier's fire protection rating and work with the Los Angeles County Fire Department to correct deficiencies and to ensure ongoing training is conducted.

flooding and dam inundation hazards

Historically, large areas of the San Gabriel Valley were subject to seasonal flooding associated with major storms, with stormwaters overflowing the banks of the San Gabriel and Rio Hondo Rivers and spreading across adjacent lands. Beginning in the 1950s, the U.S. Army Corps of Engineers and Los Angeles County Department of Public Work impounded the floodwaters behind dams and channelized the rivers to protect the growing region from flood hazards associated with 100-year and 500-year storm events, thus creating a high degree of flood protection. As a result, Whittier has minimal flood hazards, as shown on Figure PSNH-5.

A common misconception is that a 100-year flood is a flood that occurs once every 100 years. However, the phrase really means a flood that has a one percent chance of occurring in any given year.

The 500-year flood zone is a designated area that has a 1 in 500 (0.2%) chance of being met or exceeded in any given year. A 500-year flood would likely be more catastrophic than a 100-year flood.

The Federal Emergency Management Agency (FEMA) has not mapped any 100-year flood zones in Whittier, meaning that flood hazards are minimal and flood insurance is not required for any property owner with a federally backed mortgage. Risk of flooding from a 500-year flood event occurs in small pockets of the City, but the risks are so low that federal programs do not require flood insurance.

The most notable local flooding occurred during the El Nino-driven winter storms of 1995. The storms led to slow-rise flooding caused by extremely heavy rainfall. During periods of urban flooding such as this, streets can become swift moving rivers and sub-grade building areas can fill with water. Storm drains may back up with vegetative debris, causing additional localized flooding.[i] These conditions represent rare occurrences and can best be addressed via regular street cleaning, debris removal, and maintenance of local storm drain facilities. Also, retrofitting hard-surface drainage control facilities with bioswales, landscaped parkways, and similar low-impact development (LID) approaches can reduce the volume and slow the speed of stormwater runoff—and also provide groundwater recharge benefits.

Dam inundation represents a more remote flood risk. The Hoover Reservoir in Whittier's northwest hills is an above-ground facility engineered to withstand ground shaking and other stresses. If it were to fail for any reason, properties immediately below the reservoir (see Figure PSNH-6) would be subject to

RPC 2(d)(ii)

almost immediate inundation, with water continuing down the hill along streets and low-lying areas. Regular monitoring of reservoir integrity guards against such catastrophes.

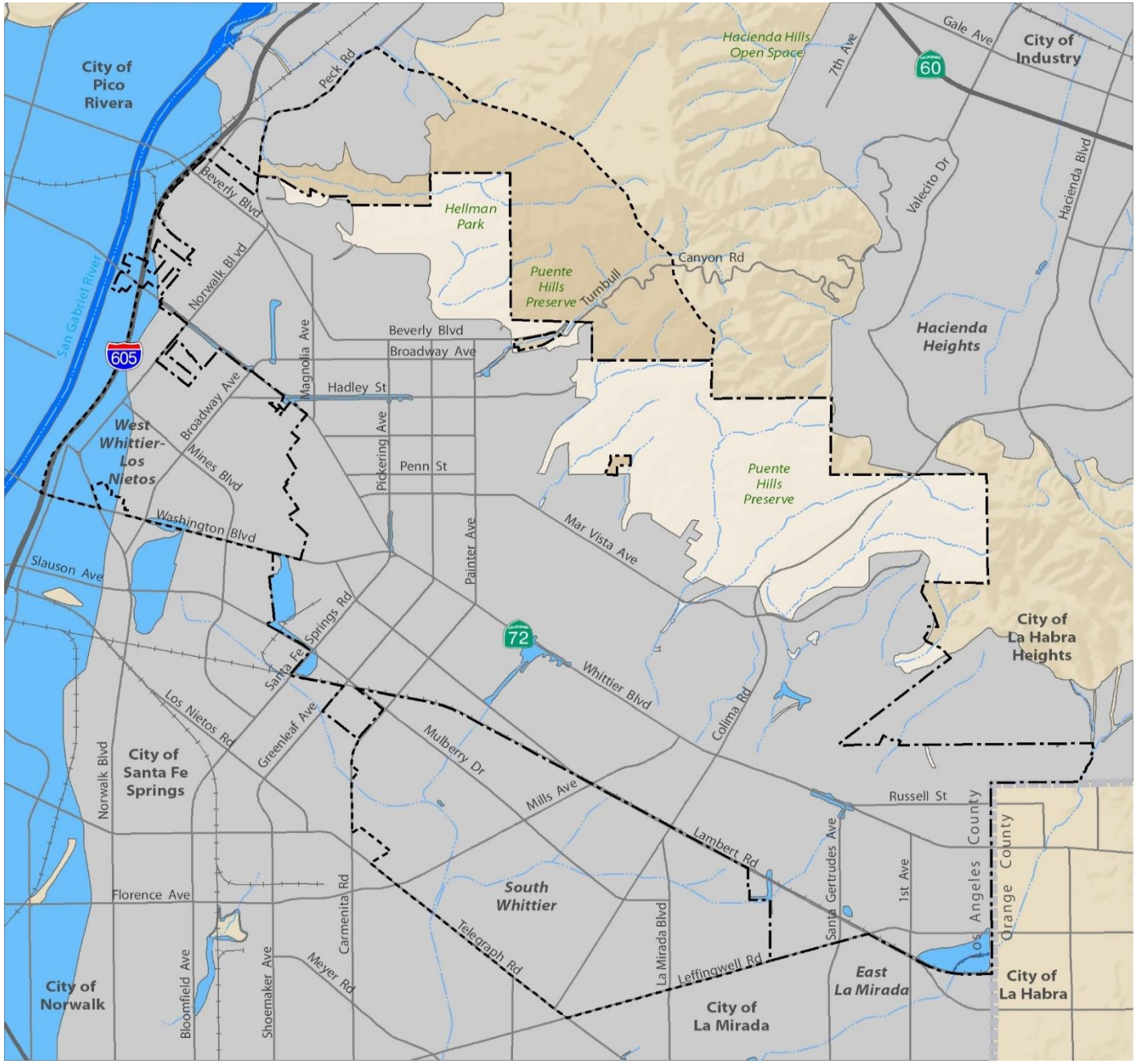


Figure PSNH-5: Flooding Hazards

FEMA Flood Zones

- 100-Year Flood Zone
- 500-Year Flood Zone
- Area of Minimal Flood Hazard

Base Map Features

- Whittier City Boundary
- Whittier Sphere of Influence
- County Boundary
- Major Streets
- Freeways
- Railroads
- River and Creeks

The City-owned parcel near Whittier Narrows is not included in this map to improve readability.

0 1,000 2,000 4,000 6,000 8,000 Feet

RPC 2(d)(ii)

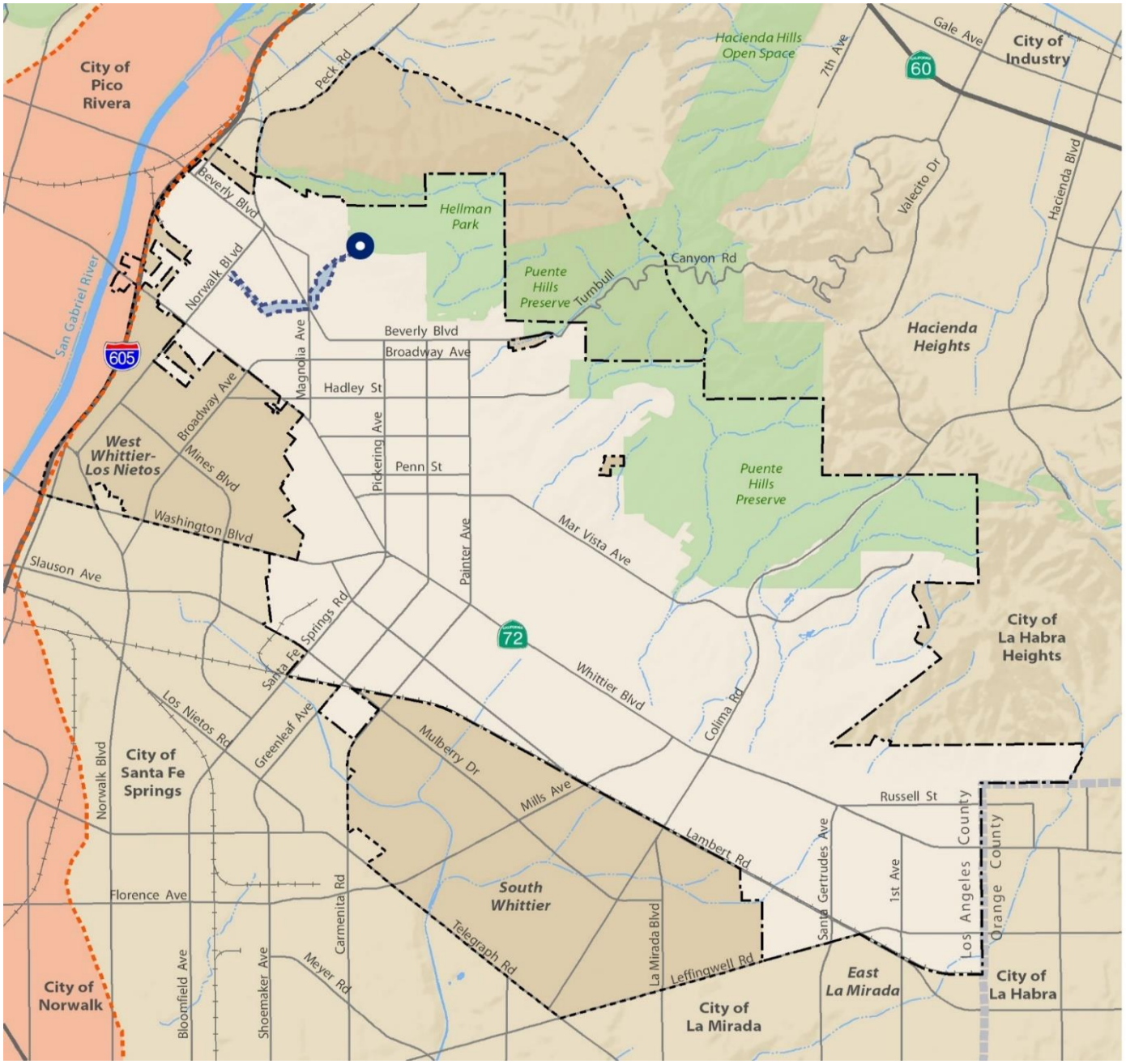


Figure PSNH-6: Inundation Hazards

Inundation Limits

- Whittier Narrows Indundation Limits
- Hoover Reservoir Indundation Limits
- Hoover Reservoir

