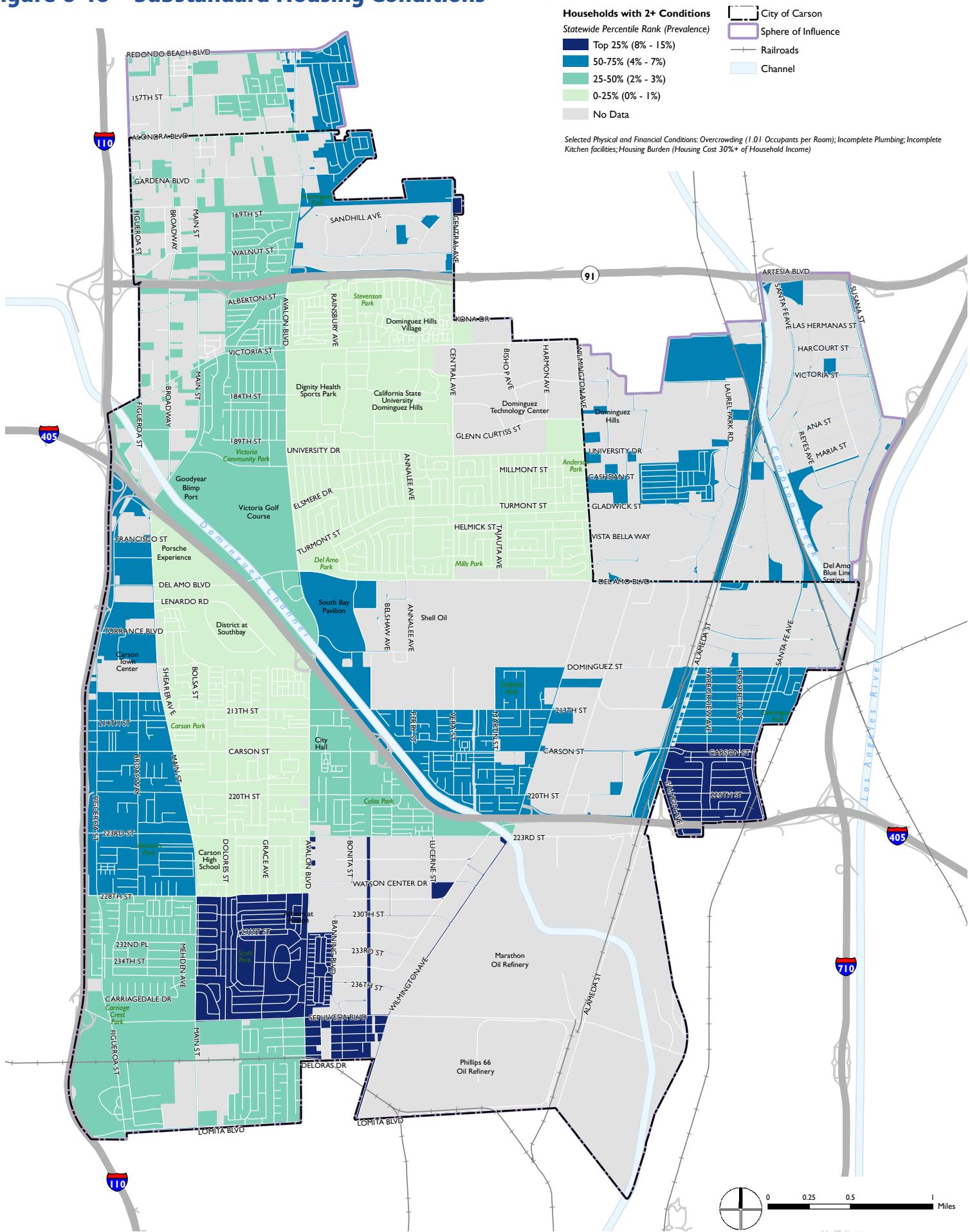


Figure 6-16 Substandard Housing Conditions



Source: American Community Survey, 2015-2019; County of Los Angeles, 2017; City of Carson, 2020; Dyett & Bhatia, 2021

6.4 Safe and Sanitary Housing

A safe and sanitary home is a fundamental component of a healthy quality of life. Two barriers to a safe and sanitary home are housing security and housing quality. Housing insecurity can disrupt school and job performance or lead to mental-health issues or homelessness, and often stems from lack of housing affordability. High housing-costs can also limit housing choice and can be a major driver of inequitable health outcomes and access to opportunity.

Housing affordability is an increasingly pressing issue in California and throughout the Los Angeles region. Rising housing costs are reflected in an increase in the proportion of households that are housing burdened—spending 30 percent or more of household income on housing costs—which has grown from 24 percent to 31 percent between 2010 and 2019, according to U.S. Census data from the American Community Survey (ACS) 5-Year Estimates. Significant housing burden—households with housing costs that are 50 percent or more of household income—affects 16 percent of residents in Carson.

HUD uses selected physical and financial housing characteristics to assess the quality of the housing inventory and its occupants. These indicators, including overcrowding (more than one person per room), incomplete kitchen facilities, incomplete plumbing facilities, and housing burden, help identify homes in which the quality of living and housing can be considered substandard. Figure 6-16 shows that some census tracts in the Planning Area have a high proportion of households that have two or more of these substandard conditions – as much as 14.8 percent.

In accordance with State law and regional regulations, the City's Housing Element helps Carson meet the number of housing units allocated to the City by the Regional Housing Needs Assessment (RHNA). The goals, policies, and programs of the Housing Element, in combination with other elements of the General Plan, are designed to accommodate the changing needs of an increasingly diverse population. For more information about housing in Carson, see the Housing Element.

6.5 Community Engagement and Investment Prioritization

EJ seeks to ensure that everyone can meaningfully participate in the decisions that affect their community. Community engagement (or civic engagement) and investment prioritization is particularly crucial in disadvantaged communities that have historically been left out of decision-making processes. By actively identifying and addressing barriers such as linguistic isolation, lack of internet or vehicle access, and other financial or physical restrictions, the City can improve public participation in decision-making.

As described in Section 6.1, Carson is a racially and culturally diverse place with a significant representation of non-white residents. Accordingly, Carson is also a linguistically diverse place: Approximately 53 percent of the population (five years and older) speak a language other than English, and the most spoken language (other than English) is Spanish, making up 29 percent of the total population over five. However, some members of the community may



Figure 6-17 Linguistic Isolation

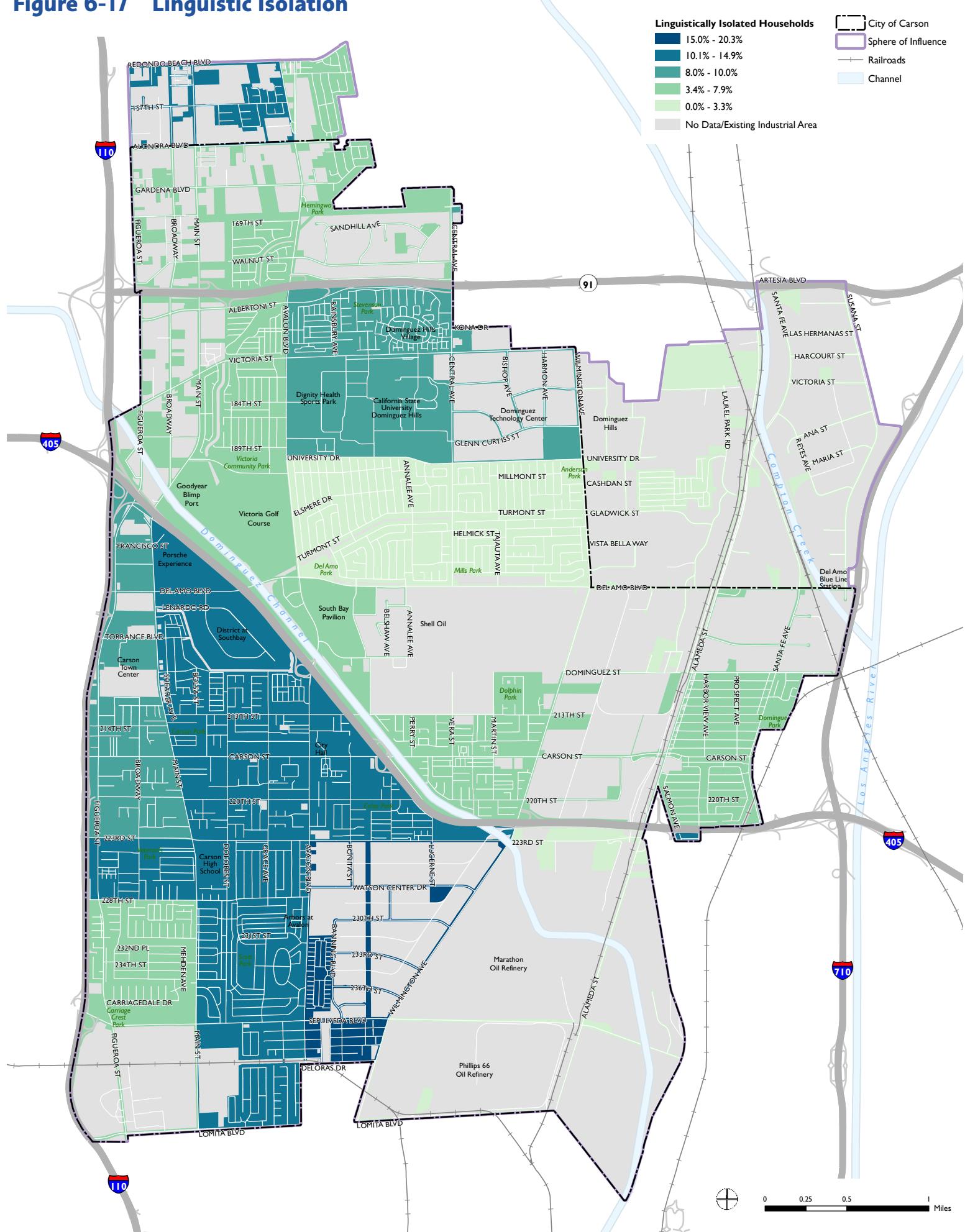
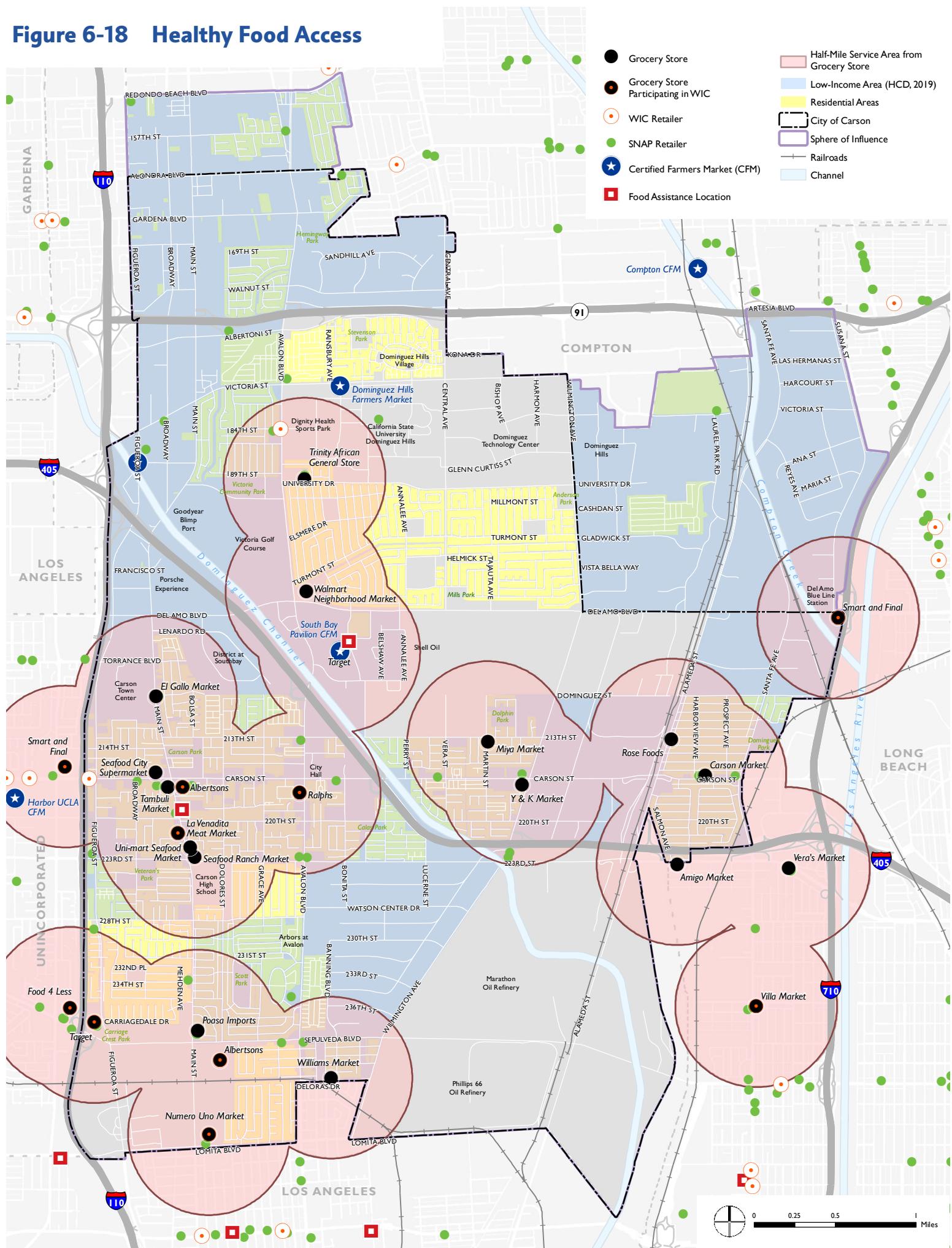


Figure 6-18 Healthy Food Access



Source: County of Los Angeles, 2017; American Community Surveys, 2015-2019; CA Department of Housing and Community Development, 2019; City of Carson, 2020; CA Department of Public Health, 2021; Dyett & Bhatia, 2021



have limited English-speaking ability, meaning that they may have trouble communicating or understanding information to meet their needs. When all members of a household have limited English-speaking ability, the household is referred to as "linguistically isolated." About 8.6 percent of households in Carson are linguistically isolated, and as mapped in Figure 6-17, these households generally tend to be more concentrated in the neighborhoods south of I-405.

