

## 5. Environmental Analysis

### 5.2 AIR QUALITY

This section of the Updated Draft Program Environmental Impact Report (PEIR) evaluates the potential for the Santa Ana General Plan Update (GPU) to impact air quality in a local and regional context. The analysis in this section is based on land uses associated with the proposed General Plan Update, vehicle miles traveled (VMT) provided by IBI Group (see Volume IV, Appendix K), electricity data provided by Southern California Edison (SCE), and natural gas use data provided by the Southern California Gas Company (SoCal Gas). The air quality model output sheets are included in Volume III, Appendix C.

The City of Santa Ana received several comments on the original Draft PEIR air quality impact analysis associated with disadvantaged communities that are disproportionately affected by poor air quality. This section provides additional background information on environmental justice (EJ) issues in the City of Santa Ana. Areas of concern identified by commenters include:

- Potential for GPU implementation to increase the exposure of sensitive receptors to pollution (particularly EJ community residents).
- Land use incompatibility of existing residential uses with surrounding industrial uses and potentially new commercial/industrial uses in proximity.
- The potential for GPU implementation to increase toxic air contaminants (TAC) and further impact communities already exposed to high levels of pollutants.

In 2016, the California Legislature passed Senate Bill 1000 (SB 1000), Planning for Healthy Communities Act, to incorporate environmental justice into the local land use planning process. SB 1000 requires local governments to address pollution and other hazards that disproportionately impact low-income communities and communities of color in their jurisdictions. SB 1000 mandates that general plans address environmental justice but does not require California Environmental Quality Act (CEQA) analyses to address EJ issues.

Nevertheless, to address comments on the original Draft PEIR, the City chose to recirculate Section 5.2 of the original Draft PEIR. The original Draft PEIR addressed air quality and health risk impacts of implementing the GPU to sensitive land uses. The recirculated section included a supplemental discussion on air quality impacts to EJ communities related to development pursuant to the GPU. It also listed applicable EJ policies and implementation actions in the General Plan Update.

General Plan Guidelines prepared by the California Office of Planning and Research provide that newly adopted general plans may address EJ as a stand-alone element or incorporate the requirements into other general plan elements or plans. The City has chosen to address EJ topics throughout the General Plan Update. Section 5.2 of the original Draft PEIR was therefore supplemented with air-quality-related EJ policies and implementation actions, as shown in Section 5.2.4.2, to demonstrate that the GPU complies with the requirements of SB 1000. These EJ policies and implementation actions also address EJ-related air quality impacts.

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SB 1000 states that environmental justice includes governmental entities engaging and providing technical assistance to communities most impacted by pollution to promote their meaningful participation in all phases of the environmental and land use decision-making process. A detailed discussion of the City's EJ community outreach is included in Section 2.4, *Environmental Justice Outreach*.

### 5.2.1 Environmental Setting

#### 5.2.1.1 REGULATORY BACKGROUND

Ambient air quality standards (AAQS) have been adopted at the state and federal levels for criteria air pollutants. In addition, both the State and federal government regulate the release of TACs. Santa Ana is in the South Coast Air Basin (SoCAB) and is subject to the rules and regulations imposed by the South Coast Air Quality Management District (AQMD), the California AAQS adopted by California Air Resources Board (CARB), and National AAQS adopted by the United States Environmental Protection Agency (EPA). Federal, State, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the General Plan Update are summarized in this section.

#### Federal and State

##### *Ambient Air Quality Standards*

The Clean Air Act was passed in 1963 by the US Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The Clean Air Act allows states to adopt more stringent standards or to include other pollution species. The California Clean Air Act, signed into law in 1988, requires all areas of the state to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS.

The National and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants, which are shown in Table 5.2-1. These pollutants are ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), coarse inhalable particulate matter (PM<sub>10</sub>), fine inhalable particulate matter (PM<sub>2.5</sub>), and lead (Pb). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

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**Table 5.2-1 Ambient Air Quality Standards for Criteria Air Pollutants**

Pollutant	Averaging Time	California Standard <sup>1</sup>	Federal Primary Standard <sup>2</sup>	Major Pollutant Sources
Ozone (O <sub>3</sub> ) <sup>3</sup>	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO <sub>2</sub> )	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM <sub>10</sub> )	Annual Arithmetic Mean	20 µg/m <sup>3</sup>	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	
Respirable Fine Particulate Matter (PM <sub>2.5</sub> ) <sup>4</sup>	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m <sup>3</sup>	
Lead (Pb)	30-Day Average	1.5 µg/m <sup>3</sup>	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m <sup>3</sup>	
	Rolling 3-Month Average	*	0.15 µg/m <sup>3</sup>	
Sulfates (SO <sub>4</sub> ) <sup>5</sup>	24 hours	25 µg/m <sup>3</sup>	No Federal Standard	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.

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**Table 5.2-1 Ambient Air Quality Standards for Criteria Air Pollutants**

Pollutant	Averaging Time	California Standard <sup>1</sup>	Federal Primary Standard <sup>2</sup>	Major Pollutant Sources
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H <sub>2</sub> S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hours	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2016.

Notes: ppm: parts per million; µg/m<sup>3</sup>: micrograms per cubic meter

\* Standard has not been established for this pollutant/duration by this entity.

<sup>1</sup> California standards for O<sub>3</sub>, CO (except 8-hour Lake Tahoe), SO<sub>2</sub> (1 and 24 hour), NO<sub>2</sub>, and particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

<sup>2</sup> National standards (other than O<sub>3</sub>, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O<sub>3</sub> standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than one. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

<sup>3</sup> On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

<sup>4</sup> On December 14, 2012, the national annual PM<sub>2.5</sub> primary standard was lowered from 15 µg/m<sup>3</sup> to 12.0 µg/m<sup>3</sup>. The existing national 24-hour PM<sub>2.5</sub> standards (primary and secondary) were retained at 35 µg/m<sup>3</sup>, as was the annual secondary standard of 15 µg/m<sup>3</sup>. The existing 24-hour PM<sub>10</sub> standards (primary and secondary) of 150 µg/m<sup>3</sup> also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

<sup>5</sup> On June 2, 2010, a new 1-hour SO<sub>2</sub> standard was established and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

California has also adopted a host of other regulations that reduce criteria pollutant emissions.

- **AB 1493: Pavley Fuel Efficiency Standards.** Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016. In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025.
- **SB 1078 and SB 107: Renewables Portfolio Standards.** A major component of California's Renewable Energy Program is the renewables portfolio standard established under Senate Bills 1078 (Sher) and 107 (Simitian). Under this standard, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010.
- **California Code of Regulations (CCR), Title 20: Appliance Energy Efficiency Standards.** The 2006 Appliance Efficiency Regulations (20 CCR §§ 1601–1608) were adopted by the California Energy Commission on October 11, 2006, and approved by the California Office of Administrative Law on

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December 14, 2006. The regulations include standards for both federally regulated appliances and non-federally regulated appliances.

- **24 CCR, Part 6: Building and Energy Efficiency Standards.** Energy conservation standards for new residential and nonresidential buildings adopted by the California Energy Resources Conservation and Development Commission (now the California Energy Commission) in June 1977.
- **24 CCR, Part 11: Green Building Standards Code.** Establishes planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.

#### *Tanner Air Toxics Act and Air Toxics Hot Spot Information and Assessment Act*

Public exposure to TACs is a significant environmental health issue in California. In 1983, the California legislature enacted a program to identify the health effects of TACs and reduce exposure to them. The California Health and Safety Code defines a TAC as “an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health” (17 CCR § 93000). A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Clean Air Act (42 US Code § 7412[b]) is a toxic air contaminant. Under State law, the California Environmental Protection Agency, acting through CARB, is authorized to identify a substance as a TAC if it is an air pollutant that may cause or contribute to an increase in mortality or serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics “Hot Spot” Information and Assessment Act of 1987). The Tanner Air Toxics Act set up a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an “airborne toxics control measure” for sources that emit that TAC. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate “toxics best available control technology” to minimize emissions. To date, CARB has established formal control measures for 11 TACs that are identified as having no safe threshold.

Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High-priority facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public through notices and public meetings.

CARB has promulgated the following specific rules to limit TAC emissions:

- **13 CCR Chapter 10 § 2485: Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.** Generally restricts on-road diesel-powered commercial motor vehicles with a gross vehicle weight rating of greater than 10,000 pounds from idling more than five minutes.

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- **13 CCR Chapter 10 § 2480: Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools.** Generally restricts a school bus or transit bus from idling for more than five minutes when within 100 feet of a school.
- **13 CCR § 2477 and Article 8: Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate.** Regulations established to control emissions associated with diesel-powered TRUs.

### Air Pollutants of Concern

#### *Criteria Air Pollutants*

The pollutants emitted into the ambient air by stationary and mobile sources are categorized as primary and/or secondary pollutants. Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), coarse inhalable particulate matter (PM<sub>10</sub>), fine inhalable particulate matter (PM<sub>2.5</sub>), and lead (Pb) are primary air pollutants. Of these, CO, SO<sub>2</sub>, NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> are “criteria air pollutants,” which means that AAQS have been established for them. VOC and NO<sub>x</sub> are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O<sub>3</sub>) and nitrogen dioxide (NO<sub>2</sub>) are the principal secondary pollutants.

A description of each of the primary and secondary criteria air pollutants and its known health effects is presented below.

- **Carbon Monoxide** is a colorless, odorless gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (South Coast AQMD 2005; USEPA 2020). The SoCAB is designated under the California and National AAQS as being in attainment of CO criteria levels (CARB 2018).
- **Nitrogen Oxides** are a by-product of fuel combustion and contribute to the formation of ground-level O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. The two major forms of NO<sub>x</sub> are nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. The principal form of NO<sub>x</sub> produced by combustion is NO, but NO reacts quickly with oxygen to form NO<sub>2</sub>, creating the mixture of NO and NO<sub>2</sub> commonly called NO<sub>x</sub>. NO<sub>2</sub> is an acute irritant and more injurious than NO in equal concentrations. At atmospheric concentrations, however, NO<sub>2</sub> is only potentially irritating. NO<sub>2</sub> absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO<sub>2</sub> exposure concentrations near roadways are of particular concern for susceptible individuals, including asthmatics, children, and the elderly. Current scientific evidence links short-term NO<sub>2</sub> exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in

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people with asthma. Also, studies show a connection between elevated short-term NO<sub>2</sub> concentrations and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma (South Coast AQMD 2005; USEPA 2020). The SoCAB is designated an attainment area for NO<sub>2</sub> under the National and California AAQS (CARB 2018). On February 21, 2019, CARB's Board approved the separation of the area that runs along the State Route 60 corridor through portions of Riverside, San Bernardino, and Los Angeles counties from the remainder of the SoCAB for state nonattainment designation purposes. The Board designated this corridor as nonattainment. The remainder of the SoCAB remains in attainment for NO<sub>2</sub> (CARB 2019a).

- **Sulfur Dioxide** is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and chemical processes at plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO<sub>2</sub>. When sulfur dioxide forms sulfates (SO<sub>4</sub>) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO<sub>x</sub>). Thus, SO<sub>2</sub> is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO<sub>2</sub> may irritate the upper respiratory tract. Current scientific evidence links short-term exposures to SO<sub>2</sub>, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly adverse for asthmatics at elevated ventilation rates (e.g., while exercising or playing) at lower concentrations and when combined with particulates, SO<sub>2</sub> may do greater harm by injuring lung tissue. Studies also show a connection between short-term exposure and increased visits to emergency facilities and hospital admissions for respiratory illnesses, particularly in at-risk populations such as children, the elderly, and asthmatics (South Coast AQMD 2005; USEPA 2020). The SoCAB is designated attainment under the California and National AAQS (CARB 2018).
- **Suspended Particulate Matter** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM<sub>10</sub>, include particulate matter with an aerodynamic diameter of 10 microns or less (i.e., ≤10 millionths of a meter or 0.0004 inch). Inhalable fine particles, or PM<sub>2.5</sub>, have an aerodynamic diameter of 2.5 microns or less (i.e., ≤2.5 millionths of a meter or 0.0001 inch). Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. Both PM<sub>10</sub> and PM<sub>2.5</sub> may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. The EPA's scientific review concluded that PM<sub>2.5</sub>, which penetrates deeply into the lungs, is more likely than PM<sub>10</sub> to contribute to health effects and at far lower concentrations. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing) (South Coast AQMD 2005). There has been emerging evidence that ultrafine particulates, which are even smaller particulates with an aerodynamic diameter of <0.1 microns or less (i.e., ≤0.1 millionths of a meter or <0.000004 inch), have human health implications, because their toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (South Coast AQMD 2013). However, the EPA or CARB has yet to adopt AAQS to regulate these particulates. Diesel particulate matter is classified by CARB as a carcinogen (CARB 1998). Particulate matter can also cause environmental effects

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such as visibility impairment,<sup>1</sup> environmental damage,<sup>2</sup> and aesthetic damage<sup>3</sup> (South Coast AQMD 2005; USEPA 2020). The SoCAB is a nonattainment area for PM<sub>2.5</sub> under California and National AAQS and a nonattainment area for PM<sub>10</sub> under the California AAQS (CARB 2018).<sup>4</sup>

- **Ozone**, or O<sub>3</sub>, is a key ingredient of “smog” and is a gas that is formed when VOCs and NO<sub>x</sub>, both by-products of internal combustion engine exhaust, undergo photochemical reactions in sunlight. O<sub>3</sub> is a secondary criteria air pollutant. O<sub>3</sub> concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O<sub>3</sub> poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O<sub>3</sub> can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O<sub>3</sub> also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O<sub>3</sub> also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O<sub>3</sub> harms sensitive vegetation during the growing season (South Coast AQMD 2005; USEPA 2020). The SoCAB is designated extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2018).
- **Volatile Organic Compounds** are composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of VOCs. Other sources include evaporative emissions from paints and solvents, asphalt paving, and household consumer products such as aerosols (South Coast AQMD 2005). There are no AAQS for VOCs. However, because they contribute to the formation of O<sub>3</sub>, South Coast AQMD has established a significance threshold. The health effects for ozone are described above.
- **Lead** is a metal found naturally in the environment as well as in manufactured products. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The effects of lead most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ (South Coast AQMD 2005; USEPA 2020). The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA’s regulatory efforts to remove lead from gasoline, emissions of lead from the transportation

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<sup>1</sup> PM<sub>2.5</sub> is the main cause of reduced visibility (haze) in parts of the United States.

<sup>2</sup> Particulate matter can be carried over long distances by wind and then settle on ground or water, making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.

<sup>3</sup> Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

<sup>4</sup> CARB approved the South Coast AQMD’s request to redesignate the SoCAB from serious nonattainment for PM<sub>10</sub> to attainment for PM<sub>10</sub> under the National AAQS on March 25, 2010, because the SoCAB did not violate federal 24-hour PM<sub>10</sub> standards from 2004 to 2007. The EPA approved the State of California’s request to redesignate the South Coast PM<sub>10</sub> nonattainment area to attainment of the PM<sub>10</sub> National AAQS, effective on July 26, 2013.



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sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted more strict lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new State and federal standards.<sup>5</sup> As a result of these violations, the Los Angeles County portion of the SoCAB is designated as nonattainment under the National AAQS for lead (South Coast AQMD 2012; CARB 2018). There are no lead-emitting sources associated with the General Plan Update, and therefore, lead is not a pollutant of concern.

Table 5.2-2 summarizes the potential health effects associated with the criteria air pollutants.

**Table 5.2-2 Criteria Air Pollutant Health Effects Summary**

Pollutant	Health Effects	Examples of Sources
Carbon Monoxide (CO)	Chest pain in heart patients Headaches, nausea Reduced mental alertness Death at very high levels	Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Ozone (O <sub>3</sub> )	Cough, chest tightness Difficulty taking a deep breath Worsened asthma symptoms Lung inflammation	Atmospheric reaction of organic gases with nitrogen oxides in sunlight
Nitrogen Dioxide (NO <sub>2</sub> )	Increased response to allergens Aggravation of respiratory illness	Same as carbon monoxide sources
Particulate Matter (PM <sub>10</sub> & PM <sub>2.5</sub> )	Hospitalizations for worsened heart diseases Emergency room visits for asthma Premature death	Cars and trucks (particularly diesels) Fireplaces and woodstoves Windblown dust from overlays, agriculture, and construction
Sulfur Dioxide (SO <sub>2</sub> )	Aggravation of respiratory disease (e.g., asthma and emphysema) Reduced lung function	Combustion of sulfur-containing fossil fuels, smelting of sulfur-bearing metal ores, and industrial processes
Lead (Pb)	Behavioral and learning disabilities in children Nervous system impairment	Contaminated soil

Source: CARB 2009; South Coast AQMD 2005.

<sup>5</sup> Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 showed that the Trojan Battery Company and Exide Technologies exceed the federal standards (South Coast AQMD 2012).

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#### *Toxic Air Contaminants*

People exposed to TACs at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects. These health effects can include damage to the immune system as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and other health problems (USEPA 2019b). By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. There are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most relevant to the General Plan Update being particulate matter from diesel-fueled engines.

#### *Diesel Particulate Matter*

In 1998, CARB identified diesel particulate matter (DPM) as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particles are 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs. Long-term (chronic) inhalation of DPM is likely a lung cancer risk. Short-term (i.e., acute) exposure can cause irritation and inflammatory systems and may exacerbate existing allergies and asthma systems (USEPA 2002).

#### **Air Quality Management Planning**

South Coast AQMD is the agency responsible for improving air quality in the SoCAB and ensuring that the National and California AAQS are attained and maintained. South Coast AQMD is responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

#### **2016 AQMP**

On March 3, 2017, South Coast AQMD adopted the 2016 AQMP, which serves as an update to the 2012 AQMP. The 2016 AQMP addresses strategies and measures to attain the following National AAQS:

- 2008 National 8-hour ozone standard by 2031
- 2012 National annual PM<sub>2.5</sub> standard by 2025<sup>6</sup>
- 2006 National 24-hour PM<sub>2.5</sub> standard by 2019
- 1997 National 8-hour ozone standard by 2023
- 1979 National 1-hour ozone standard by year 2022

It is projected that total NO<sub>x</sub> emissions in the SoCAB would need to be reduced to 150 tons per day (tpd) by year 2023 and to 100 tpd in year 2031 to meet the 1997 and 2008 federal 8-hour ozone standards. The strategy to meet the 1997 federal 8-hour ozone standard would also lead to attaining the 1979 federal 1-hour ozone

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<sup>6</sup> The 2016 AQMP requests a reclassification from moderate to serious nonattainment for the 2012 National PM<sub>2.5</sub> standard.

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standard by year 2022 (South Coast AQMD 2017), which requires reducing NO<sub>x</sub> emissions in the SoCAB to 250 tpd. This is approximately 45 percent additional reductions above existing regulations for the 2023 ozone standard and 55 percent additional reductions to existing regulations to meet the 2031 ozone standard.

Reducing NO<sub>x</sub> emissions would also reduce PM<sub>2.5</sub> concentrations in the SoCAB. However, because the goal is to meet the 2012 federal annual PM<sub>2.5</sub> standard no later than year 2025, South Coast AQMD is seeking to reclassify the SoCAB from “moderate” to “serious” nonattainment under this federal standard. A “moderate” nonattainment would require meeting the 2012 federal standard by no later than 2021.

