

CITY OF LOS ANGELES

CLIMATE VULNERABILITY ASSESSMENT

LOS ANGELES CITY PLANNING

City of Los Angeles
Climate Vulnerability Assessment

Prepared for

City of Los Angeles
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Land Acknowledgment

We acknowledge that the City of Los Angeles is situated in the ancestral and unceded lands of the Gabrielino-Tongva Indian Tribe, also known as Yaavitam, the Kizh Nation Gabrieleño Band of Mission Indians, the Fernandeño Tataviam Band of Mission Indians, the San Fernando Band of Mission Indians, and the Chumash, among others.

We acknowledge their elders, past, present, and future, for their cultural resilience. They are the original caretakers of this land, with Los Angeles being the home to the second largest community of Native Americans in the U.S. Native American tribes are sovereign nations, and our ongoing relationship with each tribe requires the utmost respect, mutual understanding, and sensitivity.

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1. CVA Summary

This chapter provides summaries of the report and summaries for each hazard assessment and mitigations. The goal of these summaries is to provide a quick overview of key outcomes from the CVA. These resources should be used by stakeholders on climate hazards and potential mitigation actions for the City of Los Angeles.

List of summaries:

1.1. Executive Summary
1.2. Extreme Heat
1.3. Extreme Precipitation and Flooding
1.4. Drought
1.5. Wildfire
1.6. Sea Level Rise
1.7. Climate-Related Public Health

1.1. Executive Summary

Background and Summary: The City of Los Angeles Department of City Planning (LACP) led a Climate Vulnerability Assessment (CVA). A CVA looks at physical and social vulnerability to expected climate change impacts. The impacts focused on for this process were extreme heat, extreme precipitation and flooding, drought, wildfire, sea level rise, and climate-related public health. The outcomes included ways to reduce climate hazard impacts, referred to as mitigations, that were created from input from community-based organizations (CBOs) and engagement with vulnerable communities. The goal is to address vulnerability to climate change. The CVA is an important step to ensure the City can adapt and be resilient to the impacts of climate change with a strong focus on climate equity.

Assessment Overview: The CVA included a Climate Hazard Assessment. This is a technical analysis using available data to understand existing and projected climate hazards. The assessment identified risks and areas affected by these hazards throughout Los Angeles. The second part was a Social Vulnerability Assessment. This assessment looked at vulnerability and adaptability of communities and populations across the City to climate hazards. Factors that can make impacts worse, or stressors, were examined, including pollution, smoke, preexisting health conditions, economic and social disparities, and the built environment.

What are current City climate efforts, and how does this work align with those efforts?: In August 2024, the City adopted an updated Local Hazard Mitigation Plan (LHMP), led by the Emergency Management Department (EMD), which includes mapping projected climate hazards and analyzing impacts. The Climate Emergency Mobilization Office (CEMO) is leading the development of the City's heat action plan to coordinate ways to adapt to extreme heat. The CVA coordinated with EMD and CEMO on recommendations to be incorporated into ongoing and future climate mitigation efforts. Other departments have climate planning efforts regarding infrastructure and operations that are ongoing or being reviewed to identify department actions that can be part of a citywide resilience effort.

Mitigation and Adaptation: The community engagement process was at the core of the CVA process to ensure communities most affected by climate hazards and stressors informed and guided community-driven solutions. Outreach focused on populations living in South and Southeast Los Angeles, Boyle Heights, Northeast Los Angeles, Harbor Gateway and Wilmington, Central City, Central City North, and the North San Fernando Valley, which include areas of the City with significant vulnerable communities. These communities are experiencing the most severe effects of climate impacts such as extreme heat made worse by air quality issues. Though many potential climate hazards exist, the CVA focused on mitigating the hazards with the highest risk of severe impacts. Best practices and community input led to the recommendations on equitable climate adaptation strategies and implementation actions to prioritize these vulnerable communities in this report.

1.2. Extreme Heat

Extreme heat is defined[1] as an extended period of at least two to three days of above-average temperatures and humidity and a threshold of 95.2 degrees Fahrenheit, or 35.1 degrees Celsius, based on 30-year averages. All areas of the City are likely to experience impacts.

Impact: Heat is severely harming people's health and affecting their ability to work, go places, and perform daily activities. Air quality harmed by fumes, smoke, and pollution combines with heat to make health issues worse.

Recommended mitigations

- Increase the amount of green space and tree canopy in areas impacted by the urban heat island effect.

[1] According to the Centers for Disease Control and Prevention (CDC) report "Climate Change and Extreme Heat Events," Page 3, "While there is no single agreed upon definition of an extreme heat event, most definitions refer to an extended period of time (several days or more) with unusually hot weather conditions that potentially can harm human health."

- Use a variety of approaches to reduce the heat impacts on vulnerable populations that are unable to remain indoors to conduct necessary daily activities (e.g., outdoor workers, transit users, etc.).
- Encourage use of building design elements to cool buildings using traditional methods.
- Enhance tree care through expanding tree maintenance programs and public education campaigns around valuing trees and maintenance.
- Upgrade facilities used for play and cooling off by adding shade, updated hydration stations, and cooler surfaces to replace pavement.

1.3. Extreme Precipitation and Flooding

Extreme precipitation and flooding includes heavy rainfall in a short period that threatens flooding and the resulting temporary overflow of excess water in normally dry urban areas and areas with infrastructure in poor condition.

Impact: Heavy precipitation events flood streets and other parts of communities as drains get clogged and rainfall overwhelms drains. The ability to safely evacuate is a concern.

Recommended mitigations

- Make improvements to stormwater systems to mitigate urban flooding and major rainfall events.
- Provide more tools for community members to prepare for, respond to, and recover from flooding.
- Use natural and upgrade existing and newly constructed infrastructure to reduce the amount of flooding in densely populated urban areas.
- Reduce the potential public health impacts from flooding through awareness and reduced exposure.
- Use types of surfaces and paving that allows water to drain into the soil and reduces runoff.

1.4. Drought

Drought is defined as a period of abnormally dry weather and little precipitation that causes water shortages and/or affects everyday life. All areas of the City are likely to experience impacts.

Impact: Drought can increase the cost of water, and many communities worry about shortages. Drought makes wildfire a higher risk, too.

Recommended mitigations

- Modify drought management approaches and water billing policies to reduce impacts from drought on low-income and vulnerable communities.
- Upgrade water collection and stormwater infrastructure to replenish groundwater and recycle water.
- Provide education and support for water conservation and landscaping techniques that retain water.

1.5. Wildfire

Wildfire is defined as uncontrolled fire occurring on undeveloped land that requires extinguishing. Wildfires become a hazard when they threaten people, buildings, assets, and vegetation, and wildfire smoke presents serious public health risks.

Impact: Wildfires in WUI areas pose a significant risk to loss of homes and infrastructure resulting in displacement and potentially loss of life. Resulting vegetative burn areas can result in increased flooding and mudslide risks and the loss of structures can impact the economic livelihood of individuals. Wildfires also create smoke that exacerbates existing health issues and may cause long-term health impacts.

Recommended mitigations

- Reduce the risk of wildfire impacts on structures, people, including the unhoused, and infrastructure.
- Help people connect with information to reduce exposure to harmful air from natural and human-caused sources of air pollution.
- Use a variety of approaches to reduce the number of fires caused by people.
- Work with communities to reduce the risk and impacts of wildfire.

In January 2025, Los Angeles experienced the largest fire event in its modern day history. As a result of record high Santa Ana winds, a firestorm spread through the Brentwood - Pacific Palisades Community Plan Area (CPA) for approximately 10 days. While there were several other fire events that occurred during this wind storm event in other parts of the City, the Pacific Palisades community was nearly completely burned down. As a result, the following additional mitigations are recommended for wildfire resiliency:

- Explore advanced technology options that help the City be more informed on climate science to help improve infrastructure and utilities resiliency.
- Encourage and incentivize fire resistant planting palettes in Very High Fire Severity Zones.
- Restrict construction activities and staging on hillside streets on Red Flag Days to ensure the maximum emergency vehicular access.

1.6. Sea Level Rise

Sea level rise is defined as the increase in the ocean's surface height relative to the height of nearby land.

Impact: Though most communities are not yet experiencing impacts, individuals understand future impacts could include displacement of people and damage to land and property. Some areas, however, are dealing with sand migration.

Recommended mitigations

- Invest in strategic relocation of coastal infrastructure in the near term to avoid damage and disruption from sea level rise.
- Update any plans, policies, procedures that could directly assist with responding to impacts from sea level rise, including limiting new development in coastal areas anticipated to be impacted by sea level rise.
- Additional nature-based solutions are needed to mitigate sea level rise.

1.7. Climate-Related Public Health

Climate-related public health is defined as organized community efforts aimed at the prevention of disease and the promotion of health through the mitigation of climate impacts, such as heat-related illnesses prevention and addressing climate-related diseases.

Impact: Individuals with few resources and facing existing health issues are greatly affected by heat, wildfire, flooding, and other climate events. Their health worsens or the events confine them to their homes. Events that cause a loss of power can also affect public health.

Recommended mitigations

- Create backup power solutions, preferably using renewable energy, to provide power to vulnerable populations during a loss of power.
- Reduce air quality issues through use of community tools such as localized air quality monitoring, nature-based mitigation solutions, and community-based enforcement.
- Work with communities and transit users to reduce exposure to heat throughout the transit process (e.g., waiting, pathways from home to bus stops).
- Increase the overall amount of community green space to be more equitable when compared to other neighborhoods across the City.
- Use a coordinated set of targeted actions to clean up trash and reduce littering to reduce climate-related stressors to prevent the incidence of vermin, insects, odors, etc., that could potentially impact public health.



1.8. Cross-Cutting Issues

The issues are related to multiple hazards and require a broad set of cross-cutting strategies.

Impact: The identified factors that required cross-cutting mitigations were: pavement as a factor for heat and stormwater, availability of climate data, and the need for additional resilience hubs.

Recommended mitigations

- Increase the amount of permeable surfaces on public and private lands.
- Use available options at all scales to collect climate data.
- Work with communities to add more resilience hubs where needed.
- Update or create city plans and procedures to prepare city operations and facilities for expected climate hazards impacts.

1.9. Future Steps

These outcomes show how Angelenos are likely to be affected by climate change and provide some recommendations on pathways to adapting and mitigating these impacts. The next step is to use these outcomes in future plans and take action to continue addressing the impacts of climate change on Los Angeles and the diverse communities within it.

CVA Climate Hazard Information Sheets

EXTREME HEAT

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Extreme heat is an extended period of at least two to three days of above-average temperatures and humidity and a threshold of 95.2 degrees Fahrenheit, or 35.1 degrees Celsius, based on 30-year averages.

RISK AND VULNERABILITY

Vulnerable communities identified and targeted in this study are those communities that are most exposed to climate hazards with the least amount of and access to resources to offset the impacts from that exposure.

Population

Neighborhoods with lower incomes and less green space experience more heat-related emergency room visits than neighborhoods with more green spaces and higher incomes.

Communities

All areas of the City are likely to experience impacts from extreme heat. The areas with a higher exposure and social vulnerability include Boyle Heights, Southeast Los Angeles, South Los Angeles, Wilmington, and Northeast Los Angeles.

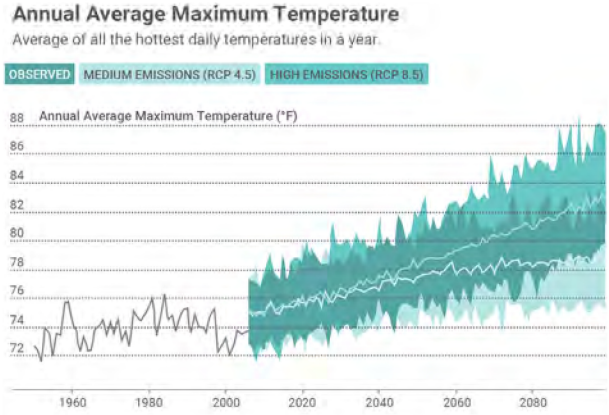
WHAT ARE THE ANTICIPATED IMPACTS OF EXTREME HEAT?

Heat is severely harming people's health and affecting their ability to work, go places, and perform daily activities. Air quality harmed by fumes, smoke, and pollution combines with heat to make health issues worse.

CLIMATE PROJECTIONS

Temperature Increases

By 2050, there may be 9 to 14 extreme heat days each year citywide. By 2100, that may rise to 15 to 30 days annually. In the past, these types of events would last about two days. By 2050, the average extreme heat event may last four to five days. By 2100, a typical extreme heat event could span five to eight days.



Cal-Adapt. 2018. "Local Climate Change Snapshot for Los Angeles."

Understanding Urban Heat Island

Urban Heat Island is a demonstrated effect where built up portions of cities produce and retain more heat, leading to higher daytime and nighttime temperatures in the areas where the most people live and work. Denser, more urban land uses correlate with higher temperatures, while parks and open space can decrease the effect.

PRIORITIZED STRATEGIES

- Increase the amount of green space and tree canopy in areas impacted by the urban heat island effect.
- Use a variety of approaches to reduce the heat impacts on vulnerable populations that are unable to remain indoors to conduct necessary daily activities (e.g., outdoor workers, transit users, etc.).
- Encourage the use of building design elements to cool buildings using traditional methods.
- Enhance tree care through expanding tree maintenance programs and public education campaigns around valuing trees and maintenance.
- Upgrade spaces used for play and cooling off by adding shade, updated hydration stations, and cooler surfaces to replace pavement.

EXTREME PRECIPITATION AND FLOODING



Extreme precipitation and flooding includes heavy rainfall in a short period that threatens flooding and the resulting temporary overflow of excess water in normally dry urban areas.

RISK AND VULNERABILITY

Vulnerable communities identified and targeted in this study are those communities that are most exposed to climate hazards with the least amount of and access to resources to offset the impacts from that exposure.

Population

Flooding disproportionately impacts lower income and under resourced populations. People with disabilities or access and functional needs may have challenges if they need to evacuate or move to higher places within their homes to avoid floodwaters.

Communities

The areas most vulnerable to extreme precipitation and flooding include Central City, South Los Angeles, Sun Valley - La Tuna Canyon, Westlake, and Wilshire.

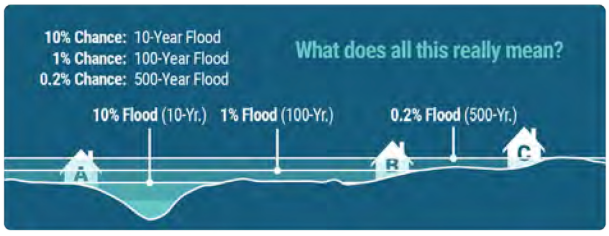
CLIMATE PROJECTIONS

Precipitation Increases

The forecasts for 2100 indicate the Los Angeles region will receive 4% to 5% more rainfall during the fall and winter. Increased precipitation and increasing temperatures during winter months may lead to increased flooding.

WHAT ARE THE ANTICIPATED IMPACTS OF EXTREME PRECIPITATION AND FLOODING?

Heavy precipitation events flood streets and other parts of communities as drains get clogged and rainfall overwhelms drains. The ability to safely evacuate is a concern.



FEMA Region 3. 2021. "Reducing Risk in the Floodplain (Version 1)."

Understanding Flood Risk

10-Year Flood: A home in a 10-year flood area has a 10% chance of flooding in a single year and a 95% chance of flooding during a 30-year period.

100-Year Flood: A home in a 100-year flood area has a 1% chance of flooding in a single year and a 26% chance of flooding during a 30-year period.

500-Year Flood: A home in a 500-year flood area has a 0.2% chance of flooding in a single year and a 6% chance of flooding during a 30-year period.

PRIORITIZED STRATEGIES

- Make improvements to stormwater systems to mitigate urban flooding and major rainfall events.
- Provide more tools for community members to prepare for, respond to, and recover from flooding.
- Use natural and new constructed infrastructure to reduce the amount of flooding in densely populated urban areas.
- Reduce the potential health impacts from flooding through public awareness and reduced exposure.
- Use types of surfaces and paving that allow water to drain into the soil and reduce runoff.

DROUGHT



A drought is a period of abnormally dry weather and little precipitation that causes water shortages and/or affects everyday life.

RISK AND VULNERABILITY

Vulnerable communities identified and targeted in this study are those communities that are most exposed to climate hazards with the least amount of and access to resources to offset the impacts from that exposure.

Population

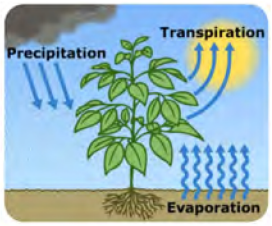
Drought can have critical impacts because of dependence on and use of water. Individuals with health complications are more vulnerable because of worsened air quality and compromised nutritious food resulting from drought conditions.

Communities

All areas of the City are likely to experience drought impacts.

Understanding Drought

Rising temperatures accelerate how quickly precipitation evaporates into the atmosphere, called evapotranspiration. Higher temperatures cause less water to be absorbed by soil, vegetation, etc., worsening dry conditions.



U.S. Geological Survey Water Science School. "Evapotranspiration."

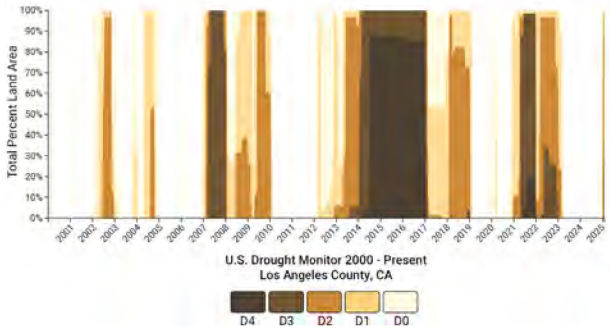
WHAT ARE THE ANTICIPATED IMPACTS OF DROUGHT?

Drought can increase the cost of water, and many communities worry about future shortages. Drought contributes to increasing wildfire risk.

CLIMATE PROJECTIONS

Temperature Increases

Climate projections show droughts will occur more often and increase in length and severity because of hotter temperatures and changes to seasonal precipitation trends.



National Integrated Drought Information System. 2024. "U.S. Drought Monitor: Los Angeles, California."

Historic Conditions

The U.S. Drought Monitor depicts the location and intensity of drought. Five categories of drought are used: Abnormally Dry (D0), showing areas that may be going into or are coming out of drought, and four levels of drought (D1–D4).

PRIORITIZED STRATEGIES

- Modify drought management approaches and water billing policies to reduce impacts from drought on low-income and vulnerable communities.
- Upgrade water collection and stormwater infrastructure to replenish groundwater and recycle water.
- Provide education and support for water conservation and landscaping techniques that retain water.

WILDFIRE

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A wildfire is an uncontrolled fire occurring on undeveloped land that requires extinguishing. Wildfires become a hazard when they threaten people, buildings, and assets, and wildfire smoke presents serious public health risks.

RISK AND VULNERABILITY

Vulnerable communities identified and targeted in this study are those communities that are most exposed to climate hazards with the least amount of and access to resources to offset the impacts from that exposure.