Digital access is an increasingly important medium for communication and plays a key role in providing many public services. Online information and virtual public meetings can expand access to those who may not have the ability to physically obtain resources or attend events, and they can also act as an efficient platform to accommodate populations with additional needs such as those who have a disability or require translation. Additionally, 3.6 percent of households in Carson do not have access to a vehicle, and about seven percent of households are headed by a single parent. Households without convenient transportation or those unable to afford childcare may also rely on online community engagement. However, based on 2019 ACS data, 11.7 percent of households in Carson do not have access to the internet in their homes. As such, effective outreach will need to continue to respond to the diverse needs of Carson's residents.

6.6 Access to Healthy Food

According to Feeding America, food insecurity is defined as a lack of consistent access to enough food for every person in a household to live an active, healthy life and is one way to measure how many people cannot afford food. Food insecurity can seriously impact health, especially when one must choose between spending money on food or medical care. In Los Angeles County, one in nine people face hunger, and one in seven children face hunger. Some people who are food insecure may qualify to receive federal assistance or benefits from programs Supplemental Nutrition Assistance Program (SNAP, formerly known as food stamps). According to 2019 ACS estimates, 7.3 percent of households in Carson receive benefits from these programs.

Additionally, those who are food insecure may have limited access to healthy food sources such as grocery stores, farmers' markets, and community gardens. Figure 6-18 shows how grocery stores in Carson are concentrated in the southern half of the city, whereas neighborhoods in the northern portions—which overlap with low-income areas, shown in blue—are relatively underserved. Lack of a healthy retail-food environment, such as an area oversaturated with fast food vendors and liquor stores, can particularly impact low-income areas without access to nutritious foods and can exacerbate health outcomes like obesity and diabetes. Schools, public cafeterias, and food assistance locations are also important food sources that should be considered in a healthy food system.

6.7 Climate Resilience

In light of changing climate conditions and increasing frequency of natural disasters including wildfires and extreme heat events, resiliency is a key planning priority to protect the health and safety of the community. At-risk populations, including outdoor workers and seniors, are particularly vulnerable to conditions such as increasing temperatures.

Carson generally enjoys a mild climate due to its location close to the coast. However, areas with greater concentrations of heat-absorbing surfaces, including buildings, roads, and other built infrastructure, in addition to less greenery, have high temperatures in comparison to non-urban areas. This phenomenon is known as the urban heat island effect. As seen in Figure 6-19, which maps land surface temperatures obtained from satellite imagery, ambient temperatures vary throughout the city on a typical summer day in Carson. Neighborhood-level environmental conditions, including the level of development intensity

and types of land cover (e.g., water, vegetation, parking lots) at that location, can exacerbate the severity of extreme heat events that can result in heat-related illnesses.

Investment in urban forest resources—that is, increasing the urban tree canopy coverage—can be a targeted strategy to cool these areas, especially in places where vulnerable populations live or work. Additionally, creating thermally comfortable walkways can increase pedestrian activity, which supports active lifestyles and improves connectivity and accessibility. Figure 6-20 shows the existing tree canopy cover in Carson. Most of the areas with tree canopy, even as low as one percent coverage, are limited to parks, some major streets, and certain residential neighborhoods. Comparing Figures 6-19 and 6-20 also shows that areas with higher tree canopy coverage correspond with areas that have cooler temperatures despite surrounding heat pockets. A citywide tree inventory and assessment may help the City identify strategic locations for interventions to mitigate the effects of heat where they are needed most.

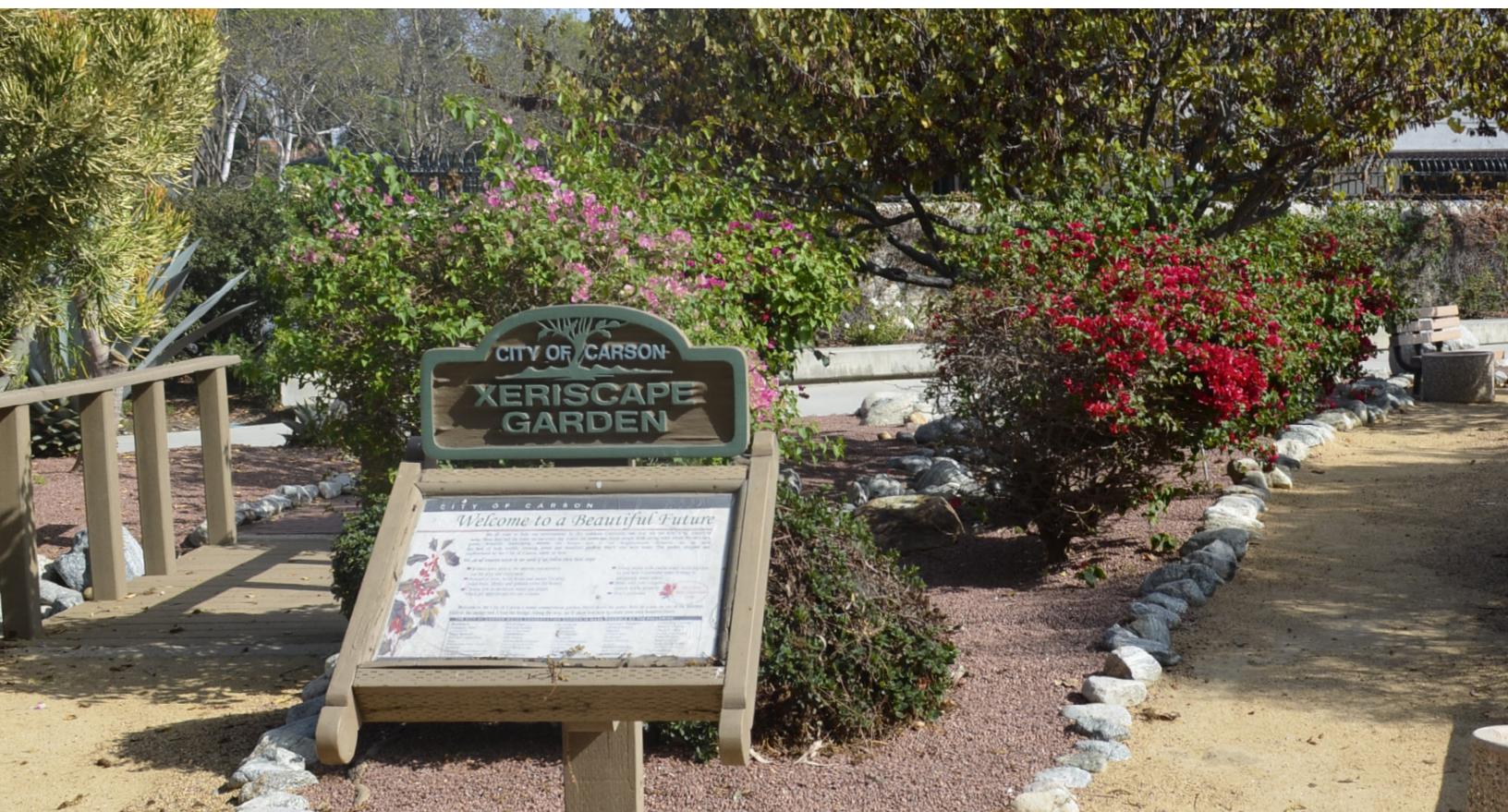


Figure 6-19 Land Surface Temperature

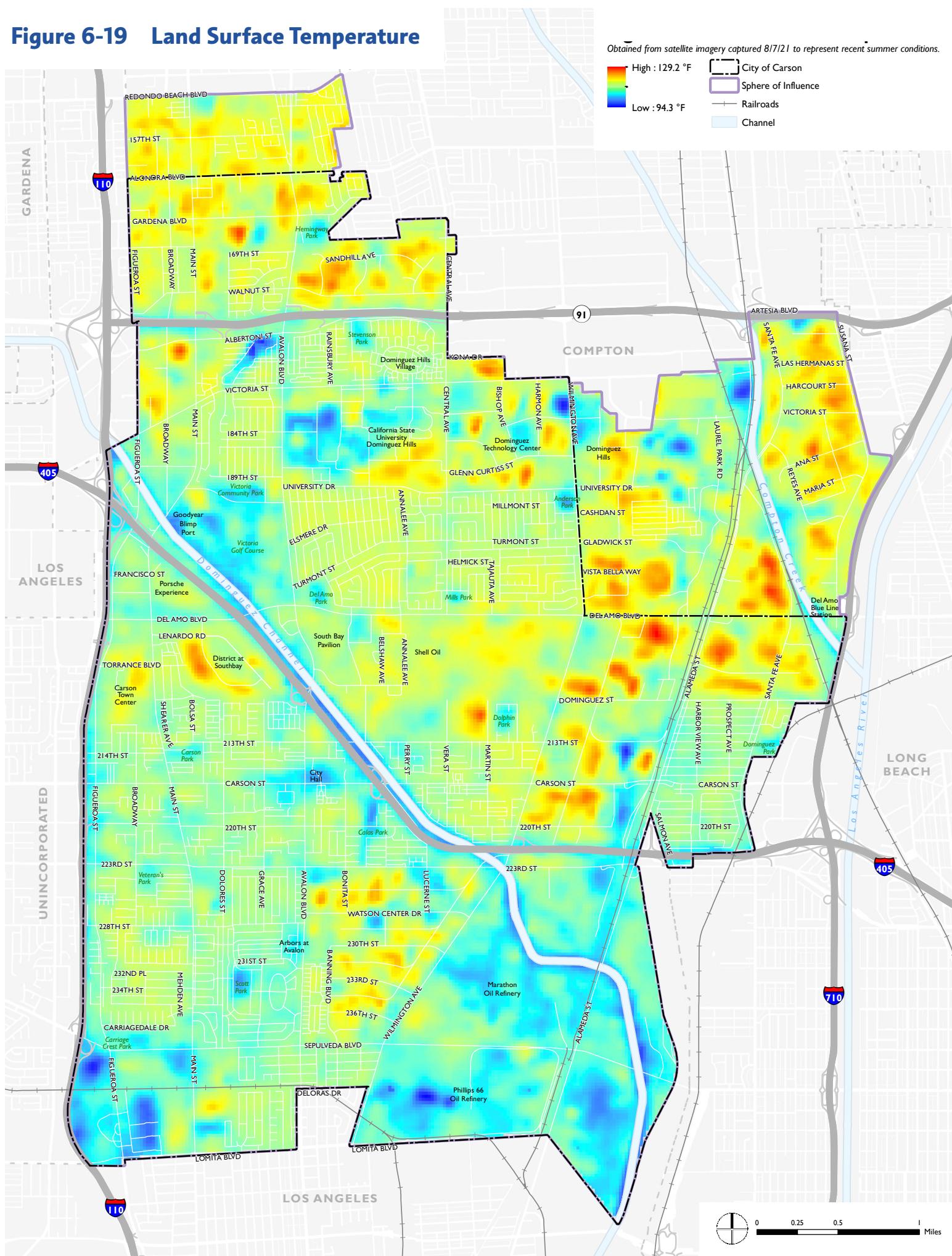
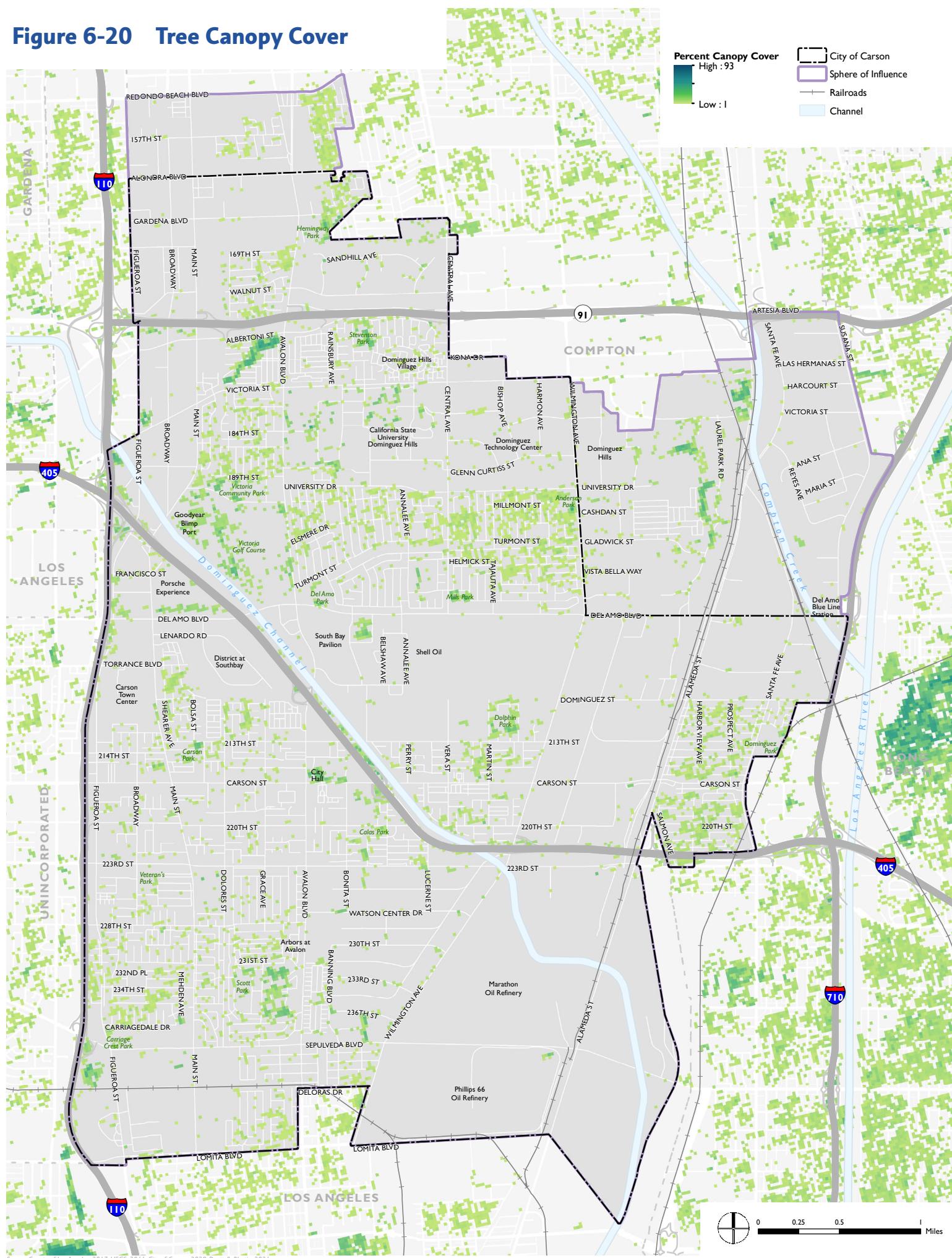


Figure 6-20 Tree Canopy Cover



Source: County of Los Angeles, 2017; USGS, 2016; City of Carson, 2020; Dyett & Bhatia, 2021.