Overall, the 2016 AQMP is composed of stationary and mobile-source emission reductions from regulatory control measures, incentive-based programs, co-benefits from climate programs, mobile-source strategies, and reductions from federal sources such as aircrafts, locomotives, and ocean-going vessels. Strategies outlined in the 2016 AQMP would be implemented in collaboration between CARB and the EPA (South Coast AQMD 2017).

#### *Lead Implementation Plan*

In 2008, the EPA designated the Los Angeles County portion of the SoCAB as a nonattainment area under the federal lead (Pb) classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in the City of Vernon and the City of Industry that exceeded the new standard in the 2007-to-2009 period. The remainder of the SoCAB, outside the Los Angeles County nonattainment area, remains in attainment of the new 2008 lead standard. On May 24, 2012, CARB approved the State Implementation Plan revision for the federal lead standard, which the EPA revised in 2008. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. The State Implementation Plan revision was submitted to the EPA for approval.

#### *South Coast AQMD Rules and Regulations*

All projects are subject to South Coast AQMD rules and regulations in effect at the time of activity, including:

- **Rule 401, Visible Emissions.** This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in visible emissions. Specifically, the rule prohibits the discharge of any air contaminant into the atmosphere by a person from any single source of emission for a period or periods aggregating more than three minutes in any one hour that is as dark as or darker than designated No. 1 on the Ringelmann Chart, as published by the US Bureau of Mines.
- **Rule 402, Nuisance.** This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in a public nuisance. Specifically, this rule prohibits any person from discharging quantities of air contaminants or other material from any source such that it would result in an injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. Additionally, the discharge of air contaminants would also be prohibited where it would endanger the comfort, repose, health, or safety of any number of persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

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- **Rule 403, Fugitive Dust.** This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust, and requires best available control measures to be applied to earth moving and grading activities. In general, the rule prohibits new developments from the installation of wood-burning devices.
- **Rule 445, Wood Burning Devices.** This rule is intended to reduce the emission of particulate matter from wood-burning devices and applies to manufacturers and sellers of wood-burning devices, commercial sellers of firewood, and property owners and tenants that operate a wood-burning device.
- **Rule 1113, Architectural Coatings.** This rule serves to limit the VOC content of architectural coatings used on projects in the South Coast AQMD. Any person who supplies, sells, offers for sale, or manufactures any architectural coating for use on projects in the South Coast AQMD must comply with the current VOC standards set in this rule.
- **Rule 1403, Asbestos Emissions from Demolition/Renovation Activities.** The purpose of this rule is to specify work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials (ACM). The requirements for demolition and renovation activities include asbestos surveying, notification, ACM removal procedures and time schedules, ACM handling and clean-up procedures, and storage, disposal, and landfilling requirements for asbestos-containing waste materials. All operators are required to maintain records, including waste shipment records, and are required to use appropriate warning labels, signs, and markings.

### Air Quality and Disadvantaged Communities

#### *Senate Bill 1000*

SB 1000 adds an environmental justice element to the required elements of a general plan, or EJ-related goals, policies, and objectives integrated with other elements. In whichever form, the element identifies disadvantaged communities, as defined, in the area covered by the general plan if the city or county has a disadvantaged community. It must also identify objectives and policies to reduce the unique or compounded health risks in disadvantaged communities.

#### *AB 617, Community Air Protection Program*

Assembly Bill (AB) 617 (C. Garcia, Chapter 136, Statutes of 2017) requires local air districts to monitor and implement air pollution control strategies that reduce localized air pollution in communities that bear the greatest burdens. In response to AB 617, CARB has established the Community Air Protection Program.

Air districts are required to host workshops to help identify disadvantaged communities disproportionately affected by poor air quality. Once the criteria for identifying the highest priority locations have been identified and the communities have been selected, new community monitoring systems would be installed to track and

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monitor community-specific air pollution goals. In 2018 CARB prepared an air monitoring plan (Community Air Protection Blueprint) that evaluates the availability and effectiveness of air monitoring technologies and existing community air monitoring networks. Under AB 617, the Blueprint is required to be updated every five years.

CARB is also required to prepare a statewide strategy to reduce TACs and criteria pollutants in impacted communities; provide a statewide clearinghouse for best available retrofit control technology; adopt new rules requiring the latest best available retrofit control technology for all criteria pollutants for which an area has not achieved attainment of California AAQS; and provide uniform, statewide reporting of emissions inventories. Air districts are required to adopt a community emissions reduction program to achieve reductions for the communities impacted by air pollution that CARB identifies.

#### 5.2.1.2 EXISTING CONDITIONS

##### South Coast Air Basin

The City of Santa Ana and its sphere of influence are in the SoCAB, which includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semipermanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds (South Coast AQMD 2005).

##### *Temperature and Precipitation*

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the project area that best represents the climatological conditions of the city is the Santa Ana Fire Station (ID 047888). The average low is reported at 43.1°F in January, and the average high is 84.7°F in August (WRCC 2020).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from November to May. The historical rainfall average for the city is 13.69 inches per year (WRCC 2020).

##### *Humidity*

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of a shallow marine layer. This "ocean effect" is dominant except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds. Periods of heavy fog are frequent, especially along the coast. Low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB (South Coast AQMD 1993).

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#### *Wind*

Wind patterns across the southern coastal region are characterized by westerly or southwesterly onshore winds during the day and easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season.

Between periods of wind, periods of air stagnation may occur in the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east inhibit the eastward transport and diffusion of pollutants. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal Southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions (South Coast AQMD 2005).

#### *Inversions*

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, two distinct types of temperature inversions control the vertical depth through which pollutants are mixed. These inversions are the marine/subsidence inversion and the radiation inversion. The height of the base of the inversion at any given time is known as the “mixing height.” The combination of winds and inversions are critical determinants in the highly degraded air quality in summer and the generally good air quality in the winter in the project area (South Coast AQMD 2005).

#### **SoCAB Nonattainment Areas**

The AQMP provides the framework for air quality basins to achieve attainment of the State and federal ambient air quality standards through the State Implementation Plan. Areas are classified as attainment or nonattainment areas for particular pollutants depending on whether they meet the ambient air quality standards. Severity classifications for ozone nonattainment range in magnitude from marginal, moderate, and serious to severe and extreme.

- ***Unclassified.*** A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
- ***Attainment.*** A pollutant is in attainment if the AAQS for that pollutant was not violated at any site in the area during a three-year period.
- ***Nonattainment.*** A pollutant is in nonattainment if there was at least one violation of an AAQS for that pollutant in the area.
- ***Nonattainment/Transitional.*** A subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

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The attainment status for the SoCAB is shown in Table 5.2-3.

**Table 5.2-3 Attainment Status of Criteria Air Pollutants in the South Coast Air Basin**

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM <sub>10</sub>	Serious Nonattainment	Attainment
PM <sub>2.5</sub>	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO <sub>2</sub>	Nonattainment (SR-60 Near Road only) <sup>1</sup>	Attainment/Maintenance
SO <sub>2</sub>	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only) <sup>2</sup>
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2018.

<sup>1</sup> On February 21, 2019, CARB's Board approved the separation of the area that runs along State Route 60 corridor through portions of Riverside, San Bernardino, and Los Angeles counties from the remainder of the SoCAB for State nonattainment designation purposes. The Board designated this corridor as nonattainment. The remainder of the SoCAB remains in attainment for NO<sub>2</sub> (CARB 2019a).

<sup>2</sup> In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new 2008 federal AAQS as a result of large industrial emitters. Remaining areas in the SoCAB are unclassified.

### Multiple Air Toxics Exposure Study

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on existing ambient concentrations of TACs and the potential health risks from air toxics in the SoCAB. In April 2021 South Coast AQMD released the latest update to the MATES study, MATES V. The first MATES analysis, MATES I, began in 1986 but was limited due to the technology available at the time. Conducted in 1998, MATES II was the first MATES iteration to include a comprehensive monitoring program, an air toxics emissions inventory, and a modeling component. MATES III was conducted in 2004 to 2006, with MATES IV following in 2012 to 2013.

MATES V uses measurements taken during 2018 and 2019, with a comprehensive modeling analysis and emissions inventory based on 2018 data. The previous MATES studies quantified the cancer risks based on the inhalation pathway only. MATES V includes information on the chronic noncancer risks from inhalation and noninhalation pathways for the first time. Cancer risks and chronic noncancer risks from MATES II through IV measurements have been re-examined using current Office of Environmental Health Hazards Assessment and CalEPA risk assessment methodologies and modern statistical methods to examine the trends over time. Figure 5.2-1, *MATES V Inhalation Air Toxics Cancer Risk for Santa Ana*, shows the results of the inhalation cancer risk from the MATES IV study. The potential cancer risk is expressed as the incremental number of potential cancer cases that could be developed per million people, assuming that the population is exposed to the substance at a constant annual average concentration over a presumed 70-year lifetime.

The MATES V study showed that cancer risk in the SoCAB decreased to 454 in a million from 997 in a million in the MATES IV study. Overall, air toxics cancer risk in the SoCAB decreased by 54 percent since 2012 when MATES IV was conducted. MATES V showed the highest risk locations near the Los Angeles International Airport and Ports of Long Beach and Los Angeles. DPM continues to be the major contributor to air toxics cancer risk. Goods movement and transportation corridors have the highest cancer risk. Transportation sources

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account for 88 percent of carcinogenic air toxics emissions, and the remainder is from stationary sources, which include large industrial operations such as refineries and power plants as well as smaller businesses such as gas stations and chrome-plating facilities. (South Coast AQMD 2021).

#### Existing Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections in the city are best documented by measurements taken by the South Coast AQMD. The city is wholly within Source Receptor Area (SRA) 17: Central Orange County.<sup>7</sup> The Anaheim-Pampa Lane Monitoring Station best represents the ambient air quality in the city. Data from this station is summarized in Table 5.2-4. The data show that the area regularly exceeded the State and federal one-hour and eight-hour O<sub>3</sub> standards within the last five recorded years. Additionally, the area has regularly exceeded the State PM<sub>10</sub> and federal PM<sub>2.5</sub> standards.

**Table 5.2-4 Ambient Air Quality Monitoring Summary**

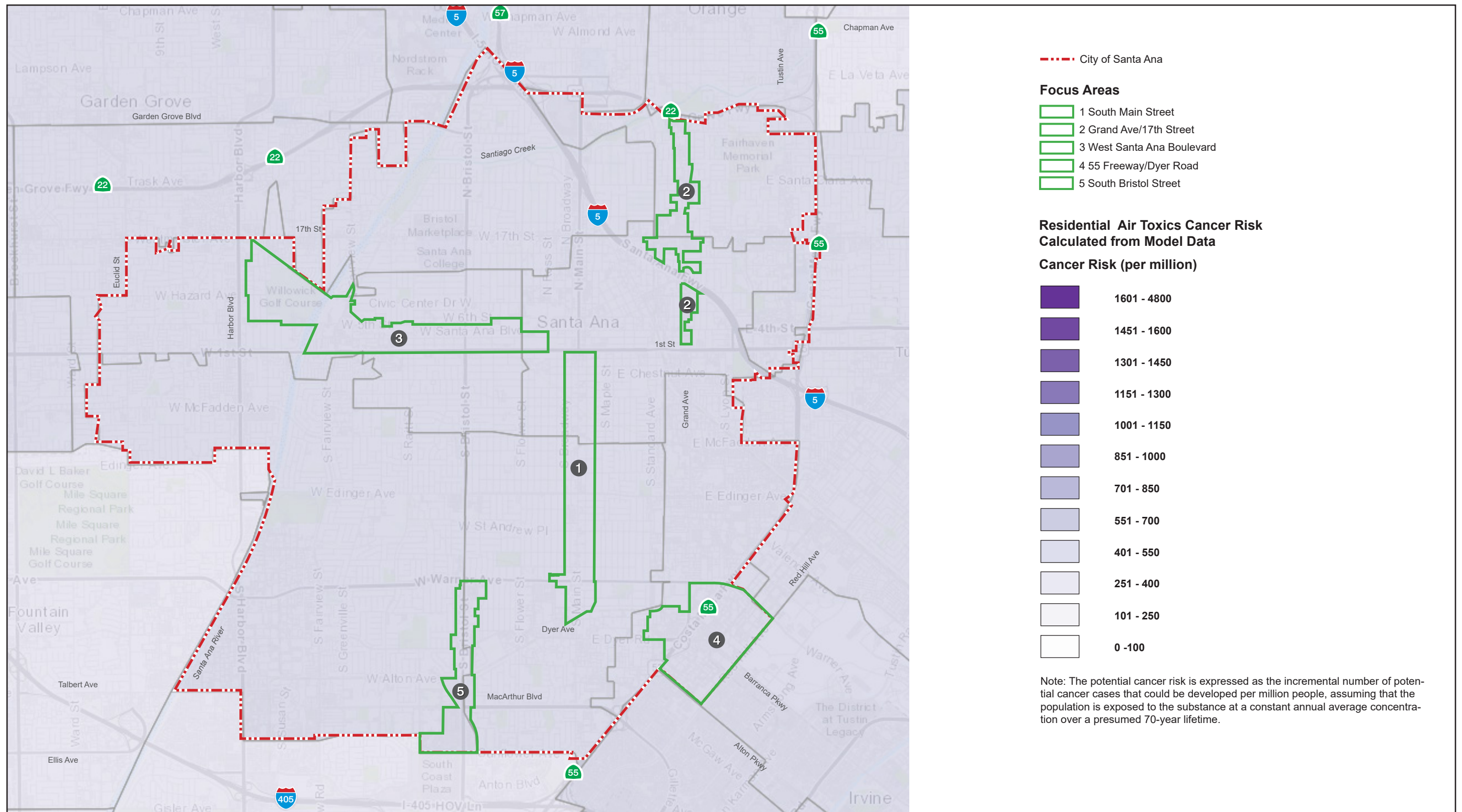
Pollutant/Standard	Number of Days Thresholds Were Exceeded and Maximum Levels				
	2015	2016	2017	2018	2019
<b>Ozone (O<sub>3</sub>)</b>					
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	1	2	0	1	1
State 8-hour ≥ 0.07 ppm (days exceed threshold)	2	0	4	1	1
Federal 8-Hour > 0.075 ppm (days exceed threshold)	1	0	1	0	1
Max. 1-Hour Conc. (ppm)	0.099	0.090	0.088	0.112	0.096
Max. 8-Hour Conc. (ppm)	0.079	0.069	0.080	0.071	0.082
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
State 1-Hour ≥ 0.18 ppm (days exceed threshold)	0	0	0	0	0
Federal 1-Hour ≥ 0.100 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppb)	59.1	64.3	81.2	66.0	59.4
<b>Coarse Particulates (PM<sub>10</sub>)</b>					
State 24-Hour > 50 µg/m <sup>3</sup> (days exceed threshold)	2	3	5	2	4
Federal 24-Hour > 150 µg/m <sup>3</sup> (days exceed threshold)	0	0	0	0	0
Max. 24-Hour Conc. (µg/m <sup>3</sup> )	59.0	74.0	95.7	94.6	127.6
<b>Fine Particulates (PM<sub>2.5</sub>)</b>					
Federal 24-Hour > 35 µg/m <sup>3</sup> (days exceed threshold)	3	1	7	7	4
Max. 24-Hour Conc. (µg/m <sup>3</sup> )	45.8	44.4	53.9	63.1	36.1

Source: CARB 2020.  
Notes: Data from the Anaheim Pampa Lane Monitoring Station. Includes exceptional event data (e.g., wildfires).  
ppm = parts per million; ppb = parts per billion, µg/m<sup>3</sup> = micrograms per cubic meter

<sup>7</sup> South Coast AQMD Rule 701 defines an SRA as: “A source area is that area in which contaminants are discharged and a receptor area is that area in which the contaminants accumulate and are measured. Any of the areas can be a source area, a receptor area, or both a source and receptor area.” There are 37 SRAs within the South Coast AQMD’s jurisdiction.



Figure 5.2-1 - MATES IV Inhalation Air Toxics Cancer Risk for Santa Ana



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There are no South Coast AQMD monitoring stations in Santa Ana. However, South Coast AQMD has embarked on a community air initiative pursuant to AB 617, and through this initiative, the South Coast AQMD is working with selected disadvantaged communities to implement a local air quality monitoring program. Santa Ana was not identified or nominated as one of the potential disadvantaged communities in the latest South Coast AQMD Year 2 Community Recommendations for AB 617 sent to CARB (South Coast AQMD 2019a). However, the City worked with the Madison Park Neighborhood through Charitable Ventures Orange County to obtain a grant from CARB to expand the engagement between Madison Park residents and create a plan for community-based monitoring of air pollution and its effects.

### Existing Emissions

The city consists of commercial, retail, industrial, and institutional land uses and single- and multifamily residences. These uses currently generate criteria air pollutant emissions from natural gas use for energy, heating, and cooking; vehicle trips associated with each land use; and area sources such as landscaping equipment and consumer cleaning products.<sup>8</sup> Table 5.2-5 shows the average daily emissions inventory currently associated with the existing land uses in the city. The inventory also includes emissions from off-road construction equipment associated with construction activities in the plan area.

**Table 5.2-5 Santa Ana Criteria Air Pollutant Emissions Inventory**

Sector	Existing Criteria Air Pollutant Emissions (pounds per day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Transportation <sup>1</sup>	831	5,596	25,067	90	1,362	602
Energy	144	1,277	845	8	100	100
Area – Consumer Products <sup>2</sup>	4,212	0	0	0	0	0
Area –Light Equipment <sup>3</sup>	154	415	6,330	1	38	31
Area – Construction Equipment	28	182	589	0	13	11.11
<b>Total</b>	<b>5,369</b>	<b>7,470</b>	<b>32,832</b>	<b>99</b>	<b>1,513</b>	<b>744</b>

Note:

<sup>1</sup> EMFAC2017 Version 1.0.2. Based on daily VMT provided by IBI Group. Transportation sector includes the full trip length for internal-internal trips and various trip lengths for external-internal/internal-external trips (see Appendix K). VMT per year based on a conversion of VMT x 347 days per year to account for less travel on weekend, consistent with CARB statewide GHG emissions inventory methodology (CARB 2008).

<sup>2</sup> Based on CalEEMod, Version 2016.3.2, methodology utilized to calculate VOC emissions from use of household consumer cleaning products.

<sup>3</sup> OFFROAD2017 Version 1.0.1. Light commercial equipment emissions estimated based on employment for the City of Santa Ana as a percentage of Orange County. Construction emissions estimated based on housing permit data for Orange County and the City of Santa Ana from the US Census. Area sources exclude emissions from fireplaces.

### Permitted Sources of Emissions

South Coast AQMD regulates stationary sources of emissions through source-specific rules that have been adopted to reduce criteria air pollutant emissions TACs. South Coast AQMD maintains the Facility Information Detail (FIND) database of regulated facilities that are required to have a permit to operate equipment that releases pollutants into the air in its region. Permitted sources include smaller sources such as gas stations and chrome-plating facilities as well as large sources such as refineries and power stations. Figure 5.2-2, *South Coast*

<sup>8</sup> Emissions from permitted sources are excluded from the existing emissions inventory because the reductions associated with the Industrial sector are regulated separately by South Coast AQMD and are not under the jurisdiction of the City of Santa Ana.

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*AQMD Permitted Facilities in Santa Ana*, identifies permitted sources of emissions in Santa Ana that are regulated directly by South Coast AQMD. The number of permitted facilities in an area are depicted by blue circles of various sizes dependent on the number of facilities in the vicinity. Permitted sources of emissions are generally clustered in industrial areas of the city.