Population

People with underlying or preexisting health conditions, such as asthma, may be especially sensitive to wildfire smoke.

Communities

Areas designated as wildland-urban interface (WUI) areas are the most vulnerable. These are the areas where development is adjacent to densely vegetated areas. Many of the City's communities face severe wildfire exposure.

WHAT ARE THE ANTICIPATED IMPACTS OF WILDFIRE?

In addition to the risk of damage or loss of structures in WUI areas, wildfires create smoke, toxic waste, and debris in burn areas that can result in the release of air pollutants that makes health issues worse. Communities are concerned about fire impacts related to air quality, the displacement of people, damage to land and property, and loss of employment such as service workers including food service industry, domestic services, and outdoor workers including landscaping services and street vendors.

CLIMATE PROJECTIONS

Increasing Temperatures

Rising temperatures will result in more water evaporating and the soil and vegetation becoming drier, contributing to wildfire risk.



Community Planning Assistance for Wildfire. "Continuum of Wildland to Urban Densities."

Understanding Wildfire Risk

Cities exist within a landscape spectrum from wildland with little to no human development, to urban cores, with little to no wildland, and everything in between. When more urban and suburban development encroach on existing wildland, wildfires have the opportunity to grow larger and cause more damage to lives and property.

PRIORITIZED STRATEGIES

- Reduce the risk of wildfire impacts on structures and people, including the unhoused, and infrastructure.
- Help people connect with information to reduce exposure to harmful air from natural and human-caused sources of air pollution.
- Work with communities to reduce the risk and impacts of wildfire.
- Use a variety of approaches to reduce the number of fires caused by people.
- Make buildings less vulnerable to fire risk by limiting new development in the wildland-urban interface (WUI), requiring building codes that include use of fire-resistant materials in high hazard areas, requiring regular brush/vegetation maintenance and clearance, and recommending regular home maintenance.

SEA LEVEL RISE



Sea level rise is the increase in the ocean's surface height relative to the height of nearby land.

RISK AND VULNERABILITY

Vulnerable communities identified and targeted in this study are those communities that are most exposed to climate hazards with the least amount of and access to resources to offset the impacts from that exposure.

Population

Renters may face restrictions to make essential repairs or renovations that help mitigate sea level rise exposure and must rely on landlords. Additionally, individuals with limited financial resources or capital may find it challenging to afford essential repairs or renovations to their homes, which can be necessary to mitigate these impacts. Secondary impacts include potential loss of jobs for individuals employed in the coastal tourism and service industries.

Communities

Coastal low-lying areas are the most vulnerable. However, exposure will be increased for tidal and upstream waterbodies. The Port of Los Angeles, Venice, and Wilmington - Harbor City will become more exposed to flooding resulting from sea level rise.

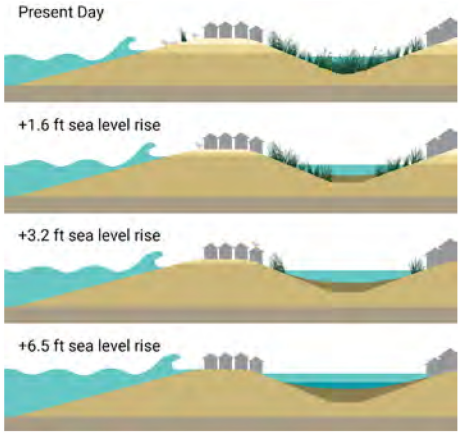
WHAT ARE THE ANTICIPATED IMPACTS OF SEA LEVEL RISE?

Though most communities are not yet experiencing impacts, individuals understand future impacts could include displacement of people and damage to land and property. Communities are also concerned about sea level rise impacts related to loss of employment such as service workers including food service industry, domestic services, and outdoor workers including landscaping services and street vendors.

CLIMATE PROJECTIONS

Rising Seas

As air temperatures warm, the ocean also absorbs more heat. As ocean waters warm, they take up more space and begin encroaching on land. Projections estimate that in Los Angeles, there could be 1 to 2.6 feet of sea level rise by 2050 and 2.2 to 6.4 feet of sea level rise by 2080.



U.S. Geological Survey Pacific Coastal and Marine Science Center. 2021. "Santa Barbara coastal system with increasing sea level rise."

Understanding Sea Level Rise

Sea level rise presents hazards for communities abutting the coast, but also near the coast, as rising sea levels can make flooding and precipitation events more intense and more common. The loss of housing and employment along the coast can also exacerbate gentrification and economic insecurity.

PRIORITIZED STRATEGIES

- Invest in strategic relocation in the near term to avoid damage and disruption from sea level rise.
- Update any plans, policies, and procedures that could directly assist with responding to impacts from sea level rise.
- Additional nature-based solutions are needed to mitigate sea level rise.

CLIMATE-RELATED PUBLIC HEALTH

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Climate-related public health is an organized community effort aimed at the prevention of disease and the promotion of health through the mitigation of climate impacts, such as heat-related illness prevention and addressing climate-related diseases.

RISK AND VULNERABILITY

Vulnerable communities identified and targeted in this study are those communities that are most exposed to climate hazards with the least amount of and access to resources to offset the impacts from that exposure.

Population

External stressors, such as health disparities, will continue to exacerbate impacts on socially vulnerable populations.

Most Concerning Hazards

The hazards that pose the greatest impacts to public health include extreme heat, extreme precipitation and flooding, and wildfire smoke.

CLIMATE PROJECTIONS

Underlying Stressors

When people are already vulnerable, it is important to underline stressors that can make impacts from climate change additional burdens. This may include chronic health issues such as obesity, heart disease, and limited access to nutritious food and green spaces.

WHAT ARE THE ANTICIPATED IMPACTS ON PUBLIC HEALTH?

Individuals with limited or lack of access to resources and those facing existing health issues are greatly affected by heat, wildfire, flooding, and other climate events. Their health worsens and/or the events confine them to their homes. Events that cause a loss of power affect public health.



Health-Damaging Climate Events Highlight the Need for Interdisciplinary, Engaged Research (2024). GeoHealth. 8. 10.1029/2024GH001022.

PRIORITIZED STRATEGIES

- Create backup power solutions, preferably using renewable energy, to provide power to vulnerable populations during a loss of power.
- Reduce air quality issues through use of community tools such as localized air quality monitoring, nature based mitigation solutions, and community-based enforcement.
- Work with communities and transit users to reduce exposure to heat throughout the transit process (e.g., waiting for pathways from home to bus stops).
- Increase the overall amount of community green space to be more equitable when compared to other neighborhoods across the city.
- Use a coordinated set of targeted actions to clean up trash and reduce littering to reduce climate-related hazard stressors.



2. Project Approach and Outreach: A Community-Driven Process

The City of Los Angeles' Climate Vulnerability Assessment (CVA) is an evaluation of the City's physical and social vulnerabilities to climate change hazards. There are significant disparities in health, equity, and the built environment across the City's communities. These can worsen the vulnerabilities Angelenos face from climate impacts.

The lived experience of communities across Los Angeles confirms climate has changed and is creating challenges beyond what people have previously lived through. Climate change combined with social and economic factors are increasingly affecting the health and way of life for all Angelenos. Communities are increasingly experiencing extreme weather and climatic events that put varied levels of stress on everyone. Hot, dry weather, combined with the area's fire-prone natural landscape, can make wildfires more severe and air quality worse. This can turn everyday tasks into potentially life-threatening experiences for vulnerable communities. Pavement and buildings absorb heat in urban areas, making parts of the City feel hotter than others. Changes in precipitation patterns and heavy rains can soak the soil and overwhelm the City's aged and impermeable infrastructure, with too much paving leading to increased flooding hazards. Across all hazards, there are public health considerations that can make impacts worse, especially for those populations with less access to resources. Power outages affect residents, businesses, and the operations and services of other critical infrastructure. If people must evacuate, this can disrupt communities and critical social networks, make the region's housing shortage worse, and increase the cost of housing. Each event creates additional social, health, and economic consequences.

In the future, our health, our natural resources, and the facilities and infrastructure that provide critical services are expected to be affected more often. Based on the best

data available, increases in extreme heat and the length of heat waves are expected to create health issues for the most vulnerable, including children, older adults, unhoused people, and those with health conditions. Though it is difficult to predict the full scale of these impacts, it is certain that demands to have access to cool buildings and outdoor spaces during high heat days will increase, which can overwhelm energy systems that supply power to appliances such as air conditioners. People who work outdoors or spend time outdoors when going about their daily lives will face the impacts of heat more frequently. Sea level rise and inland flooding pose risks for communities in terms of human life, homes, buildings, infrastructure, and other public and private assets from water damage, landslides, coastal erosion, and other forms of damage, including economic impacts. Prolonged periods of drought threaten our water and food supply and rich biodiversity.

Taking steps to address climate hazard exposure and improve resilience is essential. Resilience projects take time and effort at all levels of a city — from individuals to government — so it is important to act and continue moving forward at all levels. As the City works to achieve climate resilience, it must center those who are more severely affected by the consequences of climate change and past inequitable decisions that compound the hardships experienced by the City's diverse communities. Understanding these vulnerabilities to climate hazards can help the City prioritize climate adaptation and resilience interventions that can reduce the impact to the Los Angeles region.

Community knowledge and lived experience combined with data tell a story and create the context about how these events affect people and inform how to face these challenges. By comprehensively identifying physical and social vulnerabilities, the CVA provides a starting point and pathways to more effectively plan and assist communities and Angelenos to become more resilient amid climate change. The complex issues surrounding climate hazard risks and hazards can be addressed using community-based mitigation strategies informed by the lived experience of community members.

2.1. Purpose and Approach

Global temperatures are rising, and people feel the impacts in their everyday lives. Over time, these impacts will continue to damage the land, water, ecosystems, and life. Extreme weather events are happening more frequently, and climate hazards are becoming more intense and widespread across California and Los Angeles. These changes and how they affect the everyday lives of Californians continue to drive state, county, and local governments and community partners to focus on climate change adaptation and mitigation in their planning efforts. California has consistently been a national leader in developing effective climate policy and planning, producing a variety of guidance and tools to help local governments and communities prepare for and adapt to climate change. The City of Los Angeles has worked on increasing the resilience of communities through various programs, projects, plans, and processes

over the past several decades such as the Green New Deal and the Resilient Los Angeles (Resilient LA) Plan. The approach used for this CVA was intended to bring many of those efforts together with new information and new recommendations to meet current and future climate change impacts.

2.1.1. Purpose

The CVA and its recommendations provide strategies to augment existing and future City climate-related efforts. It also aims to identify mitigation and adaptation approaches for the existing climate hazards and exposure risks to projected risks and vulnerabilities.

The City of Los Angeles has advanced climate and resilience planning efforts through the work of several departments and agencies. The Green New Deal and Resilient LA Plan include a series of targets and strategies across different sectors and departments to reduce greenhouse gas (GHG) emissions, consistent with the Paris Agreement. The Resilient LA Plan details how individual and regional partners can work collectively to protect themselves against climate events while addressing chronic regional stresses. EMD maintains the Local Hazard Mitigation Plan (LHMP). The LHMP guides the City in reducing risks from disasters to people, property, the economy, and the environment and includes the City's official compilation of disaster area maps. The City of Los Angeles Department of City Planning (LACP) maintains the General Plan's Safety Element. This document offers a high-level overview of how the City plans for disasters and references readers to other implementation documents. The adopted Safety Element, available on the LACP website, details the City's approach to climate change planning to date, including descriptions of the planning efforts above and many more from other City departments. The 2021 Safety Element Update brought the City into compliance with recent state legislative updates.

To comply with Senate Bill (SB) 379 and reduce duplication across documents, the LHMP was integrated as a component of the City's General Plan, serving as the City's official vulnerability assessment. The 2018 LHMP was updated in 2024. The LHMP should be considered a separate but related project to this CVA. The LHMP is on a five-year update cycle and should use CVA recommendations during the next LHMP update. Also, the City will be developing a Heat Action and Resilience Plan (HARP) pursuant to City Council ordinance. The City's Climate Emergency Mobilization Office (CEMO) will seek to align the HARP with the above cited network of plans to maximize City resources and align efforts to achieve the greatest outcomes in reducing the disparities and impacts of climate hazards in Los Angeles.

The City has identified the need to go beyond the requirements in the state statute to elevate the priority of climate vulnerability planning. This CVA ensured adaptation planning efforts centered on the needs and voices of communities most historically disinvested, pollution burdened, and affected by climate change.

This CVA is intended to help address the root causes of these disparities and stressors in conjunction with known climate hazards. For the purpose of this CVA, disadvantaged communities refers to communities that are disproportionately burdened by multiple sources of pollution and with population characteristics that make them more sensitive to hazards and pollution (California Environmental Protection Agency [CalEPA]). Within Los Angeles, nearly 50% of census tracts are considered disadvantaged using the CalEnviroScreen 4.0 methodology. Nearly 25% of all disadvantaged census tracts in California fall within the City boundary. In addition, the Federal Emergency Management Agency's (FEMA's) National Risk Index (NRI) ranks natural hazard risk based on how one area compares with another, with 0 indicating all other cities have a higher risk and 100 indicating all other cities have a lower risk. The NRI gives the City of Los Angeles a score of 100, which means 100% of other cities have a lower physical vulnerability. Heat domes and extreme heat can stagnate air pollution, creating greater risks to vulnerable areas with health disparities, leading to excess deaths and hospitalizations. The population density in Los Angeles combined with health disparities led FEMA to rate the Los Angeles region at highest risk for extreme heat. The results of this CVA highlighted the areas of the City that most need to be engaged. These areas were also identified as priority communities for the community engagement process for this CVA. These areas included neighborhoods and communities within South and Southeast Los Angeles, Boyle Heights, Northeast Los Angeles, Harbor Gateway and Wilmington, Central City, Central City North, and the North San Fernando Valley.

What is a Climate Vulnerability Assessment (CVA)?

A Climate Vulnerability Assessment (CVA) typically examines physical and social vulnerability of communities to the anticipated climate changes of extreme heat, extreme precipitation and flooding, wildfire, sea level rise, public health, and drought, but it also considers climate hazard adaptations needed to address these identified vulnerabilities. The City's CVA builds on other regional efforts such as the Los Angeles County CVA and the Fernandeño Tataviam Band of Mission Indians (FTBMI) Tribal Climate Resilience Plan. This CVA examined primary and secondary impacts on Angelenos, including overall public health and health disparities, to identify equity implications. Public input from community partners included how climate affects pollution-burdened areas of Los Angeles and how vulnerabilities are experienced in daily life. The CVA is intended to inform and provide crucial guidance for all future climate-related plans across the City.

2.1.2. Approach

The CVA includes a technical analysis of projected climate hazards and an integrated social vulnerability analysis that meaningfully engages the vulnerable communities that have been determined through this process. The analysis provides a greater

understanding of the risks posed by climate change hazards on the built environment and shapes recommendations to improve climate resilience toward a climate-adapted Los Angeles. The focus is on the integration of social vulnerability and technical analysis to provide recommendations with supporting best practice examples, data, and research that prioritize the most at-risk areas of the City.

The CVA's approach is intended to foster a sense of accuracy, transparency, and ownership within the City's communities, which can lead to broad-based support and facilitate implementation. The CVA approach was designed to accomplish the following:

- Engage with stakeholders to articulate local community needs and exposure to climate hazards.
- Identify mitigation measures to address local needs and reduce hazards.
- Devise strategies for implementing plan recommendations.
- Describe a vision for protecting community assets.
- Identify opportunities that support resiliency goals.

Gathering Data

The CVA used a combination of existing research, climate change projections, census data, feedback available in 2024 from City departments and agencies, and verified information through community input to inform its findings. The first step in conducting a comprehensive climate vulnerability assessment is to review and synthesize existing data. The CVA builds upon the best available climate research and assessments to evaluate vulnerability and recommend options for mitigating climate impacts. The physical vulnerability assessment enhanced the understanding of the impacts of climate change on buildings, infrastructure, and other assets. Existing data and plans related to the City's physical infrastructure and assets were collected and analyzed to establish a baseline as of 2024. The data collection for all assessments was completed by June 1, 2024, and reflect a snapshot of available data at that time. All assessments were completed by August 30, 2024, using that available data. The social vulnerability assessment focused on disadvantaged communities and climate-related public health priorities. This was done by way of a literature review of relevant information, plans, reports, and data and gap analysis. The CVA process also overlapped with the most recent update of the City's LHMP.

The FTBMI Climate Resilience Plan and the Los Angeles County CVA were reviewed as an important part of the data-gathering phase. The geographical scope of the County CVA overlaps with the FTBMI land boundary and provides an initial look into climate change impacts across tribal territory, specifically heat, flooding, drought, and wildfire. The Los Angeles County CVA relies on the partnership of individual cities and uses the same data sources as the City's CVA. The Los Angeles County CVA region

encompasses the City of Los Angeles, but does not provide recommended mitigation strategies. The development of community-driven mitigation strategies, priorities, and best practices is an important component of the City's CVA. Key climate hazard takeaways from the Los Angeles County CVA are:

- **Heat:** The countywide max temperature will increase by an average of 5.4 °F to a midcentury average of 98.6 °F.
- **Flooding:** Extreme precipitation is projected to get more severe with periods of high-volume rainfall and inland flooding.
- **Drought:** Over the Southwest United States, climate models project more than a 65% increase of severe drought conditions between midcentury and the end of the century.
- **Wildfire:** An additional 2.2 hectares, or about 5.4 acres[2], of Los Angeles County land is projected to burn each year by midcentury.

The project team reviewed available datasets and reports in 2024 that determined the degree of severity of specific climate hazards resulting from climate change in the coming decades. The team also reviewed City policies, plans, climate hazard studies and documents, and geographic data sources to complete the data collection and data review. A reference list with a summary of documents and data sources was developed and can be found in Appendix B.

Climate Hazard Assessment

The CVA assessed climate hazard distribution across the City geography now and through the end of this century. Key findings from the assessment were used to develop community engagement activities to discuss climate impacts among community members. Once the data was identified and sourced, a physical asset inventory of Climate Resilience Assets was created (see Appendix D) and included General Building Stock from the LHMP. This inventory can inform adaptation processes such as a Climate Action and Adaptation Plan.

Current risk conditions were assessed for the following hazards:

- Extreme Heat
- Extreme Precipitation and Flooding
- Drought
- Wildfire
- Sea Level Rise
- Climate-Related Public Health

[2] This fact of "2.2 hectares" was directly from the Los Angeles County CVA based on their calculations. A hectare is a metric unit of square measure of land equal to 2.471 acres or 10,000 square meters.

The physical and social vulnerability analysis used a combination of existing research, climate change projections, census data, stakeholder feedback, and community input to develop CVA outcomes. However, there are gaps and limitations in that data. Major gaps include missing data associated with climate hazards, namely inland flooding and extreme precipitation. Though inland flooding data via historical FEMA floodplain maps is available, projections of flood risk are not available.