6.8 Guiding and Implementing Policies

This section contains guiding and implementing policies that further the objectives required in an environmental justice element per State law. Environmental justice is necessarily a cross-cutting topic that intersects with many of the other elements in the General Plan including Chapter 2: Land Use and Revitalization; Chapter 3: Transportation and Connectivity; Chapter 5: Recreation and Active Lifestyle; Chapter 7: Community Services, Education, and Safety; Chapter 8: Open Space and Environmental Conservation. Policies related to housing will also need to coordinate with the Housing Element. Please see these chapters and other documents for more detail and additional goals and policies. Text in italics is for reference only and is not considered adopted policy.

GUIDING POLICIES

- CHE-G-1** Seek to improve citywide health outcomes and reduce disparities between census tracts by focusing on prevention and interventions, and by addressing the root causes of health disparities and equities in Carson.
- CHE-G-2** Reduce air pollution and the incidence of respiratory illness through the land use planning process.
- CHE-G-3** Proactively coordinate City air quality improvement activities with the South Coast Air Quality Management District and other regional programs, as well as with neighboring communities.
- CHE-G-4** Protect community health from pollution by toxics and hazardous materials, especially in areas with vulnerable or sensitive populations.
- CHE-G-5** Protect, restore, and enhance the quality of surface and groundwater resources to ensure all residents have access to healthy water.
- CHE-G-6** Explore opportunities and seek funding to remediate and redevelop brownfields as sites to spur economic development, expand natural open spaces and parks, community gardens, and other similar health-promoting community revitalization activities, particularly in underserved neighborhoods.
- CHE-G-7** Provide residents of all ages and income levels with convenient and safe opportunities for recreation and physical activities.
- CHE-G-8** Improve bike, pedestrian, and transit connectivity to community facilities and services, especially in underserved areas.
- CHE-G-9** Foster healthy, diverse neighborhoods with a robust supply of safe, sanitary, affordable, and stable housing available to residents of all ages and abilities, especially disadvantaged communities.
- CHE-G-10** Strengthen community capacity to actively participate in civic life and in development and implementation of solutions for neighborhood priorities, particularly historically underrepresented groups.
- CHE-G-11** Utilize diverse methods of outreach that promote public participation and ensure City events are communicated to all communities, especially to linguistically isolated households, households without internet access, and low-income residents.
- CHE-G-12** Support development of venues with healthy food options such as fresh produce, including farmers' markets and grocery stores.
- CHE-G-13** Promote nutrition education and access to healthy foods. Work with the school districts to promote affordable healthy foods, and fresh fruits and vegetables in schools and other public places.

CHE-G-14 Focus planning and intervention in and with communities with the highest need by ensuring that policies, services, and programs are responsive to community members who are most vulnerable to the potential impacts of climate change.

CHE-G-15 Increase investment in tree planting, incentives for green buildings and cool paving, and actively pursue the creation of new green spaces in areas with the highest heat-related vulnerability and/or highest ambient temperatures.

IMPLEMENTING POLICIES

Community Health

CHE-P-1 Regularly map the Centers for Disease Control and Prevention (CDC) National Center for Health Statistics Life Expectancy indicator to track changes in the city.

CHE-P-2 Develop intentional strategic partnerships with the Los Angeles County Department of Public Health and other public, private, and non-profit entities to improve health outcomes by leveraging capacity, resources, and programs centered on health, equity, and sustainability. Collaborate with these partners to share data and increase communication on overlapping demographics that are mutually served.

CHE-P-3 Work with the City Human Services Department and other public, private, and nonprofit partners to educate the public about health and wellness by supporting information and interventions that are readily accessible, culturally relevant, and linguistically accessible.

Pollution Exposure

For additional policies related to air quality, see Chapter 8: Open Space and Environmental Conservation. Policies in that element also seek to reduce neighborhood exposure to pollution from freeways and from other industrial activities.

CHE-P-4 Continue to enforce zoning and design standards that protect sensitive uses from the encroachment of land uses that would result in impacts from noxious fumes or toxins.

CHE-P-5 Recognize and actively promote policies to create a multimodal transportation system that reduces solo driving.

CHE-P-6 Collaborate with South Coast Air Quality Management District (SCAQMD) to coordinate policies that reduce air pollution from local sources and implement programs that leverage funding from Senate Bill (SB) 535, Assembly Bill (AB) 1550, AB 617, and other sources to improve air quality and public health.

CHE-P-7 Seek and secure funding for regular groundwater quality assessment, monitoring, management, and education regarding groundwater quality issues, particularly around known locations of groundwater threats and potential pollution sources located in disadvantaged communities.

CHE-P-8 Avoid new toxin sources by stringently evaluating the siting of facilities that might significantly increase pollution, especially near already disproportionately impacted communities.



Public Facilities and Physical Activity

- CHE-P-9** Assess service provision using a 10-minute (one-quarter mile) walkshed from parks and recreational opportunities to residential areas and identify areas that are underserved to locate new parks.
- CHE-P-10** Facilitate the location of additional transportation routes, including new bikeways, to existing recreational facilities.
- CHE-P-11** Encourage the location of parks near other community facilities such as schools, senior centers, and recreation centers. Explore opportunities to co-locate compatible facilities when possible and continue to provide access to existing recreational resources through joint-use agreements.
- CHE-P-12** Identify locations to install diagonal crosswalks in strategic locations that support pedestrian movement.
- CHE-P-13** Work with the County, non-profit, and other public and private organizations to encourage local employers to adopt healthy employee programs such as health challenges (e.g., bike-to-work days, lunchtime/worktime sponsored events), healthy food choices, and healthy work environments, as well as to provide adequate health coverage and benefits to employees.

For example, the City of Los Angeles uses a broad range of incentive programs including financial (grants, loans, reduced permit fees, etc.), technical (feasibility studies, architectural, marketing, etc.), case management (permit expediting, etc.), political (identifying key stakeholders), and other assistance to attract businesses that improve public health. Another approach the City uses is to prioritize building relationships with industries and employers that commit to providing employee benefit programs, as well as to incentivize contractors and vendors in the public bidding process who provide such programs.

Safe and Sanitary Housing

For additional policies on housing, see the Housing Element.

- CHE-P-14** Work with the Carson Housing Authority (CHA) to identify funding sources or incentives to rehabilitate or upgrade housing occupied by low-income renters and homeowners to incorporate sustainable and green building practices that support a healthier living environment such as the highest energy efficiency standards and air filtration and ventilation systems.



CHE-P-15 Coordinate with CHA and other housing agencies to ensure implementation of the Housing Element addresses environmental justice, including sanitary housing and maintenance, pollution and environmental hazards, affordability, and other community concerns.

Civic Engagement and Investment Prioritization

CHE-P-16 Support community-based organizations and other community partners that increase opportunities for community involvement in civic process by providing technical assistance, data, meeting spaces, and other support services as feasible. Develop and maintain a list of these partners to optimize coordination efforts.

CHE-P-17 Seek to incorporate culturally competent policies and practices that enable effective outreach to underrepresented communities.

Cultural competence is the application of cultural knowledge, sensitivity, and awareness of different racial, ethnic, religious, or social groups by an agency in its standards, policies, practices, and attitudes that enables them to work effectively cross-culturally. A culturally competent organization has the capacity to value diversity, conduct self-assessment, manage the dynamics of differ-

ence, acquire and institutionalize cultural knowledge, and adapt to diversity and the cultural contexts of the communities they serve. These principles should be incorporated in all aspects of policy making, administration, practice, and service delivery, and systematically involve consumers, key stakeholders, and communities.

CHE-P-18 Employ a wide range of outreach methods and activities, including pop-up events, focus groups, community workshops, and online surveys that are tailored to best reach target audiences.

CHE-P-19 Identify barriers to participation and provide methods to remove these barriers such as transportation vouchers, translation services, childcare, food, or monetary compensation.

Access to Healthy Food

CHE-P-20 Leverage financial incentives, zoning, technical assistance, and other similar programs to attract grocery store retailers in underserved areas.

Programs could include grants or loans to purchase updated equipment (such as refrigerators), publicity, and directories of healthy food outlets.

CHE-P-21 Seek to conserve or relocate supermarkets as mixed-use developments on aging strip commercial centers are undertaken.

CHE-P-22 Discourage oversaturation of unhealthy food retailers such as fast-food restaurants and liquor stores, especially in low-income communities.

CHE-P-23 Identify appropriate sites such as public or institutional lands and parking lots for farmers' markets and urban agriculture and review existing ordinances to remove barriers to establishing new farmers' markets, community gardens, and home gardens.

CHE-P-24 Explore opportunities for expanding urban agriculture such as converting underutilized industrial warehouses and factories for vertical farming and hydroponic/aeroponic growing.

Vertical farming is a type of indoor urban agriculture that utilizes large or tall buildings to grow food, taking advantage of controlled light, temperature, water, and even carbon dioxide levels to improve production without use of excessive chemicals. Hydroponic farming is a technique where soil is replaced with nutrient-rich water instead, while aeroponic farming grows plants in an air or mist environment.

CHE-P-25 Compile a list of existing resources—such as cooking classes, gardening classes, and financial support—that residents can use to gain greater access to and learn more about healthy food.

CHE-P-26 Partner with Cal State University Dominguez Hills to promote and expand access to the Campus Urban Farm and nutrition education activities.

Climate Resilience

See additional policies related to urban forestry in Chapter 8: Open Space and Environmental Conservation.

CHE-P-27 Work with community-based organizations to expand access to and awareness of cooling centers and resilience hubs that provide safe spaces during wildfires and extreme heat events, especially for outdoor workers, seniors, homeless individuals, and other vulnerable populations.

CHE-P-28 Work with the City Community Services Department to establish partnerships with nonprofits and identify funding sources to conduct an Urban Tree Canopy Assessment and establish a citywide tree canopy goal.

CHE-P-29 **CHE-P-29** Seek to plant tree species that balance sustainability and heat mitigation potential such as those that are drought-tolerant, pest-resistant, and maximize shade.

CHE-P-30 **CHE-P-30** Target heat mitigation strategies such as installation of shade structures at bus stops and in public spaces to benefit those that are most impacted and are vulnerable.



Community Services, Education, and Safety

The Community Services, Education, and Safety Element seeks to enhance the quality of life of Carson residents and promote a healthy and livable community. Public parks, public facilities, and recreational and cultural programming provide spaces for neighborly interaction and healthy living. Schools, libraries, and educational programs build informed citizens and cater to needs of all ages. Public safety services like police and fire keep the populace safe. Identification and mitigation of environmental safety concerns, like seismic and geologic hazards, fire hazards, and hazardous materials and operations are important to maintaining a safe and healthy city. Given Carson's history and continued presence of heavy industry, including oil extraction and refinement, it is critical that investments in public services and facilities are made wisely and in response to the City's existing and future needs.

This element establishes a framework to maintain and enhance public services and address hazards that affect the community, and provides for the addition of the services and facilities that ensure Carson residents' high quality of life. Other elements within the General Plan that can be referenced in tandem with this chapter include:

- **Chapter 5:** Recreation and Active Lifestyle contains information regarding community services, including parks, recreation, and community facilities.
- **Chapter 6:** Community Health and Environmental Justice contains additional information regarding public health and hazard impacts, especially to disadvantaged communities.
- **Chapter 8:** Open Space and Environmental Conservation contains other environmental factors that affect the city, including air quality, utilities, and greenhouse gas and climate impact strategies.

Where policies and actions found elsewhere in the plan are related to the achievement of the goals in this chapter, connections are cross-referenced.





The Community Services, Education, and Safety Element outlines policies to enhance the quality of life and improve safety for Carson residents such that they:

- Sustain and improve the community's social, economic, aesthetic, and environmental health;
- Promote a safe and healthy environment;
- Identify and mitigate hazards facing the community;
- Enhance Carson's environmental quality; and
- Support community facilities and education opportunities for all residents.

RELATIONSHIP TO STATE LAW

State law under Government Code Section 65302(g) requires general plans to include a safety element to identify and address hazards for the protection of the community. In accordance with State law, this chapter addresses seismic and geologic-related hazards, flood hazards, wildland and fire hazards, evacuation routes, and other hazardous materials.

RELATIONSHIP TO NATURAL HAZARD MITIGATION ACTION PLAN

In accordance with the Disaster Mitigation Act of 2000, the City adopted a Natural Hazards Mitigation Plan¹ in 2013 which includes resources and information to assist residents, public and private sector organizations, and others interested in participating in planning for natural, man-made, and technological hazards. The Mitigation Plan provides a list of activities that may assist the City in reducing risk and preventing loss from future hazard events, as well as identifies essential facilities (facilities vital to government response and recovery activities) and critical facilities (facilities that, if damaged, could cause secondary impacts, such as hazardous materials facilities) to increase preparedness. The action items address multi-hazard issues, as well as activities for earthquake, flood, and windstorm. While the General Plan provides an overview of the environmental and anthropogenic hazards that affect Carson, the Mitigation Plan provides greater analysis, context, and mitigation strategies into these hazards.

¹ https://ci.carson.ca.us/content/files_pdfs/publicsafety/NaturalHazardsMPlan/CarsonHazMit091013.pdf

Also known as a Local Hazard Mitigation Plan (LHMP), FEMA requires a hazard mitigation plan when applying for certain types of non-emergency disaster assistance. Hazard mitigation plans must be updated and re-submitted for FEMA approval every five years to maintain eligibility for funds. The LHMP supplements the General Plan to provide specific insight into hazards that the City faces along with strategies for mitigation. In addition, Government Code Section 65302(g)(4) requires that the next revision of the LHMP contain a vulnerability assessment that identifies the risks that climate change poses to the local jurisdiction, including climate adaptation and resiliency strategies.