Base Map Features

- Whittier City Boundary
- Whittier Sphere of Influence
- County Boundary
- Major Streets
- Freeways
- Railroads
- River and Creeks
- Waterbodies
- Open Space/Natural Areas

The City-owned parcel near Whittier Narrows is not included in this map to improve readability.

0 1,000 2,000 4,000 6,000 8,000 Feet

RPC 2(d)(ii)

The Whittier Narrows Dam holds nearly 10 million gallons of water.[ii] The U.S. Army Corps of Engineers determined that the 60-year-old Whittier Narrows Dam is structurally unsafe and poses a potentially catastrophic risk to the communities along the San Gabriel River floodplain. In addition, engineers found that the mile-long earthen structure could fail if water were to flow over its crest or if seepage eroded the sandy soil underneath. The Corps' report (based on research conducted in 2016) concluded that unusually heavy rains could trigger a premature opening of the dam's massive spillway. The inundation area affects a very small section of west Whittier, including the City's wellfield and water pumping station.[iii] The I-605 freeway largely provides a barrier to flood waters, as shown on Figure PSNH-6.

goals and policies

flooding and dam inundation hazards

Goal 6: A community well protected from flood hazards

- PSNH-6.1: Maximize the resiliency of essential public facilities to risks and hazards of flooding.
- PSNH-6.2: Evaluate the need to expand the capacity of flood control facilities to minimize flood hazards resulting from extreme weather events.
- PSNH-6.3: Monitor the work of the Army Corps of Engineers' and other federal agencies' response plan to repair the Whittier Narrows Dam.
- PSNH-6.4: Encourage natural flood control infrastructure and techniques to capture storm water, recharge aquifers, and prevent flooding near established drainage systems and channels.
- PSNH-6.5: Encourage site drainage features that reduce impermeable surface area, increase surface water infiltration, and minimize surface water runoff during storm events.

RPC 2(d)(ii)

pollution exposure

- **hazardous materials**
- **oil production**
- **contamination**

hazardous materials

Many common urban uses—consider gas stations and dry cleaners—produce hazardous waste. Every day, even households dispose of containers with remnants of hazardous materials (drain cleaners, yard pesticides) that all together add up to volumes of materials requiring proper disposal to guard against environmental and human harm. The EPA's Toxic Release Inventory Program manages a database of facilities that emit toxic chemicals known to be harmful to human health and tracks hazardous waste transporters. The State of California categorizes hazardous waste generators as either Small Quantity Generators or Large Quantity Generators. In addition, hazardous waste can be transported by air, rail, or highway. The Toxic Release Inventory identified generators, transporters, and transfer facilities, as shown Figure PSNH-7 for year 2020. (This map is representative, as the locations change every year as businesses come and go.)

As of 2020, more than 20 locations in Whittier and adjacent Sphere of Influence areas had been identified by the EPA as large-quantity hazardous waste generators. The majority of LQGs are manufacturing facilities located west of Painter Avenue. As a result, the neighborhoods in western Whittier, including areas of the Sphere of Influence, may be exposed to more pollution and hazardous materials than other are

Small quantity generators *(SQGs) in the Planning Area produce 220 pounds to 2,200 pounds of hazardous waste per month.* ***Large quantity generators*** *(LQGs) produce more than 2,200 pounds of waste per month.*

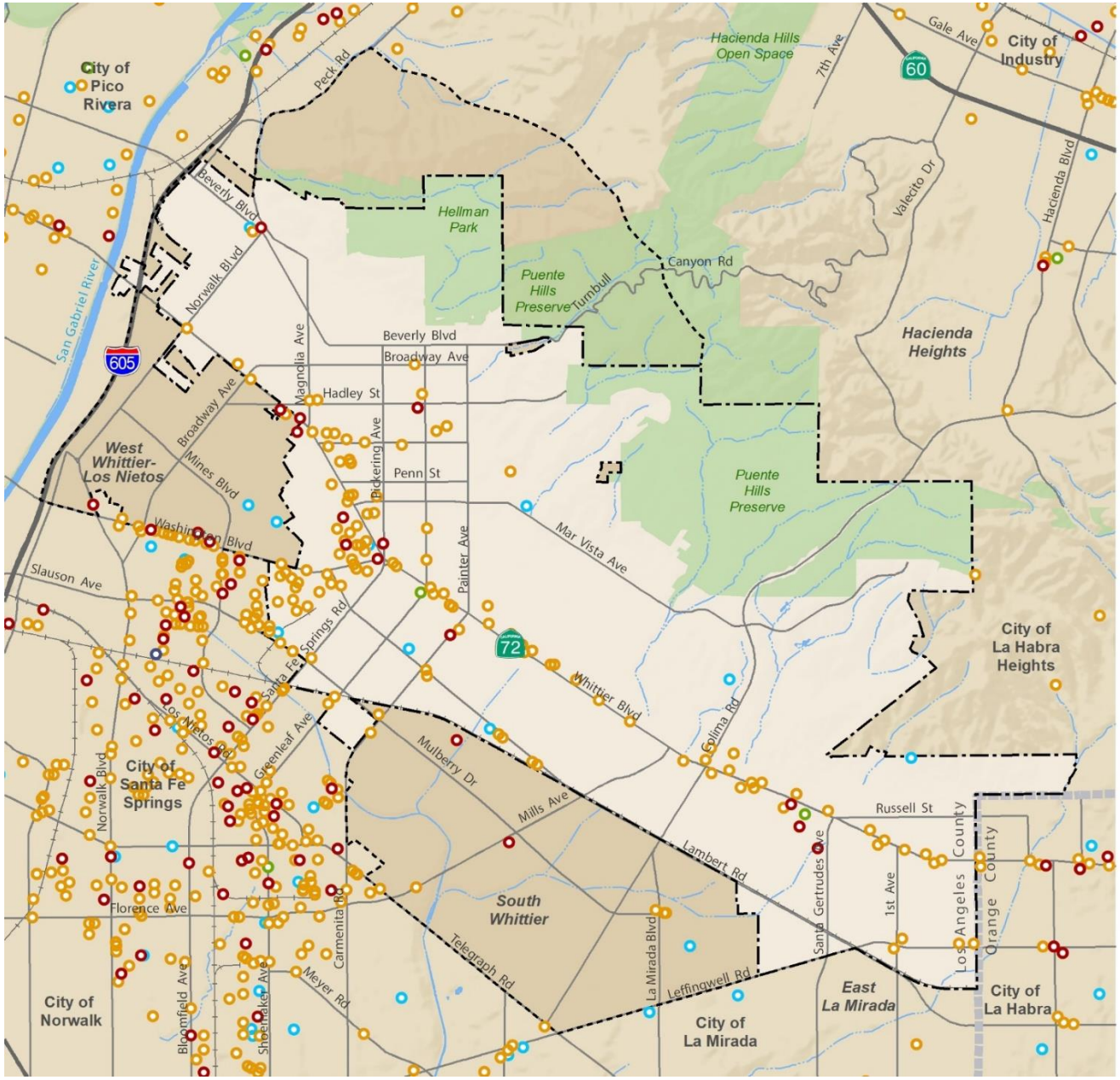


Figure PSNH-7: Hazardous Waste Generators

Hazardous Waste

- Large Quantity Generator (LQG)
- Small Quantity Generator (SQG)
- Conditionally Exempt SQG (CESQG)
- Hazardous Waste Transporter
- Transfer Facility

LQG: A business that generates more than 2,200 lbs per month of hazardous waste

SGQ: A business that generates more than 220 lbs but less than 2,200 lbs of hazardous waste per month

CESGQ: A business that generates less than 220 lbs of hazardous waste per month

Base Map Features

- Whittier City Boundary
- Whittier Sphere of Influence
- County Boundary
- Major Streets
- Freeways
- Railroads
- River and Creeks
- Waterbodies
- Open Space/Natural Areas

The City-owned parcel near Whittier Narrows is not included in this map to improve readability.

0 1,000 2,000 4,000 6,000 8,000 Feet

RPC 2(d)(ii)

oil production safety

Whittier's early growth and prosperity can be attributed to oil production within the Puente Hills. Starting at the turn of the nineteenth century, over 500 oil wells have been drilled to extract oil from the Whittier Main Oil Field. This oil field was in production for nearly 100 years. However, operations declined significantly in the 1990s with steep reductions in oil prices and escalating regulatory costs. With the decline of oil production activities, the City purchased the majority of the former oil fields with bond funds with the goal of preserving this land as open space and wildlife habitat. This land is now managed for the City by the Puente Hills Habitat Preservation Authority, a joint powers agency with members including the City of Whittier, County of Los Angeles, Los Angeles County Sanitation District, and Hacienda Heights Improvement Association.