Extreme climate event data is available based on precipitation averages but not for most other hazards or has been forecast at a county level. There is not enough data to effectively capture the extreme events that characterize climate change's impact on most climate hazards with a high level of certainty. This CVA process recognized that future efforts will be needed to improve data on all climate hazards to fully understand risks to inform updates to future climate assessments and adaptation plans.

Outcomes

The outcomes of the assessment process combined results from the community engagement process, which are discussed in the next section, with data and information from existing plans and policies to help inform and guide decision-making and capital project planning to address vulnerabilities. This report was designed to be accessible to the diverse community members within Los Angeles and be accompanied by multiple electronic web-based methods on the City's website for conveying information, educating end users, and fostering action. These strategies and the prioritized issues serve as a road map for future collaboration and action.

2.2. Community Partners

As part of the CVA, the City prioritized the meaningful engagement of disproportionately pollution-burdened and vulnerable communities to understand their experience of climate change hazards. This process informed the mitigation strategies documented and recommended in Chapter 4 of this CVA. Engagement was conducted through the Community Partners Program (CPP), which activated six CBOs across the City with experience in priority communities.

2.2.1. Outreach

Given the disproportionate impacts of climate change effects on low-income and disadvantaged communities, the primary goal of the CPP was to develop a complete understanding of the risks posed by climate change hazards in these priority communities. The meaningful engagement of vulnerable communities via trusted channels and a thoughtful communication strategy allowed for the development

of the proposed climate hazard mitigation strategies to be centered in equity and environmental justice.

Outreach formed detailed and contextual accounts in English and Spanish of how target demographics/geographical areas in Los Angeles currently and historically experience climate change effects. These accounts then informed specific mitigation recommendations grounded in real experiences. Objectives for the CPP included:

- Engaging with a cross-section of affected communities across the City.
- Providing involvement strategies and education in languages that resonate with target communities.
- Using a diverse array of engagement tools and communication channels to attract participation in a variety of ways.
- Providing technical data and important information in a user-friendly and engaging manner.

Priority communities were identified through a technical geographic analysis of climate risk in the City and using a variety of social demographic factors. Priority geographic focus areas initially identified included South and Southeast Los Angeles, Boyle Heights, Northeast Los Angeles, Harbor Gateway and Wilmington, and the North San Fernando Valley. Some social demographics considered included low-income communities of color; lesbian, gay, bisexual, transgender, queer or questioning, intersex, asexual or ally, and additional identities (LGBTQIA+) individuals; unhoused people; outdoor workers such as street vendors; and monolingual non-English speakers.

Potential partner CBOs were then proposed that serve or work within the various priority communities identified. The goal of CBO selection was to partner with CBOs that had a variety of climate-focused experience, expertise, and community engagement so that, on aggregate, they encompassed a majority of the social and physical vulnerabilities identified by the City and technical risk assessments. Community partners were selected based on their geographic area of service, expertise, and experience working on climate hazards and their established relationship with the vulnerable communities.

This list of CBOs was then evaluated against criteria developed by the project team to allow for a holistic comparison between them; this evaluation method created flexibility in assessing how CBOs could best fit into the program. Based on the CBO criteria, the following six CBOs were selected and agreed to take part in the CPP:

> **Fernandeño Tataviam Band of Mission Indians (FTBMI):** FTBMI is the historic tribe of the northern Los Angeles County ancestral villages from the San Fernando, Santa Clarita, eastern Simi and Antelope valleys. FTBMI is a native sovereign nation with numerous programs and departments to address disparities and equity in its community.

Pacoima Beautiful: Pacoima Beautiful is an environmental justice organization in the Northeast San Fernando Valley striving to create a safer and cleaner community.

Promesa Boyle Heights/Proyecto Pastoral: Promesa Boyle Heights is a capacity building organization in Boyle Heights that seeks to strengthen community leadership and improve opportunities for students and families.

Rising Communities: Rising Communities is a social justice organization promoting health and positive well-being in under-resourced communities across Southeast Los Angeles.

Strength Based Community Change (SBCC): SBCC is an organization addressing community activation, economic vitality, capacity building, environmental health, and youth development in Wilmington, Watts, and Harbor Gateway.

Strategic Concepts in Organizing and Political Education (SCOPE) LA: SCOPE LA is a social and economic justice organization in South Los Angeles working on capacity building among low-income, immigrant, woman, femme, black, and brown communities.

The CPP was split into four phases of engagement across multiple months:

Phase 1: Orientation and Training (February-March 2024). The City oriented the CBOs with the project and upcoming expectations and responsibilities.

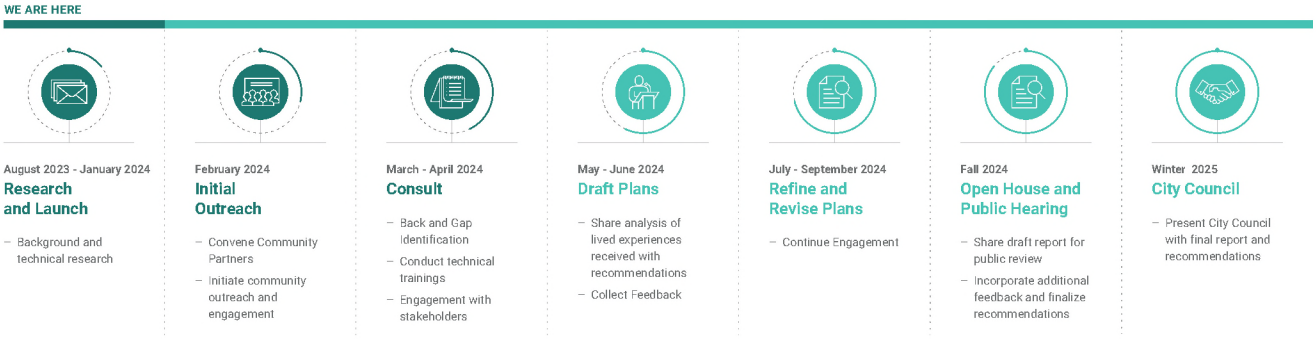
Phase 2: Lived Experiences (April-June 2024). CBOs held several outreach activities to review climate/hazard data with their community and to gather input on lived experiences of climate change hazards.

Phase 3: Mitigation Strategies (July-August 2024). The City and CBOs reviewed lived experiences, and CBOs led additional outreach and brainstorming activities on how to mitigate and adapt to climate impacts.

Phase 4: Draft CVA Report (September 2024). The draft CVA report was completed and distributed to CBO partners and other local organizations/ groups for review.

During the outreach activities within Phases 1 through 4 that took place over six months (April to September), more than 1,000 people participated in 39 events. These events took the form of meetings, focus groups, canvassing, and community workshops. Participants provided more than 800 total comments. Of those, over

Figure 2.1 — CVA Timeline[3]



400 comments were provided in Spanish. The geographies reached through this outreach included participants from the following areas:

- Boyle Heights
- Northeast Los Angeles
- Pacoima - Northeast Valley
- South Los Angeles
- Southeast Los Angeles
- Wilmington - Harbor Gateway

Once completed, a draft of the CVA report was released for public review and feedback. This was followed by a citywide informational webinar. Examples of the tools and resources the CVA community partners were provided for engagement can be found in Appendix F, subappendix 3.

2.2.2. Strategic Collaboration with Focused Engagement

Additional outreach occurred with service providers and other community organizations and vulnerable populations. They learned about the CVA process and the opportunity to shape mitigation strategies for their community. This targeted outreach focused on ensuring that all the vulnerable populations the climate data identified were included in the meaningful engagement and co-designing of the CVA. Some of these strategic collaborations included unhoused service providers; outdoor worker focus groups; Anawakalmekak, an indigenous charter school; and the Gabrielino-Shoshone Tribal Nations. Additionally, another community organization that provided input in this strategic collaboration was North East Trees, which focuses on environmental justice through urban forestry, nature-based solutions, and other forms of community action.

[3] City of Los Angeles Department of City Planning

2.2.3. Community Profiles

City Profile

Los Angeles comprises nearly 498 square miles. The unique topography and historical development patterns leave much of the City vulnerable to climate hazards that are expected to become worse over time. Climate vulnerability is compounded by health disparities, uneven pollution patterns, characteristics of urban environments, lack of tree canopy and shade equity, and significant social vulnerability. Because of the City's unique topography, several climate hazards pose increased levels of risk. Cascading impacts of climate hazards could make a typical weather event worse because of the notable vulnerabilities present within the profiles of some Los Angeles communities.

The City is home to nearly 4 million people with dramatically different built environments and access to resources. Because of the large population and land area, Los Angeles includes a wide range of diverse communities with different interests and needs regarding climate change. The Health Atlas for the City of Los Angeles (2021) provided "a data-driven snapshot of health conditions and outcomes" and underscored that the geographic location where Angelenos live often influences their health and well-being. In the CVA, this data was combined with climate hazard risks to understand how vulnerable populations across the City's diverse communities could be affected by climate change. Community input was not intended to be comprehensive. Instead, outreach was intended to take a snapshot of lived experiences from some communities that would generally represent how the everyday human needs may be affected by climate change across the communities.

In general, the Los Angeles area has a mild climate characterized by warm, dry summers and cool, wet winters. Temperature and precipitation vary considerably with elevation, topography, and distance from the Pacific Ocean. A storm producing moderate rainfall on the coast (1 inch during a 24-hour period) may produce very heavy rainfall in the mountains (10 to 20 inches during the same 24-hour period). Changing environmental conditions because of climate change have caused variations in these average climate and rainfall conditions, exacerbating natural hazards and causing several notable cascading impacts detailed in this CVA.

The population of Los Angeles is concentrated in urban centers, which are interspersed by low-density residential neighborhoods. Much of the City is built within old floodplains or adjacent to the Pacific Ocean. Development in the hills and mountainous areas is challenging because of steep slopes, landslide areas, and unpredictable bedrock. Vulnerability to fires and flooding has increased as development has encroached into remaining open spaces. Concentrated development and infrastructure have increased the vulnerability of greater numbers of people, businesses, and facilities to seismic, fire, and flood events while providing greater resources for responding to such events. According to LACP data, there are 739,644 buildings in the planning area. Analysis indicates a total replacement value

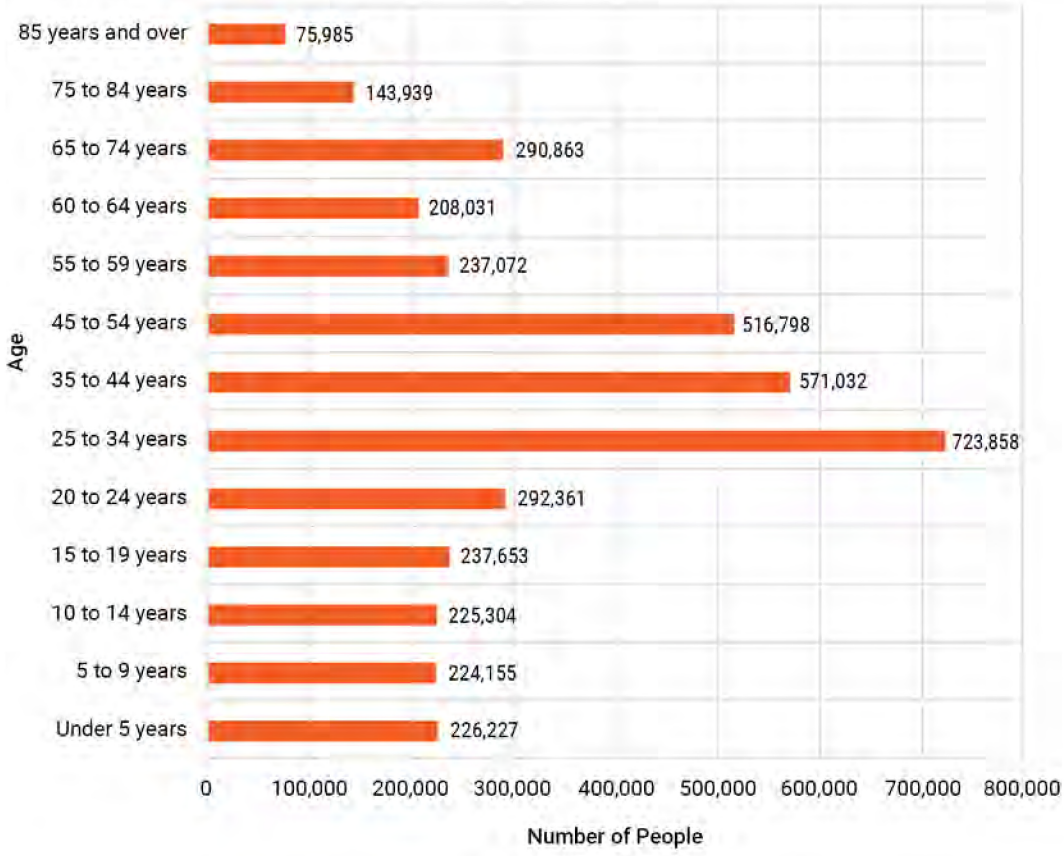
of $781.6 billion for these buildings. Residential buildings make up 93.5% of the total number of buildings and 78% of the total replacement cost value.

Population and Community Characteristics

The City of Los Angeles is the most populous city in California, with an estimated population of 3,870,946, according to 2020 decennial U.S. census data. The California Department of Finance estimates the City's population as of January 1, 2023, to be 3,766,109. The vulnerability assessments included in Chapter 3 of this report use the 2020 U.S. census population.

The overall age distribution for the planning area is shown in Figure 2.2. Based on the most recent 5-year estimates from the U.S. Census Bureau's American Community Survey (2011-2015), 11.2% of the planning area's population is 65 or older. According to U.S. census data, 38.6% of the over-65 population have disabilities of some kind, and 16.2% have incomes below the poverty line. The City's population includes 18.1% who are 14 or younger. Among children under 18, 32% are below the poverty line.

Figure 2.2 — Age Distribution in Los Angeles[4]

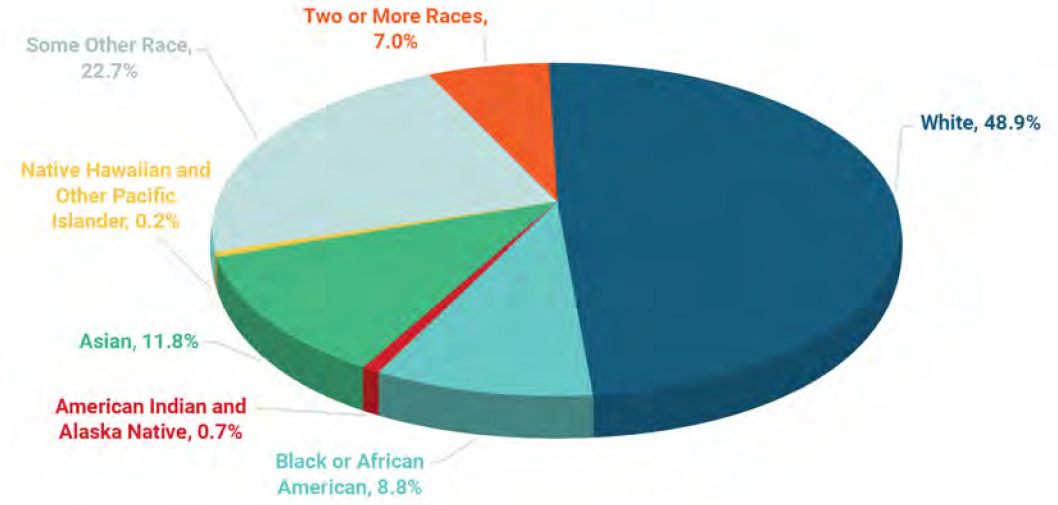


[4] U.S. Census Bureau; City of Los Angeles 2024 Local Hazard Mitigation Plan

Figure 2.3 shows the U.S. census 2015 racial distribution in the City of Los Angeles based on race categories mandated by U.S. Office of Management and Budget standards. The Census Bureau also reports that 47.8% of the population is of Hispanic origin, which indicates the heritage, nationality, lineage, or country of birth of the person or the person's parents or ancestors before arriving in the United States, and may be any race.

The planning area has a 38.2% foreign-born population. Other than English, the most commonly spoken language in the City is Spanish. The census estimates that 27.7% of residents speak English "less than very well."

Figure 2.3 — Racial Distribution in Los Angeles[5]



The City's General Plan and Zoning Code guide local development. As of 2024, the Land Use Element of the General Plan defines 35 CPAs for guidance of the physical development of neighborhoods. Community Plans for each CPA include guidance and policies for land use and implementation actions that complement the strategies included in this CVA.