RELATIONSHIP TO GUIDING PRINCIPLES

The Community Services, Education, and Safety Element seeks to improve services that contribute to residents' well-being as well as addressing hazards that can affect the health and safety of the community. This element most closely furthers the following guiding principles:

- **Guiding Principle 6:** Foster harmony between industrial and residential land uses.
- **Guiding Principle 7:** Improve public health and sustainability.



7.1 Educational and Community Facilities

SCHOOLS

Quality educational and community facilities and programs are foundational elements of thriving communities. In Carson, most of the kindergarten through 12th grade public education facilities and programs are provided by the Los Angeles Unified School District (LAUSD), except for Dr. Ralph Bunche Elementary School that is part of the Compton Unified School District (CUSD) and charter and private schools. As shown in Figure 7-1 and summarized in Table 7-1, there are a total of 22 public schools within the Planning Area, with 14 elementary schools (kindergarten through sixth grade), three middle schools (grade seven and eight), four high schools and alternative schools (grades nine through 12), one charter school, and three private schools. Table 7-1 shows that there is capacity available within Carson's existing school system, with a student count of 11,022 and enrollment capacity of 14,731, leaving room for a 25 percent increase in the student population. According to the 2020 LAUSD Facilities Services Division Strategic Execution Plan, the LAUSD does not plan to close or construct new school facilities in the Planning Area.

Anticipated change in enrollment under the General Plan is summarized in Table 7-1. The General Plan projects an increase in population, from around 93,100 today to 136,600 by 2040. When incorporating other demographic considerations, such as an aging population, anticipated public school enrollment from the Planning Area is expected to grow modestly – by 622 students. As there is still enrollment capacity within the existing Carson school system at each school level, new schools are unlikely to be needed; efforts should be focused on working with school districts to provide high-quality programs to existing schools and proper maintenance to existing facilities while monitoring future trends of student needs.²

2 Los Angeles Unified School District, 2020. Facilities Services Division Strategic Execution Plan. Accessed via web in March 2021. https://www.laschools.org/documents/download/about_fsd/sept/2012 Consolidated Strategic Execution Plan/2020_SEP.pdf?version_id=324074278

Figure 7-1 Existing and Proposed Educational Facilities, Community Facilities, Parks, and Recreation

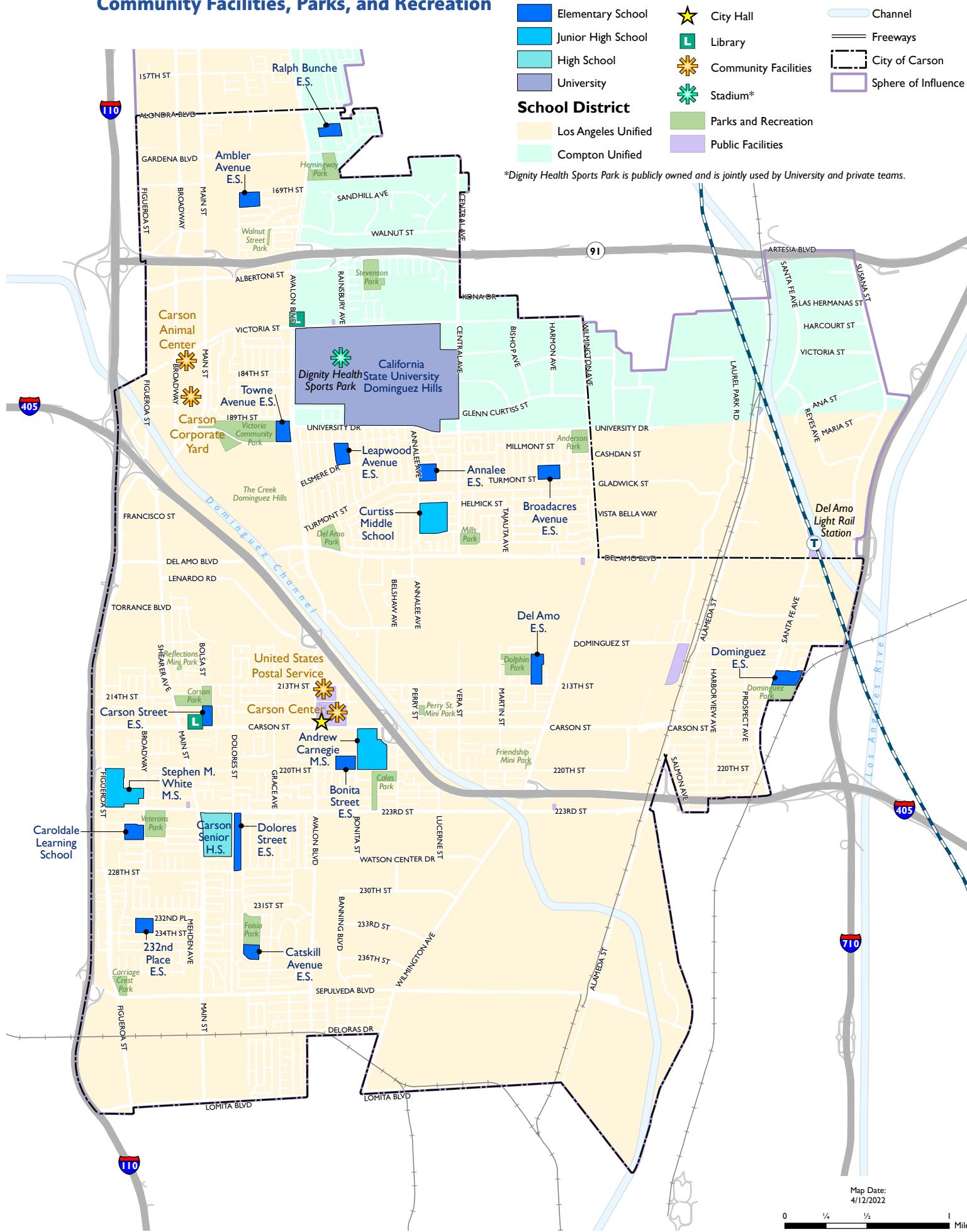


TABLE 7-1: PUBLIC SCHOOL ENROLLMENT IN CARSON

<i>School Name</i>	<i>Total Enrollment 2010-2021</i>	<i>Projected Enrollment (2040)¹</i>	<i>Enrollment Capacity</i>	<i>Capacity Remaining (2040)</i>
Elementary Schools (K-6)	5,643	6,003	7,703	+1,700
Ambler Avenue Elementary School	547	-	594	-
Annalee Avenue Elementary School	230	-	513	-
Bonita Street Elementary School	418	-	792	-
Broadacres Avenue Elementary School	267	-	385	-
Caroldale Learning Community	796	-	1,058	-
Carson Street Elementary School	669	-	811	-
Catskill Avenue Elementary School	475	-	598	-
Del Amo Elementary School	315	-	407	-
Dolores Street Elementary School	488	-	700	-
Dominguez Elementary School	501	-	574	-
Dr. Ralph Bunche Elementary School ²	N/A	-	N/A	-
Leapwood Avenue Elementary School	216	-	299	-
Towne Avenue Elementary School	309	-	451	-
Two Hundred Thirty-Second Place School	412	-	521	-
Junior High Schools (7-8)	2,816	2,878	4,058	+1,180
Andrew Carnegie Middle School	736	-	1,428	-
Glenn Hammond Curtiss Middle School	448	-	954	-
Stephen M. White Middle School	1,632	-	1,676	-
High Schools (9-12) / Alternative Schools³	2,563	2,764	2,970	+206
Academies of Education and Empowerment at Carson High School	523	-	674	-
Academy of Medical Arts at Carson High School	504	-	577	-
Carson Senior High School	1,469	-	1,566	-
Eagle Tree Continuation	67	-	153	-
Charter Schools	NA	-	N/A	-
Magnolia Science Academy 3 ⁴	NA	-	N/A	-
TOTAL	11,022	11,644	14,731	+3,086

Notes:

1. Calculation is based on project buildout, school enrollment projection is aggregated by elementary (K-6), junior high (7-8), and high school (9-12).
2. Dr. Ralph Bunche Elementary School is managed by the Compton Unified School District. Enrollment from the Planning Area and enrollment capacity are unknown at this time.
3. The alternative schools shown are listed separately by the California Department of Education but are programs that share a campus with Carson High School.
4. Enrollment information not available.

Source: Los Angeles County Unified School District Local District South, 2017; California Department of Education, 2017; Dyett & Bhatia, 2021

Having a great school system is the foundation of a great community. Schools in Carson perform at about the same level as the LAUSD and CUSD district averages, based on the academic indicators for math and English Language Arts from the California Department of Education's (CDE's) California School Dashboard for 2019.³ Compared to past years, the graduation rate in Carson has increased more than other high schools in the county. However, the average academic performance in English Language Arts of schools in Carson has decreased, despite a maintained or increased level of performance among other schools in the county. Academic performance in math has remained about the same.⁴

³ Data for the reporting year 2020 was not released or considered reliable due to impacts from the COVID-19 pandemic.

⁴ California Department of Education, "2019 Dashboard: Data Files and Record Layouts," last reviewed: December 16, 2021, accessed: February 2022.



CALIFORNIA STATE UNIVERSITY DOMINGUEZ HILLS

California State University Dominguez Hills (CSUDH) opened in 1960 and is located on a 346-acre campus bordered by Avalon Boulevard to the west, Victoria Street to the north, Central Avenue to the east, and University Drive to the south.⁵ The University offers 48 undergraduate majors and 22 graduate majors.⁶ In Fall 2015, there were 12,562 undergraduate and 2,073 graduate students enrolled. Enrollment has remained relatively constant since 2011. Approximately three-quarters of undergraduate students and half of graduate students are enrolled full-time. Additionally, the average age of a student enrolled as CSU Dominguez Hills is higher than a typical college student, at 24 years for undergraduates and 35 years for graduate students. Enrollment capacity is 20,000 full-time equivalent students (FTES). The University employs 767 academic staff and 285 administrative and finance staff. Only about 649 undergraduate students (5%) live on-campus, with housing available for 687 students.⁷

CSU Dominguez Hills released a draft 2018 Master Plan in 2017 and a Final EIR in September 2019.⁸ The Plan sets a goal for increasing student enrollment to 20,000 FTES over the next 15 to 20 years. To support that growth, CSUDH will require over 1.2 million square feet of academic and administrative space, including a new student recreation center, 1,800 student housing beds, and 6,940 parking spaces. Many of these facilities will be constructed on the 76.5 acres of land identified as underutilized on the east side of campus. To increase both enrollment and the number of students living on campus, the Plan also focuses on increasing campus-serving retail, office, and

⁵ California State University Dominguez Hills. (n.d.). University History Timeline. Online. <https://www.csudh.edu/campus-history/>. Accessed March 2021.

⁶ California State University Dominguez Hills. (n.d.). About the University. Online. <https://www.csudh.edu/about/campus-facts/>. Accessed March 2021.

⁷ California State University, Dominguez Hills (2017). 2018 Draft Master Plan. Online. https://www.csudh.edu/Assets/CSUDH-Sites/FPCM/docs/campus-master-plan/CSUDH_2018-DraftMasterPlan_Report_FINAL-DRAFT_4Aug17.pdf. Accessed March 2021

⁸ <https://www.csudh.edu/fpcm/campus-master-plan-update/>



open space and student life facilities, including an updated Student Union and intramural sports facilities. Campus infrastructure updates, such as bicycle lanes and landscaping, are outlined in the Plan. The significant investment in CSUDH outlined in the 2018 Master Plan will add jobs, population, and amenities to the City of Carson.

With plans to increase the student population by over 40 percent over the next 20 years, the CSU Dominguez Hills campus will have to update many of its facilities, increase jobs and housing, and provide amenities to attract students and faculty to the campus. This expansion provides an opportunity for Carson to capitalize on this growth by providing housing, retail, restaurants, a grocery store and other desirable uses near the campus. A higher education institute also provides opportunities for collaboration with employers, fosters new businesses, provides adult learning opportunities, and can be a cultural and educational-stimulating resource for Carson residents.

COMMUNITY FACILITIES

In addition to schools, Carson has several important community gathering places and facilities, including:

- The City administrative offices and City Hall;
- A post office;
- The Congresswoman Juanita Millender-McDonald Carson Community Center, also known as the Carson Event Center; and
- Two libraries.

There are also a multitude of parks and recreation facilities available to Carson residents that are shown in Figure 7-1 and are covered in Chapter 5: Recreation and Active Lifestyle Element.

While Carson has an adequate amount of community facilities, these need to be continually assessed to ensure they meet the city's changing demographic needs. For instance, a large senior population would indicate a need for accessible facilities and programming that appeals to seniors. A predominance of young families may suggest a need for childcare facilities.

The County of Los Angeles is spearheading redevelopment of the Victoria Golf Course into The Creek at Dominguez Hills which, if implemented, includes additional community and educational facilities. According to the project's environmental impact report, multiple community facilities are envisioned as part of the project, including a multi-use indoor sports complex, youth learning experience facility, clubhouse, community park, open space areas, putting green, and jogging path . Although many of the amenities will be pay-to-play, at least 35 acres of open space and two miles of jogging and walking trails on the site will be publicly accessible at no charge.⁹ The General Plan supports this effort as an excellent amenity for Carson and County residents.

⁹ County of Los Angeles. The Creek at Dominguez Hills Project Draft Environmental Impact Report. May 2019. Available: https://parks.lacounty.gov/wp-content/uploads/2020/11/00_Creek-FEIR_Combined.pdf. Accessed: December 2021.

7.2 Public Safety Services

For more in-depth discussion of existing police and fire services in Carson, see Draft EIR Section 3.13: Public Services.