#### **Sensitive Receptors**

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases.

Residential areas are also considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, because the majority of the workers tend to stay indoors most of the time. In addition, the workforce is generally the healthiest segment of the population.

#### *Environmental Justice Communities*

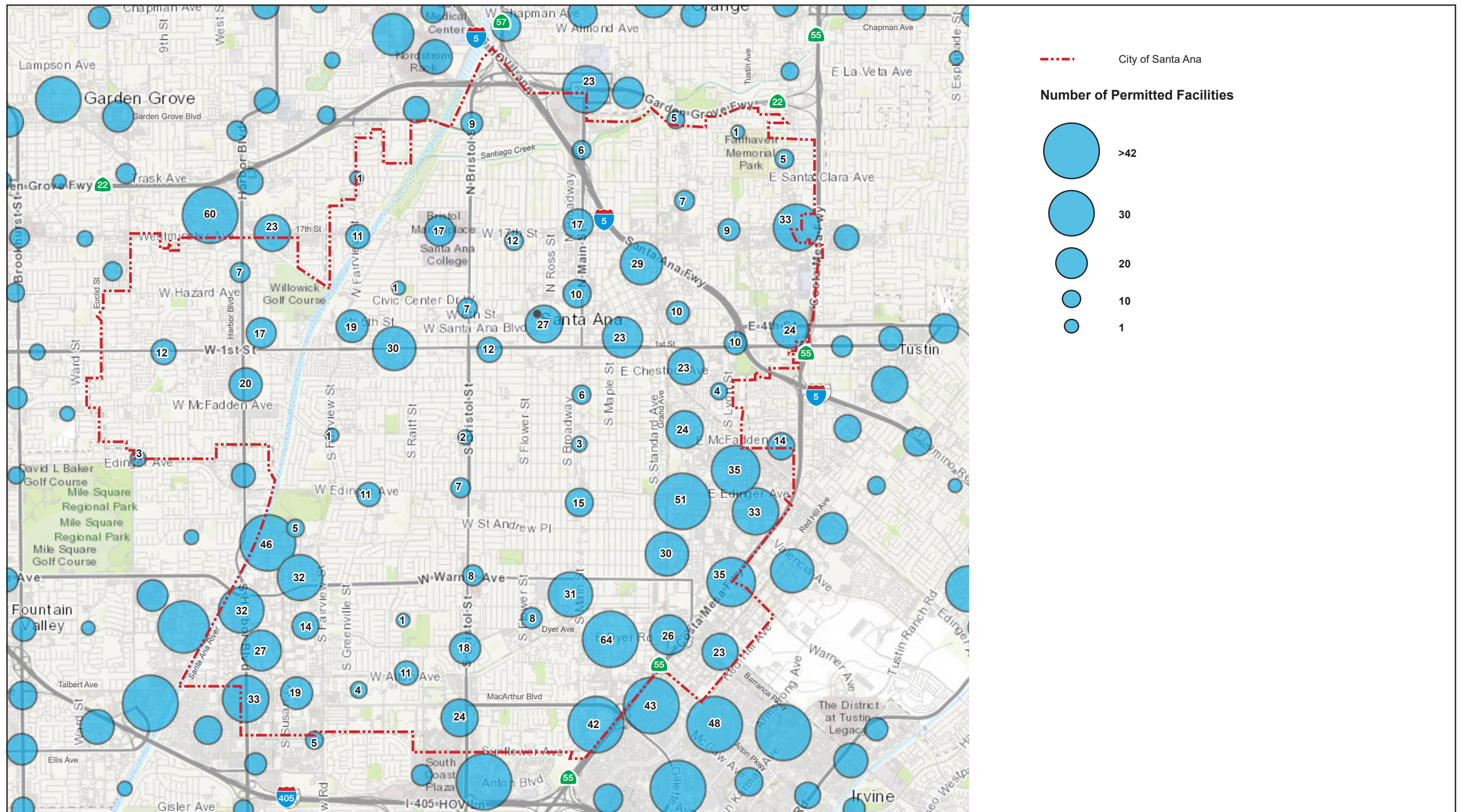
Figure 2-1 of the Recirculated Draft PEIR, *EJ Communities, Neighborhoods, and Focus Areas*, shows the 23 census tracts and associated neighborhoods in Santa Ana that have been identified as EJ communities through the SB 1000 process. Appendix A-b, *Environmental Justice Background and Analysis for the General Plan Update*, includes tables that summarize the CalEnviroScreen (CES) scores for each of the 23 census tracts.<sup>9</sup>

An industrial corridor in the eastern part of the city extends north-south from the French Court neighborhood to the Delhi neighborhood. This corridor also runs through the French Park, Logan, Lacy, Lyon Street, Madison Park, Cornerstone Village, Cedar Evergreen, and Memorial Park neighborhoods (see Figure 5.2-3, *EJ Communities and Existing Industrial Land Use*). The EJ communities surrounding this industrial corridor include residences, recreational areas, and schools—such as the Century High School, James Madison Elementary School, and the Kennedy Elementary School—that may be exposed to air pollutants from mobile and stationary sources at the existing industrial facilities. Concerns cited by these communities include chemical smells and emissions from industrial facilities, elevated pediatric emergency room visits for asthma, and the lack of real-time data collection for PM, NO<sub>x</sub>, SO<sub>2</sub>, or ozone near the industrial corridor.

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<sup>9</sup> CES generates a composite score that assesses disproportionate impacts on California communities. It uses 21 indicators organized across four categories—pollution exposure, environmental effects, sensitive populations, and socioeconomic factors. These categories are summed into two primary metrics—pollution burden and population characteristics—which CES multiplies to arrive at the CES composite score.

Figure 5.2-2 - South Coast AQMD Permitted Facilities in Santa Ana



Source: SCAQMD Facilities, 2021

0 3  
Scale (Miles)

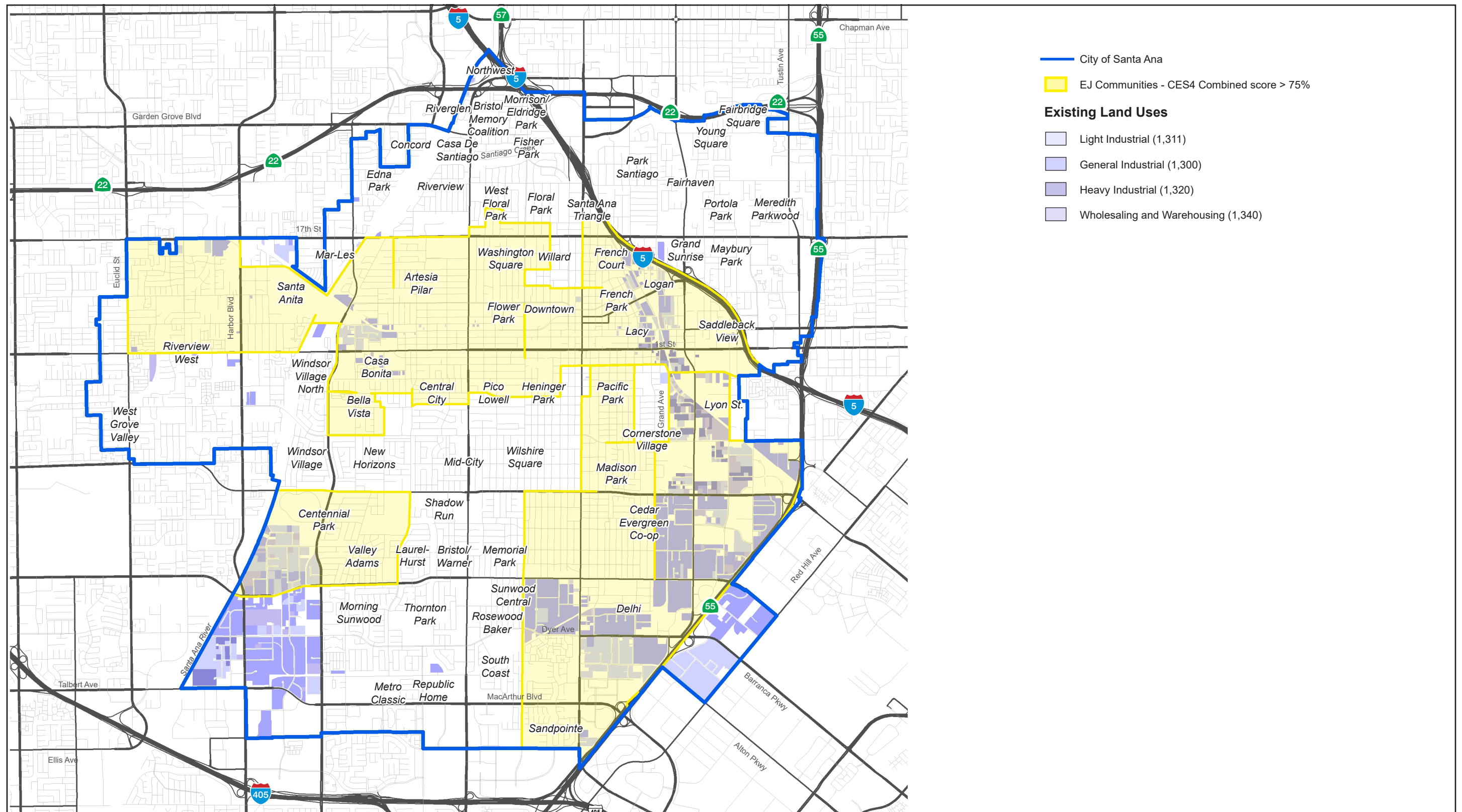


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Figure 5.2-3 - Communities and Existing Industrial Land Use



Source: ESRI, 2021



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#### *CalEnviroScreen Air Quality Indicators*

Section 4.4.3 of the Recirculated Draft PEIR, *Environmental Justice Communities*, provided a discussion of CES. In summary, CES is a mapping tool that helps identify the California communities most affected by many sources of pollution and where people are especially vulnerable to pollution's effects. People in environmental justice areas identified by CES 4.0 may be disproportionately affected by and vulnerable to poor air quality. CES's "pollution burden" map identifies communities that are exposed to pollution from human activities, such as air pollution (ozone, PM<sub>2.5</sub>, DPM), water pollution (drinking water contaminants), and hazardous materials (pesticide use, children's lead exposure, toxic releases), and traffic density. Figure 5.2-4, *CalEnviroScreen 4.0, Pollution Burden in Santa Ana*, shows the pollution burden for Santa Ana relative to California. In CalEnviroScreen, the pollution burden scope considers the disproportionate effect of pollution on environmental justice communities, because the score weighs socioeconomic factors (educational attainment, poverty, etc.) and sensitivity of the population (asthma rates, cardiovascular disease, etc.).

And though the causes of asthma are poorly understood, it is well established that exposure to traffic and outdoor air pollutants can trigger asthma attacks. Children, the elderly, and low-income Californians suffer disproportionately from asthma (CalEPA 2017). Most census tracts in Santa Ana rank in the 40th and 50th percentiles for asthma (see Figure 5.2-5, *CalEnviroScreen 4.0, Asthma Percentiles in Santa Ana*).

### 5.2.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

- AQ-1 Conflict with or obstruct implementation of the applicable air quality plan.
- AQ-2 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
- AQ-3 Expose sensitive receptors to substantial pollutant concentrations.
- AQ-4 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

#### 5.2.2.1 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. The General Plan Update's air quality impacts follows the guidance and methodologies recommended in South Coast AQMD's *CEQA Air Quality Handbook* and the significance thresholds on South Coast AQMD's website (South Coast AQMD 1993).<sup>10</sup>

<sup>10</sup> South Coast AQMD's Air Quality Significance Thresholds are current as of April 2019 and can be found at: <http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook>.

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#### Regional Significance Thresholds

South Coast AQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB, shown in Table 5.2-6. The table lists thresholds that are applicable for all projects uniformly, regardless of size or scope. There is growing evidence that although ultrafine particulate matter contributes a very small portion of the overall atmospheric mass concentration, it represents a greater proportion of the health risk from PM. However, the EPA and CARB have not adopted AAQS to regulate ultrafine particulate matter; therefore, South Coast AQMD has not developed thresholds for them.

**Table 5.2-6 South Coast AQMD Significance Thresholds**

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Nitrogen Oxides (NO <sub>x</sub> )	100 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Sulfur Oxides (SO <sub>x</sub> )	150 lbs/day	150 lbs/day
Particulates (PM <sub>10</sub> )	150 lbs/day	150 lbs/day
Particulates (PM <sub>2.5</sub> )	55 lbs/day	55 lbs/day

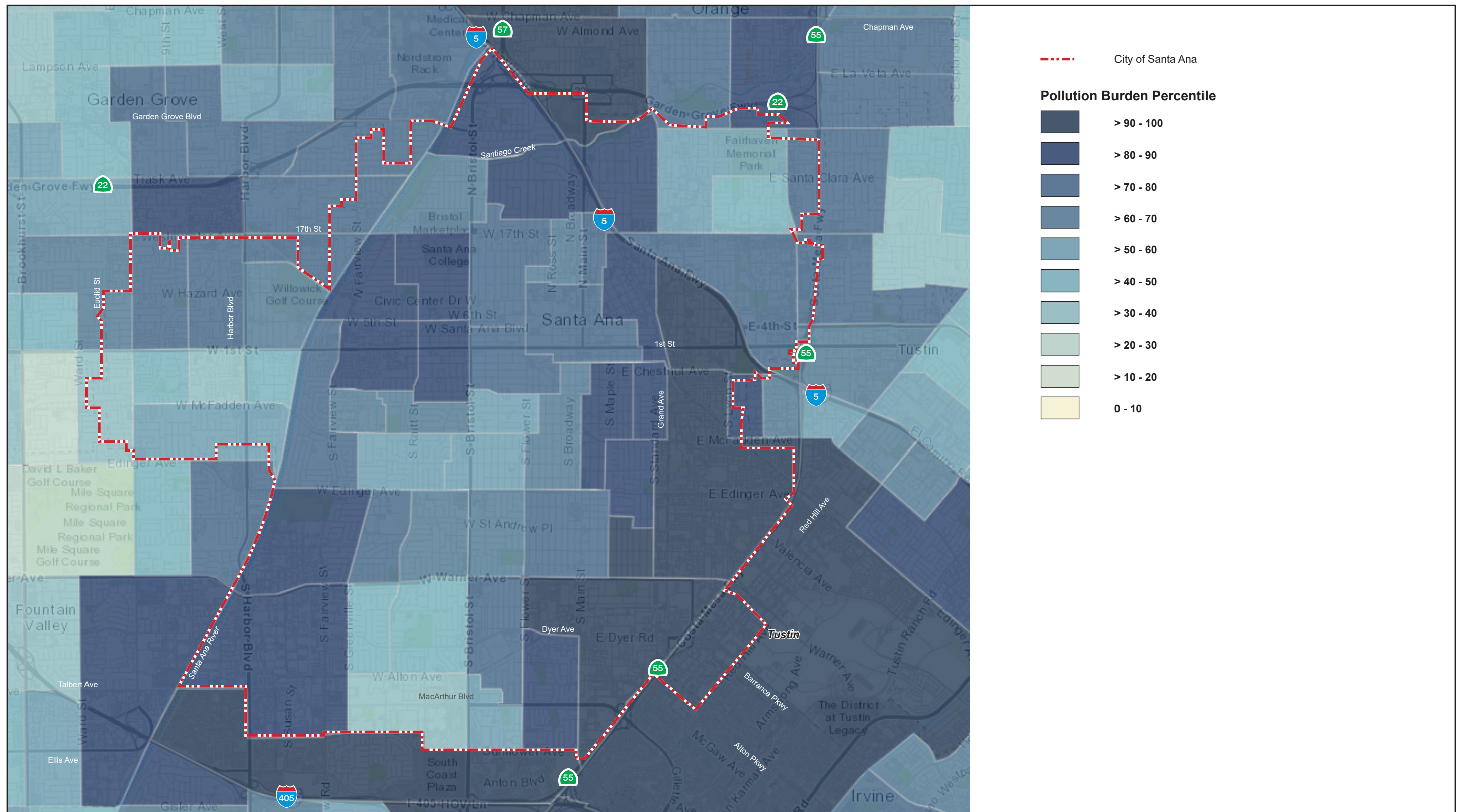
Source: South Coast AQMD 2019b.

Projects that exceed the regional significance threshold contribute to the nonattainment designation of the SoCAB. The attainment designations are based on the AAQS, which are set at levels of exposure that are determined to not result in adverse health effects. Exposure to fine particulate pollution and ozone causes myriad health impacts, particularly to the respiratory and cardiovascular systems.

- Increases cancer risk (PM<sub>2.5</sub>, TACs)
- Aggravates respiratory disease (O<sub>3</sub>, PM<sub>2.5</sub>)
- Increases bronchitis (O<sub>3</sub>, PM<sub>2.5</sub>)
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O<sub>3</sub>)
- Reduces resistance to infections and increases fatigue (O<sub>3</sub>)
- Reduces lung growth in children (PM<sub>2.5</sub>)
- Contributes to heart disease and heart attacks (PM<sub>2.5</sub>)
- Contributes to premature death (O<sub>3</sub>, PM<sub>2.5</sub>)
- Contributes to lower birth weight in newborns (PM<sub>2.5</sub>) (South Coast AQMD 2015a)

Exposure to fine particulates and ozone aggravates asthma attacks and can amplify other lung ailments such as emphysema and chronic obstructive pulmonary disease. Exposure to current levels of PM<sub>2.5</sub> is responsible for an estimated 4,300 cardiopulmonary-related deaths per year in the SoCAB. In addition, University of Southern California scientists, in a landmark children's health study, found that lung growth improved as air pollution declined for children aged 11 to 15 in five communities in the SoCAB (South Coast AQMD 2015b).