The City may pursue awarding leases to oil and gas production companies to allow the right to extract of oil and gas from the Whittier Main Oil Field (see Figure PSNH-8). This could include drilling exploratory oil wells and extracting oil, gas, and other hydrocarbons, such as natural gas liquids, from the land. In exchange for these rights, the City will be able to generate a substantial long-term income stream for preservation and enhancement of the open spaces and native habitat, while minimizing the degradation and pollution that can result from extraction and drilling.

More information about local oil production can be found in the Resources Element under Mineral Resources.

contamination

superfund site

The 1980 federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) was adopted to create the means to effectuate removal of contaminated water, air, and soils resulting from past chemical disposal practices. This act, referred to commonly as the Superfund Act, contains a list of sites referred to as Superfund sites. CERCLA allows for the collection of taxes from the chemical and petroleum industries. The taxes are placed in trust funds and used to clean abandoned or uncontrolled hazardous waste sites. One active Superfund site is located within City boundaries, at Whittier Boulevard and Pickering Avenue. High quantities of refrigerant and solvent chemicals from the former Omega Chemical Corporation facility contaminated the groundwater supply (see Figure PSNH-9). The cleanup program to address associated groundwater contamination began in 2009[iv].

surface and groundwater contamination

Humans need clean water for health and prosperity. Because Whitter relies in part on local groundwater supplies to meet the needs of residents and businesses, the City has intense interest in ensuring the San Gabriel River, including its associated drainages, be protected from pollution. The presence of the Superfund site described above, as well as other contaminant sources in cities that also overlie the groundwater basin, poses significant water quality and quantity challenges. Federal and state water quality standards establish strict limits on contaminant loads to protect public health.

Leaking Underground Storage Tanks

Underground storage tanks are used to store petroleum and other hazardous materials. Leaking underground storage tanks can leach harmful substances into the soil and risk contaminating local groundwater supplies. Locally, known leaking tanks have been sealed and are subject to monitoring.

goals and policies

pollution exposure

Goal 7: A high level of comfort that residents, businesses, and habitats have minimal exposure to hazardous materials and their deleterious effects

- PSNH-7.1: Critically review commercial and industrial uses that involve the use, storage, and transport of hazardous materials to determine the need for buffer zones or setbacks to minimize risks to homes, schools, community centers, hospitals, and other sensitive uses.
- PSNH-7.2: Promote the proper collection, handling, recycling, reuse, treatment, and long-term disposal of hazardous waste from households, businesses, and government operations.
- PSNH-7.3: Minimize the exposure of community members to the harmful effects of hazardous materials and waste.
- PSNH-7.4: Protect natural resources, including groundwater, from hazardous waste and materials contamination.
- PSNH-7.5: Minimize environmental impacts and protect the ecological resources and native habitat resources within the Puente Hills Habitat Preservation Authority associated with any oil drilling and production project.

RPC 2(d)(ii)

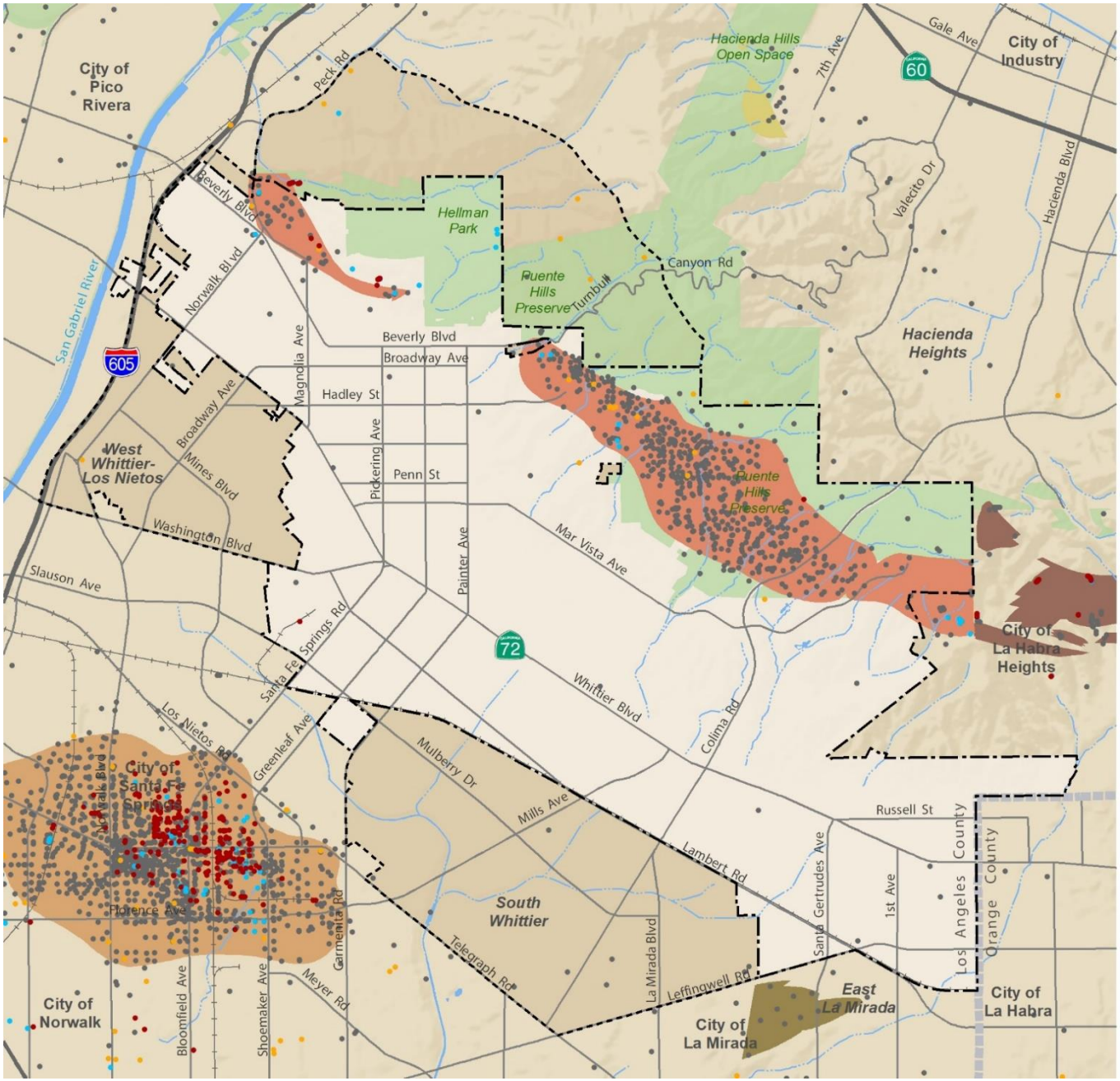


Figure PSNH-8: Oil Production Areas

Oil Wells Status

- Active
- Buried
- Idle
- Plugged

Oil Fields

- Whittier
- Whittier Heights, North
- Leffingwell
- Sansinena
- Santa Fe Springs

Base Map Features

- Whittier City Boundary
- Whittier Sphere of Influence
- County Boundary
- Major Streets
- Freeways
- Railroads
- River and Creeks
- Waterbodies
- Open Space/Natural Areas

The City-owned parcel near Whittier Narrows is not included in this map to improve readability.

0 1,000 2,000 4,000 6,000 8,000 Feet

RPC 2(d)(ii)