POLICE SERVICE

Police services in Carson are provided by the Los Angeles County Sheriff's Department (LASD). The Carson Station of the LASD is headquartered at 21356 South Avalon Boulevard, in close proximity to Carson City Hall and the Carson Community Center (shown in Figure 7-2). The station serves Carson, Gardena, Torrance, Rancho Dominguez, and other unincorporated areas. According to the LASD, the Carson Station provides a full range of police services with 184 sworn officers and 39 professional staff, responding to almost 37,600 calls for service in the 2020 calendar year.¹⁰

Although the City of Carson does not have its own police force, changes in facilities or staffing are determined based on the contract between the City and LASD. The General Plan supports coordinating with the County to ensure that Carson has adequate police service for a safe and healthy community.

PUBLIC SAFETY SERVICES CENTER

The Public Safety Services Center is an extension of the City of Carson Public Safety Department and the Sheriff's Department Community Relations Office. It is designed to promote crime prevention awareness and increase service accessibility to the community, plus provide additional neighborhood and personal safety, crime prevention, and disaster preparedness services through the Community Emergency Response Team (CERT). The Public Safety Services Center also provides referrals, resources, and information related to community services, like code enforcement, youth and senior services, as well as domestic violence and gang prevention.

¹⁰ Los Angeles County Sheriff's Department, Population and Geographic Data 2020, <http://shq.lasdnews.net/CrimeStats/yir9600/yir2020/dept/89.htm>, accessed April 18, 2022.

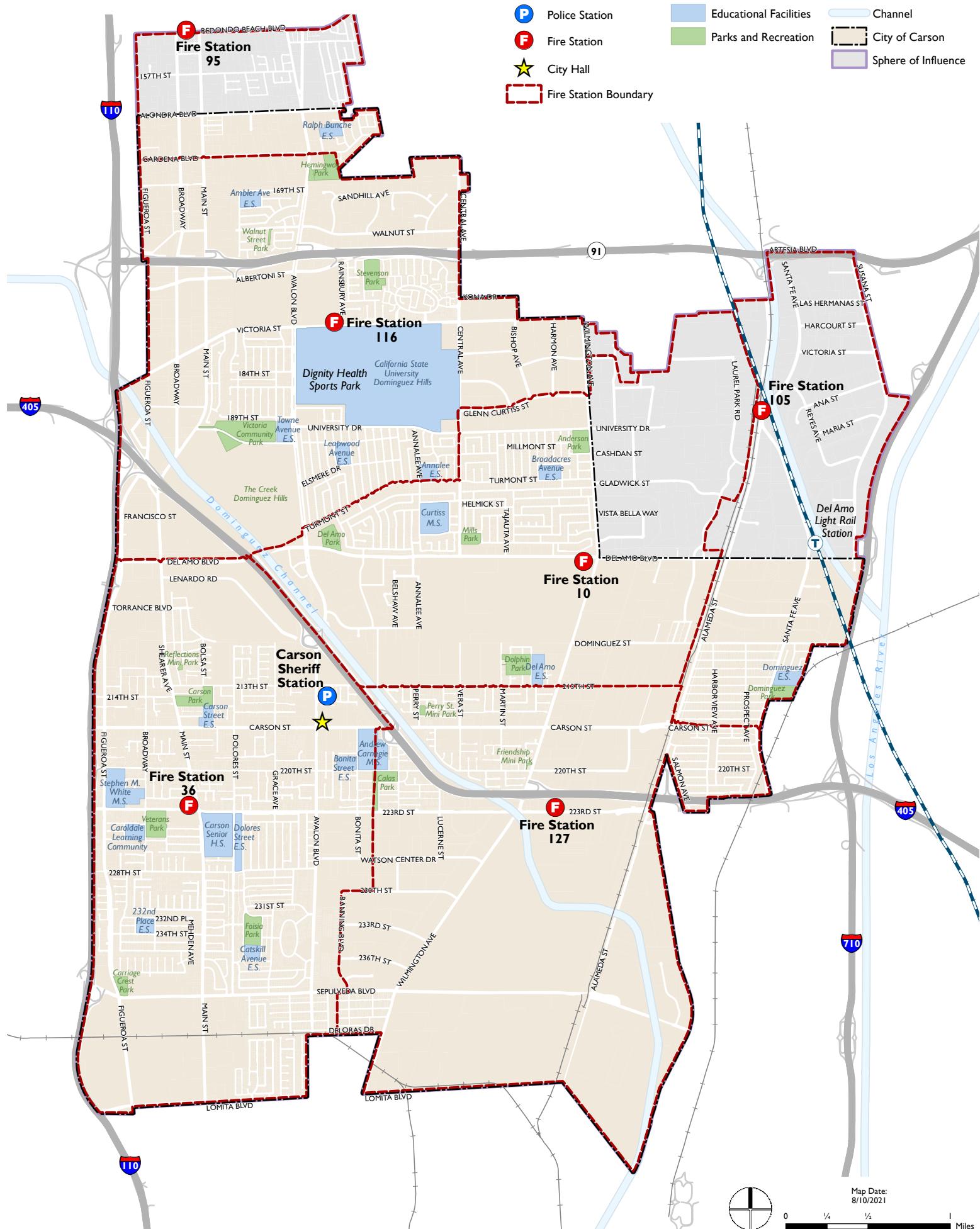
CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED)

Design of the built environment can also help prevent crime, reduce the fear of crime, and improve the quality of life in urban areas. Research has shown that the most effective deterrent to criminal activity is the risk of being caught, and design of public spaces that places more eyes on the street and limits access points can create safer environments. Strategies for Crime Prevention Through Environmental Design (CPTED) include locating windows to overlook sidewalks and parking lots, increasing pedestrian and bicycle traffic, and selectively installing fencing, landscaping, or lighting to control access. Well-maintained buildings and grounds also signal alert, active owners and can deter criminal activity. Removing "harsh" environmental stressors, such as barbed wire fencing, fenced-off compounds or gated communities, reducing bare concrete walls, and softening the landscape through trees and greenery, can support a healthier and attractive environment while increasing community safety. As Carson grows in the coming years, the challenge will be to remain alert and responsive to changes that influence crime prevention efforts while balancing departmental expenses and community expectations.

FIRE SERVICE

The Los Angeles County Fire Department (LACFD) provides fire protection and emergency medical services as well as urban search and rescue, and air operations, and respond to hazardous material release incidents. LACFD services about 2,300 square miles, including 58 cities and unincorporated communities; and about 4 million residents. The Planning Area is part of Division 1 of the LACFD, and there are five fire stations staffed by 40 members stationed in the Planning Area. These stations are shown in Figure 7-2.

Figure 7-2 Public Safety Services





FIRE HAZARDS

Fire Hazard Severity Areas in Los Angeles County are designated by the California Department of Forestry and Fire Prevention and the LACFD within the City of Carson. Fire hazard severity zones range from Moderate to Very High.

The City of Carson is classified as a Local Responsibility Area (LRA), meaning that a city or county is financially responsible for wildfire suppression.¹¹ As the city is located in an urban environment, the type of fires the city usually deals with is structural fires. Urban fires represent a significant risk as fires in industrial areas could result in the release of hazardous toxic substances, fires in high occupancy buildings present safety problems, and fires spread by wind driven embers can threaten whole neighborhoods where roofing materials are not fire resistant. Explosions and fire from complex industrial facilities, such as refineries, pose a significant safety and health risk to Carson residents and employees. The explosion at Marathon Petroleum refinery in February 2020 is one example of fire hazard risks that the city faces.

EMERGENCY RESPONSE

Emergency response plans include elements to maintain continuity of government, emergency functions of governmental agencies, mobilization and application of resources, mutual aid, and public information. Emergency response plans are maintained at the federal, state and local level for all types of disasters, including human-made and natural. It is the responsibility of government to undertake an ongoing comprehensive approach to emergency management in order to avoid or minimize the effects of hazardous events. Local governments have the primary responsibility for preparedness and response activities. The Los Angeles County Office of Emergency Management (OEM) maintains the Los Angeles County Operational Area Emergency Response Plan and the County of Los Angeles All-Hazard Mitigation Plan. OEM leads and coordinates disaster plans and disaster preparedness exercises for all cities and 288 special districts in Los Angeles County.

¹¹ California Department of Forestry and Fire Protection, 2007. Los Angeles County Fire Hazard Severity Zones in SRA. Online. http://frap.fire.ca.gov/webdata/maps/los_angeles/fhszs_map.19.jpg, Accessed December 2017.

The City of Carson is located within Area E, Los Angeles County (southeast section), Region 1, Southern Administrative Region of the State Office of Emergency Services.¹² City staff has been designated to coordinate all State Emergency Management System (SEMS) functions. The City has its own Public Safety, Engineering Services, Community Development, Facilities and Maintenance, Finance, Human Resources, and Recreation and Community Services Departments, but does not have its own police or fire department. It relies on the County of Los Angeles for these services. During the response phase, the Carson Sheriff's Station EOC or Watch Commander serves as the coordination and communication point, and the access to the Los Angeles County Operational Area.¹³

EVACUATION ROUTES

Evacuation of the city, if necessary due to an emergency, would be conducted by the Los Angeles County Sheriff's Department in accordance with the City's Evacuation Plan. The primary Emergency Operations Center (EOC) is City Hall. Should City Hall be damaged, an alternate EOC would be activated. The City has also created a list of numerous locations within the City of Carson that would be used in case of a disaster or major emergency, referred to as Casualty Collection Points.¹⁴ The city's approximation to four major freeways (I-405, SR-91, I-110, and I-710) help serve as potential evacuation routes during a disaster. Figure 7-3 shows Carson's evacuation routes.

State law under Government Code Section 65302(g)(5) requires identification of residential developments in any hazard area identified in the safety element that do not have at least two emergency evacuation routes. As Carson is a fully built city that is well connected with road infrastructure, there are no specific areas of concern for meeting this standard on evacuation routes.

12 City of Carson, 2002. Carson General Plan Environmental Impact Report Public Review Draft. Online. <http://ci.carson.ca.us/content/files/pdfs/planning/generalplan/EIR.pdf>, Accessed December 2017.

13 City of Carson, 2002. Carson General Plan Environmental Impact Report Public Review Draft. Online. <http://ci.carson.ca.us/content/files/pdfs/planning/generalplan/EIR.pdf>, Accessed December 2017.

14 City of Carson, 2002. Carson General Plan Environmental Impact Report Public Review Draft. Online. <http://ci.carson.ca.us/content/files/pdfs/planning/generalplan/EIR.pdf>, Accessed December 2017.

7.3 Seismic and Geologic, and Soil and Ground Surface Hazards

Like many California communities, Carson faces seismic and geological hazards. This section describes potential safety risks associated with fault rupture, ground shaking, liquefaction, soil erosion or the loss of topsoil, expansive soils, and landform/landslide within the Planning Area. Detailed information about geology and impacts can be found in the General Plan Environmental Impact Report and the Existing Conditions Report.

FAULTING AND SEISMICITY

Southern California is a seismically-active region. The city is located between two major, active faults: the Newport-Inglewood-Rose Canyon Fault to the east and northeast and the Palos Verdes Fault to the west and southwest. The predominant tectonic activity associated with these and other faults within the regional tectonic framework is right-lateral, strikeslip and/or reverse movement. Other potentially active fault zones in proximity to Carson include the Elsinore-Whittier Fault Zone, the Santa Monica Fault Zone, the San Jacinto Fault Zone and the San Andreas Fault Zone. An earthquake event on one of the active or potentially active faults near the city could result in strong ground shaking, which could affect structures in the city.

The Avalon-Compton Fault, part of the Newport-Inglewood – Rose Canyon Fault Zone, is the only active fault located in the Planning Area, shown in Figure 7-4. The Avalon-Compton Fault is located immediately east of Avalon Boulevard and north of SR-91. Historically, the Avalon-Compton Fault and regional shear zone has moderate to high seismic activity with numerous earthquakes greater than Richter magnitude four. The Newport-Inglewood Fault extends from the southern edge of the Santa Monica Mountains southeastward to an area offshore of Newport Beach. The Newport-Inglewood Fault Zone is considered active based on historic earthquakes; the 1933 Long Beach Earthquake is attributed to the Newport-Inglewood Fault Zone. The maximum probable earthquake along this fault zone is between 6.0 and 7.4.¹⁵

15 Southern California Earthquake Data Center, 2013. Significant Earthquakes and Faults, Newport-Inglewood Fault Zone. Online. <http://scedc.caltech.edu/significant/newport.html>. Accessed June 2021.