Figure 5.2-4 - CalEnviroScreen 4.0, Pollution Burden in Santa Ana



Source: CalEnviroScreen, 2021

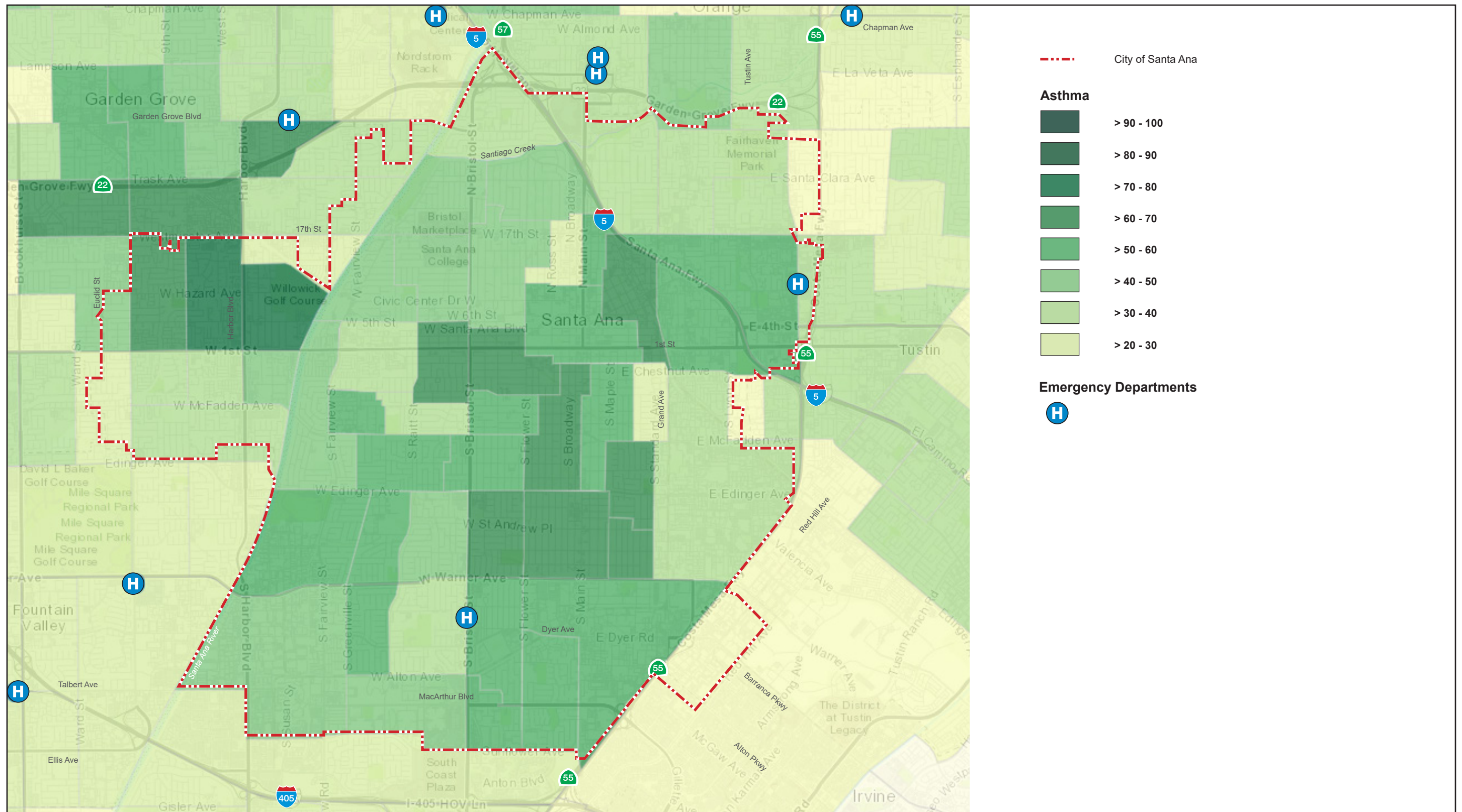


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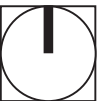
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Figure 5.2-5 - CalEnviroScreen 4.0, Asthma Percentile in Santa Ana



Source: CalEnviroScreen, 2021



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South Coast AQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals exposed to elevated concentrations of air pollutants in the SoCAB and has established thresholds that would be protective of these individuals. To achieve the health-based standards established by the EPA, South Coast AQMD prepares an AQMP that details regional programs to attain the AAQS.

Mass emissions in Table 5.2-6 are not correlated with concentrations of air pollutants but contribute to the cumulative air quality impacts in the SoCAB. The thresholds are based on the trigger levels for the federal New Source Review Program, which was created to ensure projects are consistent with attainment of health-based federal AAQS. Regional emissions from a single project do not single-handedly trigger a regional health impact, and it is speculative to identify how many more individuals in the air basin would be affected by the health effects listed above. Projects that do not exceed the South Coast AQMD regional significance thresholds in Table 5.2-6 would not violate any air quality standards or contribute substantially to an existing or projected air quality violation.

If projects exceed the emissions in Table 5.2-6, emissions would cumulatively contribute to the nonattainment status and would contribute in elevating the associated health effects. Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Health effects associated with particulate matter include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would further contribute to reducing possible health effects related to criteria air pollutants. However, for projects that exceed the emissions in Table 5.2-6, it is speculative to determine how this would affect the number of days the region is in nonattainment—since mass emissions are not correlated with concentrations of emissions—or how many additional individuals in the air basin would be affected.

South Coast AQMD has not provided methodology to assess the specific correlation between mass emissions generated and the effect on health that is needed to address the issue raised in *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, Case No. S21978 (known as “Friant Ranch”). Ozone concentrations are dependent upon a variety of complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground-level ozone concentrations in relation to the National AAQS and California AAQS, it is not possible to link health risks to the magnitude of emissions exceeding the significance thresholds. However, if a project in the SoCAB exceeds the regional significance thresholds, the project could contribute to an increase in health effects in the basin until the attainment standard are met in the SoCAB.

#### CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the State one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. With the turnover of older

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vehicles and introduction of cleaner fuels as well as implementation of control technology at industrial facilities, CO concentrations in the SoCAB and the state have steadily declined.

In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hotspot analysis conducted for the attainment by South Coast AQMD did not predict a violation of CO standards at the busiest intersections in Los Angeles during the peak morning and afternoon periods.<sup>11</sup> As identified in South Coast AQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide, peak carbon monoxide concentrations in the SoCAB in the years before redesignation were a result of unusual meteorological and topographical conditions and not of congestion at a particular intersection. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2017).<sup>12</sup>

#### Localized Significance Thresholds

South Coast AQMD identifies localized significance thresholds (LST), shown in Table 5.2-7. Emissions of NO<sub>2</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> generated at a project site could expose sensitive receptors to substantial concentrations of criteria air pollutants. Off-site mobile-source emissions are not included in the LST analysis. A project would generate a significant impact if it generates emissions that would violate the AAQS when added to the local background concentrations.

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<sup>11</sup> The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour.

<sup>12</sup> The CO hotspot analysis refers to the modeling conducted by the Bay Area Air Quality Management District for its CEQA Guidelines because it is based on newer data and considers the improvement in mobile-source CO emissions. Although meteorological conditions in the Bay Area differ from those in the Southern California region, the modeling conducted by BAAQMD demonstrates that the net increase in peak hour traffic volumes at an intersection in a single hour would need to be substantial. This finding is consistent with the CO hotspot analysis South Coast AQMD prepared as part of its 2003 AQMP to provide support in seeking CO attainment for the SoCAB. Based on the analysis prepared by South Coast AQMD, no CO hotspots were predicted for the SoCAB. As noted in the preceding footnote, the analysis included some of Los Angeles' busiest intersections, with daily traffic volumes of 100,000 or more peak hour vehicle trips operating at LOS E and F.



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**Table 5.2-7 South Coast AQMD Localized Significance Thresholds**

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO <sub>2</sub> Standard (CAAQS)	0.18 ppm
Annual NO <sub>2</sub> Standard (CAAQS)	0.03 ppm
24-Hour PM <sub>10</sub> Standard – Construction (South Coast AQMD) <sup>1</sup>	10.4 µg/m <sup>3</sup>
24-Hour PM <sub>2.5</sub> Standard – Construction (South Coast AQMD) <sup>1</sup>	10.4 µg/m <sup>3</sup>
24-Hour PM <sub>10</sub> Standard – Operation (South Coast AQMD) <sup>1</sup>	2.5 µg/m <sup>3</sup>
24-Hour PM <sub>2.5</sub> Standard – Operation (South Coast AQMD) <sup>1</sup>	2.5 µg/m <sup>3</sup>
Annual Average PM <sub>10</sub> Standard (South Coast AQMD) <sup>1</sup>	1.0 µg/m <sup>3</sup>

Source: South Coast AQMD 2019b.

ppm: parts per million; µg/m<sup>3</sup>: micrograms per cubic meter

<sup>1</sup> Threshold is based on South Coast AQMD Rule 403. Since the SoCAB is in nonattainment for PM<sub>10</sub> and PM<sub>2.5</sub>, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

**Health Risk Thresholds**

Whenever a project would require use of chemical compounds that have been identified in South Coast AQMD Rule 1401, placed on CARB’s air toxics list pursuant to AB 1807, or placed on the EPA’s National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by the South Coast AQMD. Table 5.2-8, *South Coast AQMD Incremental Risk Thresholds for TACs*, lists the TAC incremental risk thresholds for operation of a project. The purpose of this environmental evaluation is to identify the significant effects of the General Plan Update on the environment, not the significant effects of the environment on the General Plan Update. See *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 (Case No. S213478). CEQA does not require an analysis of the environmental effects of attracting development and people to an area. However, the environmental document must analyze the impacts of environmental hazards on future users when a proposed project exacerbates an existing environmental hazard or condition. Residential, commercial, and office uses do not use substantial quantities of TACs and typically do not exacerbate existing hazards, so these thresholds are typically applied to new industrial projects.

**Table 5.2-8 South Coast AQMD Incremental Risk Thresholds for TACs**

Maximum Incremental Cancer Risk	≥ 10 in 1 million
Hazard Index (project increment)	≥ 1.0
Cancer Burden in areas ≥ 1 in 1 million	> 0.5 excess cancer cases

Source: South Coast AQMD 2019b.

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### 5.2.3 Regulatory Requirements and General Plan Policies

#### 5.2.3.1 REGULATORY REQUIREMENTS

- RR AQ-1 New buildings are required to achieve the current California Building Energy Efficiency Standards (Title 24, Part 6) and California Green Building Standards Code (CALGreen) (Title 24, Part 11). The 2019 Building Energy Efficiency Standards became effective January 1, 2020. The Building and Energy Efficiency Standards and CALGreen are updated tri-annually with a goal to achieve net zero buildings energy for 2030.
- RR AQ-2 Construction activities will be conducted in compliance with California Code of Regulations, Title 13, Section 2449, which requires that nonessential idling of construction equipment is restricted to five minutes or less.
- RR AQ-3 Construction activities will be conducted in compliance with any applicable South Coast Air Quality Management District rules and regulations, including but not limited to:
- **Rule 403**, Fugitive Dust, for controlling fugitive dust and avoiding nuisance.
  - **Rule 402**, Nuisance, which states that a project shall not “discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.”
  - **Rule 1113**, which limits the volatile organic compound content of architectural coatings.
  - **Rule 1466**, Soil Disturbance. Projects that involve earth-moving activities of more than 50 cubic yards of soil with applicable toxic air contaminants are subject to this rule.

#### 5.2.3.2 GENERAL PLAN UPDATE POLICIES AND IMPLEMENTATION ACTIONS

The following are relevant policies and implementation actions of the Santa Ana General Plan Update, which may reduce air quality impacts. Policy and implementation action revisions since the original Draft PEIR are shown in tracked changes (see Section 2.1 for code to colors). Implementation actions were not listed at all in the original Draft PEIR and have been added to more fully describe GPU components that will mitigate impacts. However, only new implementation measures since the original Draft PEIR public circulation are shown in color. The tracked changes shown below reflect the changes since the original Draft PEIR was publicly circulated on August 3, 2020. ~~The comprehensive, tracked changes listing of Policies and Implementation Actions in Appendix B-a shows the changes since October 2020, when the GPU was presented to the Planning Commission. With the changes as marked, both versions represent the most up-to-date GPU policies and implementation actions.~~

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### **Circulation Mobility Element**

- **Policy 1.7 Proactive Mitigation.** Proactively mitigate potential air quality, noise, congestion, safety, and other impacts from the transportation network on residents and business.
- **Policy 1.8 Environmental Sustainability.** Consider air and water quality, noise reduction, neighborhood character, and street-level aesthetics when making improvements to travelways.
- **Policy 3.3 Safe Routes to Schools and Parks.** Lead the development and implementation of safer routes to schools and parks by partnering with the school district, residents, property owners, and community stakeholders.
- **Policy 3.4 Regional Coordination.** Coordinate development of the City's active transportation and transit network with adjacent jurisdictions, OCTA, and other appropriate agencies.
- **Policy 3.5 Education and Encouragement.** Encourage active transportation choices through education, special events, and programs.
- **Policy 3.7 Complete Streets Design.** Enhance streets to facilitate safe walking, bicycling, and other nonmotorized forms of transportation through community participatory design.
- **Policy 4.1 Intense Development Areas.** Program multimodal transportation and public realm improvements that support new development in areas along transit corridors and areas planned for high intensity development.
- **Policy 4.2 Project Review.** Encourage active transportation, transit use, and connectivity through physical improvements and public realm amenities identified during the City's Development Review process.
- **Policy 4.3 Transportation Management.** Coordinate with OCTA, employers, and developers to utilize TDM (transportation demand management) strategies and education to reduce vehicle trips and parking demands.
- **Policy 4.5 Land Use Development Design.** Ensure that building placement ~~the placement of buildings,~~ and design features, ~~and street environment~~ create a desirable and active streetscape.
- **Policy 4.6 Roadway Capacity Alternatives.** Promote reductions in automobile trips and vehicle miles traveled by encouraging transit use and nonmotorized transportation as alternatives to augmenting roadway capacity.
- **Policy 4.7 Parking.** Explore and implement a flexible menu of parking options and other strategies to efficiently coordinate the response to parking demands.
- **Policy 4.9 Air Pollution Mitigation.** Consider land use, building, site planning, and technology solutions to mitigate exposure to transportation related air pollution.

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- **Policy 5.4 Green Streets.** Leverage opportunities along streets and public rights-of-way to improve water quality through use of landscaping, permeable pavement, and other best management practices.
- **Policy 5.6 Clean Fuels and Vehicles.** Encourage the use of alternative fuel vehicles and mobility technologies through the installation of supporting infrastructure.
- ~~Policy 5.9 Street Trees.~~ Support the greening of City streets through the establishment and maintenance of an urban forest to improve street aesthetics, filter pollution, and address GHG emissions.

### Community Element

- **Policy 3.2 Healthy Neighborhoods.** Continue to support the creation of healthy neighborhoods by addressing public safety, ~~mitigating land use conflicts,~~ hazardous soil contamination, incompatible uses, and maintaining building code standards.
- **Policy 3.4 Safe Mobility.** Promote the overall safety of multi-modal streets by developing local and regional programs that educate and inform motorists of non-motorized roadway users.
- **Policy 3.7 Active Lifestyles.** Support programs that ~~create safe routes to schools and other destinations~~ to promote sports, fitness, walking, biking and active lifestyles.
- **Implementation Action 1.3 Collaboration.** Develop intentional, strategic partnerships with public, private, and nonprofit entities to improve health outcomes by leveraging capacity, resources, and programs around mutually beneficial initiatives that promote health, equity, and sustainability in neighborhoods within environmental justice area boundaries. Develop a comprehensive partnership policy providing guidelines that can be used throughout the City organization.
- **Implementation Action 3.3 Health Metrics.** Engage with the Orange County Health Care Agency and other stakeholders to monitor key health indicators to measure the success of the outcome of General Plan policies and the implementation plan, including reduction in incidence in asthma and low birth weight of infants.
- **Implementation Action 3.5 Environmental Education.** Encourage all education institutions in Santa Ana to include curriculum regarding environmental justice and local efforts to promote clean business operations, environmental quality, and the health in our community.

### Conservation Element

- **Policy 1.1 Regional Planning Efforts.** Coordinate air quality planning efforts with local and regional agencies to meet State and Federal ambient air quality standards in order to protect all residents from the health effects of air pollution.
- **Policy 1.2 Climate Action Plan.** Consistency with emission reduction goals highlighted in the Climate Action Plan shall be considered in all major decisions on land use and investments in public infrastructure.

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- **Policy 1.3 Education.** Promote efforts to educate businesses and the general public about air quality standards, ~~reducing the urban heat island effect~~, health effects ~~from poor air quality and extreme heat~~, and best practices they can make to improve air quality and reduce greenhouse gas emissions.
- **Policy 1.4 Development Standards.** Support new development that meets or exceeds standards for energy-efficient building design and site planning.
- **Policy 1.5 Sensitive Receptor Decisions.** Consider potential impacts of stationary and non-stationary emission sources on existing and proposed sensitive uses and opportunities to minimize health and safety risks. ~~Develop and adopt new regulations on the siting of facilities that might significantly increase pollution near sensitive receptors within environmental justice area boundaries. Mitigate or apply special considerations and regulations on the siting of facilities that might significantly increase pollution near sensitive receptors within environmental justice area boundaries.~~
- **Policy 1.6 New and Infill Residential Development.** Promote development that is mixed-use, pedestrian-friendly, transit oriented, and clustered around activity centers.
- **Policy 1.7 Housing and Employment Opportunities.** Improve the City's jobs/housing balance ratio by supporting development that provides housing and employment opportunities to enable people to live and work in Santa Ana.
- **Policy 1.8 Promote Alternative Transportation.** Promote use of alternate modes of transportation in the City of Santa Ana, including pedestrian, bicycling, public transportation, car sharing programs and emerging technologies.
- **Policy 1.9 Public Investment Alternative Transportation Infrastructure.** Continue to invest in infrastructure projects that support public transportation and alternate modes of transportation in the City of Santa Ana, including pedestrian, bicycling, public transportation, car sharing programs, and emerging technologies.
- **Policy 1.10 Transportation Management.** Continue to support and invest in improvements to the City's Transportation Management System, including projects or programs that improve traffic flow and reduce traffic congestion.
- **Policy 1.11 Public Investment in Low- or Zero Emission Vehicles.** Continue to invest in low-emission or zero-emission vehicles to replace the City's gasoline powered vehicle fleet and to transition to available clean fuel sources such as bio-diesel for trucks and heavy equipment.
- **Policy 1.12 Sustainable Infrastructure.** Encourage the use of low or zero emission vehicles, bicycles, non-motorized vehicles, and car-sharing programs by supporting new and existing development that includes sustainable infrastructure and strategies such as vehicle charging stations, drop-off areas for ride-sharing services, secure bicycle parking, and transportation demand management programs.

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- **Policy 1.13 City Contract Practices.** Support businesses and contractors that use reduced-emissions equipment for city construction projects and contracts for services, as well as businesses that practice sustainable operations.
- **Policy 1.14 Transportation Demand Management.** Require and incentivize projects to incorporate Transportation Demand Management (TDM) techniques.
- **Policy 2.3 Resource Management.** Efficiently manage soil and mineral resource operations to eliminate significant nuisances, hazards, or adverse environmental effects on neighboring land uses.
- **Policy 3.3 Development Patterns.** Promote energy efficient-development patterns by clustering mixed use developments and compatible uses adjacent to public transportation.
- **Policy 3.11 Energy-Efficient Transportation Infrastructure.** Continue to support public and private infrastructure for public transportation such as bus routes, rail lines, and the OC Streetcar.
- **Implementation Action 1.1 Air Quality Planning** Review existing and monitor the development of new air monitoring and emissions reduction plans prepared by the South Coast Air Quality Management District. Gather and evaluate measures and strategies in such plans for their applicability to and feasibility for Santa Ana.
- **Implementation Action 1.2 Community Identification.** Coordinate with the South Coast Air Quality Management District and local stakeholders to pursue a priority community designation for eligible environmental justice areas of the city, with focus on areas with unique needs and highest pollution burden as identified in the CalEnviron Screen tool. If such designation is not awarded, seek grant funds for activities such as local air quality monitoring.
- **Implementation Action 1.3 Proactive Engagement.** Collaborate with the South Coast Air Quality Management District and local stakeholders in environmental justice areas experiencing local air pollution issues to outline objectives and strategies for monitoring air pollution in advance of the establishment of a community emissions reduction and/or air monitoring plan.
- **Implementation Action 1.4 Health Risk Criteria.** Establish criteria for requiring health risk assessments for existing and new industries, including the type of business, thresholds, and scope of assessment. Review existing and establish new regulation to reduce and avoid increased pollution near sensitive receptors within environmental justice area boundaries.
- **Implementation Action 1.5 Agency Permits.** Monitor the South Coast Air Quality Management District permitting and inspection process and the Orange County Health Care Agency to identify businesses in Santa Ana with potential hazardous materials or by-products, with a special focus on environmental justice communities. Serve as a liaison for residents to identify potential emission violations. Share information and data with the community on the City's Environmental Quality web page.