Some communities may recognize portions of these CPAs with separate identities as part of their lived experience. For the purposes of planning, the City's General Plan Framework Element groups these CPAs as follows:

[5] U.S. Census Bureau; City of Los Angeles 2024 Local Hazard Mitigation Plan

Metro Geographic Area (Central/East)

1. Boyle Heights
2. Central City
3. Central City North
4. Hollywood
5. Northeast Los Angeles
6. Silver Lake - Echo Park
7. Westlake
8. Wilshire

South Geographic Area

9. South Central Los Angeles
10. Southeast Los Angeles
11. West Adams - Baldwin Hills - Leimert Park

Valley Geographic Area

12. Arleta - Pacoima
13. Canoga Park - Winnetka - Woodland Hills
14. Chatsworth - Porter Ranch
15. Encino - Tarzana
16. Granada Hills - Knollwood
17. Mission Hills - Panorama City - North Hills
18. North Hollywood
19. Northridge
20. Reseda - West Van Nuys

21. Sherman Oaks - Studio City - Toluca Lake
22. Sun Valley
23. Sunland - Tujunga - Shadow Hills - Lakeview Terrace
24. Sylmar
25. Van Nuys - North Sherman Oaks

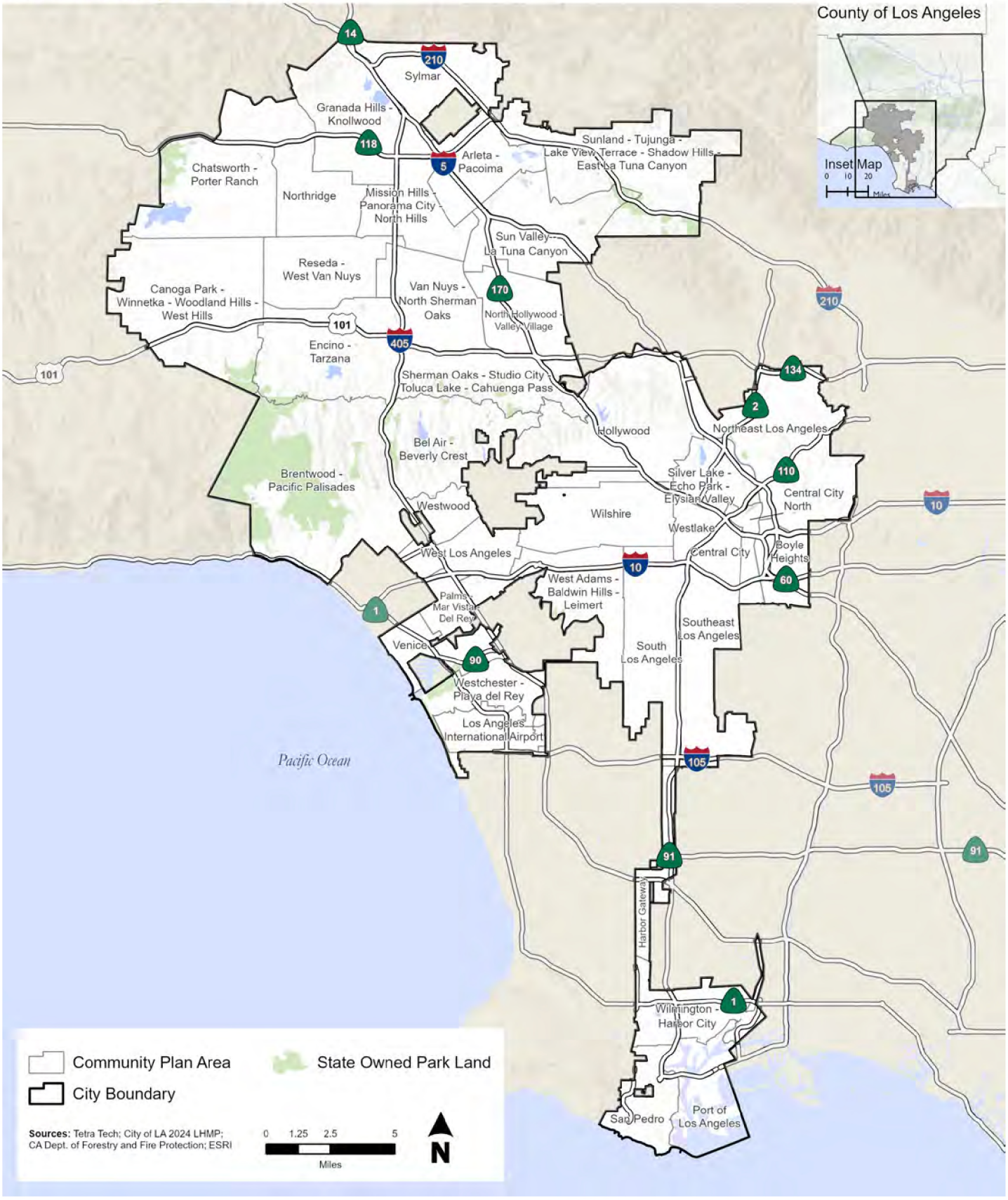
West/Coastal Geographic Area

26. Bel Air - Beverly Crest
27. Brentwood - Pacific Palisades
28. Harbor Gateway
29. Palms - Mar Vista - Del Rey
30. San Pedro
31. Venice
32. West Los Angeles
33. Westchester - Playa del Rey
34. Westwood
35. Wilmington - Harbor City

Some communities stretch across larger geographies because of the natural movement of people and because what is now recognized as Los Angeles is the traditional homeland of Indigenous people. Additionally, many people from tribal nations outside the Los Angeles region have relocated to this area as it has developed. In total, 28,732 people living in Los Angeles identified as American Indian and Alaska Native in the 2020 census.

The City of Los Angeles developed the Community Health and Equity Index to examine the spatial relationship between vulnerable populations, social and economic factors, mortality, morbidity, the physical environment, pollution, and crime and to identify the areas of the City burdened with the most adverse conditions. Some populations are at greater risk from climate change because of these factors. People living near or below the poverty line, the unhoused, the elderly, individuals with disabilities, women, children, ethnic minorities, and renters can experience more severe effects from

Figure 2.4 — Community Plan Areas



disasters than the general population. These socially vulnerable populations may vary from the general population in a variety of ways:

- Risk perception
- Living conditions
- Access to information before, during, and after a hazard occurrence
- Capabilities during an incident
- Access to resources for post-disaster recovery

Indicators of social vulnerability, such as disability, age, poverty, race and ethnicity, often overlap spatially and are frequently in areas most at risk from natural hazards. Human-caused hazards may also present additional challenges for the socially vulnerable, depending on the severity, extent, location, and other elements of the hazard event. A full discussion of vulnerable populations is provided in Chapter 3.

The Plan for a Healthy Los Angeles[6] serves as the Health Element for the General Plan. Combined with the 2021 Health Atlas, these two resources provided a data-driven basis for the CVA by summarizing key health issues and outcomes. It is important to underline stressors from climate change that can make additional burdens when people are already vulnerable. The Plan for a Healthy Los Angeles highlights many important public health facts. Some that directly relate to, and provide context for, the CVA are:

- Over 20% of adults and 25% of children in Los Angeles were obese in 2007.
- Over 10% of adults in some socially vulnerable neighborhoods are living with diabetes. Coronary heart disease and respiratory illness are leading causes of death throughout the City. Though chronic health conditions are a citywide problem, the Health Atlas found that many of the low-income communities face disproportionately higher rates of poor health outcomes and greater obstacles to achieving good health. This further highlights the need for policies to improve opportunities and quality of life in the most underserved communities. The data illustrates that poor health outcomes are highly concentrated in a few communities. Geographic location is an important indicator of health. For example: a Brentwood resident can expect to live 12 years longer than a resident from Watts.
- Residents in affluent neighborhoods such as Bel Air - Beverly Crest and Brentwood - Pacific Palisades make more than 12 times the per capita income of residents in the poorest neighborhoods such as Boyle Heights and South Los Angeles.

[6] The Plan for a Healthy Los Angeles

- Over 90% of adults located in the western parts of Los Angeles have a high school diploma, compared with less than 50% in neighborhoods such as Boyle Heights, South Los Angeles, and Arleta - Pacoima.
- Over 30% of children in South Los Angeles, Southeast Los Angeles, Boyle Heights, and neighborhoods near the Port of Los Angeles are obese, compared with less than 12% of children in Bel Air - Beverly Crest and Brentwood - Pacific Palisades.
- Residents in Westlake and Southeast Los Angeles have less than half an acre of park space available per 1,000 residents, significantly lower than the City average of 8.9 acres.
- Pedestrians and cyclists represented over 50% of the City's traffic fatalities in 2010.
- Less than 10% of adults in South Los Angeles and in some communities near the Port of Los Angeles report eating the recommended five servings of fruits and vegetables a day.
- Average annual homicide rates in some higher income neighborhoods were nearly zero, compared with more than 20 homicides per 100,000 residents in Southeast Los Angeles, South Los Angeles, and West Adams - Baldwin Hills - Leimert Park.
- Over 60% of residents in areas around South Los Angeles are cost-burdened by housing, paying more than 30% of their income on housing costs.
- Over 20 ZIP codes in Los Angeles are within the state's 10% most polluted communities.
- The Los Angeles County Health Department designates geographic service areas called health districts. Less than 50% of adults in South and Southwest Health Districts reported achieving sufficient emotional and social support, compared with a countywide average of 64% and averages in the West and Northeast Health Districts of more than 80%.

The concentration of economic factors and health issues results in great disparities among many communities in Los Angeles. However, Angelenos are constantly developing ways to adapt to the multiple challenges they face and have valuable insights on ways to adapt to climate change. This CVA recognizes that climate data does not always consider the context of daily life exposures and their impacts. This is why lived experiences were gathered throughout the community engagement process and serve as the basis of CVA recommendations in this report. Social vulnerability and physical vulnerability to climate change with the context of these community characteristics are discussed within the context of climate impacts in Chapter 3.

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3. Lived Experience With Climate Impacts: A Vulnerability Assessment

3.1. Vulnerability

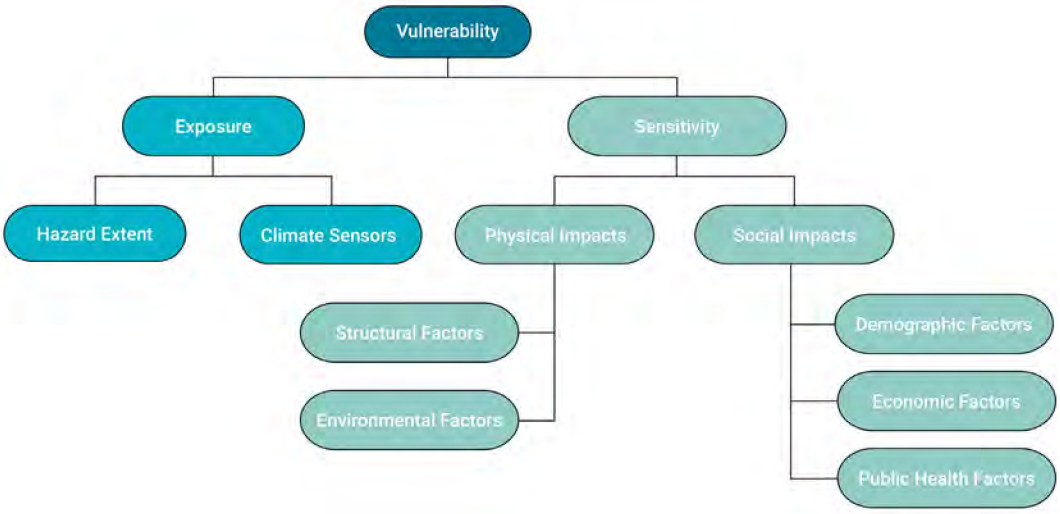
While everyone is affected by climate change, not everyone is affected equally. The likelihood that a person, place, or thing will be harmed is called **vulnerability**. What makes something more likely to experience harm depends on internal and external factors. These factors are also called **sensitivity** and **exposure**.

- **Vulnerability** is the likelihood of being harmed.
- **Exposure** is the physical contact or intersection with a hazard.
- **Sensitivity** is the capacity to return to daily life or function when conditions change.

For example, an individual who lives in an area **exposed** to flooding is more likely to be affected by a flood when it occurs. Individuals with limited income may have additional constraints. Repairing or replacing damaged property may be costly and may not be fully covered by insurance, if at all. Alternative transportation options may not be available potentially impacting their ability to go to work. Additionally, individuals may not have the ability to take time off of work to address these issues. As a result, these individuals are more **sensitive** to flooding.

The likelihood of individuals being exposed to Extreme Heat, Extreme Precipitation and Flooding, Drought, and Wildfire is also increasing as climate change continues to increase. With rising temperatures, precipitation rates, and sea levels, these events

Figure 3.1 — Climate Vulnerability Assessment Framework



are expected to become more frequent and severe, increasing overall exposure. Individuals and communities will become more sensitive as people and communities are affected by future events over time. Barriers created by race, gender, and language accessibility, for example, contribute to social vulnerability. Social vulnerability refers to the demographic and socioeconomic factors that adversely affect communities that encounter hazards and other community-level stressors (CDC 2024). Understanding exposure and sensitivity are critical to adapting to a future in which all people are expected to be more vulnerable because of increases in hazard frequency and intensity.

Every community consists of a network of assets that serve its residents' fundamental needs. For the purposes of this assessment, these assets are called **resilience assets**. When working properly, resilience assets work together to enable all other aspects of society to function.

- **Resilience assets** are the services, capabilities, and physical assets used every day to support a community's ongoing fundamental needs and can absorb disturbances or disruptions while adapting to stress and change.

The assessment organizes resilience assets into specific categories aligned with the Community Lifelines framework developed by FEMA. This framework emphasizes vital community functions crucial for human health and safety as well as economic stability. Categorizing resilience assets in this manner allows for a thorough evaluation that considers the interconnected nature of these assets.

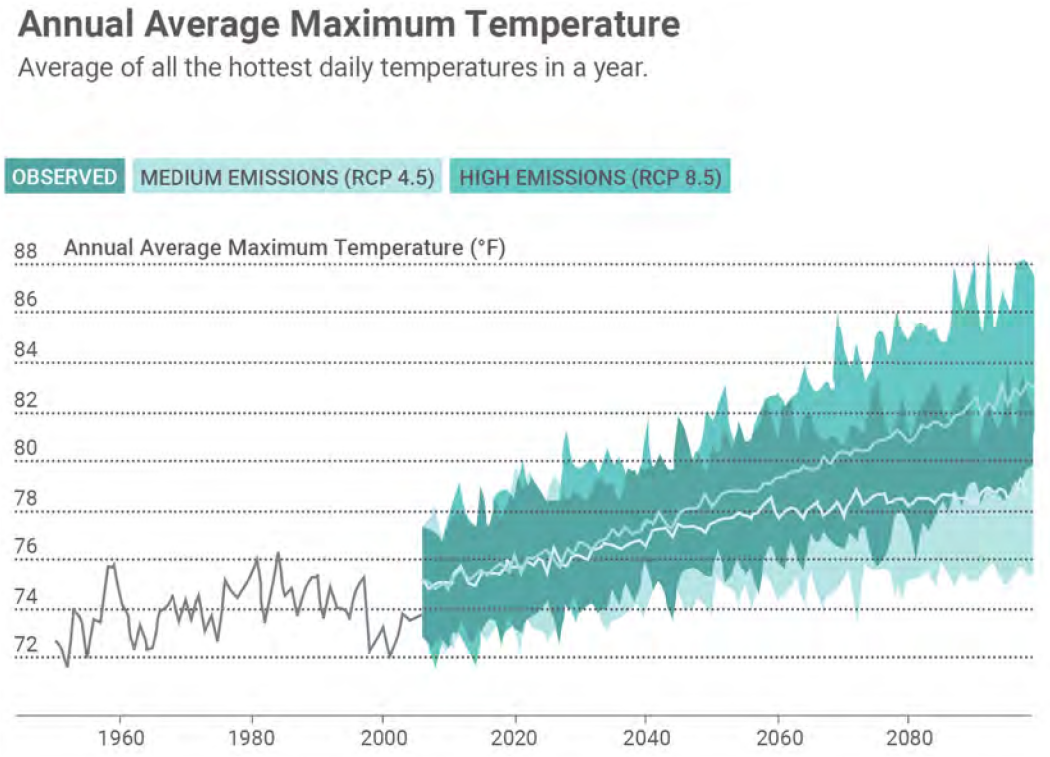
- **Communications** includes assets that allow people to exchange information with each other.
  - **Examples:** Communication towers, responder communications, alerts, warnings, and messaging systems, finance, and 911 and dispatch services.

- **Energy** includes assets that power homes, businesses, hospitals, and other essential services.
  - **Examples:** Power grids and fuel supplies.
- **Food, Hydration, Shelter** includes assets that provide for basic human needs.
  - **Examples:** Food and water suppliers, shelter locations, and agriculture.
- **Hazardous Material** includes assets that protect people from environmental risks through safe handling and disposal of potentially harmful substances
  - **Examples:** Hazardous materials facilities, HAZMAT, pollutant, and contaminant control.
- **Health and Medical** includes assets that take care of community well-being through disease prevention and emergency response.
  - **Examples:** Medical care, public health, patient movement, medical supply chain, and fatality management.
- **Safety and Security** includes assets that protect communities and the things people care about from potential harm or damage.
  - **Examples:** Law enforcement, security, fire services, search and rescue services, government services, and community safety (including dams).
- **Transportation** includes assets that allow people to move throughout a city to access jobs, education, health care, and other everyday activities.
  - **Examples:** Highway, roadway, and motor vehicle networks; mass transit; railways; aviation; and maritime facilities.
- **Water Systems** include facilities that provide clean water for drinking, agriculture, sanitation and public health, and safety, such as firefighting.
  - **Examples:** Potable water and wastewater infrastructure.

3.2. Climate Change

Climate change continues to be documented, showing more evidence of its existence and impacts. Since 1895, the six hottest years recorded in California have all occurred since 2014 (Frankson, et al. 2022). From 1960 to 1990, the average maximum temperature for any given day was 74.2 degrees Fahrenheit. By 2050, the annual average maximum daily temperature will rise 3.7 to 4.6 degrees Fahrenheit compared with present conditions. By 2100, it will be 4.8 to 7.9 degrees higher (Cal-Adapt 2019). These changes may seem minor from day to day. On a long-term and persistent scale, rising temperatures pave the way for a domino effect to occur that affects everyone in multiple ways.

Figure 3.2 — Local Climate Change Snapshot for Los Angeles [7]



About the Data

Projections of daily temperature and precipitation over California at a resolution of 1/16° (about 6 kilometers, or 3.7 miles) were generated to support climate change impact studies for the energy system and other sectors to support California's Fourth Climate Change Assessment.

The localized information presented within this tool originates from model grid-cells corresponding to the regions selected by the user. Each grid-cell represents climate conditions within a square area of 6 kilometers by 6 kilometers (3.7 miles by 3.7 miles). Climate models are global, usually representing areas about 100 kilometers by 100 kilometers. To get more representative projections for California's complex geography, global climate models are "downscaled" using the Localized Constructed Analogues (LOCA) statistical method (as described in Pierce et al, 2018). This downscaling approach was the chosen approach for California's Fourth Climate Change Assessment.

The climate models presented here make predictions for the period of 2006 to 2100, and recreate the historical climate for the period 1950 to 2005. Two future climate projections using medium and high greenhouse gas and aerosol emissions scenarios are presented here. These scenarios are known as Representative Concentration Pathways (RCP). Each RCP represents a standardized set of assumptions of humanity's trajectory in the coming years.

- The Medium Emissions Scenario (RCP 4.5) represents a mitigation scenario where global CO2 emissions peak by 2040 and then decline. Statewide, temperature is projected to increase 2-4 °C for this scenario by the end of this century.
- The High Emissions Scenario (RCP 8.5) represents a scenario where CO2 emissions continue to rise throughout the 21st century. Statewide, temperature is projected to 4-7 °C by the end of this century.

LOCA uses historical observations to add improved fine-scale detail to global climate models. For daily precipitation, maximum, and minimum temperature, LOCA uses the Livneh data over the period 1950-2005. Historical observed data from approximately 20,000 NOAA Cooperative Observer stations form the basis of this gridded dataset. Details are described in Livneh et al., 2015.

[7] Cal-Adapt. 2018. "Local Climate Change Snapshot for Los Angeles."

3.2.1. Future Conditions and Impacts

As temperatures continue to rise, changes to the water cycle and other environmental conditions, such as soil moisture, are triggered. The impacts of global warming have altered the Earth's climate. In many instances, the changes lead to conditions of increased number of and length of storms and increased risk to flooding, drought, wildfires, sea level rise, and human health impacts that people are not prepared for based on how everything has been done in the past. Future conditions will affect every aspect of everyday life, including the way the City considers building, power generation, commuting options, and greening opportunities. The following section summarizes how climate change is anticipated to affect the City and how frequently and to what severity the City will be impacted by extreme heat, extreme precipitation and flooding, drought, wildfire, and sea level rise.