Figure 7-4 Steep Slopes and Seismic and Geologic Hazards

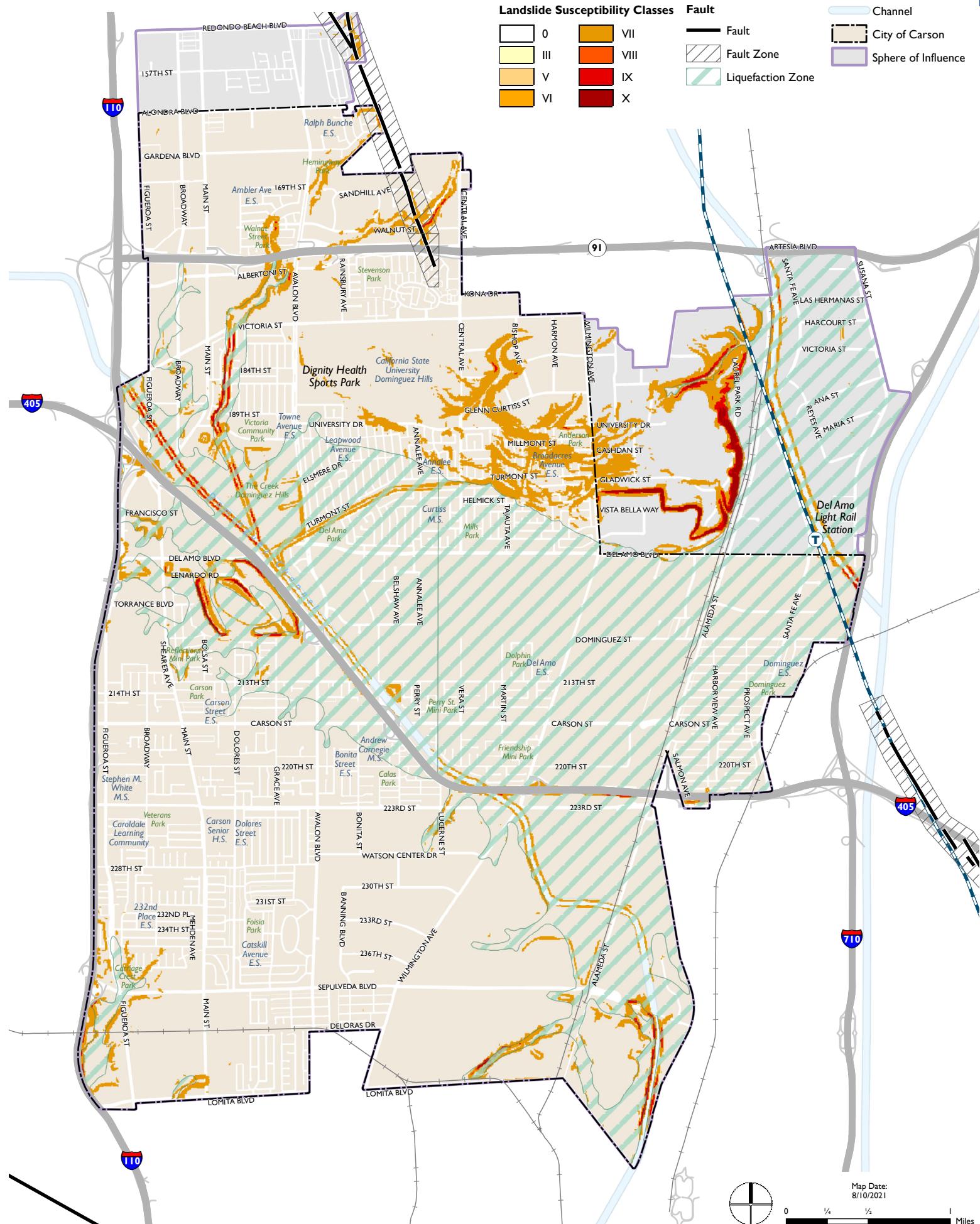


TABLE 7-2: PRINCIPAL REGIONAL ACTIVE FAULTS

Fault	Approximate Fault Distance to Site* Miles (Kilometers)	Maximum Moment Magnitude (M_{max})
Avalon Compton Fault (Newport-Inglewood – Rose Canyon Fault Zone)	0 (0)	6.9
Palos Verdes	1.7 (2.8)	7.1
Whittier-Elsinore Fault Zone	13.0 (20.9)	6.8
Santa Monica Fault Zone	14.8 (23.8)	6.6
San Jacinto Fault Zone	51.4 (82.3)	6.7
San Andreas Fault Zone	59.9 (96.3)	7.3

Notes:

* Distances represent the closest portion of the listed fault to the closest geographic portion of the City and were measured with Google Earth and Quaternary Fault Data from the USGS.

Sources: California Department of Conservation Open-File Report 96-08 Probabilistic Seismic Hazard Assessment for the State of California, 2017

Given the limited presence of known faults in the Planning Area, the potential for seismic hazards in Carson is relatively low, although there is a potential for greater damage from potential earthquakes in the greater Southern California region. These hazards may be addressed through adherence with existing building codes including the requirements of California Building Code Chapter 18, and State and local regulations, though exposure to seismic risks cannot be completely eliminated. Additionally, due to the presence of refineries and heavy industry within Carson, understanding the location of fault lines is a critical component of a safe community.

SURFACE FAULT RUPTURE

Surface fault rupture can occur during significant seismic events. The process generally involves the sudden failure and displacement of the earth's surface along a fault trace or fault zone. The magnitude and geometry of such ground displacement is highly variable. Buildings or other manmade structures that lie atop the fault can experience serious damage or catastrophic failure during a strong earthquake.

Distances from the Planning Area to the active faults described above are presented in Table 7-2. These distances represent the closest portion of the listed fault to the closest geographic portion of the city. If an earthquake would occur along the Avalon Compton Fault which runs through

the northeastern part of the city, fault rupture could occur along that fault line. To prevent the construction of buildings used for human occupancy on the surface trace of active faults, the Alquist-Priolo Earthquake Fault Zoning Act was passed to address the hazards of surface fault rupture. Carson has an Alquist-Priolo Fault Zone in the northeastern portion of the city which starts within the City Limits at East Alondra Boulevard and terminates about halfway between Artesia Boulevard and Victoria Boulevard in the old Dominguez Oil Field.¹⁶ This Alquist-Priolo Fault Zone is for the Avalon Compton Fault.

SEISMIC GROUND SHAKING

An earthquake of moderate to high magnitude generated within the area could cause significant ground shaking within the city. The exact degree of shaking experienced at a given location would depend on a host of site-specific factors, such as: the magnitude of the seismic event, the duration of the seismic event, the distance from a given site to the zone of rupture (i.e., hypocenter), local site-specific geologic conditions (i.e., nature, thickness, and ex-

¹⁶ California Geological Survey, 1986. Earthquake Zones of Required Investigation Inglewood Quadrangle. Online. http://gmw.conservation.ca.gov/SHP/EZRIM/Maps/INGLEWOOD_EZRIM.pdf and Earthquake Zones of Required Investigation Torrance Quadrangle. Online. http://gmw.conservation.ca.gov/SHP/EZRIM/Maps/TORRANCE_EZRIM.pdf, Accessed June 2021.

tent of underlying soil and/or bedrock), and broader, often regional geologic factors such as basin geometry. In general, the severity of seismic ground shaking tends to abate with increasing distance from the event hypocenter. Seismic ground shaking, if sufficient intense and sustained, can result in significant damage to, or catastrophic failure of buildings or other man-made structures.

Seismic activity along nearby or more distant fault zones is likely to cause ground shaking within the City Limits. If an earthquake were to occur, residents of the city could expect to feel potential ground shaking at a Modified Mercalli intensity of VII, very strong shaking with moderate damage,¹⁷ with a chance of damage at 2 to 5 percent.¹⁸

EARTHQUAKE-INDUCED SEISMIC LIQUEFACTION AND LANDSLIDE ZONES

Liquefaction is a process whereby strong seismic shaking causes unconsolidated, water-saturated sediment to temporarily lose strength and behave as a fluid. This process can lead to near-surface or surface ground failure that can result in extensive damage to or catastrophic failure of buildings, roads, utility lines, and other man-made structures. Liquefaction can manifest as lateral ground spreading or flow, localized sand boils (i.e., eruptions of fluidized sediment), or rapid subsidence and an accompanying loss of bearing strength.

Earthquake-induced landslides are a secondary earthquake hazard that occurs from ground shaking. They can destroy roads, buildings, utilities, and other critical facilities necessary to respond and recover from an earthquake. Many communities in Southern California have a high likelihood of encountering such risks, especially in areas with steep slopes.

17 United States Geological Survey, 2016. USGS Forecast for Ground Shaking Intensity from Natural and Induced Earthquakes in 2016. Online. https://earthquake.usgs.gov/hazards/induced/images/MMI_2016.pdf. Accessed November 2017.

18 United States Geological Survey, 2017. New USGS maps identify potential ground-shaking hazards in 2017 from both human-induced and natural earthquakes in the central and eastern U.S. Online. <https://www.usgs.gov/news/new-usgs-maps-identify-potential-ground-shaking-hazards-2017>. Accessed November 2017.

Carson has several liquefaction hazard areas but does not have any areas identified as landslide hazard areas.¹⁹ The liquefaction hazard areas are primarily located near water, primarily alluvial and former slough areas. A significant portion of the Planning Area has been designated as liquefaction hazard zones and development in these areas requires a geotechnical investigation report as part of the environmental and building permit process. The Liquefaction Hazard Zones, shown in Figure 7-4, are located in the southwestern corner between I-110 and Figueroa Boulevard from Lomita Boulevard up to 234th Street, with another small branch following Lomita Boulevard to Main Street. The larger Liquefaction Hazard Zone is located in the central part of the city along the Dominguez Channel and the Los Angeles River in the eastern portion of the city.

Ground cracking, ground lurching and lateral spreading are secondary features resulting from strong to moderately strong ground shaking and may be associated with liquefaction. Ground cracking usually occurs in near-surface materials, reflecting differential compaction or liquefaction of underlying materials. The potential for ground cracking exists in those areas of the city that have a moderate to high potential for liquefaction. Ground lurching results when soft, water-saturated surface soils are thrown into undulatory motion. Lateral spreading (a form of landsliding) is referred to as limited displacement ground failure, often associated with liquefaction. Compact surface materials may slide on a liquefied or low shear strength layer at a shallow depth, moving laterally several feet down slopes of less than two degrees. Such a condition may be present where conditions conducive to shallow liquefaction exist.

Seismically related slope stability problems include landslides, rockfalls, mudslides and avalanches. Due to the relative absence of significant elevation changes in the city, slope instability is limited to the slopes adjacent to the flood control channels that intersect the city.

19 California Geological Survey, 1986. Earthquake Zones of Required Investigation Inglewood Quadrangle. Available at: http://gmw.conervation.ca.gov/SHP/EZRIM/Maps/INGLEWOOD_EZRIM.pdf and Earthquake Zones of Required Investigation Torrance Quadrangle. Online. http://gmw.conervation.ca.gov/SHP/EZRIM/Maps/TORRANCE_EZRIM.pdf, Accessed November 2017.

TABLE 7-3: GENERAL PHYSICAL PROPERTIES OF SOILS IN THE CARSON AREA

<i>Soil Association</i>	<i>Soil Type</i>	<i>Erosion Potential</i>	<i>Shrink/Swell Potential</i>
Ramona	Sandy loam, fine sandy loams, and sandy clay loam	Low -Moderate	High
Yolo	Gravelly sandy loam, sandy loam, clay loam	Low -Moderate	Moderate
Hanford	Fine sandy loam	Low	Low
Oakley	Fine sand	Moderate - High	Low
Chino	Silt loam	Low	Moderate

Sources: Los Angeles County General Plan Update Draft Environmental Impact Report, 2014

SOILS AND GROUND SURFACE

Soil surveys of the Los Angeles area have identified as many as 17 different soil types in the region.²⁰ Soils in Carson range from sand to clay loam soil types. As shown in the County of Los Angeles General Plan Update EIR, the City is primarily underlain by Ramona loam and sandy loam, Yolo gravelly sandy loam, sandy loam, fine sandy loam, and clay loam, Hanford fine sandy loam, Oakley fine sand, and Chino silt loam.²¹ In general, sandy soils typically have low cohesion, and have a relatively higher potential for erosion from surface runoff when exposed in cut slopes or utilized near the face of fill embankments. Surface soils with higher amounts of clay tend to be less erodible as the clay acts as a binder to hold the soil particles together. Table 7-3 depicts the physical properties of soil in the Planning Area.

Other geologic hazards that have the potential to occur in and around Carson include differential settlement, subsidence, and shrink/swell potential. Differential settlement occurs in loose, cohesionless sediments where differences in densities in adjacent materials lead to different degrees of compaction during ground shaking. In the case

of saturated cohesionless sediments, post-earthquake settlement may occur when excess pore-water pressures generated by the earthquake dissipate. Given the lateral and vertical variation of the alluvial soils underlying Carson, differential sediment could occur as a result of an earthquake in areas thought to have a low susceptibility to settlement.

SUBSIDENCE

Subsidence is characterized as a sinking of ground surface relative to surrounding areas and can generally occur where deep soil deposits are present. Subsidence in areas of deep soil deposits is typically associated with regional groundwater withdrawal or other fluid withdrawal from the ground such as oil and natural gas. Subsidence can result in the development of ground cracks and damage to subsurface vaults, pipelines and other improvements.

Historically, subsidence has occurred in Carson due to the withdrawal of oil from the Wilmington oil field which is located within the city. Subsidence extended along the Newport-Inglewood structural zone between Signal Hill and the Port of San Pedro on the south and Redondo Beach on the north. Total subsidence reached a maximum of 29 feet over the crest of the Wilmington anticline, where most of the oil had been withdrawn. There is no documented ground subsidence associated with the Dominguez oil field, also located in the city. By the early 1980s, water injection halted subsidence at the oil fields and, subsequently, no further subsidence has been documented.²²

20 4 USDA Bureau of Soils (now Natural Resource Conservation Service), 1903. Soil Survey of the Los Angeles Area, California, Mesmer, Louis B.

21 County of Los Angeles, 2014. Los Angeles County General Plan Update Draft Environmental Impact Report. Map of Prominent Soil Types in Los Angeles County, Pg. 5.6-7. Online. http://planning.lacounty.gov/assets/upl/project/gp_2035_deir.pdf, Accessed November 2017.

22 State of California Regional Water Quality Control Board, 2014. Former Kast



SOIL EROSION

Soil erosion refers to the process by which soil or earth material is loosened or dissolved and removed from its original location. Erosion can occur by varying processes and may occur in the city where bare soil is exposed to wind or moving water (both rainfall and surface runoff). The processes of erosion are generally a function of material type, terrain steepness, rainfall or irrigation levels, surface drainage conditions, and general land uses. As depicted in Table 7-3, soils within the City of Carson generally have low to moderate erosion potential, with the exception of the Oakley sand which has a moderate to high erosion potential.

COMPRESSIBLE/COLLAPSIBLE SOILS

Compressible soils are generally comprised of soils that undergo consolidation when exposed to new loading, such as fill or foundation loads. Soil collapse is a phenomenon where the soils undergo a significant decrease in volume upon increase in moisture content, with or without an increase in external loads. Buildings, structures, and other improvements may be subject to excessive settlement-related distress when compressible soils or collapsible soils are present. The city is underlain by older alluvial deposits which are generally unconsolidated, reflecting a depositional history without substantial loading, and may be subject to collapse. Due to the presence of potentially compressible or collapsible soils within the city, the potential exists for differential settlement, which can destabilize areas of hardscape or building components.

EXPANSIVE SOILS

Expansive soils include clay minerals that are characterized by their ability to undergo significant volume change (shrink or swell) due to variation in moisture content. Sandy soils are generally not expansive. Changes in soil moisture content can result from rainfall, irrigation, pipeline leakage, surface drainage, perched groundwater, drought, or other factors. Volumetric change of expansive soil may cause excessive cracking and heaving of structures with shallow foundations, concrete slabs-on-grade, or pavements supported on these materials. As shown in Table 7-3, soils within the City of Carson generally have low to moderate shrink/swell potential, except for the Ramona clay loam which has a high potential. Sandy soils typically have a low expansion potential and clayey soils are typically expansive.