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- **Implementation Action 1.6 Emissions Monitoring.** Coordinate with the South Coast Air Quality Management District to monitor existing air measurements and recommend new air measurements and locations.
- **Implementation Action 1.7 Truck Idling.** Evaluate strategies to reduce truck idling found or reported in areas with sensitive receptors, with a priority placed on environmental justice areas.
- **Implementation Action 1.8 Improve Older Trucks.** Promote the City's Vehicle Replacement Plan and explore the replacement of older trucks through City participation in regional incentive programs and education of Santa Ana private fleet owners of program opportunities.
- **Implementation Action 1.9 Indirect Source Rules.** Support the development of indirect source rules, drayage truck rules, advanced clean truck routes, and heavy-duty low NOx rules by the South Coast Air Quality Management District.
- **Implementation Action 1.10 Interagency Team.** Establish an environmental quality interagency team to evaluate, monitor, and make recommendations to address air quality and environmental hazard issues, with a special focus on environmental justice areas. Publish results and information on the City's website through a dedicated Santa Ana Environmental Quality web page.
- **Implementation Action 1.11 Public Education.** Augment existing outreach programs to improve public awareness of State, regional and local agencies' roles and resources to identify, monitor, and address air quality and other environmental hazards in the community.
- **Implementation Action 1.12 Data Collection for Emissions Plans.** Coordinate with the South Coast Air Quality Management District to explore ways to initiate data collection efforts for a community emissions reduction and/or community air monitoring plan, including the identification of information needed (new or updated), potential data sources and needed resources, and strategies to engage residents and collect information.

### Land Use Element

- **Policy 1.5 Diverse Housing Types.** Incentivize quality infill residential development that provides a diversity of housing types and accommodates all income levels and age groups.
- **Policy 1.6 Transit Oriented Development.** Encourage residential mixed-use development, within the City's District Centers and Urban Neighborhoods, and adjacent to high quality transit.
- **Policy 1.7 Active Transportation Infrastructure.** Invest in active transportation connectivity between activity centers and residential neighborhoods to encourage healthy lifestyles.
- **Policy 2.5 Benefits of Mixed Use.** Encourage infill mixed-use development at all ranges of affordability to reduce vehicle miles travelled, improve jobs/housing balance, and promote social interaction.

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- **Policy 2.10 Smart Growth.** Focus high density residential in mixed-use villages, designated planning focus areas, Downtown Santa Ana, and along major travel corridors.
- **Policy 3.8 Sensitive Receptors.** Avoid the development of **industry and** sensitive receptors in close proximity to ~~land uses each other~~ that could pose a hazard to human health and safety, due to the quantity, concentration, or physical or chemical characteristics of the hazardous materials ~~that they utilize-utilized~~, or the hazardous waste ~~that they an operation may~~ generate or emit.
- **Policy 3.9 ~~Improving Health~~ Noxious, Hazardous, Dangerous, and Polluting Uses.** Improve the health of residents, **students, and workers** by limiting the impacts of construction activities and ~~by discontinuing the~~ operation of noxious, hazardous, dangerous, and polluting uses that are in close proximity to sensitive receptors, with priority given to discontinuing such uses within environmental justice areas boundaries.
- **Policy 3.11 Air Pollution Buffers.** Promote landscaping and other buffers to separate existing sensitive uses from rail lines, heavy industrial facilities, and other emissions sources. As feasible, apply more substantial buffers within environmental justice area boundaries.
- **Policy 3.12 Indoor Air Quality.** Require new sensitive land uses proposed in areas with high levels of localized air pollution to achieve good indoor air quality through landscaping, ventilation systems, or other measures.
- **Policy 4.1 Complementary Uses.** Promote complete neighborhoods by encouraging a mix of complementary uses, community services, and people places within a walkable area.
- **Policy 4.3 Sustainable Land Use Strategies.** Encourage land uses and strategies that reduce energy and water consumption, waste and noise generation, **soil contamination**, air quality impacts, and light pollution.
- **Policy 4.5 VMT Reduction.** Concentrate development along high-quality transit corridors to reduce vehicle miles traveled (**VMT**) and transportation related carbon emissions.
- **Implementation Action 3.3 Healthy Lifestyles.** Collaborate with residents and industry stakeholders to create a program to incentivize and amortize the removal of existing heavy industrial uses adjacent to sensitive uses.
- **Implementation Action 3.16 Health in Corridors.** Require a Health Risk Assessment to identify best practices to minimize air quality and noise impacts when considering new residential uses within 500 feet of a freeway.
- **Implementation Action 3.23 Agency Permits.** Work with South Coast Air Quality Management District and Orange County Health Care Agency to evaluate existing special permit process and criteria for approval, and identify potential policy changes to minimize issuance of special permits with potential health impacts.



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- **Implementation Action 3.24 Public Health.** Partner with Orange County Health Care Agency and community serving organizations to evaluate best practices and benefits of preparing a Public Health Plan to address environmental hazards in Santa Ana, with special focus in environmental justice communities.

#### Safety Element

- **Policy 2.1 Regional Collaboration.** Consult and collaborate with federal, state, and regional agencies to identify and regulate the disposal and storage of hazardous materials, ~~and~~ prevent the illegal transportation and disposal of hazardous waste., ~~facilitate the cleanup of contaminated sites,~~ and facilitate the cleanup of contaminated sites.
- **Policy 2.2 Hazardous Waste Generators.** Collaborate with appropriate agencies to identify and inventory all users and handlers of hazardous materials to proactively mitigate potential impacts.
- **Policy 2.3 Transportation and Storage.** Coordinate with the County of Orange, the California Department of Transportation, and other relevant parties to enforce state and local laws regulating the storage and transport of hazardous materials within the City of Santa Ana, and limit truck routes through the City to arterials streets away from natural habitats and sensitive land uses.
- **Policy 2.4 Planning and Remediation.** Determine the presence of hazardous materials and/or waste contamination prior to approval of new uses and require that appropriate measures be taken to protect the health and safety of site users and the community.
- **Policy 2.6 Existing Sensitive Uses.** Partner and collaborate with property owners, businesses, and community groups to develop strategies to protect and minimize risks from existing hazardous material sites to existing nearby sensitive uses *with priority given to discontinuing such uses within environmental justice area boundaries.*

#### Urban Design Element

- **Policy 1.6 Active Transportation Infrastructure.** Support the creation of citywide public street and site amenities that accommodate and promote an active transportation-friendly environment.
- **Policy 3.10 Coordinated Street Improvement Plans.** Coordinate citywide landscape medians and street trees with land use plans and development projects.
- **Policy 5.4 Intersections for all Travel Modes.** Strengthen active transportation connections and amenities at focal intersections to promote a pleasant and safe experience for non-motorized forms of travel.

#### Open Space Element

- **Policy 2.5 Air Quality and Heat.** Coordinate park renovation and development to address air quality and climate impacts by reducing heat island effect by providing green infrastructure and shade, and reducing air pollution by providing vegetation that removes pollutants and air particles.

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- **Policy 3.5 Landscaping.** Encourage the planting of native and diverse tree species in public and private spaces to reduce heat island effect, reduce energy consumption, and contribute to carbon mitigation.
- **Policy 3-6 Sustainable Parks and Facilities.** Integrate drought tolerant or native plantings, water-wise irrigation, design and maintenance efficiencies, and sustainable development practices to reduce water use and energy consumption.
- **Policy 2-4 3.7. Urban Forest.** Maintain, preserve, and enhance the ~~city's~~ City's urban forest as an environmental, economic, and aesthetic resource to improve residents' quality of life.
- **Implementation Action 3.5 Urban Forestry Plan.** Coordinate with other City agencies to develop, implement and maintain a citywide tree preservation ordinance and Urban Forestry Plan for parks and open space that provides air pollution mitigation, microclimate modification, noise reduction, and offers an area of recreation, rest, and education.

### 5.2.4 Environmental Impacts

#### 5.2.4.1 METHODOLOGY

The air quality evaluation was prepared in accordance with the requirements of CEQA to determine if significant air quality impacts are likely to occur in conjunction with future development that would be accommodated by the proposed General Plan Update. The purpose of CEQA is to evaluate and disclose the potential impacts of the GPU to the environment (existing conditions). It is not within the scope of the PEIR to provide mitigation to remedy existing conditions, including existing air pollution issues and existing land use incompatibilities between sensitive residential receptors and heavy industrial uses. The PEIR is required to address impacts of new growth under the GPU. It is, however, within the scope of the GPU and the City's long-term planning to address community health and related environmental hazards. The GPU policies and implementation actions intended to address these issues have been documented throughout this updated Draft PEIR.

The published South Coast AQMD *CEQA Air Quality Handbook* and its updates on the South Coast AQMD website are intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. It provides standards, methodologies, and procedures for conducting air quality analyses in EIRs that were used in this analysis. South Coast AQMD has published additional guidance for LSTs—*Localized Significance Threshold Methodology for CEQA Evaluations* (South Coast AQMD 2008a)—that is intended to provide guidance in evaluating localized effects from emissions generated by a project. Following is a summary by sector of the assumptions used for the city's criteria air pollutant emissions inventory and the General Plan Update analysis.

- **Transportation.** Transportation emissions forecasts were modeled using emissions data from CARB's EMFAC2017 web database (v. 1.0.7). Additionally, the SAFE Vehicle Part One Rule adjustment factors for NO, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> were applied for light duty vehicles (i.e., LDA, LDT1, LDT2, and MDV) per CARB guidance for year 2045 emissions (CARB 2019b). Model runs were based on daily per-capita VMT

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data provided by IBI Group (see Appendix K) and calendar year 2020 (existing) and 2045 emission rates.<sup>13</sup> The VMT is based on the “origin-destination” approach and assumes the full trip length for vehicle trips that occur entirely within the city (i.e., internal-internal trips). For external-internal/internal-external trips, the trip lengths are based on the destinations/attractions near the boundary assumed in the Orange County Transportation Authority traffic model in addition to the likely attractions/destinations beyond the immediate developments near the boundary limit.

- **Energy.** Emissions associated with natural gas use for residential and nonresidential land uses in the city were modeled based on data provided by SCE for years 2012 through 2018 and by SoCalGas for years 2014 to 2018. Forecasts are adjusted for increases in population and employment in the city.
- **Off-Road Equipment.** Calendar year 2020 emission rates for Orange County were obtained from CARB’s OFFROAD2017 web database (v. 1.0.1) and were used to estimate criteria air pollutant emissions from light commercial and construction equipment in the city. OFFROAD2017 is a database of equipment use and associated emissions for each county compiled by CARB. In order to determine the percentage of emissions attributable to the city, light commercial equipment is estimated based on employment for Santa Ana as a percentage of Orange County. Construction equipment use is estimated based on building permit data for Santa Ana and Orange County and from data compiled by the US Census. The light commercial equipment emissions forecast is adjusted for changes in employment in the city. It is assumed that construction emissions for the forecast year would be similar to historical levels. Annual emissions are derived by multiplying daily emissions by 365 days.
- **Area Sources.** Area sources are based on CalEEMod defaults for emissions generated from use of consumer products and cleaning supplies.

#### 5.2.4.2 IMPACTS OF THE ENVIRONMENT ON A PROJECT

Buildout of the proposed land use plan under the General Plan Update could result in sensitive uses (e.g., residential) near sources of emissions (e.g., freeways, industrial uses). Sensitive land uses may be located close to I-5, SR-22, and SR-55 and may be exposed to elevated levels of DPM. Developing new sensitive land uses near sources of emissions could expose persons that inhabit these sensitive land uses to potential air quality–related impacts. However, the purpose of this environmental evaluation is to identify the significant effects of the proposed project on the environment, not the significant effects of the environment on the proposed project. See *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 (Case No. S213478). Thus, CEQA does not require analysis of the potential environmental effects from siting sensitive receptors near existing sources, and this type of analysis is not provided in Section 5.2.4.3, *Impact Analysis*. Though it is generally not within the purview of CEQA to analyze impacts of the environment on a

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<sup>13</sup> The Year 2045 inventory represents the projected emissions that the existing land uses would generate in the future, using year 2045 emission factors for on-road vehicles. To isolate the impacts related to the change in land uses proposed under the General Plan update, emissions related to the update will be based on the difference in emissions generated by the existing and proposed land uses under year 2045 conditions. This approach is taken because existing land uses would be subject to regulations that come into effect in the future that reduce mobile-source emissions. Thus, the level of emissions the existing land uses generate today would not be generated in perpetuity, but would be affected by these state regulations.

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project, the General Plan Update includes the following policies to minimize air quality impacts and achieve appropriate health standards.

#### Community Element

- **Policy 3.2 Healthy Neighborhoods.** Continue to support the creation of healthy neighborhoods by addressing public safety, ~~mitigating land use conflicts, hazardous soil contamination,~~ incompatible uses, and maintaining building code standards.

#### Conservation Element

- **Policy 1.1 Regional Planning Efforts.** Coordinate air quality planning efforts with local and regional agencies to meet State and Federal ambient air quality standards in order to protect all residents from the health effects of air pollution.
- **Policy 1.2 Climate Action Plan.** Consistency with emission reduction goals highlighted in the Climate Action Plan shall be considered in all major decisions on land use and investments in public infrastructure.
- **Policy 1.5 Sensitive Receptor Decisions.** Consider potential impacts of stationary and non-stationary emission sources on existing and proposed sensitive uses and opportunities to minimize health and safety risks. ~~Develop and adopt new regulations on the siting of facilities that might significantly increase pollution near sensitive receptors within environmental justice area boundaries.~~

#### Land Use Element

- **Policy 3.8 Sensitive Receptors.** Avoid the development of ~~industry and~~ sensitive receptors in close proximity to ~~land uses each other~~ that could pose a hazard to human health and safety, due to the quantity, concentration, or physical or chemical characteristics of the hazardous materials ~~that they utilize~~utilized, or the hazardous waste ~~that they an operation may~~ generate or emit
- **Policy 3.9 ~~Improving Health~~ Noxious, Hazardous, Dangerous, and Polluting Uses.** Improve the health of residents, ~~students, and workers~~ by limiting the impacts of construction activities and ~~by discontinuing the~~ operation of noxious, hazardous, dangerous, and polluting uses that are in close proximity to sensitive receptors, ~~with priority given to discontinuing such uses within environmental justice areas boundaries.~~
- **Policy 3.11 Air Pollution Buffers.** Promote landscaping and other buffers to separate existing sensitive uses from rail lines, heavy industrial facilities, and other emissions sources. As feasible, apply more substantial buffers within environmental justice area boundaries.
- **Policy 3.12 Indoor Air Quality.** Require new sensitive land uses proposed in areas with high levels of localized air pollution to achieve good indoor air quality through landscaping, ventilation systems, or other measures.

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### Safety Element

- **Policy 2.3 Transportation and Storage.** Coordinate with the County of Orange, the California Department of Transportation, and other relevant parties to enforce state and local laws regulating the storage and transport of hazardous materials within the City of Santa Ana, and limit truck routes through the City to arterials streets away from natural habitats and sensitive land uses.
- **Policy 2.6 Existing Sensitive Uses.** Partner and collaborate with property owners, businesses, and community groups to develop strategies to protect and minimize risks from existing hazardous material sites to existing nearby sensitive uses, **with priority given to discontinuing such uses within environmental justice area boundaries.**

### 5.2.4.3 IMPACT ANALYSIS

The following impact analysis addresses thresholds of significance for which the Notice of Preparation disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

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**Impact 5.2-1: The additional population growth forecast for the General Plan Update and the associated emissions would not be consistent with the assumptions of the air quality management plan. [Threshold AQ-1]**

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The following describes potential air quality impacts of consistency with the AQMP from the implementation of the proposed General Plan Update.

The South Coast AQMD is directly responsible for reducing emissions from area, stationary, and mobile sources in the SoCAB to achieve the National and California AAQS and has responded to this requirement by preparing an AQMP. On March 3, 2017, the South Coast AQMD Governing Board adopted the 2016 AQMP, which is a regional and multiagency effort (South Coast AQMD, CARB, SCAG, and EPA). A consistency determination with the AQMP plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision makers of the environmental efforts of the project under consideration early enough to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to the clean air goals in the AQMP.

The two principal criteria for conformance with an AQMP are:

1. Whether the project would exceed the assumptions in the AQMP.
2. Whether the project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timeline attainment of air quality standards.

SCAG is South Coast AQMD's partner in the preparation of the AQMP, providing the latest economic and demographic forecasts and developing transportation measures. Regional population, housing, and employment projects developed by SCAG are based, in part, on a city's general plan land use designations.

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These projections form the foundation for the emissions inventory of the AQMP and are incorporated into the Connect SoCal Plan, which is the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) prepared by SCAG to determine priority transportation projects and vehicle miles traveled in the SCAG region (SCAG 2020a). Because the AQMP strategy is based on projections from local general plans, projects that are consistent with the local general plan are considered consistent with the air quality-related regional plan. Additionally, only large projects have the potential to substantially affect the demographic forecasts in the AQMP.

#### Criterion 1

Table 5.2-9, *Comparison of Population and Employment Forecast*, compares the population and employment growth forecast under the General Plan Update to the existing conditions and projections based on SCAG forecasts.

**Table 5.2-9 Comparison of Population and Employment Forecast**

Scenario	Existing Land Uses	SCAG 2045 Forecast <sup>1</sup>	Proposed General Plan 2045	Change from Existing	Increase Compared to the SCAG Forecast
Population <sup>2</sup>	334,774	360,100	431,629	96,855	71,529
Employment <sup>2</sup>	158,980	172,400	170,416	11,436	-1,984
Adjusted SP <sup>3</sup>	460,686	496,641	566,598	105,912	69,958
VMT <sup>4</sup>	11,407,124	N/A	11,518,959	111,835	N/A
VMT/SP	24.8	N/A	20.3	-4.4	N/A

Note: SP = Service Population (population plus employees)

<sup>1</sup> Source: SCAG 2020b.

<sup>2</sup> While, the traffic study uses both population and employment based on OCTAM 2016 baseline (interpolated for year 2020) and the 2045 forecasts, population and employment used for air quality is based on the land use statistics in Table 3-7 and Table 3-8.

<sup>3</sup> Service population (SP) consists of the aggregate of total employees and population within the study area. When aggregating employees and residents for transportation efficiency, an employee reduction factor was applied to account for overlaps in the two (employees who are also residents). Reduction factors were applied to both the City of Santa Ana employees then aggregated to the resident population. Reduction factors are based on employment data within the SCAG Local Profiles Reports (2019) for the City of Santa Ana. The SCAG reports show that 20.8 percent of employees within the City are also residents of the City (IBI 2020).

<sup>4</sup> Source: Appendix K – IBI Traffic Impact Analysis.

As shown in Table 5.2-9, the General Plan Update would result in a higher population and generate slightly fewer employees for the city compared to SCAG forecasts. It should be noted that the growth projected by SCAG is based on demographic trends in the region and on the current General Plan. These demographic trends are incorporated into the RTP/SCS to determine priority transportation projects and VMT in the SCAG region. The growth projections in SCAG's RTP/SCS and the associated emissions inventory in South Coast AQMD's AQMP do not include the additional growth forecast in the General Plan Update. Once the General Plan Update is adopted and the AQMP is revised, SCAG and South Coast AQMD will incorporate the updated growth projections into their regional planning projections, and the General Plan Update would become consistent with the AQMP. However, since the AQMP is based on the current General Plan, the proposed project (General Plan Update), which would accommodate increased growth and related emissions, would not be consistent with the AQMP under the first criterion.