Extreme Heat

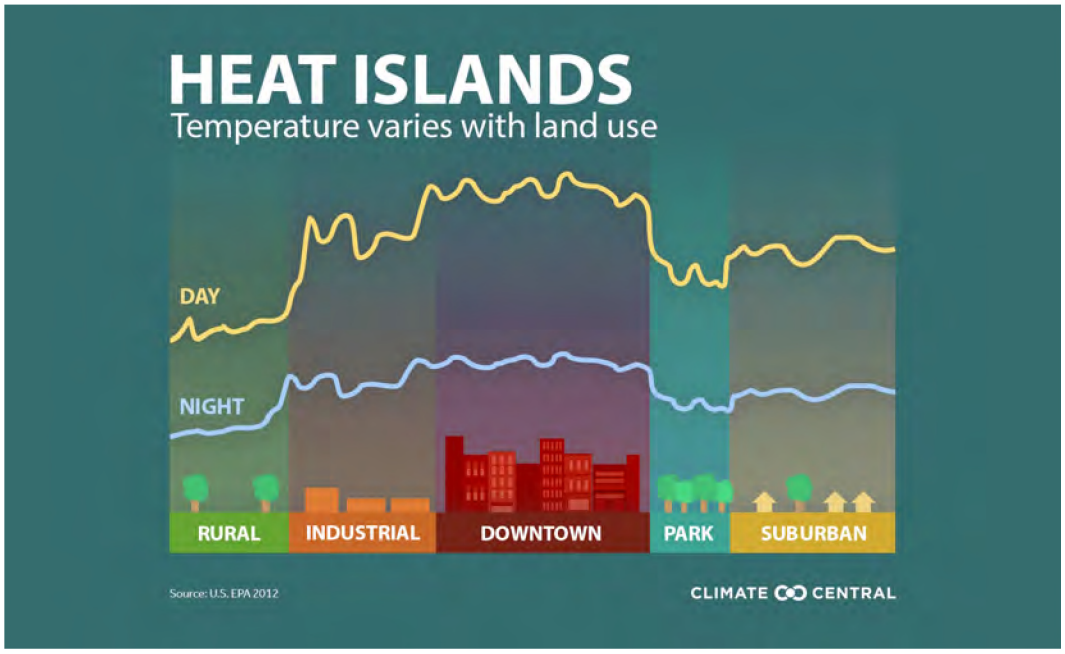
The most significant climate change impact in Los Angeles is considered to be extreme heat. **Extreme heat** events are at least two to three days with temperatures and humidity levels that exceed seasonal averages. For this assessment, an extreme heat event is any day when the maximum air temperatures exceed 95.2 degrees Fahrenheit, which is hotter than 98% of daily maximum temperatures recorded from 1961 to 1990 (Cal-Adapt 2019).

In Southern California, heat waves lasting longer than six days were not observed until 1956, when the first six-day heat wave was recorded. Heat waves lasting six days or more began to regularly occur in the 1970s (Tamrazian, et al. 2008). Major cities across the United States, including Los Angeles, are experiencing more frequent, prolonged, and intense extreme heat events (EPA 2022).

Urban areas, such as Los Angeles, are more likely to experience extreme heat events because of the **urban heat island effect**. The urban heat island effect is when densely developed areas with more buildings and paved roads and fewer green spaces are hotter than surrounding rural or suburban areas. This happens because the materials used to build homes, roads, and other development such as concrete, asphalt, and glass, absorb and trap more heat. Natural landscapes such as grass, trees, and native vegetation tend to not absorb as much heat. This heat is then slowly released over time, making it feel much hotter than surrounding areas. Furthermore, heat domes and extreme heat can stagnate air pollution, creating greater risks to vulnerable areas with disparities. This leads to greater excess deaths and hospitalizations in those communities most exposed to stagnant air pollution.

A 2022 study by UCLA documented the combined impacts of extreme heat and social vulnerability on community health and found that extreme heat led to more than

Figure 3.3 — Heat Islands[8]



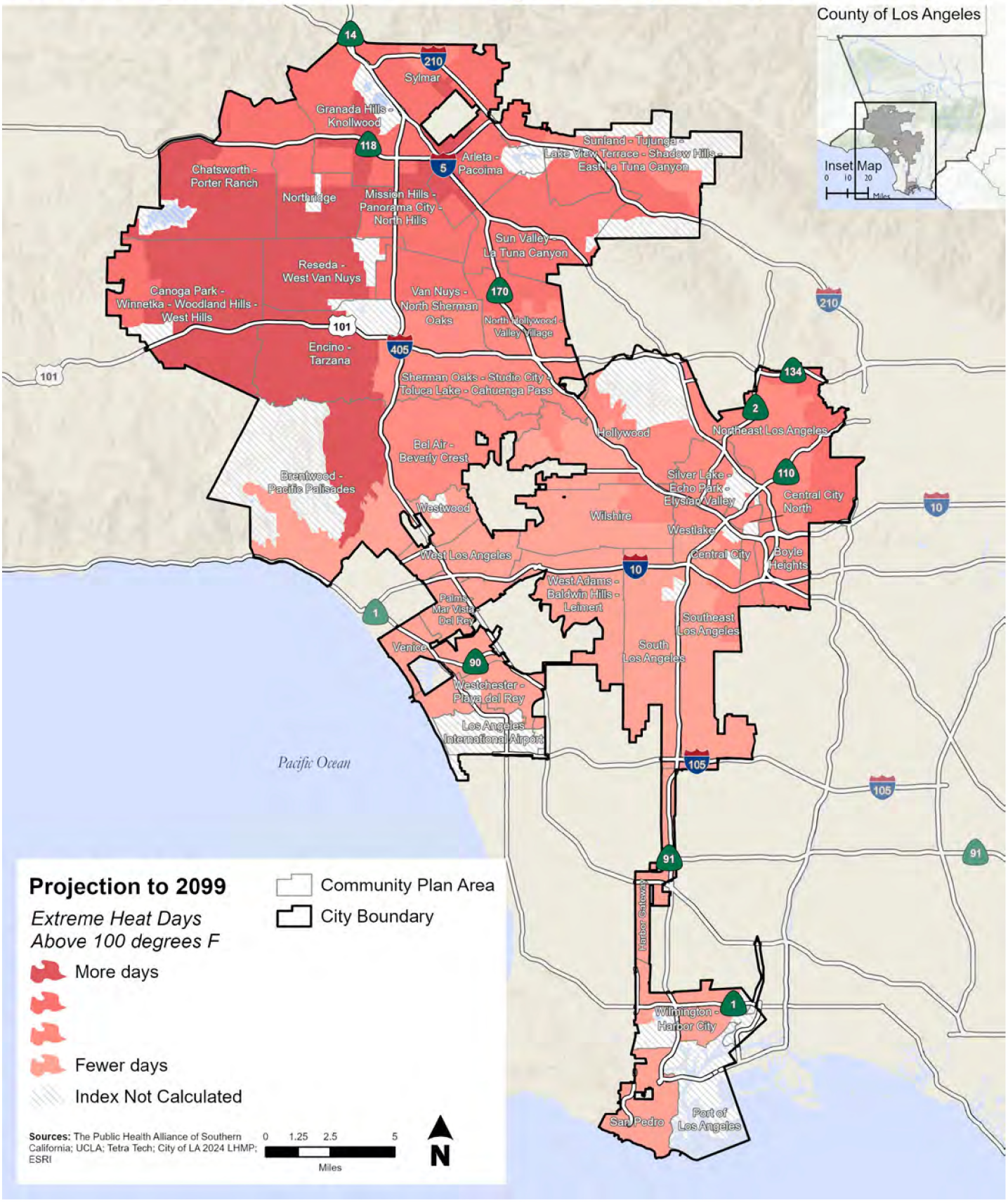
1,500 excess emergency room visits per "heat day" in Los Angeles County based on data from multiple years. The researchers found that there was a clear disparity between neighborhoods. Areas with higher incomes and more green space experienced fewer visits. Neighborhoods with fewer green spaces and more pavement had higher occurrences of underlying health issues. For example, the study found that the West Adams neighborhood in South Los Angeles averaged excess emergency room visits at a rate four times that of the westside neighborhood of Rancho Park.

As everyday temperatures rise, extreme heat events become more likely. From 1961 to 1990, Los Angeles experienced an average of two extreme heat days. By 2050, there may be nine to 14 extreme heat days each year. By 2100, it may rise to 15 to 30 days annually (Cal-Adapt 2019). In the past, these types of events would last around two days. By 2050, the average extreme heat event may last four to five days (Cal-Adapt 2019). By 2100, a typical extreme heat event could span five to eight days.

These types of extreme heat days threaten health and well-being. Furthermore, some people and neighborhoods are more vulnerable than others. Any extreme heat day that results in negative public health impacts is called a **heat health event** (HHE). By 2050, Los Angeles will experience 24 HHEs on average every year. By the end of this century, 36 HHEs each year may be more typical (CHAT 2024). Out of the 35 CPAs, five are especially vulnerable to HHEs, including Boyle Heights, Southeast Los Angeles, South

[8] Climate Central. "Urban Heat Islands Temperature Infographic."

Figure 3.4 — Extreme Heat



Los Angeles, Wilmington, and Northeast Los Angeles. Neighborhoods that are socially vulnerable and face extreme heat risk are Arleta - Pacoima, Boyle Heights, Canoga Park - Winnetka - Woodland Hills, Central City, Central City North, Harbor Gateway, Mission Hills - Panorama City - North Hills, Reseda - West Van Nuys, San Pedro, South Los Angeles, Southeast Los Angeles, Sun Valley - La Tuna Canyon, Sylmar, Van Nuys - North Sherman Oaks, West Adams - Baldwin - Leimert Park, Westlake, Wilmington - Harbor City, and Wilshire.

Extreme heat also affects how efficiently or effectively infrastructure functions. If facilities are not built to withstand high temperatures, they are especially vulnerable to damage. Other facilities, such as health and medical, may be pushed to their capacity limits or may be vulnerable to secondary impacts, such as power outages. The estimated number of Los Angeles' resilience assets exposed to extreme heat is minimal. Examination of facilities beyond the scope of this report would be needed to understand specific negative impacts from this exposure. Compared with areas that have fewer exposed assets, these neighborhoods and their residents may be more likely to experience impacts such as power outages, strained community health centers, and even complications with transportation networks.

EMD leads the City's efforts in the development of citywide emergency plans, which are in the Emergency Operations Master Plan and Master Procedures and Annexes. EMD also updates and disseminates guidelines for emergency response and recovery plans. In addition, it reviews and tests the emergency plans of City departments and agencies to make sure they are ready to respond to various emergency situations including climate hazards.

Extreme Precipitation and Flooding

Extreme precipitation refers to heavy rainfall in a short period. In urban areas, buildings, highways, and other paved surfaces reduce the ground's ability to absorb rainfall, causing more water to enter the storm drainage system. This is known as storm runoff. When precipitation falls faster than it can be absorbed by the ground or drainage systems, it results in **flooding**. Flooding is the temporary overflow of excess water from rainfall or waterbodies onto typically dry land. For this assessment, an extreme precipitation event is any two-day period that records at least 1.38 inches of precipitation. That type of rain event is greater than 95% of totals recorded during two-day precipitation events from 1961 to 1990 (Cal-Adapt 2019).

The warmer the air is, the more water it holds. More moisture in the atmosphere means more precipitation. These changes will intensify seasonal patterns. The spring and summer months will receive less precipitation, whereas fall and winter months will receive more precipitation. From 1950 to 2013, Los Angeles County received 2.14 inches of rain from April to September and 14.26 inches from October to March

(NOAA 2024). The forecasts for 2100 indicate Los Angeles County will receive 7% to 16% less rainfall during the spring and summer and 4% to 5% more during the fall and winter (NOAA 2024).

More precipitation during the fall and winter months may seem beneficial because of the City's reliance on the Eastern Sierra snowpack. However, as temperatures rise, precipitation will come as rain rather than snow that can later melt to provide water during the dry season. As winter precipitation shifts from snow to rain, more water will flow into downstream areas and urban centers, making floods more likely. The forecasts for 2100 indicate the Sierra Nevada will produce 50% more runoff compared with rates recorded from 1996 to 2005 (Huang, et al. 2020).

This assessment focuses on four flood events based upon different amounts of rain over a 24-hour period and how frequent storms with that amount of rain happen within a watershed. These events represent different intensities of flooding events.

- A **10-Year Annual Chance Flood** has a 10% chance of occurring or being exceeded each year. This type of storm would be an above-average storm such as a heavy summer thunderstorm, which could produce about an inch or more of rain in one hour that results in flooding. This is the most common and least intense event of the flood events in this assessment.
- A **50-Year Annual Chance Flood** has a 2% chance of occurring or being exceeded each year. An example of this type of event would be a flood caused by above-average precipitation from a large storm such as a tropical storm or a similar type of storm that rains heavily over several days, which could be about 2 inches or more of rain in one hour that results in flooding. This is the second highest potential chance of flood and a higher intensity event than a 10-year flood but is less intense than a 100-year flood.
- A **100-Year Annual Chance Flood** has a 1% chance of occurring or being exceeded each year. An example of this type of event would be a flood caused by high rates of precipitation from a larger storm such as a tropical storm or a similar type of storm that rains heavily over several days, which could be about 2 inches or more of rain in one hour that results in flooding. This has a lower potential chance of flood than a 50-year flood and would be more intense than a 50-year flood but is less intense than a 500-year flood.
- A **500-Year Annual Chance Flood** has a 0.2% chance of occurring or being exceeded each year. The event could have about 3 inches or more of rain in one hour that results in flooding. For example, Hurricane Hillary dropped 4 inches of rain in an hour and was nearly a 500-year storm in 2023. This is the least common and most intense event of the flood events in this assessment.

Figure 3.5 — Flood Hazard Area

City of Los Angeles

Flood Hazard Area

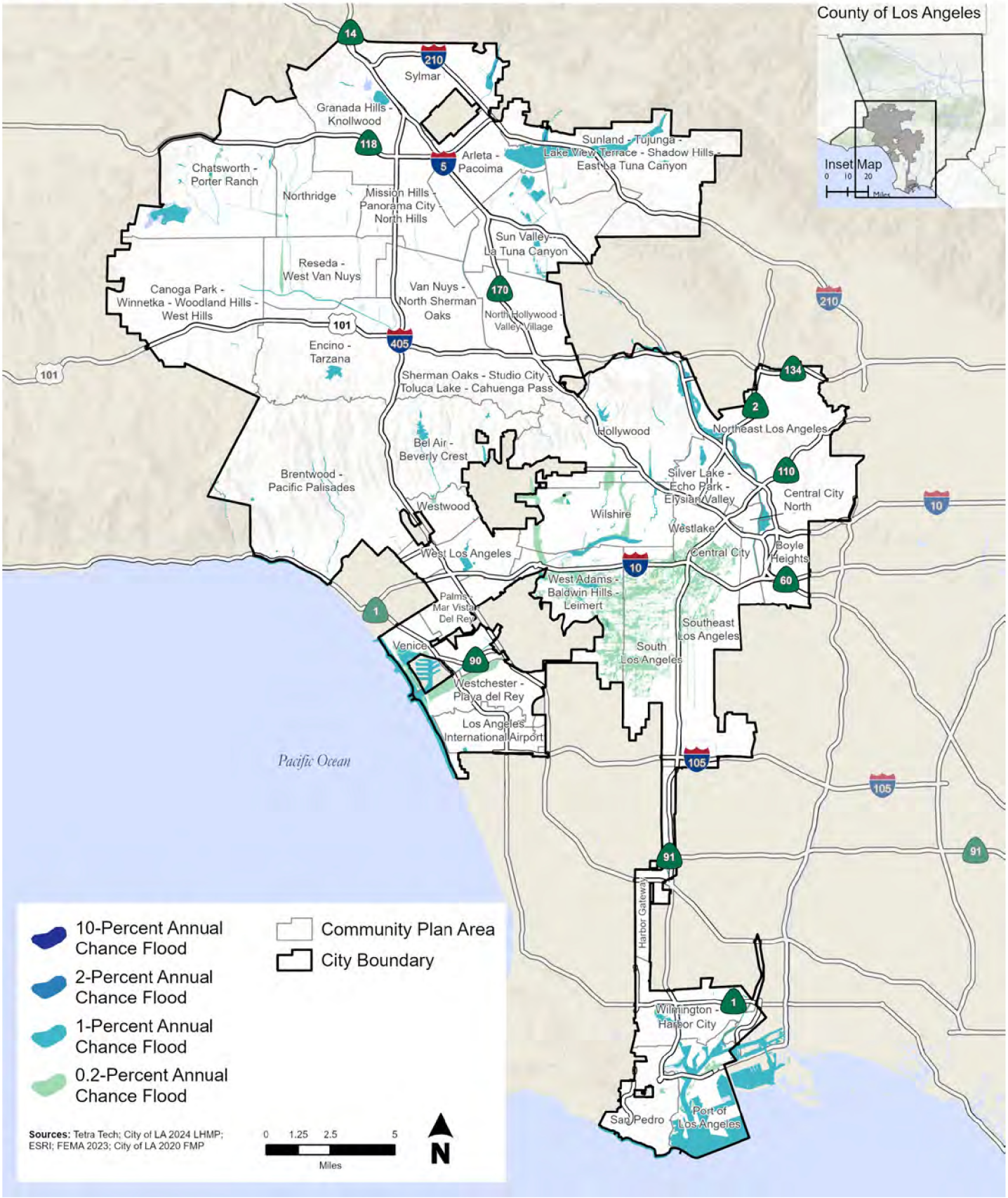
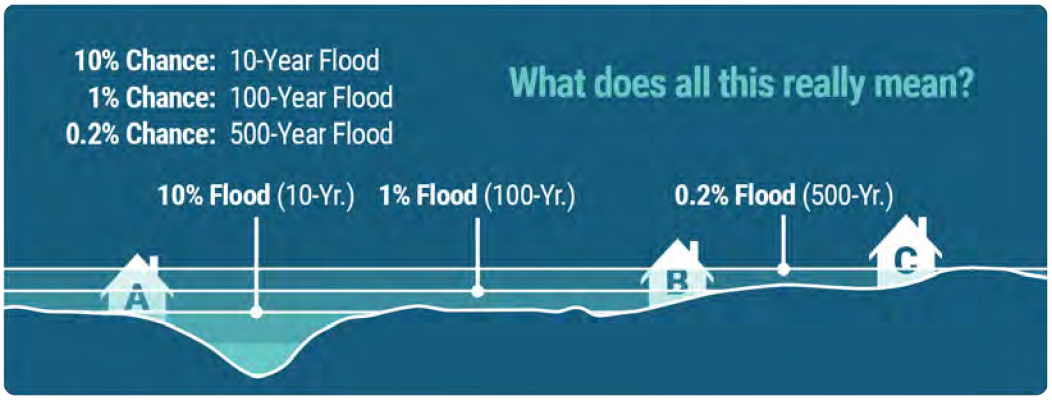


Figure 3.6 — Floodplain[9]



The majority of Los Angeles is not at risk of flooding. However, some areas, such as coastal communities and those containing rivers, lakes, and other waterbodies, face more exposure. CPAs to the north, including Chatsworth - Porter Ranch and Granada Hills - Knollwood, have some exposure to the 10-year flood. Coastal areas tend to have higher exposure to the 100-year flood, such as Los Angeles International Airport, Venice, Westchester - Playa del Rey, San Pedro, the Port of Los Angeles, and Wilmington - Harbor City. Areas that may be exposed to the most extreme event, the 500-year flood, are concentrated in some of the most highly developed areas, including South Los Angeles, Westlake, Central City, Central City North, the Port of Los Angeles, Westchester - Playa del Rey, Venice, and Los Angeles International Airport.