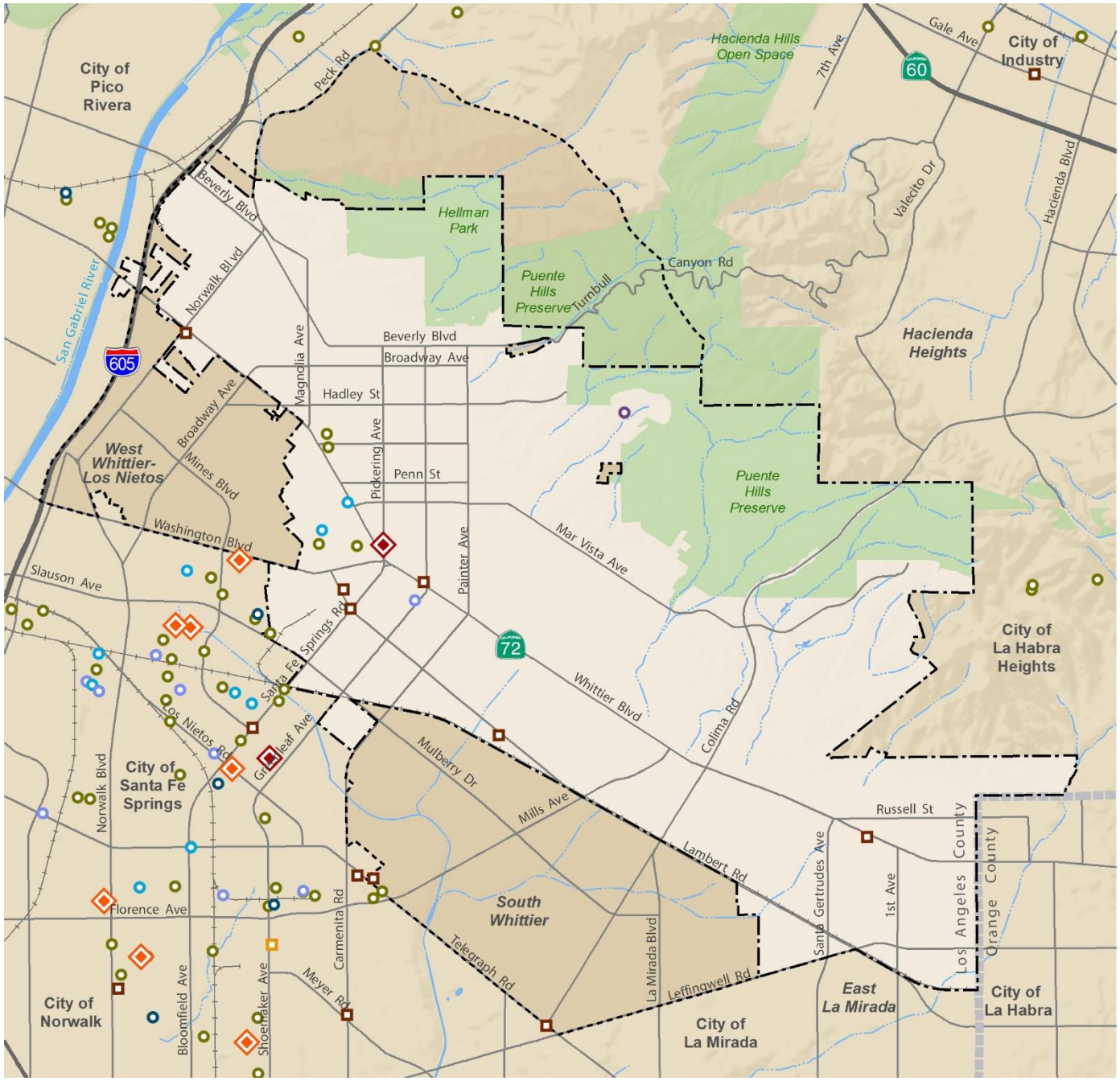


Figure PSNH-9: Pollutions Sites

Superfund Sites

- Superfund (National Priority List - NPL)
- Superfund (Non-NPL)

Water Pollutant Discharge Site

- ICIS-NPDES Major
- NPDES Permit
- Leaking Underground Storage Tank
- Storm Water Industrial

Air Pollutant Discharge Site

- Air Major (More than 100 tons/year)
- Air Minor (Less than 100 tons/year)
- Greenhouse Gas Reporter
- Hazardous Air Pollutant Major
- Landfill Gas Recovery
- Pesticide Producer

Base Map Features

- Whittier City Boundary
- Whittier Sphere of Influence
- County Boundary
- Major Streets
- Freeways
- Railroads
- River and Creeks
- Waterbodies
- Open Space/Natural Areas

The City-owned parcel near Whittier Narrows is not included in this map to improve readability.

0 1,000 2,000 4,000 6,000 8,000 Feet

RPC 2(d)(ii)

climate adaptation

Climate change is a long-term shift in global or regional climate patterns. Climate adaptation is responding to climate change. This General Plan addresses climate-related issues by strengthening local resiliency and adaptive capabilities.

The greenhouse gas (GHG) emissions we generate are the leading cause of the Earth's rapidly changing climate. Greenhouse gases play an important role in keeping the planet warm enough to inhabit. But the level of these gases in our atmosphere has soared since the beginning of the 21st century. The burning of fossil fuels—coal, oil, and gas—for electricity, heat, and transportation is the primary source of human-generated emissions. Curbing dangerous climate change requires very deep cuts in emissions, as well as the use of alternatives to fossil fuels worldwide.

California law requires that Whittier take actions to reduce local greenhouse gas emissions toward State reduction goals. The GHG reduction laws mandate all Californians to work together to effect change on a larger scale. State legislation under AB 320(2006) set out goals to reduce emissions by at least 40 percent below 1990 levels by 2030, with this target date subject to change based on measured progress. Thus, it is critical that the General Plan include policies not merely to comply with State requirements but to be part of the California-wide solution.

However, compliance with State laws is only part of the picture. Responding to the potential impacts of climate change is critical to assuring the City remains prepared to address more high heat days, longer heat waves, possible droughts, and changing flooding conditions.

climate impacts

The City's Natural Hazards Mitigation Plan identifies potential risks, including increase severity and recurrences of wildfires, additional flooding hazards resulting from extreme storm events, prolonged droughts, severe heat waves, and warmer nights. See the Wildfire Hazards and Flooding and Dam Inundation Hazards sections for more information and goals and policies related to these topics.

heat waves and drought

Heat waves are characterized as periods of sustained, extreme heat. Severe heat waves can affect sensitive populations such as the elderly residents and lower-income populations who cannot afford air conditioning systems. These events can also cause widespread power outages due to increased use of air conditioning. Heat waves can usually be detected using forecasting instruments so that a warning call can be issued. Heat waves combined with drought and Santa Ana wind conditions can increase the likelihood and severity of wildfires within the Puente Hills.

A drought is a period of unusually persistent dry weather that continues long enough to cause serious problems such as regional water supply shortages. Research suggests that extended drought occurrences could become more pervasive in future decades. Between 1960 and 1990, Whittier averaged 15 inches of observed historical rainfall by season annually. According to drought scenarios, starting in 2050, rainfall could drop down to 10.9 inches annually.

Heat alerts serve as triggers for cities and counties to take preventive action, like opening cooling centers where the public can gather for relief from the heat. Air-conditioning is the number one protective factor against extreme heat, which is an essential health resource for vulnerable populations.

Updating building codes and landscaping laws can increase energy efficiency. It also improves the ability of buildings to provide protection against extreme heat events. For example, green roofs (roofs with plant cover) and strategically located shade trees can reduce indoor temperatures and improve buildings' energy efficiency. Urban forests, including street trees and natural open space areas, can mitigate urban heat islands, thus reducing local air temperatures and cooling down buildings, streets, and sidewalks.

goals and policies

climate adaptation

- **Goal 8:** An adaptive community responsive to changing climate conditions

- PSNH-8.1: Develop a heat response plan to set up systems to predict and communicate with the public about heat events, coordinate response, and designate cooling centers.
- PSNH-8.2: Require the passive solar design of projects to address the possible effects of extreme heat events, such as requiring shade trees and shade shelter areas, shaded playgrounds, bus shelters, and placement of structures that account for proper sun exposure to reduce the heat within structures.
- PSNH-8.3: Encourage use of pavement materials designed to reflect solar energy, speed up evaporation, and otherwise stay cooler than traditional pavements.
- PSNH-8.4: Continue plans to maintain the City's urban forest while expanding efforts to plant additional trees, gardens, and vegetation within neighborhoods and areas with minimal tree canopies.
- PSNH-8.5: Encourage redundant power sources such as generators or renewable energy sources to help assure power is available for increased power needs in heat events and to minimize blackouts.

environmental justice

RPC 2(d)(ii)

- **disadvantaged communities**
- **pollution and population characteristics**
- **community health and livability**
- **healthy homes**

Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental regulations and policies implemented by local agencies. Fair treatment means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations and policies. In Whittier, this definition might apply to neighborhoods with a high concentration of communities of color, pockets of low-income households, a concentration of high poverty neighborhoods, or areas exposed to excessive pollutant loads. Such neighborhoods exist west of Uptown and along the eastern edge of I-605. The discussion here recognizes areas where these challenges occur and identifies approaches to improve the conditions in the neighborhoods and improve the health of their residents.

Equity represents a complementary issue to environmental justice. The fair and equal treatment of all people creates opportunities for all Whittier residents to engage in civic life and benefit from policies and programs aimed at improving individual's health and quality of life.

This Element promulgates health and wellness goals for the entire City but pays particular attention to—and sets targeted policies for—residents in Disadvantaged Communities to:

- Reduce pollution exposure
- Improve air quality
- Provide quality recreational facilities
- Promote access to healthy food choices
- Ensure safe and sanitary homes
- Support physical activity
- Facilitate active engagement in public decision-making processes
- Prioritize improvements and programs that address the needs of Disadvantaged Communities

disadvantaged communities

California law requires local governments to identify any Disadvantaged Communities that exist in their communities and to develop policies and programs aimed at improving environmental and human health conditions in these areas. Indicators used to identify a Disadvantaged Community include a) specific population characteristics and b) environmental pollution and other hazards that can lead to negative

health effects, exposure, or environmental degradation. One such approach uses the California Communities Environmental Health Screening Tool called CalEnviroScreen 3.0, developed by the California Environmental Protection Agency for the purpose of identifying Disadvantaged Communities.

Areas of Whittier categorized as Disadvantaged Communities, based on CalEnviroScreen criteria, are shown in Figure PSNH-10. Disadvantaged Communities indicators include pollution exposure, environmental effect, sensitive populations, and socioeconomic factors. Census tracts throughout California are scored based on the indicators shown in Table PSNH-2. A percentile score is calculated for each indicator, from which a composite score is produced. Census tracts that score a percentile score greater than 75 percent (or within the top 25th percentile in California) are considered a Disadvantaged Communities. This score means that the area scored higher in pollution burdens or undesirable population characteristics than 75 percent of the other areas in California. Percentiles scores shown in the following tables identify how each indicator is scored compared to all other census tracts in California and specifically for Disadvantaged Communities in Whittier.