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#### Criterion 2

The SoCAB is designated nonattainment for O<sub>3</sub> and PM<sub>2.5</sub> under the California and National AAQS, nonattainment for lead (Los Angeles County only) under the National AAQS, and nonattainment for PM<sub>10</sub> under the California AAQS (CARB 2015). Because the General Plan Update involves long-term growth associated with buildout of the city, cumulative emissions generated from operation of individual development projects would exceed the South Coast AQMD regional and localized thresholds (see Impact 5.2-2 and Impact 5.2-3). Consequently, emissions generated by development projects in addition to existing sources in the city are considered to cumulatively contribute to the nonattainment designations of the SoCAB. Buildout of the proposed land use plan associated with the General Plan Update could contribute to an increase in frequency or severity of air quality violations and delay attainment of the AAQS or interim emission reductions in the AQMP, and emissions generated from buildout would result in a significant air quality impact. Therefore, the General Plan Update would not be consistent with the AQMP under the second criterion.

#### Summary

Buildout of the General Plan Update would exceed current population estimates for the city, and therefore the emissions associated with the additional population are not included in the current regional emissions inventory for the SoCAB. Additionally, air pollutant emissions associated with buildout of the General Plan Update would cumulatively contribute to the nonattainment designations in the SoCAB. Therefore, overall, the General Plan Update would be inconsistent with the AQMP.

*Level of Significance Before Mitigation:* Potentially significant.

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**Impact 5.2-2: Construction activities associated with future development that would be accommodated under the General Plan Update could generate short-term emissions in exceedance of the South Coast Air Quality Management District's threshold criteria. [Threshold AQ-2]**

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Construction activities would temporarily increase PM<sub>10</sub>, PM<sub>2.5</sub>, VOC, NO<sub>x</sub>, SO<sub>x</sub>, and CO regional emissions within the SoCAB. The primary source of NO<sub>x</sub>, CO, and SO<sub>x</sub> emissions is the operation of construction equipment. The primary sources of particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) emissions are activities that disturb the soil, such as grading and excavation, road construction, and building demolition and construction. The primary sources of VOC emissions are the application of architectural coating and off-gas emissions associated with asphalt paving. A discussion of health impacts associated with air pollutant emissions generated by construction activities is included under "Air Pollutants of Concern" in Section 5.2.1.1, *Regulatory Framework*.

Construction activities associated with the General Plan Update would occur over the buildout horizon of the plan, causing short-term emissions of criteria air pollutants. However, information regarding specific development projects, soil types, and the locations of receptors would be needed in order to quantify the level of impact associated with construction activity. Due to the scale of development activity associated with buildout of General Plan Update, emissions would likely exceed the South Coast AQMD regional significance thresholds. In accordance with the South Coast AQMD methodology, emissions that exceed the regional significance thresholds would cumulatively contribute to the nonattainment designations of the SoCAB. The SoCAB is designated nonattainment for O<sub>3</sub> and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>). Emissions of VOC and

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NO<sub>x</sub> are precursors to the formation of O<sub>3</sub>. In addition, NO<sub>x</sub> is a precursor to the formation of particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>). Therefore, the General Plan Update would cumulatively contribute to the nonattainment designations of the SoCAB for O<sub>3</sub> and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>).

Air quality emissions related to construction must be addressed on a project-by-project basis. For the General Plan Update, which is a broad-based policy plan, it is not possible to determine whether the scale and phasing of individual projects would exceed the South Coast AQMD's short-term regional or localized construction emissions thresholds. In addition to regulatory measures—e.g., South Coast AQMD Rule 201 for a permit to operate, Rule 403 for fugitive dust control, Rule 1113 for architectural coatings, Rule 1403 for new source review, and CARB's Airborne Toxic Control Measures—mitigation imposed at the project level may include extension of construction schedules and/or use of special equipment.

Furthermore, the General Plan Update includes Policies 3.8 and 3.9 from the land use element, which would avoid development of sensitive receptors near land uses that may generate hazardous materials and discontinue operations of facilities that are close to these receptors, respectively.

While individual projects accommodated under the General Plan Update may not exceed the South Coast AQMD regional significance thresholds, the likely scale and extent of construction activities associated with the General Plan Update would likely continue to exceed the relevant South Coast AQMD thresholds for some projects. Therefore, construction-related regional air quality impacts of developments that would be accommodated by the General Plan Update would be potentially significant.

***Level of Significance Before Mitigation:*** Potentially significant.

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**Impact 5.2-3: Implementation of the General Plan Update would generate long-term emissions in exceedance of South Coast AQMD's threshold criteria. [Threshold AQ-2]**

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It is important to note that, per the requirements of CEQA, this analysis is based on a comparison between the General Plan Update's proposed land use plan and the existing, on-the-ground land uses—not the current General Plan land use plan (see Figures 3-6 and 3-7).

It is also important to note that the General Plan Update sets up the framework for growth and development and does not directly result in development. Before development can occur, it must be analyzed for conformance with the General Plan, zoning requirements, and other applicable local and State requirements; comply with the requirements of CEQA; and obtain all necessary clearances and permits.

The General Plan Update guides growth and development in the city by designating allowed land uses by parcel and through implementation of its goals and policies. New development would increase air pollutant emissions in the city and contribute to the overall emissions in the SoCAB. A discussion of health impacts associated with air pollutant emissions generated by operational activities is included under "Air Pollutants of Concern" in Section 5.2.1.1, *Regulatory Framework*.



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### General Plan Update Criteria Air Pollutant Emissions Forecast

The emissions inventory for the city under the General Plan Update is shown in Table 5.2-10. As shown in the table, implementation of the General Plan Update would increase criteria air pollutant emissions compared to existing conditions. This increase is based on the difference between existing land uses and land uses associated with buildout of the General Plan Update as well as an estimate of population and employment in the city in year 2045. Buildout of the General Plan Update would generate long-term emissions that exceed the daily South Coast AQMD thresholds for VOC, NO<sub>x</sub>, and CO. Emissions of VOC and NO<sub>x</sub> are precursors to the formation of O<sub>3</sub>. In addition, NO<sub>x</sub> is a precursor to the formation of particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>). Therefore, emissions of VOC and NO<sub>x</sub> that exceed the South Coast AQMD regional significance thresholds would contribute to the O<sub>3</sub> and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) nonattainment designation of the SoCAB.

**Table 5.2-10 General Plan Update Horizon Year 2045 Regional Criteria Air Pollutant Emissions Forecast**

Sector	Criteria Air Pollutant Emissions (pounds per day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Existing Land Uses at Buildout Year 2045</b>						
Transportation <sup>1</sup>	355	2,232	13,143	59	1,296	532
Energy	144	1,277	845	8	100	100
Area – Consumer Products <sup>2</sup>	4,212	0	0	0	0	0
Area –Light Commercial Equipment <sup>3</sup>	154	415	6,330	0.96	38	31
Area – Construction Equipment	28	182	589	0	13	11
<b>Existing Land Uses Total</b>	<b>4,893</b>	<b>4,106</b>	<b>20,907</b>	<b>69</b>	<b>1,447</b>	<b>673</b>
<b>Proposed Land Use Plan – Forecast Year 2045</b>						
Transportation <sup>1</sup>	359	2,254	13,272	60	1,309	537
Energy	180	1,583	997	9.80	124	124
Area – Consumer Products <sup>2</sup>	6,156	0	0	0	0	0
Area –Light Commercial Equipment <sup>3</sup>	165	445	6,786	1	41	33
Area – Construction Equipment	28	182	589	0	13	11
<b>Proposed Land Use Plan Total</b>	<b>6,888</b>	<b>4,463</b>	<b>21,643</b>	<b>71</b>	<b>1,487</b>	<b>705</b>
<b>Increase in Emissions</b>	<b>1,994</b>	<b>357</b>	<b>736</b>	<b>3</b>	<b>40</b>	<b>32</b>
South Coast AQMD Regional Significance Threshold	55	55	550	150	150	55
<b>Significant?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>

Note: Emissions forecasts estimated based on changes in households (residential energy, area), employment (nonresidential energy, area), or service population (transportation).

<sup>1</sup> EMFAC2017 Version 1.0.2. Based on daily VMT provided by IBI Group. Transportation sector includes the full trip length for internal-internal trips and various trip lengths for external-internal/internal-external trips (see Appendix K). VMT per year based on a conversion of VMT x 347 days per year to account for less travel on weekend, consistent with CARB statewide GHG emissions inventory methodology (CARB 2008). The CARB adjustment factors to account for the SAFE Vehicle Rule Part One are incorporated for year 2045 emissions (CARB 2019b).

<sup>2</sup> Based on CalEEMod, Version 2016.3.2, methodology utilized to calculate VOC emissions from use of household consumer cleaning products.

<sup>3</sup> OFFROAD2017 Version 1.0.1. Light commercial equipment emissions estimated based on employment for the City of Santa Ana as a percentage of Orange County. Construction emissions estimated based on housing permit data for Orange County and Santa Ana from the US Census. Area sources exclude emissions from fireplaces.

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#### General Plan Policies That May Reduce Air Quality Emissions

Implementation of the General Plan Update policies could contribute to reducing criteria air pollutant emissions. Policy 1.1 of the conservation element would require compliance with State and federal AAQS to protect residents from the health effects of air pollution. In addition, the conservation and ~~circulation~~ mobility elements include goals and policies that would aid in controlling emissions generated in the city. These policies focus on minimizing health and safety risks on sensitive receptors by controlling emissions from new development and reducing VMT by increasing public and active transit and through land use planning.

- **Conservation Element, Goal 1.** Protect air resources, improve regional and local air quality, and minimize the impacts of climate change. (Policies 1.1 through 1.14)
- **Mobility-Element, Goal 1.** A comprehensive and multimodal circulation system that facilitates the safe and efficient movement of people, enhances commerce, and promotes a sustainable community. (Policies 1.7 and 1.8)
- **Mobility Element, Goal 4.** Coordinated transportation planning efforts with land use and design strategies that encourage sustainable development and achieve broader community goals. (Policies 4.1, 4.3, 4.5, 4.6, and 4.9)
- **Mobility Element, Goal 5.** A transportation system that is attractive, safe, and state-of-the-art and supports community, environmental, and conservation goals. (Policies 5.4 and 5.6)

Furthermore, the Land Use Element Policies 1.6, 1.7, 2.5, 2.10 and 4.1 as well as the Urban Design Element Policies 1.6, 3.10, and 5.4 promote an increase in concepts and designs that would increase active transportation like walking and bicycling as well as use of public transit to mitigate air quality impacts. In addition, transportation demand management policies would contribute to reduced VMT.

However, future development projects that would be accommodated by the General Plan Update could exceed the South Coast AQMD regional emissions thresholds. Therefore, operational air quality impacts associated with future development of the General Plan Update would be significant.

*Level of Significance Before Mitigation:* Potentially significant.

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**Impact 5.2-4: Operation of industrial and warehousing land uses accommodated under the General Plan Update could expose sensitive receptors to substantial toxic air contaminant concentrations. [Threshold AQ-3]**

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Development and operation of land uses accommodated under the proposed land use plan could generate new sources of TACs in the city from area/stationary sources and mobile sources.

#### Permitted Stationary Sources

The majority of additional nonresidential growth in the city would be from office and commercial uses. The GPU only designates land use changes within the focus areas. Permitted land uses outside the focus area

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boundaries would not be modified. Areas intended for conventional industrial uses would be minimal and would be offset by the reduction in industrial uses around the SR-55 freeway and Dyer Road. Existing light industrial, general industrial, and warehousing and wholesaling uses within the focus areas amount to approximately 260 acres (refer to Table 3-1, *Existing Land Use Statistical Summary*), and the GPU designates approximately 251 acres to Industrial/Flex use (refer to Table 3-5, *Proposed Land Use Designations and Statistics*). Therefore, the GPU results in a reduction by approximately 9 acres of industrial use within the focus areas. The Industrial/Flex designation is slated for areas that currently include industrial and warehousing/wholesaling facilities. Though existing land uses are “grandfathered” in and could remain, the GPU would not result in an increase in heavy industrial facilities in the Industrial/Flex zone. The Industrial/Flex designation allows for clean industrial uses that do not produce significant air pollutants, including office-industrial flex spaces, small-scale clean manufacturing, research and development, multilevel corporate offices, commercial retail, artist galleries, craft maker spaces, and live-work units. Live-work units are permitted within the Industrial Flex 1.5 land use designation and not permitted within the Industrial Flex 3.0 designation. New heavy industrial and commercial uses—such as machine shops, laundry and dry-cleaning plant operations, automotive repair and service, and chemical processing facilities—are not permitted uses in the Industrial/Flex areas. The GPU also results in no changes outside the focus areas and therefore results in an overall reduction of TACs from stationary sources.

However, various industrial and commercial processes (e.g., manufacturing, dry cleaning) allowed under the proposed land use plan would still be expected to release TACs. Industrial land uses, such as chemical processing facilities, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities, have the potential to be substantial stationary sources that would require a permit from South Coast AQMD. Emissions of TACs would be controlled by South Coast AQMD through permitting and would be subject to further study and health risk assessment prior to the issuance of any necessary air quality permits under South Coast AQMD Rule 1401. Though the General Plan Update includes policies in the conservation element to reduce exposure of sensitive receptors to pollution (e.g., Policy 1.5), emissions cannot be determined or modeled until specific development projects are proposed. Therefore, implementation of the General Plan Update may result in projects that emit TACs throughout the city and result in potentially significant localized air quality impacts.

#### **Nonpermitted Sources**

Mobile sources of TACs are not regulated by South Coast AQMD. New land uses in the city that are permitted under the GPU and use off-road equipment and trucks, including trucks with transport refrigeration units, could generate an increase in DPM that would contribute to cancer and noncancer health risk in the SoCAB. These types of facilities could also generate PM<sub>10</sub> and PM<sub>2.5</sub>, which could cause an exceedance or contribute to the continuing exceedance of the federal and State AAQS. These new land uses could be near existing sensitive receptors. In addition, trucks would travel on regional transportation routes through the SoCAB, contributing to near-roadway DPM concentrations.

Implementation of Policy 2.3 of the safety element calls for coordination with relevant parties to enforce State and local laws to regulate storage and transport of hazardous materials, and limitations on truck routes through the city to avoid sensitive areas (e.g., residences and schools). This policy would help minimize exposure of sensitive receptors to substantial concentrations of TACs. Policy 1.1 of the conservation element (requirement

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to comply with State and federal AAQS to protect residents from the health effects of air pollution) and Policy 3.9 of the land use element (discontinue operation of noxious, hazardous, dangerous, and polluting uses that are in close proximity to sensitive receptors) would also contribute to minimizing exposure of sensitive receptors to substantial TAC concentrations.

As noted above, areas intended for conventional industrial uses would be minimal and would be offset by the reduction in industrial uses around the SR-55 freeway and Dyer Road. However, existing residences are close to existing and planned Industrial and Industrial/Flex areas in the city. As identified in the Figure 3-7, *Proposed Land Use Plan*, industrial areas are proximate to residential areas in several areas of the city, including:

- Main Street
- Fairview Road
- Flower Street
- Grand Avenue
- Warner Avenue

These areas are within 200 feet of sensitive receptors. Until specific future development projects are proposed, the associated emissions and concentrations cannot be determined or modeled. Therefore, health risk impacts from development of industrial and commercial land uses are considered potentially significant.

### **Sensitive Receptors in EJ Communities**

As mentioned above, the GPU would result in a reduction by approximately nine acres of industrial use, with only Industrial/Flex designated in the focus areas. The GPU does not include any changes outside the focus areas.

Numerous policies and implementation actions in the GPU would reduce the exposure of sensitive receptors in EJ communities to TACs. The policies and implementation actions include:

- Safety Element Policy 2.3
- Land Use Element Policies 3.8, 3.9, 3.11, and 3.12 and Implementation Actions 3.3, 3.16, 3.23, and 3.24
- Conservation Element Policy 1.5 and Implementation Actions 1.2 through 1.12
- Community Element Policy 3.2 and Implementation Actions 1.3, 3.3, and 3.5

These policies and implementation actions aim to limit truck routes through the city to arterial streets away from sensitive land uses, discontinue the operation of polluting uses that are near sensitive receptors, avoid the development of sensitive receptors near land uses that pose a hazard to human health, and mitigate or apply special regulations on the siting of facilities that might significantly increase pollution near EJ communities. They also promote incentives for the removal of existing heavy industrial uses adjacent to sensitive uses; require health risk assessments for new residential uses within 500 feet of a freeway; and push to reduce truck idling, promote the replacement of older trucks, and support South Coast AQMD rules to reduce emissions from mobile sources. The policies and implementation actions also include collaboration efforts with South Coast AQMD and the Orange County Health Care Agency to reevaluate permit processes, outline objectives and

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strategies for monitoring air pollution, and monitor key health indicators to measure the success of the outcome of the GPU policies and implementation actions.

In the South Main Street Focus Area, the GPU redesignates a portion of the area south of Warner Avenue, which encompasses an EJ community, as Industrial Flex 1.5 (see Figure 5.2-6, *EJ Communities in the South Main Street Focus Area*). This area currently includes auto repair, wholesaling, warehousing, and general industrial uses. The GPU would not result in an increase in heavy industrial facilities in this area and would reduce the TAC burden by prohibiting new stationary sources. New live-work spaces introduced as part of the Industrial Flex 1.5 uses and the proposed institutional land use designation north of Warner Avenue may be near existing stationary sources of TACs within the Industrial/Flex designation.

Within the West Santa Ana Boulevard Focus Area, which is primarily within EJ community boundaries, existing industrial and warehousing uses are redesignated to Industrial Flex 1.5 and Urban Neighborhood (see Figure 5.2-7, *EJ Communities in the West Santa Ana Boulevard Focus Area*). This redesignation would reduce the TAC burden from existing stationary sources. However, new live-work uses within the Industrial/Flex designation may be exposed to TACs from any existing stationary facilities within this land use designation until heavy industrial uses are transitioned to clean industrial uses.

The western part of the 55 Freeway/Dyer Road Focus Area includes properties within EJ communities. The GPU would introduce Industrial Flex 3.0 land uses east of South Grand Avenue and north of the SR-55 (see Figure 5.2-8, *EJ Communities in the 55 Freeway/Dyer Road Focus Area*), which would not increase the existing TAC burden from stationary sources to EJ communities within and adjacent to the focus area.

The portion of the Grand Avenue/17th Street Focus Area south of I-5 encompasses an EJ community (see Figure 5.2-9, *EJ Communities in the Grand Avenue/17th Street Focus Area*). The GPU does not introduce any new industrial uses in the EJ communities south of the I-5. The South Bristol Street Focus Area does not include any EJ communities.

Though the GPU includes policies and implementation actions to reduce air pollutant emissions exposure within EJ communities, the GPU could result in specific development projects that could emit TACs. The emissions associated with these facilities cannot be determined or modeled until specific development projects are proposed. Therefore, implementation of the GPU may result in projects that emit TACs in the vicinity of EJ communities and result in potentially significant localized air quality impacts.

***Level of Significance Before Mitigation:*** Potentially significant.

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**Impact 5.2-5: Development and operation of land uses accommodated by the General Plan Update could generate emissions that exceed the localized significance thresholds and expose sensitive receptors to substantial concentrations of criteria air pollutants. [Threshold AQ-3]**

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New land uses consistent with the land use plan of the proposed General Plan Update would generate new sources of criteria air pollutants in the city from area/stationary sources and mobile sources.