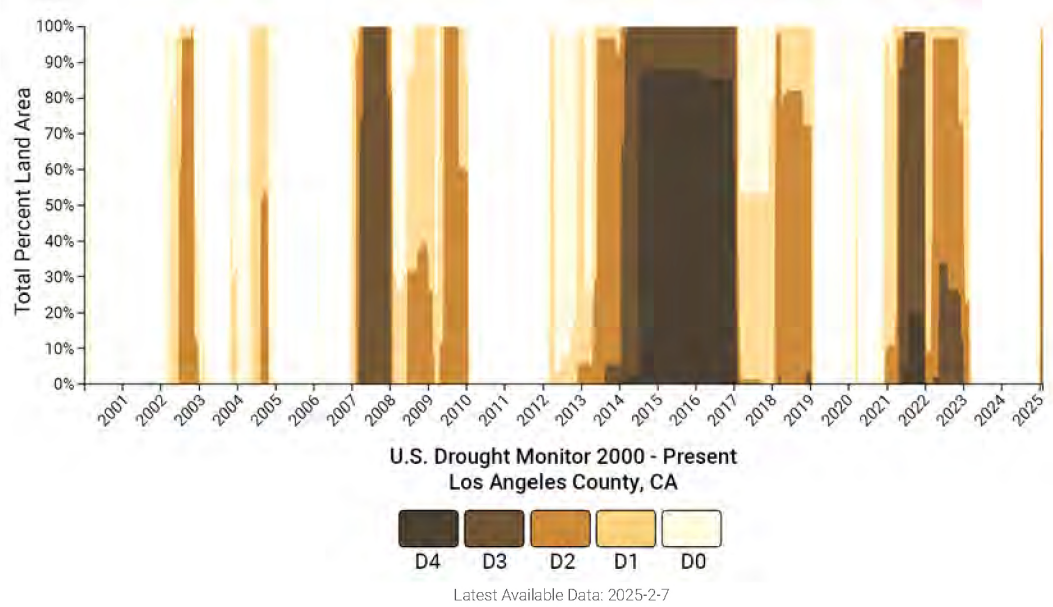
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Drought

Drought is a period of abnormally dry weather and little precipitation that causes water shortages that affect everyday life. Drought reduces the amount of water available for human consumption, watering crops and green spaces, maintaining personal hygiene, and supporting recreation and wildlife habitats, among other impacts. Because droughts affect regions and widespread areas, the entire City is considered exposed to drought for this assessment.

[9] FEMA Region 3. 2021. "Reducing Risk in the Floodplain (Version 1)."

Figure 3.7 — Historical Drought Data 2000-Present[10]



The U.S. Drought Monitor (2000-present) depicts the location and intensity of drought across the country. Every Thursday, authors from the National Oceanic and Atmospheric Administration (NOAA), the U.S. Department of Agriculture (USDA), and the National Drought Mitigation Center (NDMC) produce a new map based on their assessments of the best available data and input from local observers. The map uses five categories: Abnormally Dry (D0), showing areas that may be going into or are coming out of drought, and four levels of drought (D1–D4).

A drought can occur naturally because of precipitation patterns and social factors, such as increased water use. However, climate change greatly influences how frequently a drought may form as well as how severe it will be. Since 2000, Los Angeles has experienced more intense and prolonged droughts. Climate projections show droughts will occur more often and increase in length and severity because of hotter temperatures and changes to seasonal precipitation trends.

In recent decades, the City has experienced increasingly frequent and intense drought conditions and dry spells. These events include, but are not limited to, the following recorded droughts (City of Los Angeles 2024):

- **2020-present:** The California Department of Water Resources reported the 2020-22 water year was the driest on record since 1924. A state of emergency was declared, requiring local water suppliers to implement contingency plans and prepare for potential prolonged dry conditions.
- **2012-16:** California experienced its driest three consecutive years, resulting in a state of emergency declaration. As the drought worsened, the State Water Resources Control Board implemented mandatory water reductions.

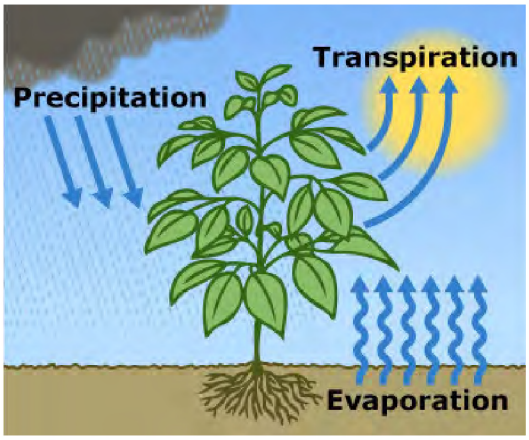
[10] National Integrated Drought Information System. 2024. "U.S. Drought Monitor: Los Angeles, California."

- **2007-09:** In spring 2008, California recorded its driest spring and lowest snowmelt runoff on record. A state of emergency was declared, and the largest court-ordered water restriction at the time was implemented.
- **1987-92:** For four years, California received precipitation well below average. Los Angeles adopted ordinances to promote more water-efficient development.
- **1976-77:** Lack of rainfall during the winters of 1976 and 1977 led to widespread water shortages and severe water conservation measures throughout the state. A federal disaster declaration was declared, but it did not apply to Los Angeles County.

Droughts in California have been driven by warmer winter temperatures. Early snowmelt reduces the amount of snowpack in the mountains and how much snow is left to melt in the spring. Cities rely on spring snowmelt to provide water during the typically dry summer months (Frankson, et al. 2022). This change matters because nearly two-thirds of Los Angeles' water supplies come from the Eastern Sierra's snowpack when it melts into runoff (LADWP n.d.). Warming winters put this source of water at risk. By the late century, the Sierra Nevada snowpack will be from 48% to 65% smaller compared with historical averages (California Department of Water Resources 2022).

Rising temperatures accelerate how quickly precipitation evaporates into the atmosphere. That process is called evapotranspiration. Higher temperatures cause less water to be absorbed by soil, vegetation, streams, and other water bodies. In turn, this worsens dry conditions (Frankson, et al. 2022). Evapotranspiration is projected to fall by 23% between 2050 and the late 2090s, resulting in a decrease equal to two inches' worth of water removed from the environment (Cal-Adapt 2019).

Figure 3.8 — Evapotranspiration[11]



[11] U.S. Geological Survey Water Science School. "Evapotranspiration."

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Wildfire

A **wildfire** is uncontrolled fire on undeveloped land that requires extinguishing. Wildfires can be ignited by natural forces such as lightning or high wind events or by human activity such as smoking, campfires, equipment use, and arson. Wildfires can threaten people, buildings, and assets, and wildfire smoke presents serious public health risks. The potential for significant damage to life and property exists in areas designated as **wildland-urban interface areas**. This is known as the WUI and indicates where development is adjacent to densely vegetated areas.

As opposed to urban fires, wildfires can burn large areas of land and vegetation that produce large amounts of smoke that can affect air quality over a wide area. This can lead to significant health impacts on any person but especially those with existing health conditions.

The three key factors that influence wildfire severity are fuel, weather, and topography.

- **Fuel** may include living and dead vegetation on the ground, along the surface as brush and small trees, and above the ground in tree canopies. Lighter fuels such as grasses, leaves, and needles quickly expel moisture and burn rapidly, while heavier fuels such as tree branches, logs, and trunks take longer to warm and ignite. Trees killed or defoliated by forest insects and diseases are more susceptible to wildfire.
- **Weather** includes temperature, relative humidity, wind speed and direction, and precipitation amount and duration. Strong, dry winds, such as Santa Ana winds, can carry a spark so a fire spreads much more quickly. Such winds generally reach peak velocities during the night and early morning. Moisture in vegetation and soils due to precipitation influences how much fuel is available and how quickly it can ignite.
- **Topography** includes slope and elevation. These factors matter for wildfires because it is related to how precipitation and wind move through an area. Natural barriers, such as lakes, can also prevent fires from spreading. Certain landforms are more vulnerable than others. For example, fires spread more rapidly when moving uphill versus downhill.

All these factors are influenced by climate change, as are many others. As temperatures rise, evapotranspiration accelerates. This means the water in the earth, plants, and other surfaces turns into vapor and is absorbed into the atmosphere. This leads to drier soils and vegetation in a landscape more prone to wildfire (Frankson, et al. 2022). The spring and summer months are when Los Angeles has the least precipitation, and forecasts predict even less in the coming decades. The ideal conditions for wildfires to catch and spread will become more common throughout the year. This increases community exposure to wildfire conditions.

Furthermore, after wildfire events, there is a high potential for several dangerous hazards including debris flows, landslides, and debris-laden floods. These incidents, also called "flood-after-fire" and "post-fire flood" events, result in areas left charred, dry, and less able to absorb water after a fire and are most likely to occur in hilly and mountainous areas, with the area of a single event ranging from a few square yards to hundreds of acres. Increased risk of flood-after-fire events remain higher than normal until vegetation is restored, which can be up to five years after a wildfire. These events can have compounding devastating impacts on communities, including loss of infrastructure and life, impact the water quality of downstream rivers and streams, and damage habitat.

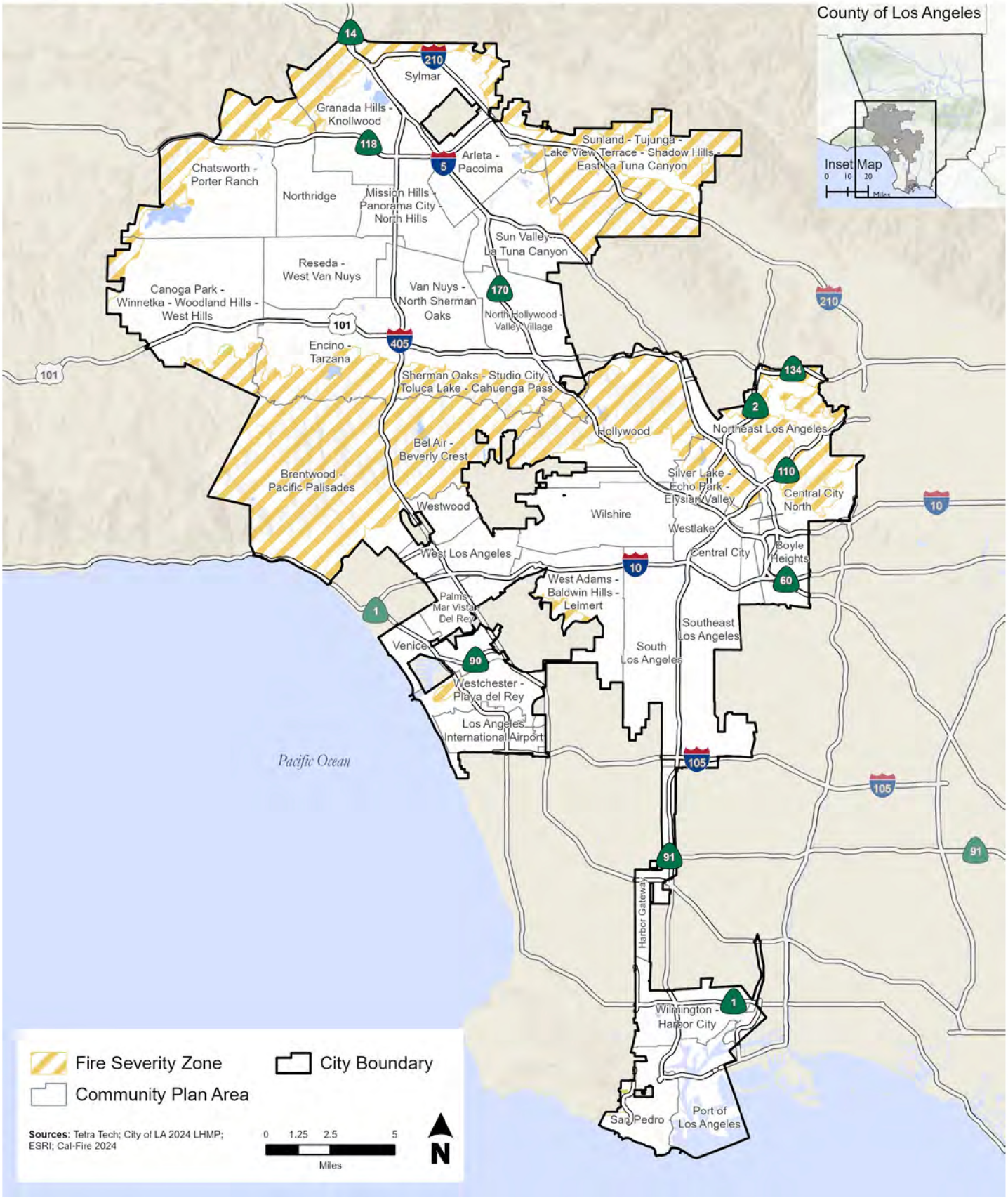
Many of Los Angeles' central and northern neighborhoods face severe wildfire exposure. These include Brentwood - Pacific Palisades, Bel Air - Beverly Crest, Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass, Hollywood, Silver Lake - Echo Park - Elysian Valley, Northeast Los Angeles, Central City, Central City North, Canoga Park - Winnetka - Woodland Hills - West Hills, Chatsworth - Porter Ranch, Northridge, Granada Hills - Knollwood, Sylmar, Arleta - Pacoima, Sunland - Tujunga - Lake View Terrace - Shadow Hills - East La Tuna Canyon, Encino - Tarzana, Sun Valley - La Tuna Canyon, and West Adams - Baldwin - Leimert Park. There are also small areas of isolated wildfire risk, including South Los Angeles, San Pedro, and Westchester - Playa del Rey. This risk may elevate the risk of neighboring communities if conditions become severe enough.

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Figure 3.9 — Wildfire Hazard Area

City of Los Angeles

Wildfire Hazard Area

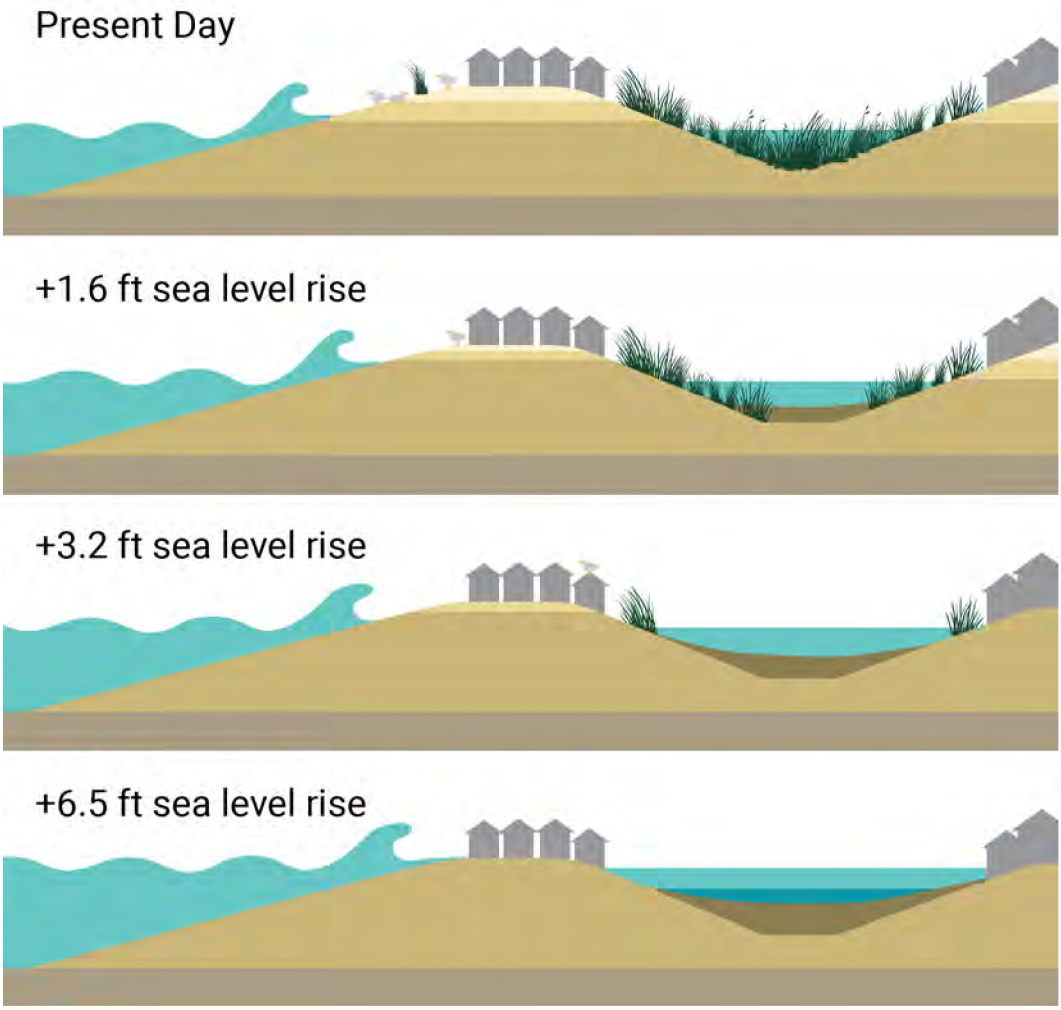


Sea Level Rise

Sea Level Rise is the increase in the ocean's surface height compared with the height of nearby land. Coastal low-lying areas are exposed to sea level rise, but it also raises water levels in tidal and upstream waterbodies, increasing the exposure of inland communities to flooding.

Sea levels rise because of a combination of global and local factors that are intensified by climate change. Globally, as air temperatures warm, the ocean must absorb more heat. As ocean waters warm, they take up more space and begin encroaching onto land (NASA 2020). This is also referred to as **thermal expansion**. At the local level,

Figure 3.10 — Sea Level Rise [12]



[12] U.S. Geological Survey Pacific Coastal and Marine Science Center. 2021. "Santa Barbara coastal system with increasing sea level rise."



changes to wind patterns and land elevation along the coast can also influence how much sea levels rise at any location.

Los Angeles could experience one foot to 2.6 feet of sea level rise by 2050 and 2.2 to 6.4 feet of sea level rise by 2080 (OEHHA 2022). As sea level rise continues in Los Angeles, coastal flooding, beach erosion, bluff retreat, loss of ecosystems, salinization of soils, ground and surface water, and impeded drainage will increase, threatening lives, property, and critical infrastructure.