Table PSNH-2: Disadvantage Communities Indicators

Pollution Burdens			
Exposure Indicators	Ozone concentrations in air PM 2.5 concentrations in air Diesel particulate matter emissions Drinking water contaminants Use of certain high-hazard, high-volatility pesticides Toxic releases from facilities Traffic density	**Environmental Effect Indicators**	Toxic cleanup sites Groundwater threats from leaking Underground storage sites and cleanups Hazardous waste facilities and generators Impaired water bodies Solid waste sites and facilities
Population Characteristics			
Sensitive Population Indicators	Asthma emergency department visits Cardiovascular disease (emergency department visits for heart attacks) Low birth-weight infants	**Socioeconomic Factor Indicators**	Educational attainment Housing burdened low-income households Linguistic isolation Poverty Unemployment

pollution and population characteristics

RPC 2(d)(ii)

pollution burdens

To identify pollution burdens in a community, CalEnviroScreen calculates and reports the average of exposure and environmental effects. Census tracts 5020.04 and 5021.00 experience the highest percentile scores for all pollution burdens identified in Table PSNH-3. Census tract 5021.00 encompasses the Superfund site (Omega Chemical Corporation) which has contaminated groundwater and forced closure of wells, hence the high score for Cleanup of Contaminated Sites indicator. Additionally, all Disadvantaged Communities census tracts score high in the Toxic Release Inventory pollution indicator. (See the Hazardous Materials section of this Element for more information about Toxic Release Inventory.) Particulate matter—with many constituents constituting health hazards—represents a particular problem across all Disadvantaged Communities.

Poor air quality conditions are often due to high concentrations of particulate matter. ***Particulate matter*** *is the sum of all solid and liquid particles suspended in air many of which are hazardous. This complex mixture includes both organic and inorganic particles, such as dust, pollen, soot, smoke, and liquid droplets. These particles vary greatly in size, composition, and origin.*

Of these, particles less than 2.5 micrometers in diameter, also known as fine particles or $PM_{2.5}$, pose the greatest risk to health. Vehicle emissions are a common source of $PM_{2.5}$, as are construction activity and fires. During wildfire events, particulate matters in the air increase exponentially near the burn areas.

Table PSNH-3: Pollution Burden Indicator Scores

Pollution Burden Percentiles and Indicators	Census Tracts Identified as Disadvantage Communities (DAC)							
	5010.02	5014.00	5015.04	5018.03	5018.04	5020.03	5020.04	5021.00
Pollution Indicators	**79**	**81**	71	**80**	65	**80**	**91**	**92**
Toxic Release Inventory	**92**	**92**	**91**	**90**	**89**	**88**	**88**	**90**
Particulate Matter (PM2.5)	**82**	**82**	**82**	**82**	**82**	**82**	**82**	**82**
Hazardous Waste	74	**82**	64	**89**	68	**88**	**94**	**95**
Cleanup of Contaminated Sites	50	**84**	56	**92**	54	**85**	**94**	**98**
Groundwater Threats	50	**80**	43	**78**	38	51	64	**90**
Drinking Water	**88**	65	42	42	42	55	74	**84**

Source: CalEnviroScreen 3.0 the Office of Environmental Health Hazard Assessment, June 2018.

population characteristics

Table PSNH-4 identifies CalEnviroScreen population characteristics indicators related to health conditions and socioeconomic factors. Socioeconomic factors requiring attention in the local low-income populations include lower educational attainment, linguistic isolation, and lower material well-being measured by poverty, unemployment, and housing burden. Cardiovascular disease represents the foremost adverse health condition characteristic across multiple census tracts, with scores above the 87th percentile in all census tracts. Housing burden—largely in terms of spending a high percentage of household income for rent or a mortgage—scores high as well, with six of the eight census tracts having households experiencing monthly housing costs exceeding 30 percent of household income.

Housing Cost Burden: *The Department of Housing and Urban Development HUD defines cost-burdened families as those "who pay more than 30 percent of their income for housing" and "may have difficulty affording necessities such as food, clothing, transportation, and medical care." Severe rent burden is defined as paying more than 50 percent of one's income on rent.*

An outlier of interest is the high percentile of infant low-birth rate (93rd percentile) in census tract 5021, which is the area immediately adjacent to PIH Heath Hospital and the Superfund site. Babies who weigh less than about five and a half pounds at birth are considered low birth weight. Many factors, including poor nutrition, lack of prenatal care, stress, and smoking by the mother, can increase the risk of having a low birth-weight baby. Exposure to air pollution and drinking water contaminated with lead also are environmental risk factors.

Table PSNH-4: Population Characteristics Indicator Scores

Population Characteristics	Census Tracts Identified as Disadvantage Communities (DAC)							
	5010.02	5014.00	5015.04	5018.03	5018.04	5020.03	5020.04	5021.00
Population Characteristics Summary	67	85	83	85	87	64	80	79
Cardiovascular Disease	98	87	91	98	98	87	97	91
Housing Costs Burden	40	78	80	94	87	80	82	62
Education	54	80	59	78	68	78	85	73
Poverty	30	76	80	85	76	67	67	43
Linguistic Isolation	24	66	59	74	51	57	73	57
Low-Birth Weight	60	62	65	28	81	3	31	93
Unemployment	72	66	56	53	28	49	47	41

Source: CalEnviroScreen 3.0 the Office of Environmental Health Hazard Assessment, June 2018.

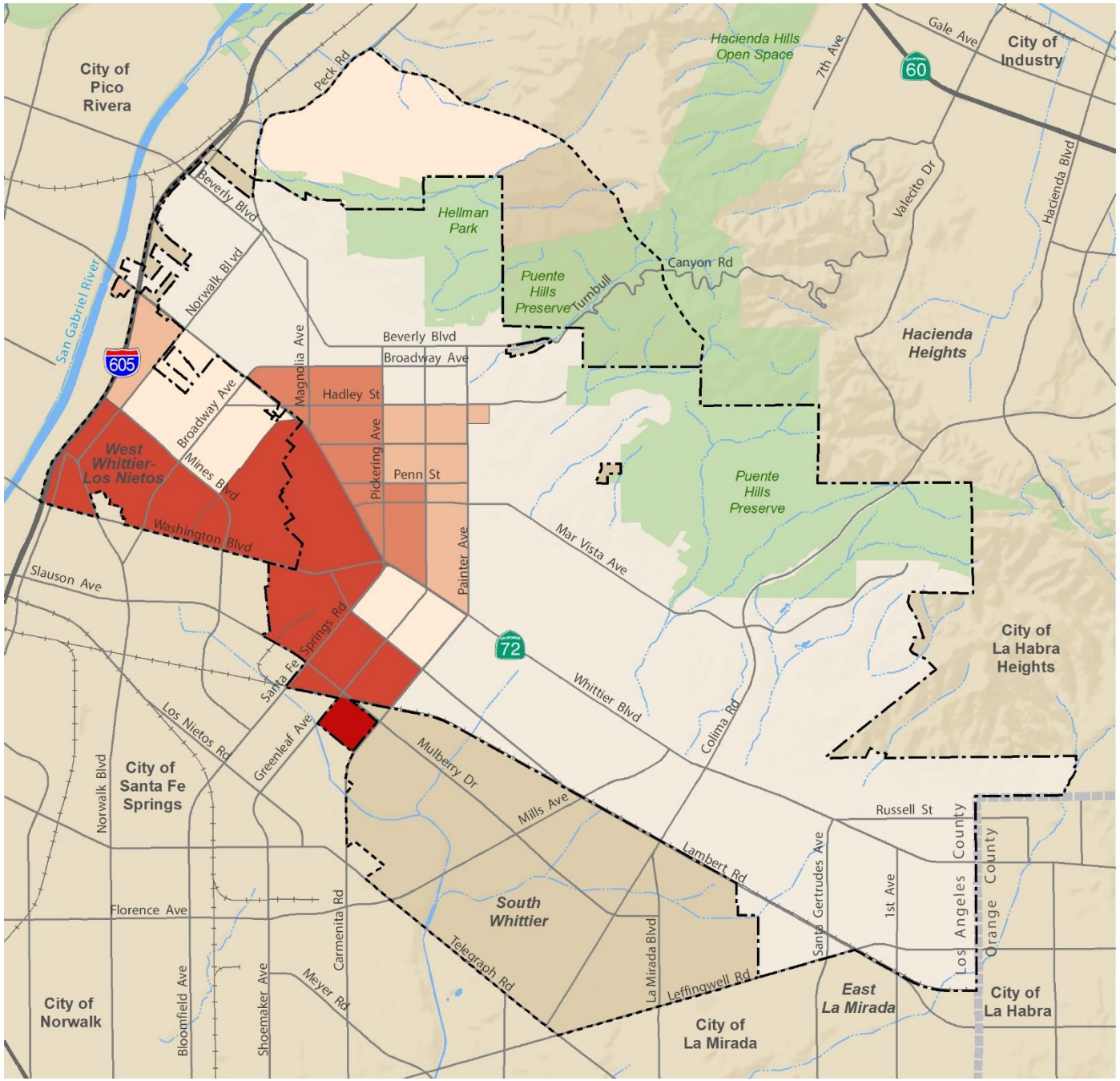


Figure PSNH-10: Disadvantaged Communities

Disadvantaged Communities

CalEnviroScreen 3.0 Results

- 76-80%
- 81-85%
- 86-90%
- 91-95%
- 96-100% (highest scores)

CalEnviroScreen 3.0 uses statewide indicators to characterize both pollution burden and population characteristics. A formula is used to produce a CalEnviroScreen scoring system in which percentiles are averaged for a set of indicators under four components: exposures, environmental effects, sensitive populations, and socioeconomic factors. This map identifies the CalEnviroScreen scoring results.

Base Map Features

- Whittier City Boundary
- Whittier Sphere of Influence
- County Boundary
- Major Streets
- Freeways
- Railroads
- River and Creeks
- Waterbodies
- Open Space/Natural Areas

The City-owned parcel near Whittier Narrows is not included in this map to improve readability.