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#### Localized Significance Thresholds

Implementation of the General Plan Update could expose sensitive receptors to elevated pollutant concentrations during construction activities if it would cause or contribute significantly to elevating those levels. Unlike mass of emissions shown in Table 5.2-10 and described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or  $\mu\text{g}/\text{m}^3$ ) and can be correlated to potential health effects. LSTs are the amount of project-related emissions at which localized concentrations (ppm or  $\mu\text{g}/\text{m}^3$ ) would exceed the AAQS for criteria air pollutants for which the SoCAB is in nonattainment.

#### Operation LSTs

The types of land uses that could generate substantial amounts of stationary source emissions include industrial land uses, which are accommodated under the General Plan Update (see Figure 3-7, *Proposed General Plan Land Use Plan*). But implementation of General Plan Update policies could contribute to reducing criteria air pollutant emissions.

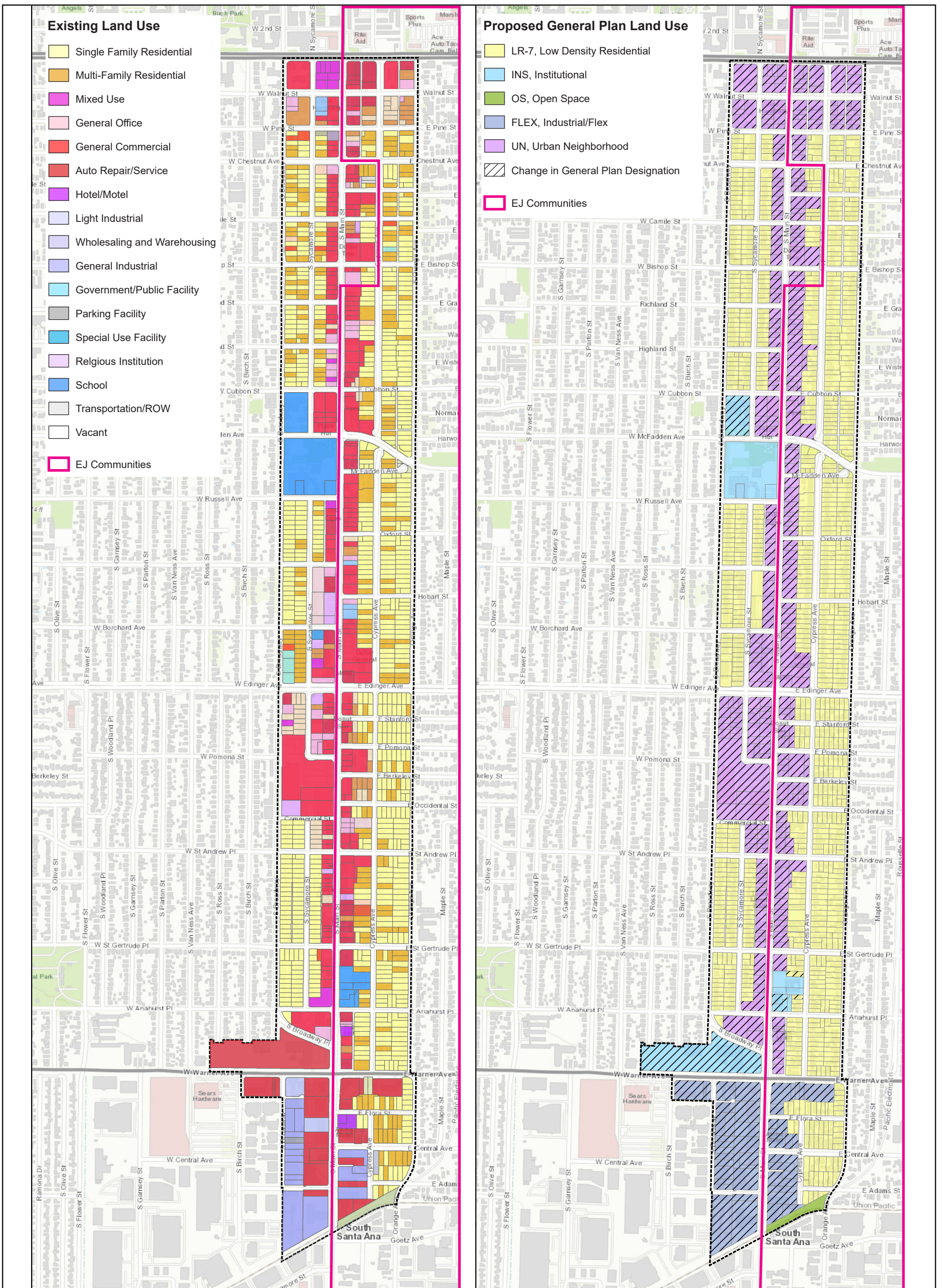
Goal 1 of the conservation element would aim to protect air resources, improve regional and local air quality, and minimize the impacts of climate change. In addition, Policy 1.1 of the conservation element would require compliance with State and federal AAQS to protect residents from the health effects of air pollution. Furthermore, as previously mentioned under Impact 5.2-3, the conservation, land use, and urban design elements include policies that would contribute to controlling emissions generated in the city and would promote concepts and designs that would increase walking, bicycling, and use of public transit in addition to transportation demand management policies, which would contribute to reduced VMT.

The aforementioned policies of the General Plan Update would reduce localized operation-related emissions, to the extent possible, from individual land use development projects accommodated in the proposed land use plan. However, per the LST methodology, information regarding specific development projects and the locations of receptors would be needed in order to quantify the levels of localized operation and construction-related impacts associated with future development projects. Thus, because the proposed General Plan Update is a broad-based policy plan and does not itself propose specific development projects, it is not possible to calculate individual project-related operation emissions at this time. Overall, because of the likely scale of future development and the industrial uses permitted the General Plan Update, some development projects could likely exceed the LSTs. Therefore, localized operation-related air quality impacts associated with implementation of the General Plan Update are considered potentially significant.

#### Construction LSTs

Buildout of the General Plan Update would occur over approximately 25 years or longer via several smaller projects, each with its own construction time frame and equipment. Because an LST analysis can only be conducted at a project level, quantification of LSTs is not applicable for the program-level environmental analysis of the General Plan Update. Because potential development and redevelopment could occur close to existing sensitive receptors, future development projects that would be accommodated by the General Plan Update have the potential to expose sensitive receptors to substantial pollutant concentrations. Construction equipment exhaust combined with fugitive particulate matter emissions have the potential to expose sensitive receptors to substantial concentrations of criteria air pollutant emissions and result in a significant impact.

Figure 5.2-6 - EJ Communities in the South Main Street Focus Area



0 1,000  
Scale (Feet)



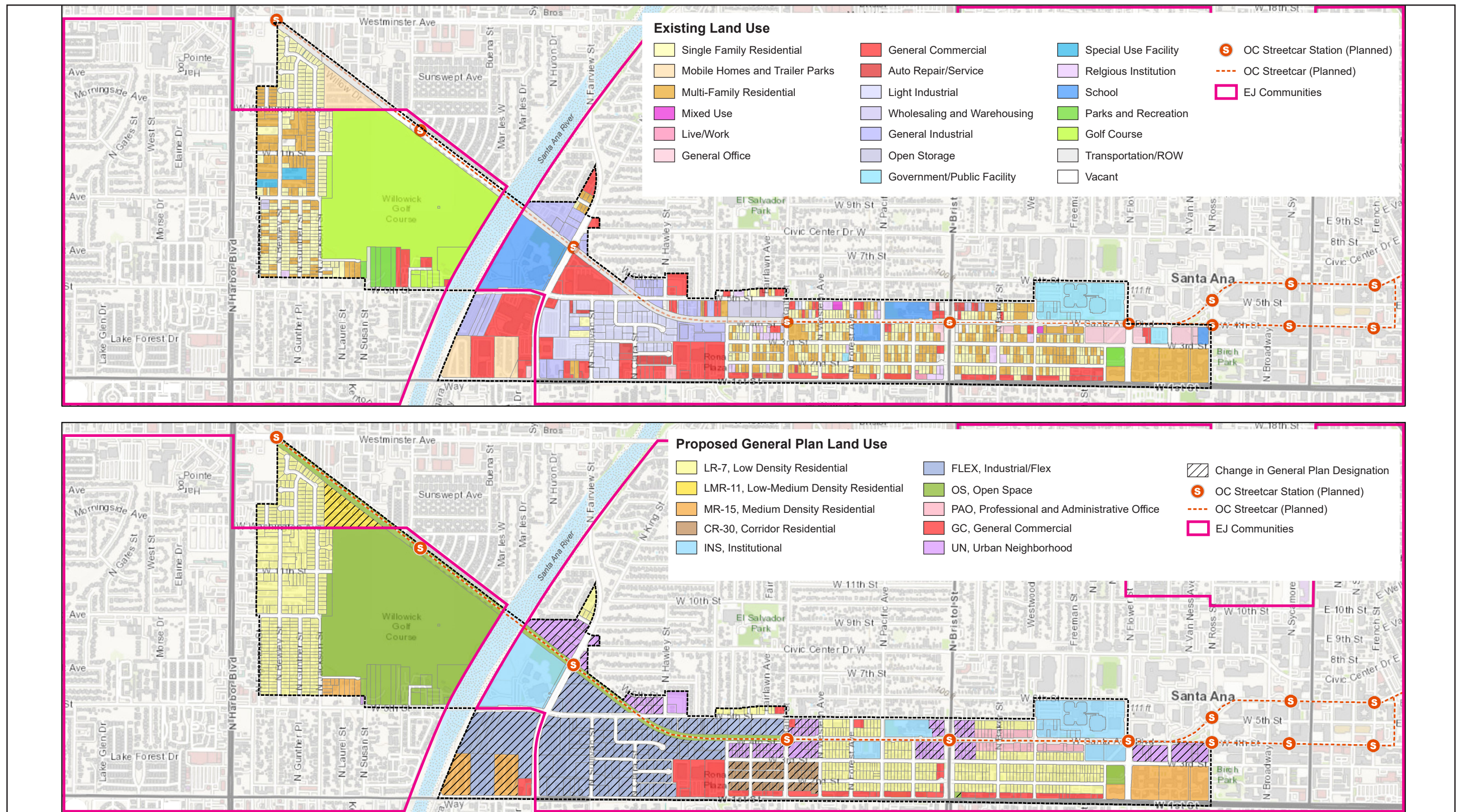
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Figure 5.2-7 - EJ Communities in the West Santa Ana Boulevard Focus Area



0 1,500  
Scale (Feet)

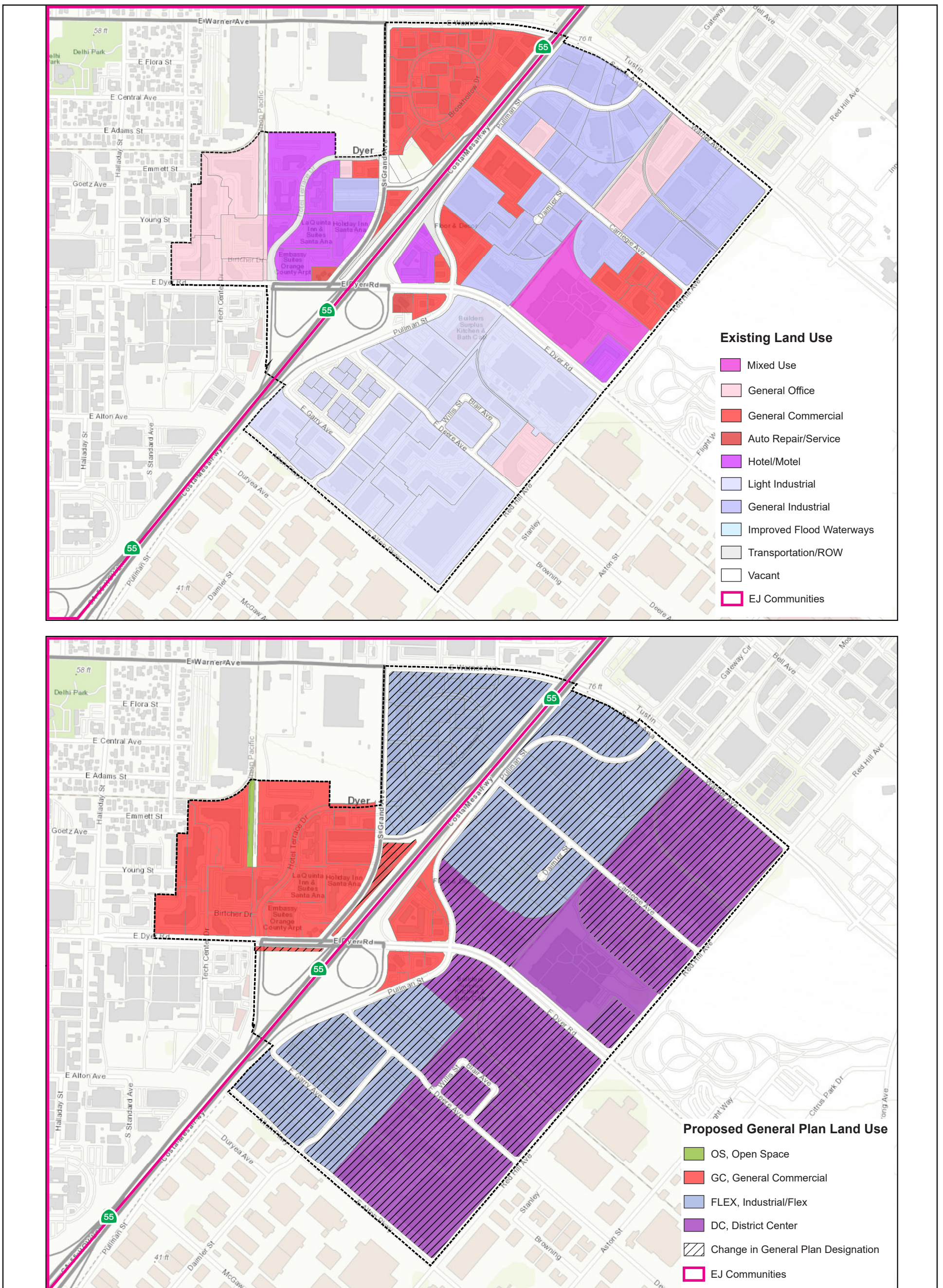


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Figure 5.2-8 - EJ Communities in the 55 Freeway/Dyer Road Focus Area



0 1,000  
Scale (Feet)

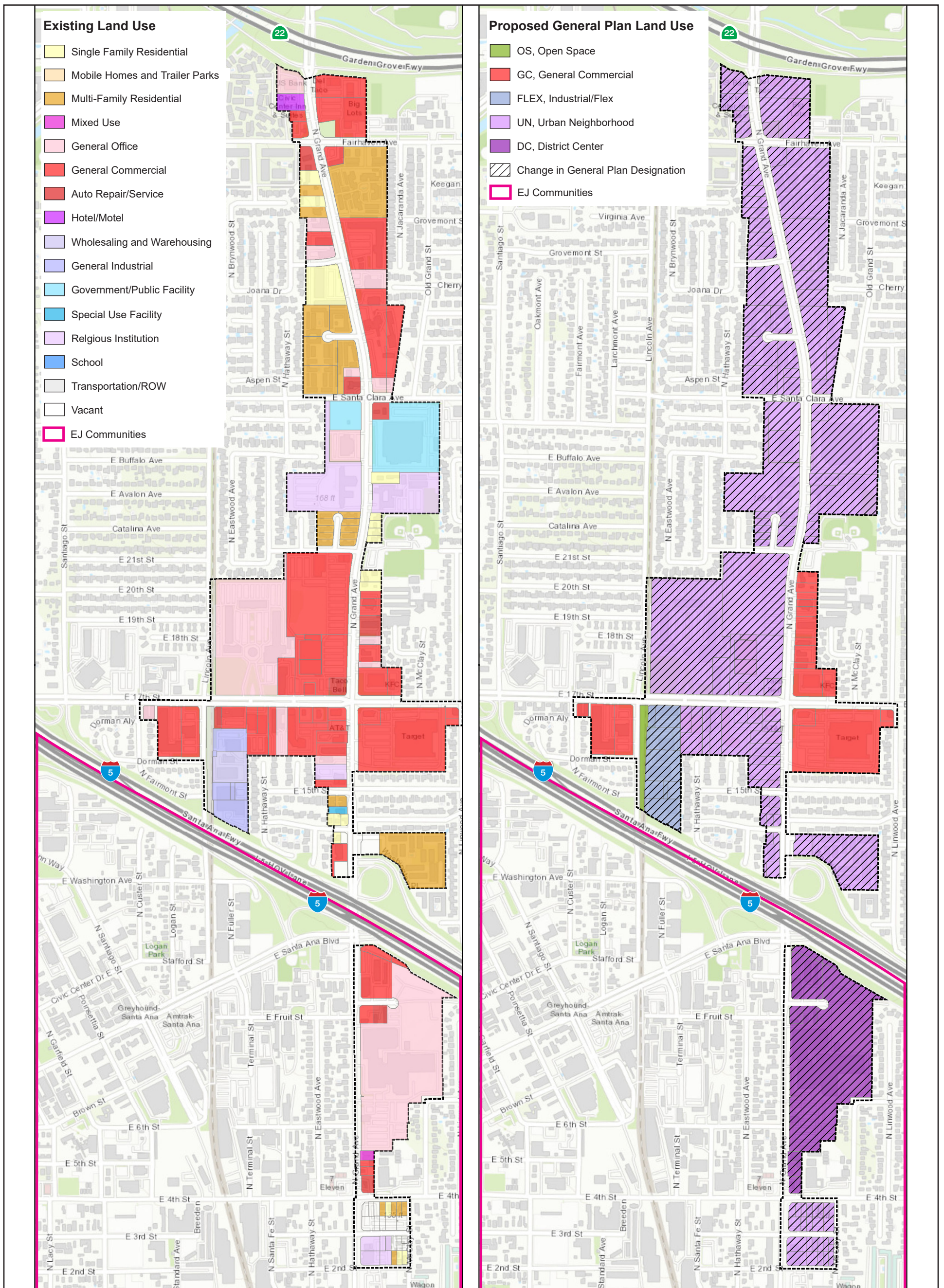


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Figure 5.2-9 - EJ Communities in the Grand Avenue/17th Street Focus Area



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Scale (Feet)



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### CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hotspot analysis conducted for the attainment by South Coast AQMD did not predict a violation of CO standards at the busiest intersections in Los Angeles during the peak morning and afternoon periods.<sup>14</sup> As identified in South Coast AQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide, peak carbon monoxide concentrations in the SoCAB in the years before redesignation were a result of unusual meteorological and topographical conditions and not of congestion at a particular intersection (South Coast AQMD 1992, 2003).

Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2017). Buildout of the General Plan Update would not result in the increase in traffic volume required to generate a CO hotspot. Therefore, CO hotspots impacts would be less than significant.

### Summary

Localized operation-related air quality impacts associated with implementation of the General Plan Update are considered potentially significant. Construction equipment exhaust combined with fugitive particulate matter emissions have the potential to expose sensitive receptors to substantial concentrations of criteria air pollutant emissions and would result in a significant impact. Because buildout of the General Plan Update would not result in the increase in traffic volume required to generate a CO hotspot, impacts would be less than significant.

*Level of Significance Before Mitigation:* Potentially significant.