CORROSIVE SOILS

The geologic environment within the City of Carson could include soil conditions potentially corrosive to concrete and metals. Corrosive soil conditions may exacerbate the corrosion hazard to buried conduits, foundations, and other buried concrete or metal improvements. Corrosive soils could cause premature deterioration of these underground structures or foundations.

7.4 Flood Hazards

Topography within the City of Carson is generally flat with elevations ranging from sea level to approximately 195 feet above mean sea level (msl) at the top of Dominguez Hills. Carson is divided by the Dominguez Channel which is used for regional flood control. Floodplains are defined as an area of low-lying ground adjacent to a stream or river, stretching from the banks to the outer edges of the valley and subject to flooding. The City has floodplains around the Dominguez Channel. The main source of flooding in Carson is from localized urban flooding caused by severe weather.

The Federal Emergency Management Agency (FEMA) is responsible for administration of the National Flood Insurance Program (NFIP) which creates flood zone insurance maps called a Flood Insurance Rate Map (FIRM). FIRM identify flood hazards within a community. The City of Carson encompasses five FIRM panels.²³ As

23 Federal Emergency Management Agency, 2008. Flood Insurance Rate Map. Map Numbers 06037C1935F, 06037C1965F, 06037C1955F, 06037C1795F, and 06037C1965F. Online. <http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=cbe088e7c8704464aa0fc34eb99ef30&extent=-118.3526907300362,33.80927373190949,-118.18652251714582,33.856329500125554>. Accessed December 2017.

shown on Figure 7-5 the majority of the central and eastern part of the city are located within an area of an annual chance flood of 0.2 percent (Zone X). The city also has Special Flood Hazard Areas (SFHAs) which are subject to inundation by the 1 percent annual flood chance (100-year flood). The SFHAs within the city are Zoned A, no base flood elevations determined, and are located on either side of the Dominguez Channel, Torrance Lateral, Del Amo Channel, McKinley Avenue Drain, and Wilmington Drain and Compton Creek.²⁴

Due to the flat topography of the city and its distance from water bodies, Carson is not significantly subjected to other water-related hazards like tsunamis, dam inundation/failure, or mudflows. However, the slopes adjacent to the flood control channels that intersect the city, if not concrete, could see minor mudflows due to the loose unconsolidated nature of the sediments.

24 Federal Emergency Management Agency, 2008. Flood Insurance Rate Map. Map Numbers 06037C1935F, 06037C1965F, 06037C1955F, 06037C1795F, and 06037C1965F. Online. <http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=cbe088e7c8704464aa0fc34eb99ef30&extent=-118.3526907300362,33.80927373190949,-118.18652251714582,33.856329500125554>. Accessed December 2017.

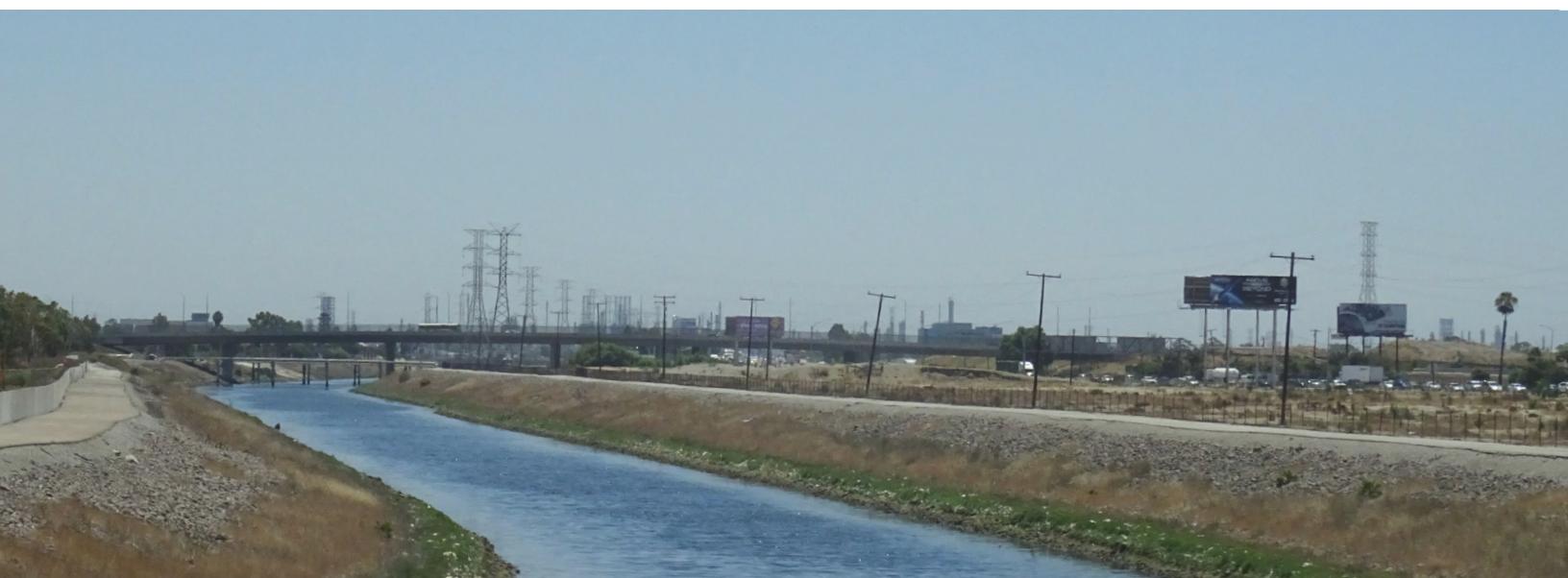
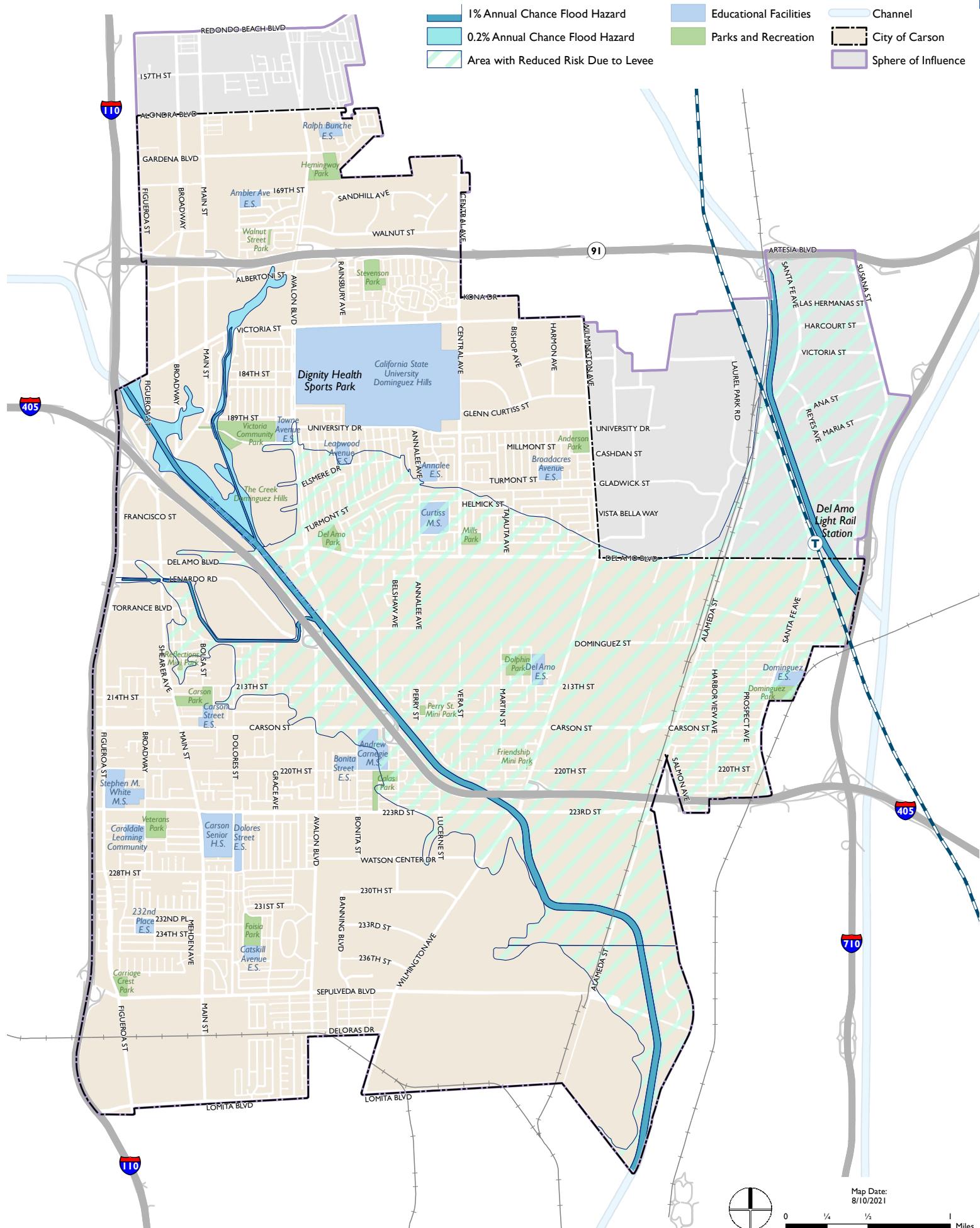


Figure 7-5 Flood Zones

7





7.5 Hazardous Materials

For more in-depth discussion of existing conditions in Carson, see Existing Conditions Report, 2018, Section 6.5: Hazards and Hazardous Materials, and Draft EIR Section 3.8: Hazards and Hazardous Materials.

Hazardous materials generally refer to hazardous substances that possess corrosive, poisonous, flammable, and/or reactive properties and that have the potential to harm human health and/or the environment. Hazardous materials are governed by a variety of environmental regulations that require proper storage, handling, and transportation; employee and public notices; spill contingency planning; business/environmental management plans; and other emergency response measures necessary to ensure public safety and to minimize the risk of accidental releases or environmental impacts.

REGULATION OF HAZARDOUS WASTES

Regulation of hazardous wastes is undertaken at the federal, State, and local levels. The U.S. Environmental Protection Agency (EPA) and the California Department of Toxics Substances Control (DTSC) have developed and continue to update lists of hazardous wastes subject to regulation. The South Coast Air Quality Management District (SCAQMD), in coordination with the California Air

Resources Board (CARB), is responsible for developing and implementing rules and regulations regarding air toxins on a local level. The SCAQMD establishes permitting requirements, inspects emissions sources, and enforces measures through educational programs and/or fine . The City of Carson has adopted the Los Angeles County Hazardous Waste Management Plan, which provides policies and programs to address hazardous waste management issues.

In Carson, the LACFD is the Certified Unified Program Agency (CUPA) representative, which administers the following programs: Los Angeles County Hazardous Waste Generator Program, Los Angeles County Hazardous Materials Release Response Plans and Inventory Program, the California Accidental Release Prevention Program (CalARP), the Aboveground Storage Tank (AST) Program, and the Underground Storage Tank (UST) Program. The LACFD conducts inspections of businesses, manages and reviews various hazardous waste permits for business plans, and oversees cleanups. Every hazardous materials handler is required to submit a business plan and an inventory of hazardous substances and acutely hazardous materials to the LACFD on an annual basis and if their hazardous materials inventory changes. LACFD inspectors conduct annual

inspections of businesses that have submitted a business plan; they also conduct follow-up inspections as needed. Additionally, the LACFD is the first agency that responds to hazardous material release incidents in the City.

HAZARDOUS MATERIALS AND SITE CONTAMINATION

As a result of the city's long history of industrial and commercial development, and the fact that waste management practices and regulations were either not in place or not up to current standards, there are several sites within the city that have the potential to have been impacted by previous releases of contaminated materials. Following incorporation, the City of Carson has worked to close down most of the unwanted facilities, enforced a strict building and landscaping code, cleaned up contaminated sites, and worked to attract successful new commercial ventures.

However, there is still a large volume and variety of hazardous materials within the city, which is of great concern to public officials and the community, associated with the routine use, storage, and transportation of hazardous materials for commercial/retail/industrial businesses, educational and government facilities, hospitals, and households (e.g., household cleaners, industrial solvents, paints, pesticides, etc.). Hazardous materials users and waste generators within the city include businesses, public and private institutions, and households.