0 1,000 2,000 4,000 6,000 8,000 Feet

RPC 2(d)(ii)

community health and livability

Communities across the nation are exploring strategies and programs to address community health, with the overall goal of creating healthier living environments for all residents by creating opportunities for increased physical activity, quality health care, and civic engagement.

Planners and public health professionals recognize the links between how our cities are built and people's health. For example, a city with ample parks and other open spaces provides opportunities for people to exercise. Neighborhoods that have good sidewalks and safe bicycle routes to shops, schools, parks, and restaurants encourage people to use their feet—instead of their cars—for local trips. Land use regulations that encourage community gardens and farmers' markets give residents greater options for and access to healthy foods. Planning policies that create walkable and cohesive communities can improve residents' health and reduce heart disease, obesity, and asthma.

The Housing Element comprehensively addresses community housing needs, from ensuring access to safe, affordable housing for all—including homeless individuals—to eliminating constraints to housing production.

access to parks, open space, and physical activity

Research demonstrates that participating in regular moderate to vigorous physical activity provides many health benefits. Some benefits of physical activity can be achieved immediately, such as reduced feelings of anxiety, reduced blood pressure, improvements in sleep, some aspects of cognitive function, and insulin sensitivity.

Other benefits such as increased cardiorespiratory fitness, increased muscular strength, decreases in depressive symptoms, and sustained reduction in blood pressure require a few weeks or months of physical activity. Regular exercise can also slow or delay the progression of chronic diseases, such as hypertension and type 2 diabetes.

In Whittier, the parks, playgrounds, greenway trail, and trails in the hills offer many opportunities to be fit and healthy. Nearly two-thirds of Whittier's 23 parks are located within the northwestern portion of the City. As a result, most residents in neighborhoods stretching from Michigan Park to Orange Grove live within a one-half mile walking distance to a park, the distance most people are willing to walk or bike to a park. In contrast, residents in the southeastern neighborhoods of Friendly Hills, Sun Gold, and Whittwood are not within easy walking distance of a park. See the Resource Management Element for discussion of park and recreation facilities in Whittier and City goals to improve access for all residents.

access to healthy foods

RPC 2(d)(ii)

The U.S. Department of Agriculture defines food insecurity as a lack of consistent access to enough food for an active, healthy life. Although hunger and food insecurity are closely related, they are distinct concepts. Hunger refers to a personal, physical sensation of discomfort, while food insecurity refers to a lack of available financial resources for food at the household level. Food insecurities occur in households with incomes less than 300 percent of the federal poverty level.

Limited access to supermarkets, supercenters, grocery stores, and other sources of healthy and affordable food may make it harder for some residents to eat a healthy diet. Expanding the availability of nutritious and affordable food by encouraging grocery stores, small retailers, corner markets, and farmers' markets in communities with limited access is an important part of creating a healthy community. Food deserts are areas in which residents find it difficult to buy affordable or good quality, fresh food.

healthy homes

Well-maintained housing demonstrates pride of ownership, stabilizes property values, attracts residents to a community, contributes to neighborhood quality, and creates safe places for people to live. As the majority of homes in Whittier are over 50 years old, programs focused on maintaining the physical condition of all housing types will remain an ongoing priority.

Generally, Whittier has a predominantly older housing stock, with only 11 percent built since the 1970s. Most of the housing (63 percent) was built in the 1950s or earlier. Homes generally begin to show age after 30 years and require some level of maintenance. This typically includes roof repair, painting, landscaping, and exterior finishes. Homes between 30 and 50 years typically require more significant maintenance and even renovation. Generally, houses and apartments built 50 or more years ago (unless well maintained) are more likely to require substantial repairs or need renovation to meet current building codes.

Other concerns related to the age of housing are lead-based paint and asbestos. Homes built prior to 1978 typically contain lead-based paint, and older homes may also contain asbestos, which formerly was a popular insulation and acoustic material (before experts recognized the dangers it poses to our respiratory tract). Lead-based paint can cause a number of hazardous health conditions for children—specifically developmental delays. Health hazards occur when the paint chips and is inhaled or ingested. Since 1978, the federal government has banned the use of lead-based paint. Still, older homes may need to paint over lead-based paint or remove peeling paint. Similarly, asbestos becomes a hazard largely when disturbed as part of reconstruction activities. To protect human health, federal agencies have put strict protocols in place for the removal of these materials.

health care access

When people visit a doctor regularly for check-ups, they can prevent more serious health issues, thus enjoying good health and reducing their health care costs. Access to quality health care requires nearby services and the means to pay for the services. In Whittier, the presence of PIH Health Hospital, Whittier Hospital Medical Center, Barlow Respiratory Hospital, and a multitude of medical clinics provides residents ready access to quality medical care. Paying for care is the more challenging issue for people of lower income. Health care funding programs such as Medicaid and the Affordable Care Act are managed by federal and State agencies, with the City having no involvement. Opportunities for Whittier to better connect residents to affordable and reliable health care services include public service announcements, links on the City's website, partnerships with local hospitals for community health fairs, and even wellness checks by City staff on elderly or house-bound individuals.

civic engagement

Residents can best advocate for their own needs when they feel connected to and have confidence in local decision makers. The first step: ensuring residents know how to engage in civic life and are encouraged to do so. Social media—when used productively—has extended the reach of policy makers, allowing for more extensive community education and information. Social media platforms have also eased residents' abilities to let their concerns and ideas known.

Expanded engagement, to be most successful, also needs to be equitable. Equitable engagement means having community conversations in languages in which people feel most comfortable and using media and conducting in-person meetings that are accessible to people of all income levels at convenient times of day.

Whittier prides itself in the transparency and accessibility of its public processes. The City affirms its commitment to adjusting over time to include new ways to extend its reach and involve everyone in the community who is interested in participating in civic policy- and decision-making at all levels and by diverse means.

goals and policies

environmental justice

Goal 9: Residential neighborhoods not burdened by pollution exposure and where all residents have equal access to community services and amenities, healthy foods, well-maintained homes, and recreational facilities and programming that support healthy lifestyles

RPC 2(d)(ii)

pollution exposure

- PSNH-9.1: Review the operating characteristics of proposed new industrial businesses near Disadvantaged Communities to minimize impacts on the population, especially children and the senior community. Encourage any existing sources of emissions to use feasible measures to minimize emissions that could impact air quality.
- PSNH-9.2: Support legislation that will reduce automobile and truck emissions, the predominant source of pollutants emanating from I-605 and Whittier Boulevard.
- PSNH-9.3: Encourage building design, construction safeguards, and technological improvements that mitigate the negative impacts of hazardous materials and/or air pollution on indoor air quality and residential and sensitive uses sited near businesses that handle toxic materials.
- PSNH-9.4: Designate acceptable and unacceptable areas for freight trucking and truck idling to limit impacts to all residents and Disadvantaged Communities in particular.
- PSNH-9.5: Use landscaping and other buffers to separate sensitive uses from trucking uses, warehousing, manufacturing facilities, and other emissions sources.
- PSNH-9.6: Encourage non-polluting industry and clean green technology companies to locate in the City.
- PSNH-9.7: Work vigorously with appropriate federal and other agencies to speed the cleanup of the local Superfund site, former oil field operations, and other sources of soil and groundwater contamination.

public improvement priorities, services, and amenities

- PSNH-9.8 Prioritize the spending of general funds in Disadvantaged Communities for recreation, air quality, and other environmental improvements; recreation programming; and public infrastructure improvements.
- PSNH-9.9: Improve access to public facilities, services, and recreation and heath programming that can be used for open space and/or recreation activities, with prioritization within Disadvantaged Communities.
- PSNH-9.10: Encourage cultural programs and activities of local interest that are inclusive and affordable to all.
- PSNH-9.11: Identify areas in need of a public realm improvements and develop public spaces that provide safe, convenient, and pleasant gathering places for neighbors to meet and congregate.

- PSNH-9.12**:** Provide support and consider joint opportunities with organizations engaged in public health events such as health fairs, community gardens, youth fitness programs, wellness competitions, and public health speakers and workshops.
- PSNH-9.13: Assess existing parks and gathering spaces around Uptown and within Disadvantaged Communities to ensure parks amenities are tailored to meet the evolving needs of the community, as well being responsive to unique cultural, historic, social, and demographic needs.
- PSNH-9.14: Expand park and recreation opportunities in all neighborhoods, especially within Disadvantaged Communities, and ensure that opportunities are offered within comfortable walking distance of homes, schools, and businesses to encourage more physically and socially active lifestyles.
- PSNH-9.15: Deter criminal activity in neighborhoods, streets, and public areas through the design and monitoring of play areas, parks, greenway trails, plazas, and urban pocket parks.

healthy food access

- PSNH-9.16: Strive to ensure that all residents are within walking distance of sources of fresh and healthy foods (e.g., grocery stores, healthy corner stores, farmers' markets, and community gardens).
- PSNH-9.17: Expand the potential of community garden and urban farm sites on public properties (including parks, public easements, rights-of-way, and schoolyards) and private properties.
- PSNH-9.18: Utilize incentives or other programs to encourage existing small grocery or convenience stores to offer and promote healthy food options, with a focus on underserved areas and areas near schools.
- PSNH-9.19: Discourage new liquor stores, fast-food restaurants, and gas stations selling alcohol from locating near schools and in areas with an existing high concentration of such stores.
- PSNH-9.20: Support initiatives to have year-round farmers' markets.

well-maintained homes

- PSNH-9.21: Promote the repair, improvement, and rehabilitation of single-family housing, multiple-family housing, and mobile homes to enhance quality of life, improve value, and create safe and sanitary housing conditions.