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**Impact 5.2-6: Industrial land uses accommodated under the General Plan Update could create other emissions, such as those leading to objectionable odors, that would adversely affect a substantial number of people. [Threshold AQ-4]**

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Growth within the city under the General Plan Update could generate new sources of odors. Nuisance odors from land uses in the SoCAB are regulated under South Coast AQMD Rule 402, Nuisance, which states:

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property. The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

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<sup>14</sup> The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour.

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#### Industrial and South Coast AQMD–Permitted Land Uses

Industrial land uses have the potential to generate objectionable odors. Examples of industrial projects are wastewater treatment plants, compost facilities, landfills, solid-waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch manufacturing plants, chemical manufacturing, and food manufacturing facilities.

Areas where these types of uses could be developed under the General Plan Update would be generally limited to the areas designated as industrial and are primarily found along State Route 55, which is a major corridor, and in the southwest corner of the city (see Figures 3-5 and 3-6). Industrial land uses associated with the General Plan Update would be required to comply with South Coast AQMD Rule 402, but additional measures may be necessary to prevent an odor nuisance. Therefore, industrial land uses associated with the General Plan Update may generate potentially significant odor impacts for a substantial number of people.

#### Residential and Other Land Uses

Residential and other nonresidential, nonindustrial land uses that would be accommodated by the General Plan Update could result in the generation of odors such as exhaust from landscaping equipment and from cooking. However, unlike industrial land uses, these are not considered potential generators of odor that could affect a substantial number of people. Furthermore, nuisance odors are regulated under South Coast AQMD Rule 402, which requires abatement of any nuisance generating a verified odor complaint. Therefore, impacts from potential odors generated from residential and other nonresidential land uses associated with the General Plan Update are considered less than significant.

#### Construction

During construction activities of development projects that would be accommodated by the General Plan Update, construction equipment exhaust and application of asphalt and architectural coatings would temporarily generate odors. However, any construction-related odor emissions would be temporary and intermittent. Additionally, noxious odors would be confined to the immediate vicinity of the construction equipment in use. By the time such emissions reached any sensitive receptor sites, they would be diluted to well below any level of air quality concern. Furthermore, short-term construction-related odors are expected to cease upon the drying or hardening of odor-producing materials. Therefore, impacts associated with construction-generated odors are considered less than significant.

#### Summary

Industrial land uses associated with the General Plan Update may generate potentially significant odor impacts for a substantial number of people. Impacts from potential odors generated from residential and other nonresidential land uses associated with the General Plan Update are considered less than significant. Impacts associated with construction-generated odors are considered less than significant.

***Level of Significance Before Mitigation:*** Potentially significant.



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#### 5.2.5 Level of Significance Before Mitigation

Without mitigation, the following impacts would be **potentially significant**:

- **Impact 5.2-1** The additional population growth forecasted for the General Plan Update and the associated emissions would not be consistent with the assumptions of the Air Quality Management Plan.
- **Impact 5.2-2** Construction activities associated with future development that would be accommodated under the General Plan Update could generate short-term emissions in exceedance of South Coast AQMD'S threshold criteria.
- **Impact 5.2-3** Implementation of the General Plan Update would generate long-term emissions in exceedance of South Coast AQMD's threshold criteria.
- **Impact 5.2-4** Operation of industrial and warehousing land uses accommodated under the General Plan Update could expose sensitive receptors to substantial toxic air contaminant concentrations.
- **Impact 5.2-5** Development and operation of land uses accommodated by the General Plan Update could generate emissions that exceed the LSTs and expose sensitive receptors to substantial criteria air pollutant concentrations.
- **Impact 5.2-6** Industrial land uses accommodated under the General Plan Update could create other emissions, such as those leading to objectionable odors, that would adversely affect a substantial number of people.

#### 5.2.6 Mitigation Measures

##### Impact 5.2-1

When incorporated into future development projects for operation and construction phases, the mitigation measures outlined for Impacts 5.2-2 and 5.2-3, described below, would contribute to reduced criteria air pollutant emissions associated with buildout of the General Plan Update. Additionally, goals and policies in the General Plan Update would promote increased capacity for alternative transportation modes, implementation of transportation demand management strategies, and energy efficiency. However, no further mitigation measures are available that would reduce impacts to below South Coast AQMD significance thresholds due to the magnitude of growth and associated emissions that would be generated by the buildout of the General Plan Update.

##### Impact 5.2-2

AQ-1 Prior to discretionary approval by the City of Santa Ana for development projects subject to CEQA (California Environmental Quality Act) review (i.e., non-exempt projects), project applicants shall prepare and submit a technical assessment evaluating potential project

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construction-related air quality impacts to the City of Santa Ana for review and approval. The evaluation shall be prepared in conformance with South Coast Air Quality Management District (South Coast AQMD) methodology for assessing air quality impacts. If construction-related criteria air pollutants are determined to have the potential to exceed the South Coast AQMD's adopted thresholds of significance, the City of Santa Ana shall require that applicants for new development projects incorporate mitigation measures to reduce air pollutant emissions during construction activities. These identified measures shall be incorporated into all appropriate construction documents (e.g., construction management plans) submitted to the City and shall be verified by the City. Mitigation measures to reduce construction-related emissions could include, but are not limited to:

- Require fugitive-dust control measures that exceed South Coast AQMD's Rule 403, such as:
  - Use of nontoxic soil stabilizers to reduce wind erosion.
  - Apply water every four hours to active soil-disturbing activities.
  - Tarp and/or maintain a minimum of 24 inches of freeboard on trucks hauling dirt, sand, soil, or other loose materials.
- Use construction equipment rated by the United States Environmental Protection Agency as having Tier 3 (model year 2006 or newer) or Tier 4 (model year 2008 or newer) emission limits, applicable for engines between 50 and 750 horsepower.
- Ensure that construction equipment is properly serviced and maintained to the manufacturer's standards.
- Limit nonessential idling of construction equipment to no more than five consecutive minutes.
- Limit on-site vehicle travel speeds on unpaved roads to 15 miles per hour.
- Install wheel washers for all exiting trucks or wash off all trucks and equipment leaving the project area.
- Use Super-Compliant VOC paints for coating of architectural surfaces whenever possible. A list of Super-Compliant architectural coating manufactures can be found on the South Coast AQMD's website.

#### Impact 5.2-3

AQ-2

Prior to discretionary approval by the City of Santa Ana for development projects subject to CEQA (California Environmental Quality Act) review (i.e., non-exempt projects), project applicants shall prepare and submit a technical assessment evaluating potential project operation phase-related air quality impacts to the City of Santa Ana for review and approval. The evaluation shall be prepared in conformance with South Coast Air Quality Management District (South Coast AQMD) methodology in assessing air quality impacts. If operation-

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related air pollutants are determined to have the potential to exceed the South Coast AQMD's adopted thresholds of significance, the City of Santa Ana shall require that applicants for new development projects incorporate mitigation measures to reduce air pollutant emissions during operational activities. The identified measures shall be included as part of the conditions of approval. Possible mitigation measures to reduce long-term emissions could include, but are not limited to the following:

- For site-specific development that requires refrigerated vehicles, the construction documents shall demonstrate an adequate number of electrical service connections at loading docks for plug-in of the anticipated number of refrigerated trailers to reduce idling time and emissions.
- Applicants for manufacturing and light industrial uses shall consider energy storage and combined heat and power in appropriate applications to optimize renewable energy generation systems and avoid peak energy use.
- Site-specific developments with truck delivery and loading areas and truck parking spaces shall include signage as a reminder to limit idling of vehicles while parked for loading/unloading in accordance with California Air Resources Board Rule 2845 (13 CCR Chapter 10 § 2485).
- Provide changing/shower facilities as specified in Section A5.106.4.3 of the CALGreen Code (Nonresidential Voluntary Measures).
- Provide bicycle parking facilities per Section A4.106.9 (Residential Voluntary Measures) of the CALGreen Code **and Sec. 41-1307.1 of the Santa Ana Municipal Code.**
- Provide preferential parking spaces for low-emitting, fuel-efficient, and carpool/van vehicles per Section A5.106.5.1 of the CALGreen Code (Nonresidential Voluntary Measures).
- Provide facilities to support electric charging stations per Section A5.106.5.3 (Nonresidential Voluntary Measures) and Section A5.106.8.2 (Residential Voluntary Measures) of the CALGreen Code.
- Applicant-provided appliances (e.g., dishwashers, refrigerators, clothes washers, and dryers) shall be Energy Star-certified appliances or appliances of equivalent energy efficiency. Installation of Energy Star-certified or equivalent appliances shall be verified by Building & Safety during plan check.
- Applicants for future development projects along existing and planned transit routes shall coordinate with the City of Santa Ana and Orange County Transit Authority to ensure that bus pad and shelter improvements are incorporated, as appropriate.

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#### Impact 5.2-4

AQ-3 Prior to discretionary approval by the City of Santa Ana, project applicants for new industrial or warehousing development projects that 1) have the potential to generate 100 or more diesel truck trips per day or have 40 or more trucks with operating diesel-powered transport refrigeration units, and 2) are within 1,000 feet of a sensitive land use (e.g., residential, schools, hospitals, or nursing homes), as measured from the property line of the project to the property line of the nearest sensitive use, shall submit a health risk assessment (HRA) to the City of Santa Ana for review and approval. The HRA shall be prepared in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment and the South Coast Air Quality Management District and shall include all applicable stationary and mobile/area source emissions generated by the proposed project at the project site. If the HRA shows that the incremental cancer risk and/or noncancer hazard index exceed the respective thresholds, as established by the South Coast AQMD at the time a project is considered (i.e., 10 in one million cancer risk and 1 hazard index), the project applicant will be required to identify and demonstrate that best available control technologies for toxics (T-BACTs), including appropriate enforcement mechanisms, are capable of reducing potential cancer and noncancer risks to an acceptable level. T-BACTs may include, but are not limited to, restricting idling on-site, electrifying warehousing docks to reduce diesel particulate matter, or requiring use of newer equipment and/or vehicles. T-BACTs identified in the HRA shall be identified as mitigation measures in the environmental document and/or incorporated into the site plan.

#### Impact 5.2-5

Mitigation Measures AQ-1 and AQ-2 would also be applicable in reducing construction- and operation-related LST impacts.

#### Impact 5.2-6

AQ-4 Prior to discretionary approval by the City of Santa Ana, if it is determined that a development project has the potential to emit nuisance odors beyond the property line, an odor management plan shall be prepared by the project applicant and submitted to the City of Santa Ana for review and approval. Facilities that have the potential to generate nuisance odors include, but are not limited to:

- Wastewater treatment plants
- Composting, green waste, or recycling facilities
- Fiberglass manufacturing facilities
- Painting/coating operations
- Large-capacity coffee roasters
- Food-processing facilities

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The odor management plan shall demonstrate compliance with the South Coast Air Quality Management District's Rule 402 for nuisance odors. The Odor Management Plan shall identify the best available control technologies for toxics (T-BACTs) that will be utilized to reduce potential odors to acceptable levels, including appropriate enforcement mechanisms. T-BACTs may include but are not limited to scrubbers (i.e., air pollution control devices) at the industrial facility. T-BACTs identified in the odor management plan shall be identified as mitigation measures in the environmental document prepared for the development project and/or incorporated into the project's site plan.

### 5.2.7 Level of Significance After Mitigation

#### Impact 5.2-1

The General Plan Update would be inconsistent with the South Coast AQMD's AQMP because buildout under the plan would exceed the population estimates assumed for the AQMP and would cumulatively contribute to the nonattainment designations of the SoCAB. Incorporation of Mitigation Measures AQ-2 into future development projects for the operation phase would contribute to reduced criteria air pollutant emissions associated with buildout of the General Plan Update. Additionally, goals and policies in the General Plan Update would promote increased capacity for alternative transportation modes and implementation of transportation demand management strategies. However, due to the magnitude and scale of the land uses that would be developed, no mitigation measures are available that would reduce operation and construction impacts below South Coast AQMD thresholds. In addition, the population and employment assumptions of the AQMP would continue to be exceeded until the AQMP is revised and incorporates the projections of the General Plan Update. Therefore, Impact 5.2-1 would remain **significant and unavoidable**.

#### Impact 5.2-2

Buildout of the General Plan Update would occur over a period of approximately 25 years or longer. Construction activities associated with buildout of the General Plan Update could generate short-term emissions that exceed the South Coast AQMD'S significance thresholds during this time and cumulatively contribute to the nonattainment designations of the SoCAB. Implementation of Mitigation Measure AQ-1 would reduce criteria air pollutant emissions from construction-related activities to the extent feasible. However, construction time frames and equipment for site-specific development projects are not available at this time, and there is a potential for multiple development projects to be constructed at one time, resulting in significant construction-related emissions. Therefore, despite adherence to Mitigation Measure AQ-1, Impact 5.2-2 would remain **significant and unavoidable**.

#### Impact 5.2-3

Buildout in accordance with the General Plan Update would generate long-term emissions that would exceed South Coast AQMD's regional significance thresholds and cumulatively contribute to the nonattainment designations of the SoCAB. Mitigation Measure AQ-2, in addition to the goals and policies of the General Plan Update, would reduce air pollutant emissions to the extent feasible. The measures and policies covering topics such as expansion of the pedestrian and bicycle networks, promotion of public and active transit, and support

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to increase building energy efficiency and energy conservation would also reduce criteria air pollutants in the city. Further, as shown in Table 5.2-11, compared to existing baseline year conditions, emissions of NO<sub>x</sub>, CO, and SO<sub>x</sub> are projected to decrease from current levels despite growth associated with the General Plan Update.

However, Impact 5.2-3 would remain **significant and unavoidable** due to the magnitude of the overall land use development associated with the General Plan Update. Contributing to the nonattainment status would also contribute to elevating health effects associated with these criteria air pollutants. Reducing emissions would further contribute to reducing possible health effects related to criteria air pollutants.

It is speculative for this broad-based General Plan Update to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment, since mass emissions are not correlated with concentrations of emissions, or how many additional individuals in the air basin would suffer health effects. South Coast AQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of air quality in the SoCAB, and at the present time it has not provided methodology to assess the specific correlation between mass emissions generated and the effect on health in order to address the issue raised in the *Friant Ranch* case.

Ozone concentrations are dependent upon a variety of complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground-level ozone concentrations in relation to the National AAQS and California AAQS, it is not possible to link health risks to the magnitude of emissions exceeding the significance thresholds. To achieve the health-based standards established by the EPA, the air districts prepare air quality management plans that detail regional programs to attain the AAQS. However, because cumulative development within the city would exceed the regional significance thresholds, the proposed project could contribute to an increase in health effects in the basin until the attainment standards are met in the SoCAB.

**Table 5.2-11 Net Change in Regional Criteria Air Pollutant Emissions from Existing Baseline**

Sector	Criteria Air Pollutant Emissions (pounds per day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Existing Land Uses – Existing Baseline</b>						
Transportation <sup>1</sup>	831	5,596	25,067	90	1,362	602
Energy	144	1,277	845	8	100	100
Area – Consumer Products <sup>2</sup>	4,212	0	0	0	0	0
Area –Light Commercial Equipment, Portable Equipment <sup>3</sup>	154	415	6,330	1	38	31
Area – Construction Equipment	28	182	589	0	13	11.11
<b>Total</b>	<b>5,369</b>	<b>7,470</b>	<b>32,832</b>	<b>99</b>	<b>1,513</b>	<b>744</b>
<b>Proposed Land Use Plan – Forecast Year 2045</b>						
Transportation <sup>1</sup>	359	597	13,336	60	1,309	537
Energy	180	1,583	997	9.80	124	124
Area – Consumer Products <sup>2</sup>	6,156	0	0	0	0	0
Area –Light Commercial Equipment, Portable Equipment <sup>3</sup>	165	445	6,786	1	41	33

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**Table 5.2-11 Net Change in Regional Criteria Air Pollutant Emissions from Existing Baseline**

Sector	Criteria Air Pollutant Emissions (pounds per day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Area – Construction Equipment	28	182	589	0	13	11
Proposed Existing Land Uses Total	6,888	2,806	21,708	71	1,487	705
<b>Increase in Emissions</b>	1,519	-4,664	-11,124	-28	-26	-39
South Coast AQMD Regional Significance Threshold	55	55	550	150	150	55
<b>Significant?</b>	<b>Yes</b>	No	No	No	No	No

Note Emissions forecasts estimated based on changes in households (residential energy, area), employment (nonresidential energy, area), or service population (transportation).

<sup>1</sup> EMFAC2017 Version 1.0.2. Based on daily VMT provided by IBI Group. Transportation sector includes the full trip length for internal-internal trips and various trip lengths for external-internal/internal-external trips (see Appendix K). VMT per year based on a conversion of VMT x 347 days per year to account for less travel on weekend, consistent with CARB statewide GHG emissions inventory methodology (CARB 2008). The CARB adjustment factors to account for the SAFE Vehicle Rule Part One are incorporated for year 2045 emissions (CARB 2019b).

<sup>2</sup> Based on CalEEMod, Version 2016.3.2, methodology utilized to calculate VOC emissions from use of household consumer cleaning products.

<sup>3</sup> OFFROAD2017 Version 1.0.1. Light commercial equipment emissions estimated based on employment for the City of Santa Ana as a percentage of Orange County. Construction emissions estimated based on housing permit data for Orange County and the City of Santa Ana from the US Census. Area sources exclude emissions from fireplaces.

### Impact 5.2-4

Buildout of the General Plan Update could expose sensitive receptors to substantial concentrations of toxic air contaminants. Buildout could result in new sources of criteria air pollutant emissions and/or TACs near existing or planned sensitive receptors. Review of development projects by South Coast AQMD for permitted sources of air toxics (e.g., industrial facilities, dry cleaners, and gasoline dispensing facilities) would ensure that health risks are minimized. Additionally, Mitigation Measure AQ-3 would ensure mobile sources of TACs not covered under South Coast AQMD permits are considered during subsequent project-level environmental review by the City of Santa Ana. Individual development projects would be required to achieve the incremental risk thresholds established by South Coast AQMD, and TACs would be less than significant.

However, implementation of the General Plan Update would generate TACs that could contribute to elevated levels in the air basin. While individual projects would achieve the project-level risk threshold of 10 per million, they would nonetheless contribute to the higher levels of risk in the SoCAB. Therefore, the General Plan Update's cumulative contribution to health risk is **significant and unavoidable**.

### Impact 5.2-5

Mitigation Measures AQ-1 and AQ-2 (applied for Impacts 5.2-2 and 5.2-3, respectively) would reduce the regional construction and operation emissions associated with buildout of the General Plan Update and therefore also result in a reduction of localized construction- and operation-related criteria air pollutant emissions to the extent feasible. However, because existing sensitive receptors may be close to project-related construction activities and large emitters of on-site operation-related criteria air pollutant emissions, construction and operation emissions generated by individual development projects have the potential to exceed South Coast AQMD's LSTs. Impact 5.2-5 would remain **significant and unavoidable**.

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#### Impact 5.2-6

The Industrial and Industrial Flex land uses are not anticipated to produce odors,<sup>15</sup> and Mitigation Measure AQ-4 would ensure that odor impacts are minimized and facilities would comply with South Coast AQMD Rule 402. Therefore, Impact 5.2-6 would be less than significant.

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<sup>15</sup> These land uses assume that the following land uses would not be permitted: wastewater treatment plants, compost facilities, landfills, solid-waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch manufacturing plants, chemical manufacturing, and food manufacturing facilities.



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## 5. Environmental Analysis

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