Figure 7-6 shows the location of open or active hazardous materials sites and facilities, including refineries, cleanup sites, and storage tanks within the city. It should be noted that these sites capture a moment in time, as various databases are constantly updated and sites complete cleanup or are added to the list. Based on information from DTSC's EnviroStor database, there are no U.S. EPA National Priorities List Superfund sites in the city, but there are eight sites on the State Response list, several voluntary cleanup sites, corrective action sites, and tiered California permit sites. In addition, Figure 7-6 maps the locations of over 20 active leaking underground storage tank (LUST) sites and Cleanup Program sites listed in the GeoTracker database managed by the State Water Re-

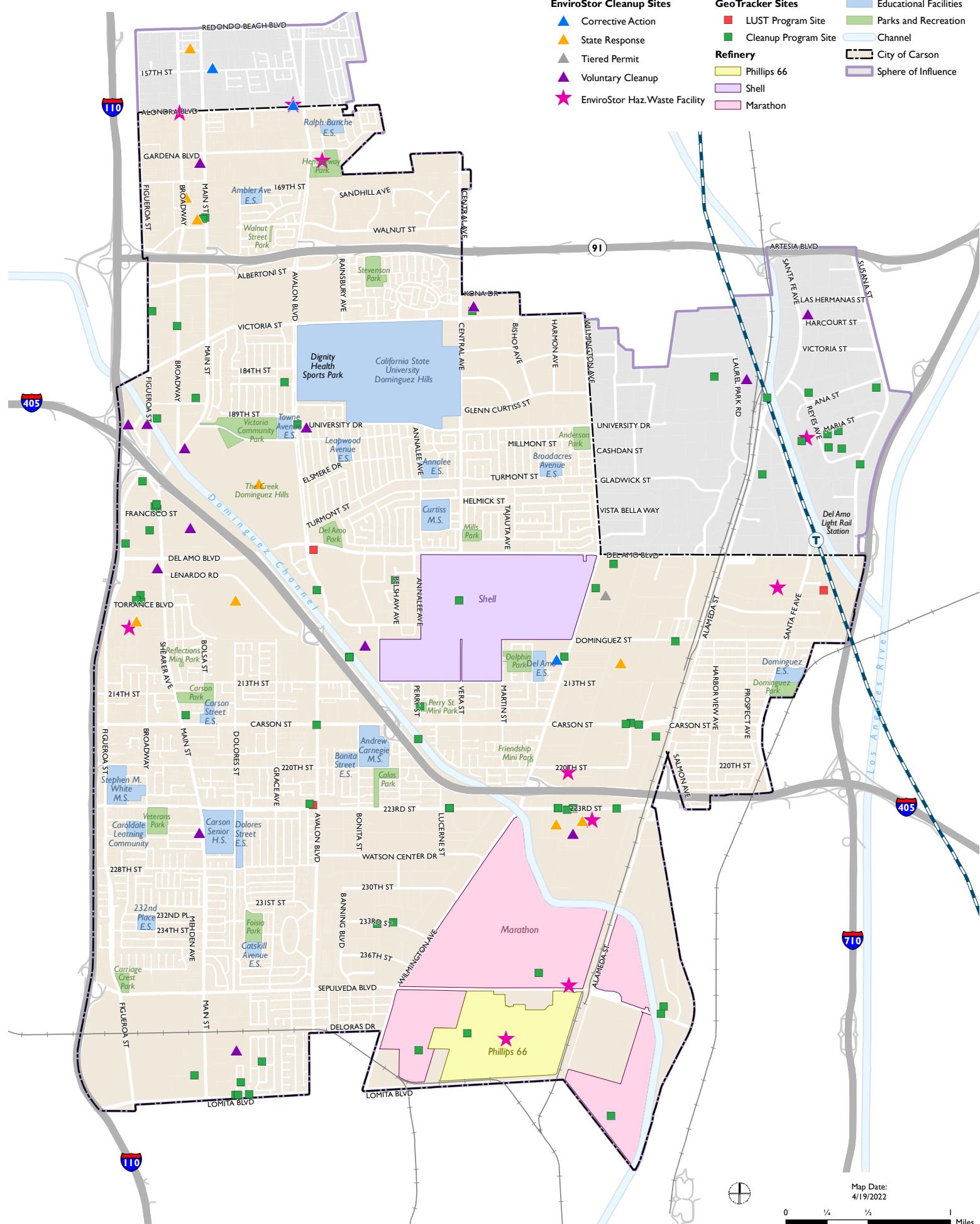
sources Control Board (SWRCB). The city also has nearly 40 permitted underground storage tanks. There are 27 land disposal sites in the city; all are completed and case closed, but because landfills are a source of methane gas, any development in and around these areas could require additional investigations as outlined by regulatory requirements.

TOXIC RELEASE INVENTORY

The Toxic Release Inventory (TRI) is a U.S. EPA database that contains information on toxic chemical releases and other waste management activities reported annually by certain industry groups as well as Federal facilities. TRI sites are known to release toxic chemicals into the air and emissions from these facilities are monitored closely to ensure that they do not exceed their annual permitted limits. TRI reports provide accurate information about potentially hazardous chemicals and their uses to the public in an attempt to give communities more power to hold companies accountable for their actions. There are 14 facilities that filed reports in the year 2019, with multiple reports from some facilities, with a significant majority from the Marathon (previously Tesoro) refinery on South Wilmington Avenue, and also multiple reports from Chemoil and Phillips 66 refinery along Sepulveda Road.



Figure 7-6 Hazardous Materials and Sites





TRANSPORTATION OF HAZARDOUS MATERIALS

The transport of hazardous materials through the city is regulated by the California Department of Transportation (Caltrans), the California Highway Patrol (CHP), and LACFD. However, there is still the possibility that an upset condition could occur within the city, which would require emergency response. The LACFD responds to all hazardous materials incidents within the city, including those involving rail or pipelines. The CHP, along with local police and fire departments, is in charge of abating spill that occurs on the freeway. Caltrans is responsible for additional enforcement and routing assistance.

Truck Transport

Carson is closely bordered by the I-110 freeway on the west; Alondra Boulevard, Greenleaf Boulevard, and Victoria Street to the north; Wilmington Avenue, the I-710 Freeway, and Santa Fe Avenue on the east; and Lomita Boulevard to the south; the I-405 freeway bisects the city and the SR-91 runs east to west across the northern portion of the city. These transportation corridors are a potential source of accidental releases or environmental incidents that could affect the city due to the volume of

traffic and the nature of material transported. The DTSC EnviroStor²⁵ and U.S. EPA RCRAInfo²⁶ databases list several transporters of hazardous waste in the city such as Kaiser Permanente, Pacific Environmental Management Corporation, Western Transportation Company, and others that are distributed throughout the city. For a full list of transporters and more details about the regulation of hazardous materials transportation in Carson, see the General Plan EIR. For more information and location of truck routes, see Chapter 3: Transportation and Connectivity.

25 DTSC 2017. Registered Hazardous Waste Transporters. Online. http://hwts.dtsca.gov/transporters/trans_name.cfm. Accessed December 2017.

26 USEPA, 2017. RCRAInfo Database, Hazardous Waste Transporters. Online. https://iaspub.epa.gov/enviro/efsystem/query_rcrainfo?fac_search=primary_name&fac_value=&fac_search_type=Beginning+With&postal_code=&location_address=&add_search_type=Beginning+With&city_name=Carson&county_name=Los+Angeles&state_code=CA&naics_type=Equal+to&naics_to=&univA=FULL_ENFORCEMENT&univ_search=2&univB=TRANSPORTER&LIBS=&proc_group=0&procname=&act_inact_opt=1&program_search=2&report=1&page_no=1&output_sql_switch=TRUE&database_type=RCRAINFO, Accessed December 2017.

Train Derailment

Carson is served by three transcontinental railroads: Union Pacific, Southern Pacific and Santa Fe. The Union Pacific runs along the eastern section of the city, as it converges onto the Los Angeles City container transfer facility, which borders the west side of Long Beach. The Southern Pacific runs along the central, southern and eastern section of the city. The Santa Fe extends into the eastern section of the city. In addition to the rail lines that serve business and industrial uses, the Metro Blue Line light rail traverses the eastern portion of the city and offers alternative transportation to downtown Los Angeles and Long Beach.

There are generally two types of safety hazards associated with train operations: 1) Pedestrian and vehicular accidents involving trains, and 2) Derailments. A major train derailment could encompass many threats, such as hazardous materials incident, fire, and severe damage to either adjacent buildings or vehicles, and the loss of life to pedestrians and those in adjacent buildings or vehicles, as freight trains which traverse the city haul various types of hazardous and explosive materials, including chlorine gas and low-pressure natural gas.

Pipelines

There are several crude oil and petroleum product pipelines that transect the city, associated with the three refineries located in the city. The Southern Pacific Pipeline transports a significant amount of various products through the city from several different locations.²⁷ These pose a hazard risk due to leaking or possibility of fires or explosions, which could result in soil and/or groundwater contamination, injury and/or destruction of property. If a pipeline is found to be damaged or broken, the LACFD, as the first responder, would contact the operator of the damaged pipeline and take steps to mediate spill and/or fire suppression if required. As discussed above, the LACFD has the emergency numbers for the pipeline operators and will contact them immediately if a situation arises. Additionally, the LACFD has the responsibility to contact the State Office of Emergency Services for any pipeline rupture, fire, or explosion.

²⁷ City of Carson, 2000. Carson General Plan Safety Element. Online. http://ci.carson.ca.us/content/files/pdfs/planning/generalplan/Chapter%206_Safety.pdf, Accessed December 2017.

OIL FIELDS

The city overlies parts of two oil fields: the Dominguez and Wilmington oil field. According to the 2021 Report of California Oil and Gas Production Statistics,²⁸ for the year of 2019, the Dominguez Oil Field produced 5,818 barrels of oil and the on-shore oil production portion of the Wilmington Oil Field produced 4,736,467 barrels of oil. Petroleum contains several components that are considered hazardous, such as benzene, a known carcinogen. Oil field activities often include the use of hazardous materials like fuels and solvents. In the past, day-to-day practices in oil fields were not environmentally sensitive and resulted in oil-stained soils and other contaminants in and around oil field. Remediation of these areas is generally required when the oil field is no longer economically productive. Comprehensive site investigations are required to accurately identify and characterize any soil and groundwater contamination. As discussed above, many of these sites

²⁸ Department of Conservation Division of Oil, Gas, & Geothermal Resources, 2021. 2019 Report of California Oil and Gas Production Statistics. Online. https://www.conervation.ca.gov/calgem/pubs_stats/annual_reports/Pages/annual_reports.aspx, Accessed August 2021.



located within the City of Carson are undergoing or have undergone remediation to clean up contamination. However, undocumented oil contaminated soils could always be uncovered which are considered hazardous. Additionally, as discussed below, methane gas is associated with oil production, and any future development in and around oil wells should require additional investigations. Blowout prevention devices are generally used by well operators whenever oil wells are being drilled or reworked. However, improper installation or faulty devices could potentially result in a blowout at a drilling facility.

AIRPORT HAZARDS

The City of Carson does not have any public airports, but aircraft originating and departing from major airports in the area traverse the skies over Carson. The airports nearest to the city are the Los Angeles International Airport, located approximately 12.7 miles northwest and the Long Beach Airport, located approximately 13 miles southeast. There are also two general aviation airports located near the Planning Area: the Compton/Woodley Airport, located approximately 2,400 feet northeast of the City's SOI, and the Torrance Airport, approximately 2.25 miles

west of the city. Additionally, the Goodyear Blimp Base Airport and the Carson Sheriff Station Heliport are private air strips located within Carson²⁹ that are registered with the Federal Aviation Administration (FAA) in Los Angeles County. The FAA regulates and addresses impacts of the blimp operations for the base and surrounding properties.

Aircraft flying over Carson are located in the Los Angeles Terminal Control Area (TCA). The TCA is airspace restricted to large, commercial airliners. Each TCA has an established maximum and minimum altitude in which a large aircraft must travel. Smaller aircraft may also transit the TCA, when traffic conditions permit, by obtaining Air Traffic Control clearance. Aircraft departing from airports other than the Los Angeles International Airport (LAX) with flight routes through the TCA are required to inform Air Traffic Control. Risk of hazards due to aircraft activity in the Planning Area are typical of heavily trafficked airports such as LAX.

29 Tollfree Airline, 2017. Los Angeles County Public and Private Airports, California. Online. <http://www.tollfreeairline.com/california/losangeles.htm>, Accessed December 2017



Image source: BBC <https://www.bbc.com/news/world-us-canada-57623741>



7.6 Guiding and Implementing Policies

This section contains guiding and implementing policies that focus on citywide issues and those of a programmatic high-level nature as it relates to addressing community services, education, and safety in Carson. Text in *italics* is for reference only and is not considered adopted policy.

GUIDING POLICIES

Educational and Community Facilities

CSES-G-1 Work with the Los Angeles Unified School District and other education providers to ensure educational facilities with sufficient permanent capacity are available to meet the needs of current and future projected enrollment. Consult with the school districts on policies and projects that affect the provision of educational facilities and services.

CSES-G-2 Foster an environment in which children and youth can flourish. The foundation of this vision is a strong and active partnership among the city, school districts, libraries, and all segments of the community, so that powerful learning from the earliest years is a citywide experience and responsibility.

CSES-G-3 Continue to promote access to lifelong learning opportunities that align with the learning needs and abilities of all community members.

CSES-G-4 Promote opportunities for higher learning and education with California State University Dominguez Hills, with linkages to the city's technology and manufacturing base and highly skilled workforce.

CSES-G-5 Ensure library facilities in the city, and services and programs are adequate and appropriate to meet the community's needs for education and lifelong learning services and as a community gathering space.

CSES-G-6 Promote an adequate and diverse supply of childcare facilities that are affordable and accessible for families, and provide safe, educational, and high-quality services for children.

Public Safety Services

CSES-G-7 Provide a safe environment to live, work, and play for Carson residents and visitors.

CSES-G-8 Continue to support and coordinate with the Los Angeles County police and fire services.

CSES-G-9 Strive to increase transparency and accountability for all public safety services.

Seismic and Geologic, and Soil and Ground Surface Hazards

CSES-G-10 Proactively minimize risk of seismic and geologic hazards to the property and lives of Carson residents, businesses, and visitors.

CSES-G-11 Seek to reduce potential damage to property and repercussions from damaged heavy industrial facilities due to seismic hazards.

Flood Hazards

CSES-G-12 Strive to minimize injury and loss of life, damage to public and private property and infrastructure, and economic and social disruption caused by flood hazards.

CSES-G-13 Incorporate strategies to reduce flooding impacts caused by urban runoff.

Hazardous Materials

CSES-G-14 Protect Carson residents and workers from hazardous material exposure and minimize the threat to the public health and safety and to the environment posed by a release of hazardous materials.

CSES-G-15 Strive to minimize the effects from natural and anthropogenic disasters to reduce, to the extent possible, the social, safety, health, and economic impacts that these may have on the community.

CSES-G-16 Continue mitigating against and restricting hazardous material usage in efforts to reduce pollution and hazard burden on Carson residents.

IMPLEMENTING POLICIES

Educational and Community Facilities

CSES-P-1 Support efforts by the Los Angeles Unified School District, Compton Unified School District, and childcare service providers to establish, maintain, and improve educational facilities and services to accommodate projected enrollment resulting from the city's population growth and development.

The General Plan projects that student enrollment will increase by 622 students and that there is sufficient capacity to meet Carson's existing and future enrollment needs.

CSES-P-2 Seek to locate new community oriented public facilities such as libraries, community gardens, parks, and recreation centers and invest in improvements of existing facilities near local schools where feasible, so that these locations may function as the "heart" of a community.

CSES-P-3 Partner with schools to involve families and youth in community programs such as community policing and relationship-building programs, including educational and mentoring initiatives.

CSES-P-4 Coordinate with local businesses, organizations, colleges, and school districts to support a year-round calendar of community events at schools and other community centers in Carson. Events should be geared toward families and youth, and contain components of physical activity, healthy food, arts, and music.

CSES-P-5 Monitor library, community, and educational facilities and programs to expand as needed to commensurate with the city's population growth.