- PSNH-9.22: Maintain, improve, and create healthy neighborhoods through improving the built environment, enforcing housing and property maintenance standards, and sponsoring public education programs.

promoting civic engagement

- PSNH-9.23: Partner with and support the efforts of any non-profits that focus on programs and activities within Disadvantaged Communities.
- PSNH-9.24: Consider installing signage at key focal points in Disadvantaged Communities to promote and advertise City meetings and other public announcements. Use social media that particularly targets residents who ordinarily do not participate in civic life.
- PSNH-9.25: Strive to translate notices and commission materials in Spanish or other languages with which community members feel most comfortable.

best practices for improving health

- PSNH-9.26: Support policies, projects, and programs that demonstrate best practices related to promoting wellness in City facilities and at City-sponsored events, such as serving healthy foods at community events.
- PSNH-9.27: Form partnerships with school districts and other educational institutions, non-profit organizations, healthcare organizations, and regional governmental agencies to foster and participate in efforts promoting healthy lifestyles, physical activity, and positive health outcomes.
- PSNH-9.28: Promote, sponsor, and support a variety of community events focused on health and wellness, fitness, weight-loss programs, and similar activities.

physical activity

- PSNH-9.29: Expand connectivity to the Whittier Greenway Trail. Consult with regional agencies and surrounding jurisdictions to expand connectivity of the Greenway Trail to trails outside of Whittier.
- PSNH-9.30: Seek to accentuate, daylight, and green drainages, culverts, and underground drainage infrastructure for the purpose of having this infrastructure provide pathways and trails.
- PSNH-9.31: Encourage the provision of recreational activities for all people, consistent with the changing demographic composition of Whittier.

- PSNH-9.32: Expand health and exercise stations within parks, trails, public right-of-way, and other public spaces.
- PSNH-9.33: Partner with community organizations and local businesses to pursue funding opportunities to expand recreational facilities and programming to increase physical activity.
- PSNH-9.34: Consider unique neighborhood needs in developing facilities and programs for indoor and outdoor activities within Disadvantaged Communities.

noise

- noise setting and background
- effects of noise on people
- baseline and future noise environments
- managing the noise environment

Noise generally is defined as unwanted sound. Noise can impact essential parts of life such as work, rest, sleep, and communication and can result in negative impacts to people's quality of life. Consideration of noise-generating sources and ambient noise conditions in land use planning and decision-making activities helps guard against deterioration of health and well-being. This noise plan establishes the framework for identifying noise sources and conditions that affect land use.

Every city in California is required to identify noise-sensitive land uses and noise sources, quantify areas of noise impact, and establish goals, policies, and programs so that residents will be protected from excessive noise. Section 65302(f) of the Government Code identifies the specific noise analysis and policy direction that must be included in a General Plan, with attention paid as well to Section 46050.1 of the Health and Safety Code.

noise setting and background

While noise is an inherent part of urban living, people who live in suburban environments expect moderate noise conditions, such as limited vehicle and aircraft noise and business activity. Many factors impact how people perceive and react to noise, such as the time of day, the noise source, and their expectations for the noise environment. In Whittier, the most significant and constant noise source is roadway/freeway traffic noise. At a more localized level, activities such as landscape maintenance and construction activities can interfere with enjoyment of outdoor neighborhood life. Controlling roadway noise can be difficult since State and federal laws control motor vehicle noise. However, the location of noise-sensitive land uses relative to significant noise sources can help address roadway noise concerns. For more localized impacts, City ordinances can help.

measurement and perception

Sound intensity is measured and expressed in decibels (dB), with an adjustment referred to as the A-weighted measure to correct for the relative frequency response of the human ear. Of the various scale available for measuring noise, the A-weighted sound pressure level (dBA) is the scale of measurement that is most effective in measuring noise at a community level. The A-scale approximates the frequency response of the average ear when listening to most ordinary everyday sounds.

The limit to using decibels as the basic measurement of sound is that decibels represent a rough connection between the physical intensity of sound and its perceived loudness to the human ear. For example, a 10-decibel increase in sound level is perceived by the human ear as only doubling of the loudness of the sound. Ambient sounds in the urban environment generally range from 30 dBA (very quiet) to 100 dBA (very loud).

The time of day can also play a significant role in how people perceive noise. Noise typically is more bothersome at night than during the daytime because the ambient noise level is generally lower at night.

The duration of a sound also affects how someone perceives noise, or how much of a nuisance it may be to them. A certain level of noise may be acceptable depending on the duration experienced by someone. For example, a truck passing by may be more tolerable than the noise made by a long train. Measures of noise exposure have been developed to consider not just the A-level variation of noise but also the duration of the disturbance. That is where the Community Equivalent Noise Level, or CNEL, comes into play.

community noise equivalent level (CNEL)

The CNEL measurement weights the average noise levels for the evening hours (7:00 p.m. to 10:00 p.m.) by increasing them by 5 dB and weights the average noise levels for the nighttime hours (10:00 p.m. to 7:00 a.m.) by increasing them by 10 dB. The daytime noise levels are combined with these weighted levels and are averaged to obtain a CNEL value.

effects of noise on people

In general, noise may affect the average individual through hearing loss, obstruction with oral communication, and by interfering with sleep. The ability to understand speech is increasingly difficult when sound exceeds 60 dBA. Sound levels exceeding 40 to 45 dBA can impact sleeping habits within a residence.

Prolonged sound exceeding 85 dBA may result in temporary or even permanent hearing loss. State and federal safety and health regulations protect workers at levels of exposure that exceed 90 dBA for an eight-hour workday.

noise/land use compatibility standards

In California and Whittier specifically, a CNEL of 65 dBA is used as a standard for maximum outdoor noise levels in residential areas.

Particularly sensitive land uses—also called sensitive receptors—include residences, schools, libraries, churches, hospitals, and nursing homes. In addition, parks, golf courses, and other outdoor activity areas

can be sensitive to noise disturbances. Commercial and industrial uses, conventional hotels and motels, playgrounds and neighborhood ballparks, and other outdoor spectator sport arenas are less sensitive to noise. Least sensitive to noise are heavy commercial and industrial uses, transportation, communication, and utility land uses.

Land use decisions and the development review process are ways to minimize noise impacts on sensitive land uses. Noise compatibility may be achieved by not locating conflicting land uses adjacent to one another and by incorporating buffers and noise control techniques in the overall site design process. This can be achieved by integrating increased setbacks, dense landscaping, building transitions, walls, and building construction techniques. Figure PSNH-11 (Noise and Land Use Compatibility Guidelines) illustrates the ranges of allowable exterior noise levels for various land uses in Whittier. To supplement adopted and future adopted noise regulations, this table should be applied to individual projects and their noise analyses to determine specific land use compatibility and to establish significance thresholds.

Table PSNH-11: Noise and Land Use Compatibility Guidelines

Land Use Category	Community Noise Exposure Limit (CNEL or DNL, dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential - Low-Density Single-Family, Duplex, Mobile Homes	60	70	75	75+
Residential - Multi-Family	65	70	75	75+
Transient Lodging - Motels, Hotels	65	70	80	80+
Schools, Libraries, Churches, Hospitals, Nursing Homes	70	70	80	80+
Auditoriums, Concert Halls, Amphitheaters	N/A	70	N/A	70+
Sports Arenas, Outdoor Spectator Sports	N/A	N/A	75	75+
Playgrounds, Neighborhood Parks	70	70	75	75+
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75	N/A	80	80+
Office Buildings, Business Commercial and Professional	70	77.5	77.5+	N/A
Industrial, Manufacturing, Utilities, Agriculture	75	80	80+	N/A

Source: OPR, 2017, Appendix D

baseline and future noise environments

As noted above, I-605 freeway and Whittier Boulevard represent the dominant community noise sources, along with the arterial roadways. Within residential neighborhoods, residents have cited loud party noises as a recurring issue.

Since the primary contributor to noise is traffic, noise contours for baseline (2020) and projected future conditions were developed based on the traffic volumes included in the General Plan traffic study and utilized the Traffic Noise Model lookup tables developed by the Federal Highway Administration.