Rising sea levels bring about more floodwaters during floods, which means any associated waves and erosion will be more forceful, destructive, and farther reaching. Sea levels rise as the land remains at the same elevation as the current landscape that has been shaped by current sea levels and storm events. Therefore, tides and storm surge will occur on top of a higher sea level and be able to reach farther into coastal areas, especially when big wave storms occur at or near peak high tides. Where rivers and creeks meet the ocean, floodwater created by high precipitation events will meet the ocean at a higher sea level and make flooding worse. Additional study would be needed to understand specific conditions for localized flooding on the coast due to sea level rise.

Sea level rise also risks saltwater intrusion into water supplies and leads to higher groundwater, which can lead to more intense flooding during high tide or intense precipitation. The assessment focuses on two scenarios: 1 meter (mid-range scenario)

and 1.41 meters (extreme potential outcome) of sea level rise.

- **1-Meter Sea Level Rise with 100-Year Storm** is the extent of flooding during a 100-year storm if sea levels were to rise by one meter (about 3.2 feet).
- **1.41-Meter Sea Level Rise with 100-Year Storm** is the extent of flooding during a 100-year storm if sea levels were to rise by 1.41 meters (about 4.6 feet).

Coastal communities are the most vulnerable to sea level rise. With just 1 meter of sea level rise, CPAs such as the Port of Los Angeles, Venice, and Wilmington - Harbor City will become more exposed to flooding from a 100-year storm. Population exposure is limited (under 0.1% of all City residents), but some neighborhoods have a large share of their buildings and resilience assets exposed.

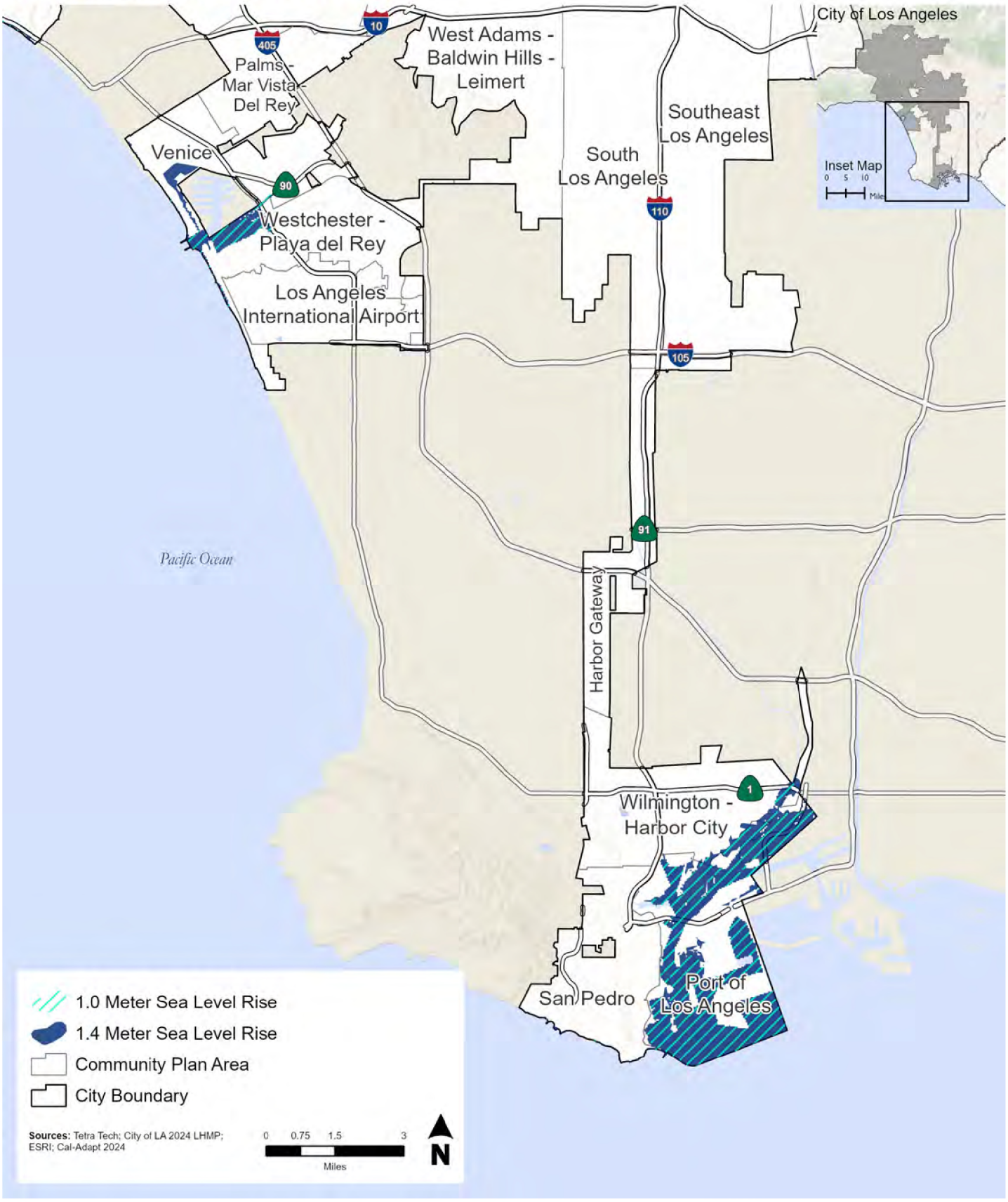
More than a third (35%) of the buildings in the Port of Los Angeles are exposed under the 1-meter sea level rise scenario and more than 40% are exposed under the 1.41-meter scenario. Of all exposed buildings, more than half are commercial structures, and roughly a third are industrial. Few residential neighborhoods are affected by either scenario, except for Venice. While Venice is exposed to sea level rise, it is not considered a socially vulnerable community as defined in this CVA. Under the 1.41-meter sea level rise scenario, nearly 11% of residents and 10% of all structures are exposed to a 100-year storm. The overwhelming majority of those exposed structures are residential and are primarily households with higher incomes.

Furthermore, homeless encampments frequently occur along the oceanfront walk and near the beachfront and commercial centers on Lincoln Avenue but can also be found throughout the Venice Community Planning Area. Encampments within the hazard areas identified in the Venice Coastal Zone SLR Vulnerability Assessment cause concern for the safety of these populations. Hazards can appear suddenly and without notice, such as a tide gate failure, or can be forecast, such as a large storm. Evacuations and emergency sheltering can be difficult and costly for the community, and vulnerable populations should, therefore, be considered in development adaptation strategies or emergency response plans.

Sea level rise can also pose threats to community resilience assets and infrastructure. Nearly 3% of all resilience assets, a subset of all City assets, are exposed to sea level rise, more than half of which are in Wilmington - Harbor City. Many of these are energy assets that power homes, businesses, hospitals, and other essential services. If these are repeatedly damaged by sea level rise, impacts may be felt throughout the region.

EMD leads the City's efforts in the development of citywide emergency plans, which are in the Emergency Operations Master Plan and Master Procedures and Annexes. EMD also updates and disseminates guidelines for emergency response and recovery plans. In addition, it reviews and tests the emergency plans of City departments and agencies to make sure they are ready to respond to various emergency situations including climate hazards.

Figure 3.11 — Sea Level Rise Hazard Area



3.2.2. Lived Experience of Climate Impacts

The City knows communities of color, low-income communities, tribal groups, and First Nations have carried, and are likely to continue to carry, most of the burdens of pollution and climate change (California Natural Resources Agency; California Ocean Protection Council 2018). It is difficult to capture these impacts in a way that can be shown in a table or map that reflects the lived experiences for these communities. This assessment focused on elevating these impacts not reflected in the data by working with CBOs and tribes that work with the City's stakeholders that are most exposed to these climate hazards.

This assessment also analyzes how climate change will affect areas that have been identified as particularly sensitive to potential impacts. Social vulnerability is most often associated with the following demographic factors that indicate an individual's sensitivity to climate change or hazards:

- **Children under 5 years of age** may be unable to protect themselves during a disaster because they lack the necessary resources, knowledge, or life experiences to effectively cope with the situation.
- **Adults over 65 years of age** may require financial support, transportation, medical care, or assistance with ordinary daily activities, especially during disasters. They are more likely to also have underlying or preexisting conditions that affect their vision, hearing, and/or mobility; others may be more likely to experience mental impairment or dementia and more likely to be in assisted-living facilities where they rely heavily on health care aides.
- **People of color** have historically endured social and economic marginalization and discrimination preventing them from obtaining jobs or loans to purchase homes or start businesses. This type of discrimination can affect multiple generations because it severely limits their ability to build wealth that can be passed on to their descendants.
- **Limited English-speaking households** may receive information about how to protect themselves from certain hazards or warnings to evacuate, but if they are unable to interpret them, they remain vulnerable. These households may rely on relatives, especially school-age children, and neighborhoods for this type of information.
- **People with disabilities** or other access and functional needs may have difficulty evacuating or relocating to safer locations than the general population.
- **Households below the poverty level** have limited funds to spare if they are affected by a hazard. If these residents must evacuate or relocate temporarily, it may be difficult for them to afford paying for alternative shelter, such as a short-term lease or hotel room, if they cannot access a shelter. Economically

disadvantaged neighborhoods are also likely to have relatively poor infrastructure and facilities, which exacerbate the disaster consequences for community members.

- **Renters** have limited control over repairs and improvements to their homes. Some may be renting because they cannot afford to purchase or own a house. If they need to evacuate, renters may struggle to find temporary shelter, whether because of limited availability or funds, especially if housing costs rise after a disaster. People who rent usually cannot implement improvements or mitigation measures to their home to better protect their home, property, and families without the support and financial backing of property owners.
- **LGBTQIA+** individuals have unique needs with regard to climate hazards: They face worse displacement conditions compared with cisgender, heterosexual individuals, and that's highest among LGBTQIA+ people of color. Disaster preparedness and response entities need to better understand and address the systemic and contextual factors that contribute to disparate rates of displacement of LGBTQIA+ individuals. Senate Bill 990, signed by Gov. Gavin Newsom in September 2024, requires disaster plans, including climate-induced disasters, in California ensure LGBTQIA+ individuals are accounted for as a vulnerable population.
- **Outdoor workers** have limited ability to address working conditions that are directly caused by climate change, such as extreme heat, and have limited control over their employer's work safety policies. Even outdoor workers who are self-employed have limited ways to reduce their exposure or mitigate impacts because they cannot modify the public spaces they work in alone. Additionally, in most cases of self-employment, absences from work impose financial hardships. As such, outdoor workers must then risk exposure to extreme heat or incur financial implications that may result in financial hardships. All these impacts can have long-term health effects.
- **Unhoused individuals** do not have a permanent residence. Many do not earn enough income to afford housing and/or face personal circumstances that create barriers to housing. Others suffer from mental health, substance abuse, or physical health issues that lead to living without housing. Without shelter, these populations are frequently directly exposed to all climate impacts, particularly heat and flood. Being unhoused also indicates a severe lack of resources to adapt to and recover from normal weather impacts. As climate change intensifies, it can lead to an increase in deaths from many causes but particularly heat.

The City of Los Angeles has differing levels of vulnerability and impacts from each climate hazard. Together, the CVA and the LHMP recognize climate hazards that pose the greatest risk to vulnerable communities. These tools guide the City's attention and resources accordingly to manage risk and address hazards. To be consistent across City plans, the CVA built on the outcomes of the 2024 LHMP update. The established LHMP ranking and weighting of hazards developed by City officials was adapted for use in the CVA process. The risk ranking includes social vulnerability assessment among the following factors:

- Probability of occurrence
- Impact on population
- Impact on property
- Impact on economy
- Adaptive capacity
- Climate Change

Hazards are ranked high, medium, and low. Ranking hazards with these factors produced the following table of results:

Table 3.1 — CVA Rankings[13]

Hazard of Concern	Probability x 30%	Total Consequence x 30%	Adaptive Capacity x 30%	Climate Change x 10%	Total Hazard Ranking Score
Drought	0.9	3.6	0	0.3	**4.8**
Wildfire	0.9	3.3	0	0.2	**4.4**
Extreme Precipitation and Flooding	0.6	1.8	0	0.3	**4.0***
Extreme Heat	0.6	3.0	0	0.3	**3.9**
Sea Level Rise	0.6	1.8	0	0.3	**2.7**

* The extreme precipitation and flooding hazard rank was revised based on citywide urban flooding outside mapped floodplains. The score of 4.0 was assigned to provide a rank of medium.

The risk rating for each hazard within Table 3.1 was based on analysis performed during the update to the LHMP. The hazards ranked in order of highest concern were drought and wildfire. The combined hazards of extreme precipitation and flooding and the hazard of extreme heat were ranked as being of medium concern. The hazard ranked as being of lowest concern was sea level rise. For more detail on how this ranking was completed, see Appendix C.

[13] City of Los Angeles 2024 Local Hazard Mitigation Plan

Using this ranking and weighting framework, the hazards receiving the highest rankings are those that have the greatest projected impacts due to climate change. Because these impacts will have a more severe impact on vulnerable populations, the City can prioritize mitigation actions to align with the highest ranked hazards. The vulnerability assessment in Chapter 3 discusses geographic areas that are at higher risk of particular climate hazards in combination with these rankings. These tools will help the City make effective use of resources so that CVA mitigations will have a positive effect on vulnerable communities who are on the front lines of these climate impacts.

Extreme Heat

Everyone is affected by extreme heat, but heat affects everyone differently depending on personal risk factors and health status, and some people are more vulnerable than others. Heat can make bad air quality worse and increase the chance of wildfires. People with underlying medical conditions may be more sensitive to hotter temperatures. Households that have limited incomes or rely on fixed incomes may not be able to afford purchasing an air conditioner, let alone running it. They may also be less prone to receive medical attention or health care because they cannot afford the out-of-pocket costs. Additionally, people who rent also tend to live in multifamily buildings, which are typically in more urbanized areas with less green space and more development, increasing the risk for urban heat islands to form (Pierce, Gabbe and Rosser 2022). Those factors that make heat worse in urban areas place additional burdens on renters, people with underlying health conditions, and people without air conditioning.

Outdoor workers face greater exposure to heat than others because they may not be able to avoid heat. Their income is dependent on being outside, exposed to the elements, and that creates higher risks for health emergencies during extreme heat events. Many of these jobs may not provide paid time off, likely making people less willing to miss work when outdoor working conditions are unsafe.

Areas exposed to extreme heat also tend to have lower Community Health and Equity Index scores. In particular, the CPAs that are expected to experience the highest temperatures and have the lowest community health scores include Northeast Los Angeles, Central City, Central City North, and Boyle Heights.

CBO Quotes on Extreme Heat

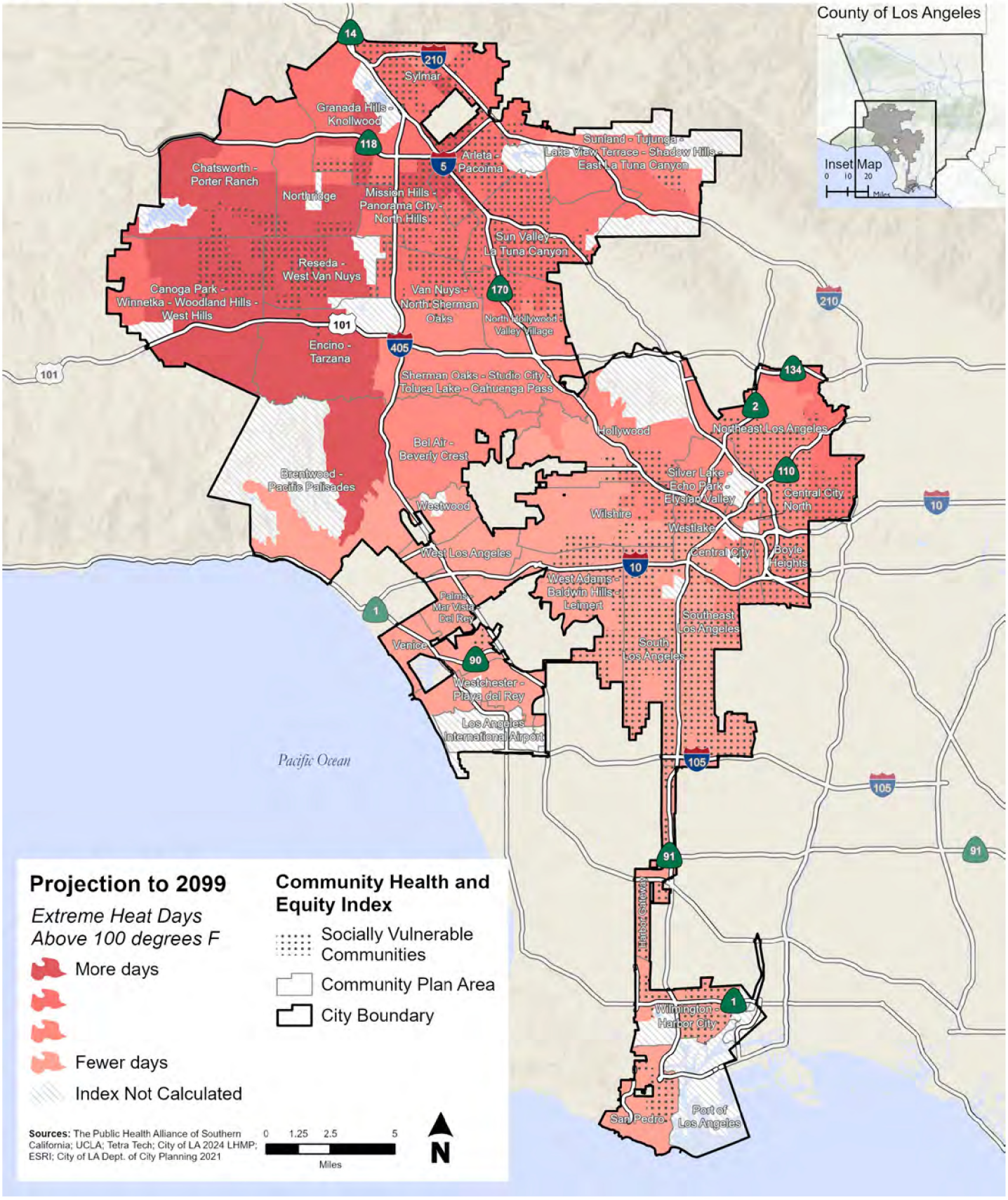
- "Community is observing a general trend against green space and towards more pavement and removing landscaping, especially in new developments like affordable housing projects. We need open space and green spaces instead of concrete everywhere, including schools, apartment complexes, and public spaces. At the very least, there should be groundcover and pavement that reduces or deflects heat." — Participants at Promesa Boyle Heights, Pacoima Beautiful, and SBCC events
- "When turning on the AC during the summer, residents experience an increased financial strain due to high electricity bills." — Participants at Rising Communities, Promesa Boyle Heights, Pacoima Beautiful, SBCC, and SCOPE LA events



Figure 3.12 — Socially Vulnerable Population in the Extreme Heat Hazard Area

City of Los Angeles

Socially Vulnerable Population in the Extreme Heat Hazard Area



Extreme Precipitation and Flooding

Floods can disrupt everyday life by closing roads or transit routes, causing power outages or damage to communication towers, and displacing residents or damaging their property. People who have disabilities or have access and functional needs may face challenges if they need to evacuate or move to a higher place within their home to avoid floodwaters.