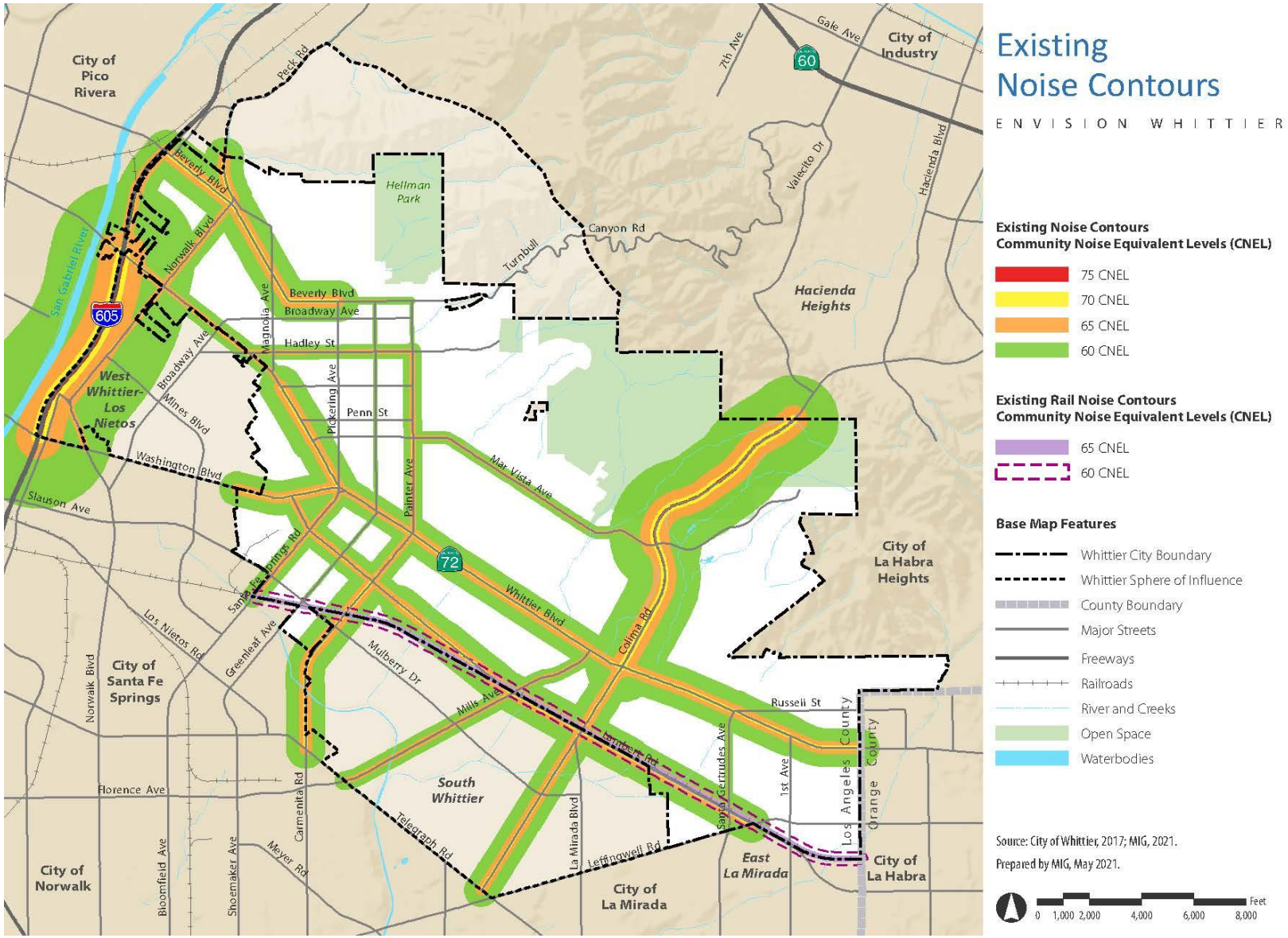
managing the noise environment

Whittier will address noise issues by making wise land use decisions. Site development plans and proposed land uses will consider how roadway and localize noise impacts properties. Reviewing each project at the time it is proposed will help assure impacts can be minimized. Project design mitigation, simple and sophisticated technical fixes, and acoustical barriers will be applied to each project to address noise.

In areas near arterials, site planning and design standards provide direct and integrated noise impact mitigation. Applied mitigation measures include the use of buffer zones consisting of earthen berms, walls, and landscaping between sensitive land uses and roadways and other noise sources. In addition, site planning and building orientation can provide shielding of outdoor living spaces, and orient operable window away from roadways. Effective acoustical materials can also be incorporated into building windows and walls, which adequately reduce outdoor noise.

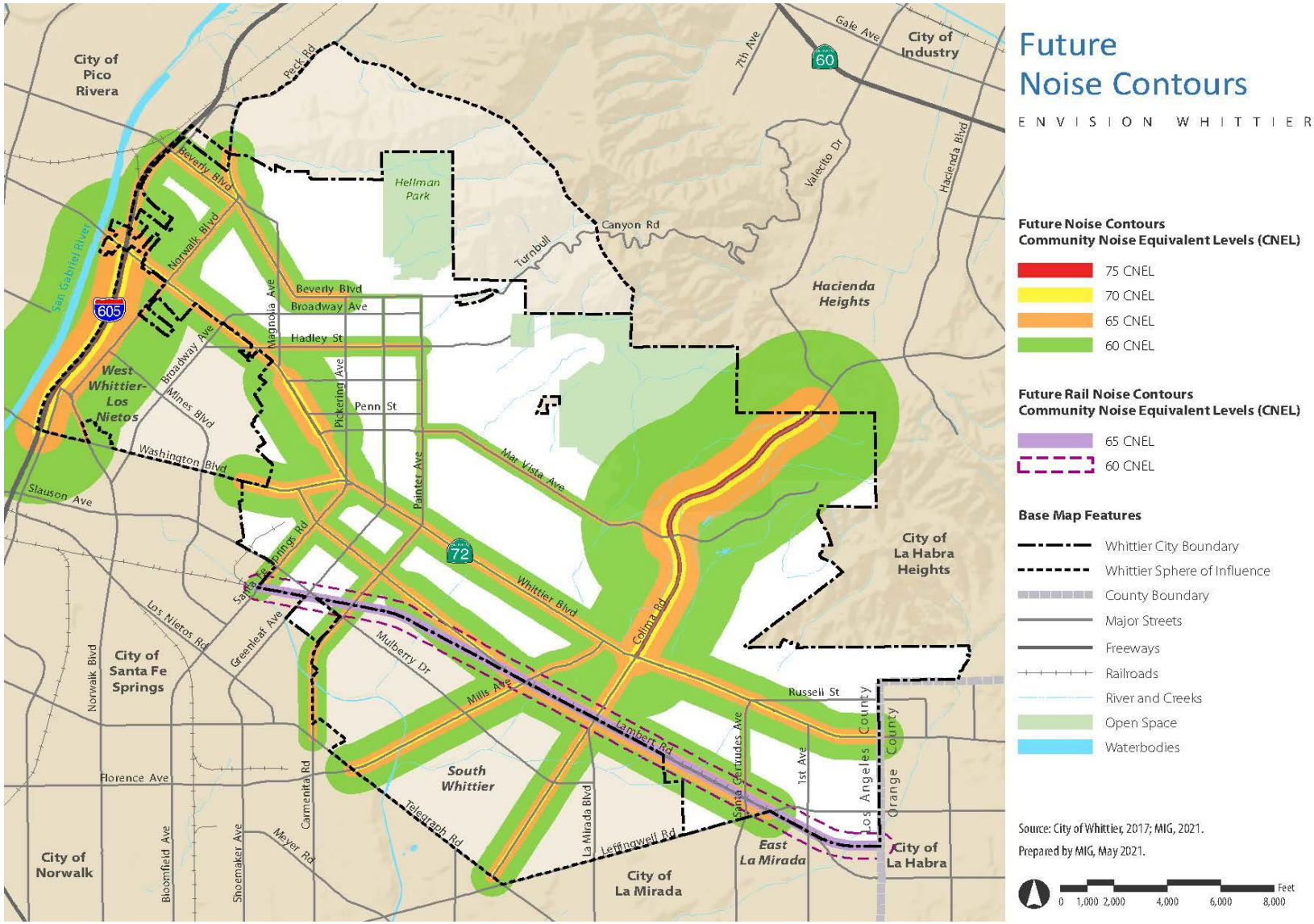
The City's Noise Ordinance identifies 13 different kinds of noise and prohibits them if you can hear the noise 100 feet away from the source of the disturbance. Such noises include pets, unusual motor vehicle noises, household power tools, use of car horns for an unreasonable time, public address systems, and late-night disturbances. Construction noise from heavy equipment is prohibited from 6:00 p.m. to 7:00 a.m. during weekdays, 5:00 p.m. to 8:00 a.m. on Saturdays and Federal holidays, and Sunday at all times.

Figure PSNH-12: 2020 Noise Conditions



RPC 2(d)(ii)

Figure PSNH-13: Future Noise Conditions (2040)



RPC 2(d)(ii)

goals and policies

noise

Goal 10: Noise levels community-wide that allow residents to enjoy quiet neighborhoods and outdoor activities

- PSNH-10.1: Work toward the separation of buffering major roadways from noise-sensitive land uses such as residences, care facilities, schools, and hospitals.
- PSNH-10.2: Consider steps to correct existing noise problems. Avoid future problems through design measures such as buffers and barriers or through abatement procedures.
- PSNH-10.3: Control at their sources any sounds which exceed accepted community noise levels.
- PSNH-10.4: Consider noise impacts as part of the development review process, particularly the location of parking, recreational activities, crowd noises, ingress/egress/loading, and refuse collection areas relative to surrounding residential development and other noise-sensitive land uses.
- PSNH-10.5: Use the provisions in the City's noise ordinance to abate unlawful noise.
- PSNH-10.6: Enforce Municipal Code noise controls for construction projects.
- PSNH-10.7: Minimize new residential or other noise-sensitive land use development in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce outdoor activity area noise levels to a "normally acceptable" community noise equivalent level (CNEL).
- PSNH-10.8: Require industrial uses and trucking-related uses to incorporate buffers that maintain acceptable noise levels for surrounding uses and areas.
- PSNH-10.9: Regulate the use of sound-amplifying equipment to prevent impacts on sensitive receptors.

[i] Natural Hazards Mitigation Plan, 2015. City of Whittier. pp. 105-106.
[ii] Natural Hazards Mitigation Plan, 2015. City of Whittier. pp. 105-106.
[iii] U.S. Army Corps of Engineers says Whittier Narrows Dam is unsafe and could trigger catastrophic flooding, LA Times, September 14, 2017. Retrieved from: http://www.latimes.com/local/california/la-me-whittier-narrows-dam-20170914-story.html
[iv] Environmental Protection Agency. "Cleanup Results to Date" https://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/vwsoalphabetic/Omega+Chemical+Corporation?OpenDocument