Some flood events can cause significant damage. Just one inch of flooding can cause thousands of dollars in damage and lead to mold or other health concerns (NLIHC & PAHRC 2021). For some households, repairing this type of damage may be impossible. People who have limited incomes or do not have a consistent roof over their heads may become displaced. They may be unable to return to where they were staying or to afford temporary shelter such as a hotel. Moreover, people who rent their home have limited control over improvements to the structure. They may have to seek temporary alternative shelter or have to wait for property management or owners to make repairs to implement repairs from flood damage.

Areas exposed to extreme precipitation and flooding include South Los Angeles, Central City, and Central City North. Other areas with lower community health scores and flood exposure include Wilshire, Westlake, and Sun Valley - La Tuna Canyon.

CBO Quotes on Extreme Precipitation and Flooding

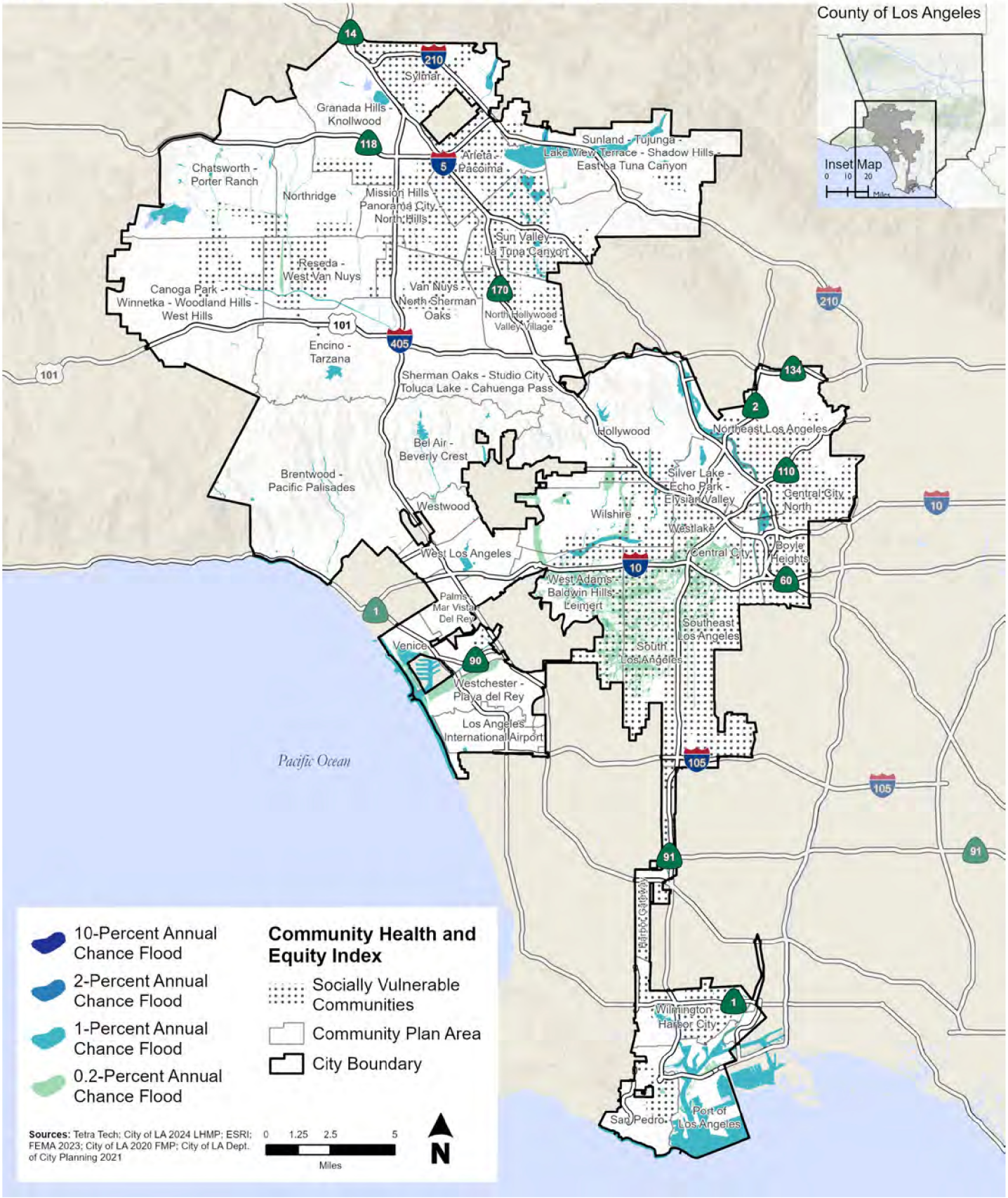
- "Community covered by cement, so there are no places where water could go and be captured; we should have trees with root systems that can absorb high volumes of rain and that don't raise the sidewalks." — Participant at Promesa Boyle Heights event
- "Water accumulation leads to an increase in mosquitoes." — Participants at Promesa Boyle Heights and SBCC events
- "Increased precipitation damages infrastructure like house walls, causing mold." — Participant at SBCC event
- "Sidewalks get flooded and back up storm drains so it is impossible to use the sidewalks. Trash buildup contributes to flooding by blocking the storm drains." — Participants at Promesa Boyle Heights and SBCC events

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Figure 3.13 — Socially Vulnerable Population in the Flood Hazard Area

City of Los Angeles

Socially Vulnerable Population in the Flood Hazard Area



Drought

Water is integral to life, meaning drought can seriously affect health, safety, and the surrounding environment. If costs increase, then households with limited incomes may reduce how much water they consume, increasing their risk of dehydration or sanitation. Drought can also affect air quality, compromise access to nutritious food, and increase likelihood of becoming sick (CDC 2020).

Prolonged droughts can also affect the local economy. If water restrictions are put in place, that may limit some businesses that rely on outdoor workers such as landscapers and the agriculture industry. Water restrictions can also affect recreational or outdoor activities such as splash pads, pools, and irrigation of parks, leading to a disruption of normal operations. For people employed in these industries, they may have to deal with secondary impacts, such as reduced wages or unemployment.

CBO Quotes on Drought

- "We are very stressed because we are worried about affording basic needs like water. In the summer, there are water limitations. We need more hydration stations. Food prices also go up during a drought." — Participants at Promesa Boyle Heights, SBCC, SCOPE LA, Pacoima Beautiful, and Rising Communities events
- "There are significant water rate changes during a drought and landlords change water pressures. These impacts are not being felt by wealthier communities and businesses who don't conserve water or take responsibility." — Participants at Promesa Boyle Heights, SBCC, SCOPE LA, and Rising Communities events
- "During droughts, people can't use water to cool down when it is very hot. There are no splash pads and there are restrictions on other water sources." — Participant at SBCC event

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Wildfire

Wildfires can damage homes and businesses, block roads and evacuation routes, cause power outages, interrupt utilities, and lead to public health problems. The loss of homes can result in the displacement of people and, potentially, entire communities. In addition to the risk of damage and/or loss of structures in WUI areas, wildfires and burn areas can result in the release of air pollutants that make health issues worse.

Health concerns include poor air quality and reduction in visibility caused by wildfire smoke, toxic waste, and debris in burn areas.

Wildfires can also impact people's livelihoods through the loss of businesses that range from traditional brick and mortar businesses to mobile businesses and services. Business owners, service workers, including food and hospitality workers, domestic service workers including in-home care, childcare and housekeeping services, as well as outdoor workers including landscaping services and street vendors are at risk of being displaced and losing their source of income. The loss of businesses also has several economic impacts that ripple throughout the local economy.

People who have limited incomes or rent may not be able to mitigate their properties to reduce their risk to wildfires, such as through fire-resistant roofs and building materials and landscaping. They may be unable to pay for repairs incurred from these events, especially if they rent their home and have limited control over physical changes to the structure. Recent changes in wildfire scale and severity have also caused all types of housing and property insurance costs to dramatically increase, especially in areas with a higher risk of wildfire. For those with low or fixed incomes, the higher insurance costs are an additional burden and can lead to individuals canceling policies to save money. In some communities with high wildfire risk, insurance companies are no longer offering fire insurance policies. As a result, many people may not have the resources to fully recover from the losses suffered during a wildfire.

Several of the CPAs exposed to wildfire do not exhibit low Community Health and Equity Index scores. However, those that are exposed and exhibit among the highest Community Health and Equity Index scores include Arleta - Pacoima, Canoga Park - Winnetka - Woodland Hills - West Hills, Central City North, Chatsworth - Porter Ranch, Granada Hills - Knollwood, Hollywood, Northeast Los Angeles, Silver Lake - Echo Park - Elysian Valley, Sun Valley - La Tuna Canyon, Sylmar, and West Adams - Baldwin Hills - Leimert.

CBO Quotes on Wildfire

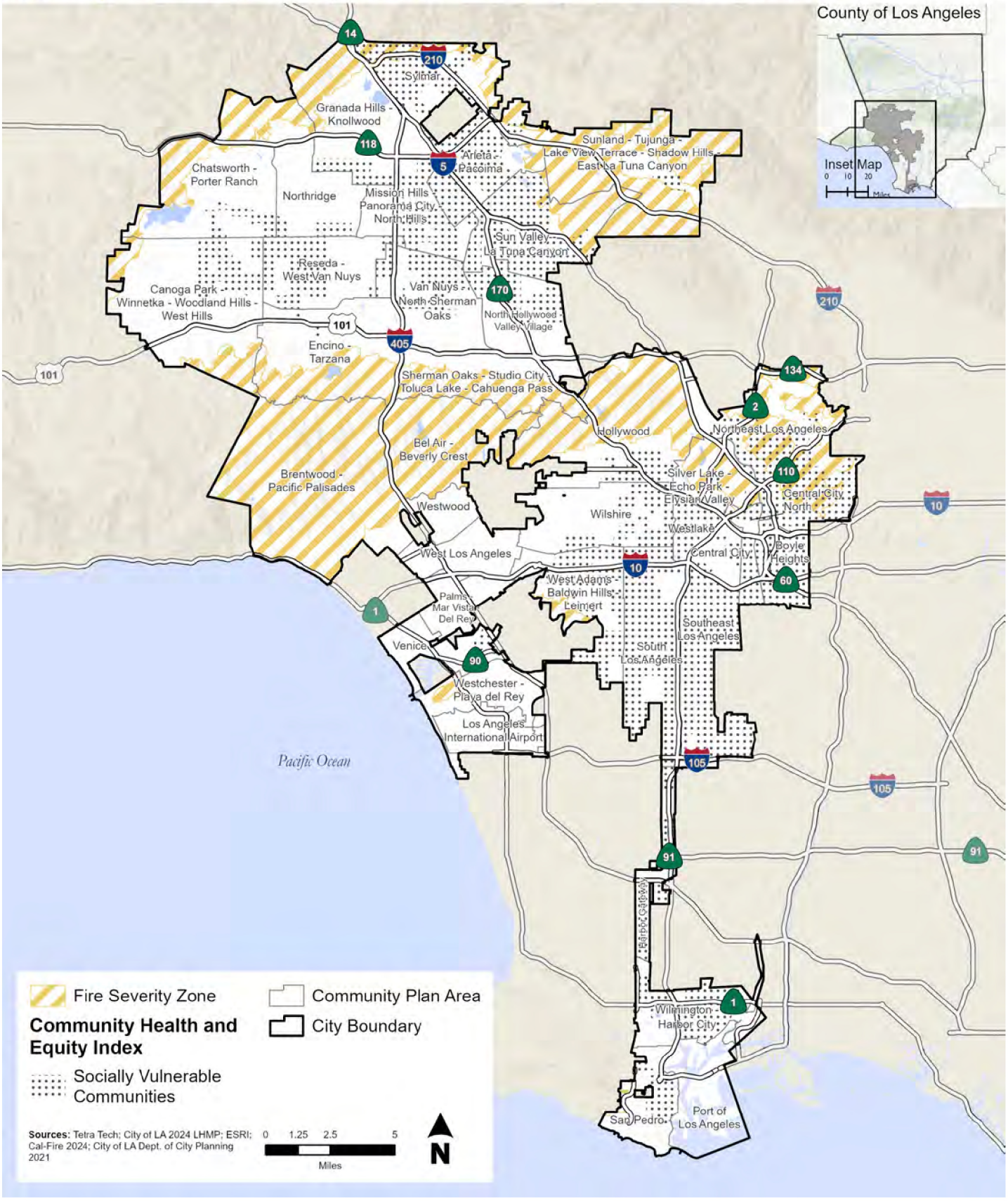
- "FTBMI community members were significantly concerned with the impact wildfires were believed to have on tribal practices and expressed the need to protect the cultural and ecologic heritage rooted in wildfire-risk land." — FTBMI Tribal Climate Resiliency Plan
- "Wildfires cause air pollution, which contribute to negative health effects." — Participant at SBCC event

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Figure 3.14 — Socially Vulnerable Population in the Wildfire Hazard Area

City of Los Angeles

Socially Vulnerable Population in the Wildfire Hazard Area



Sea Level Rise

The greatest threat of sea level rise is that it could make some areas uninhabitable if they were to become permanently inundated. Rising sea levels also cause floods and storms to reach farther inland, leading to more damage to buildings and infrastructure and carrying water that may be contaminated with toxins or pollutants into neighborhoods that had not been exposed.

Because coastal communities tend to be more affluent areas that are not considered disadvantaged communities, the CVA did not focus on impacts in those areas. However, homeless encampments frequently occur along beachfronts and can be found throughout the coastal communities. Encampments within the areas exposed to sea level rise are cause for concern for the safety of these populations. Hazards can appear suddenly and without notice, such as a tide gate failure, or can be forecast, such as a large storm. Evacuations and emergency sheltering can be difficult and costly for the community, and vulnerable populations should be considered in development adaptation strategies or emergency response plans. The LHMP provides a more detailed analysis of impacts from sea level rise citywide as well as emergency response plans.

Low-income individuals are also more likely to be adversely affected because they have fewer financial resources to protect against and support recovery from these hazards (EPA 2021). For people with limited incomes or access to capital, they may be unable to afford the needed repairs or renovations to their homes to prevent these impacts. For people who rent, they may not be able to implement these kinds of changes without the support and financial backing of the property owners. Additionally, racial and ethnic wealth gaps, which are larger than income gaps and have stronger correlations with property value than income, leave many of these groups more likely to be excluded from protection decisions that consider economic factors (EPA 2021).

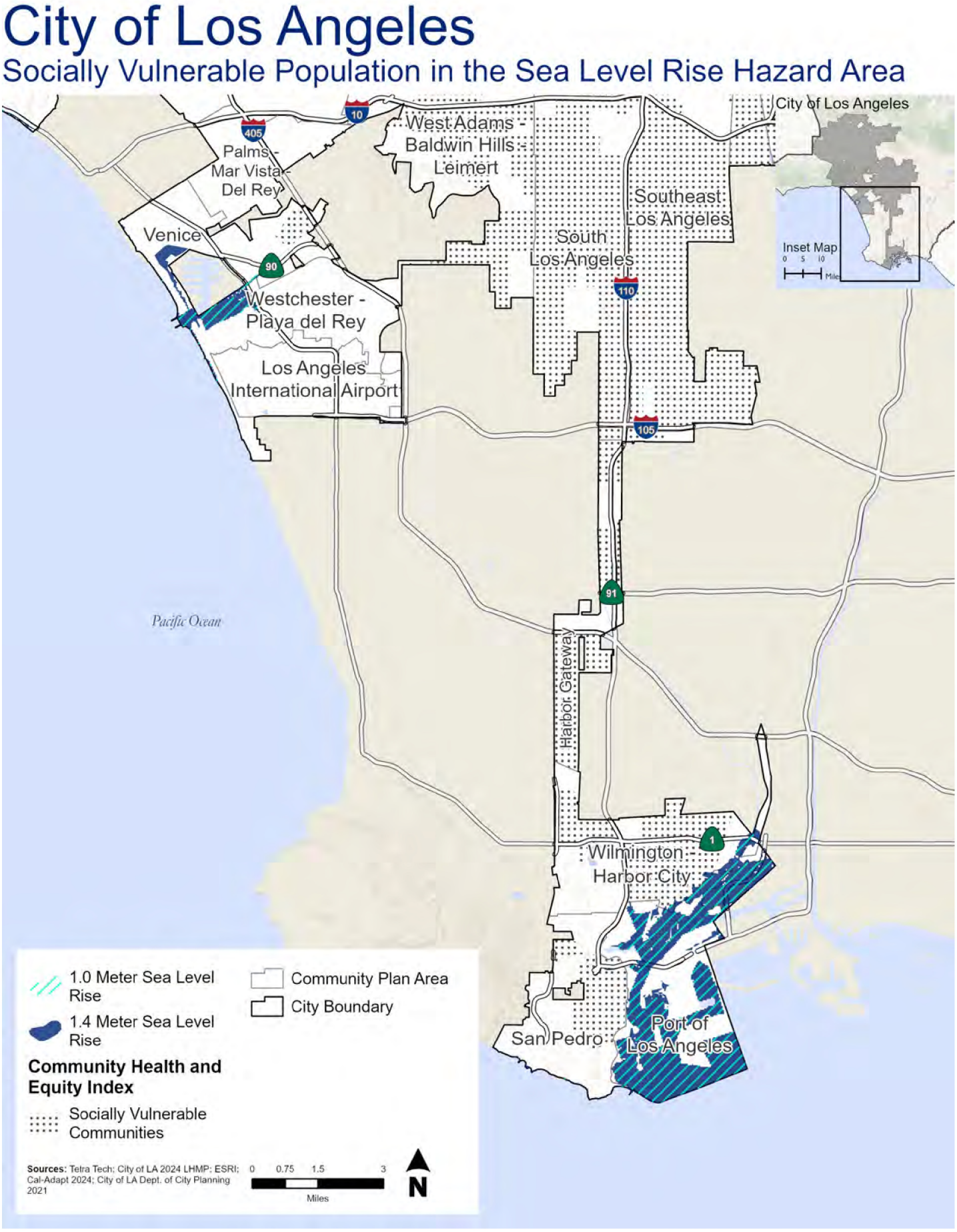
The majority of the City's socially vulnerable neighborhoods are not expected to be affected by sea level rise. However, the Wilmington-Harbor City CPA and individuals experiencing homelessness are expected to be affected by sea level rise and also exhibit lower Community Health and Equity Index scores compared with those of the rest of the City.

CBO Quotes on Sea Level Rise

- "Sea level rise will flood coastal neighborhoods and push people inland to create a worse affordable housing shortage and higher prices." — Participant at SBCC event
- "Sea level rise could take away the beaches where we go to play and cool off." — Participant at SBCC event

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Figure 3.15 — Socially Vulnerable Population in the Sea Level Rise Hazard Area

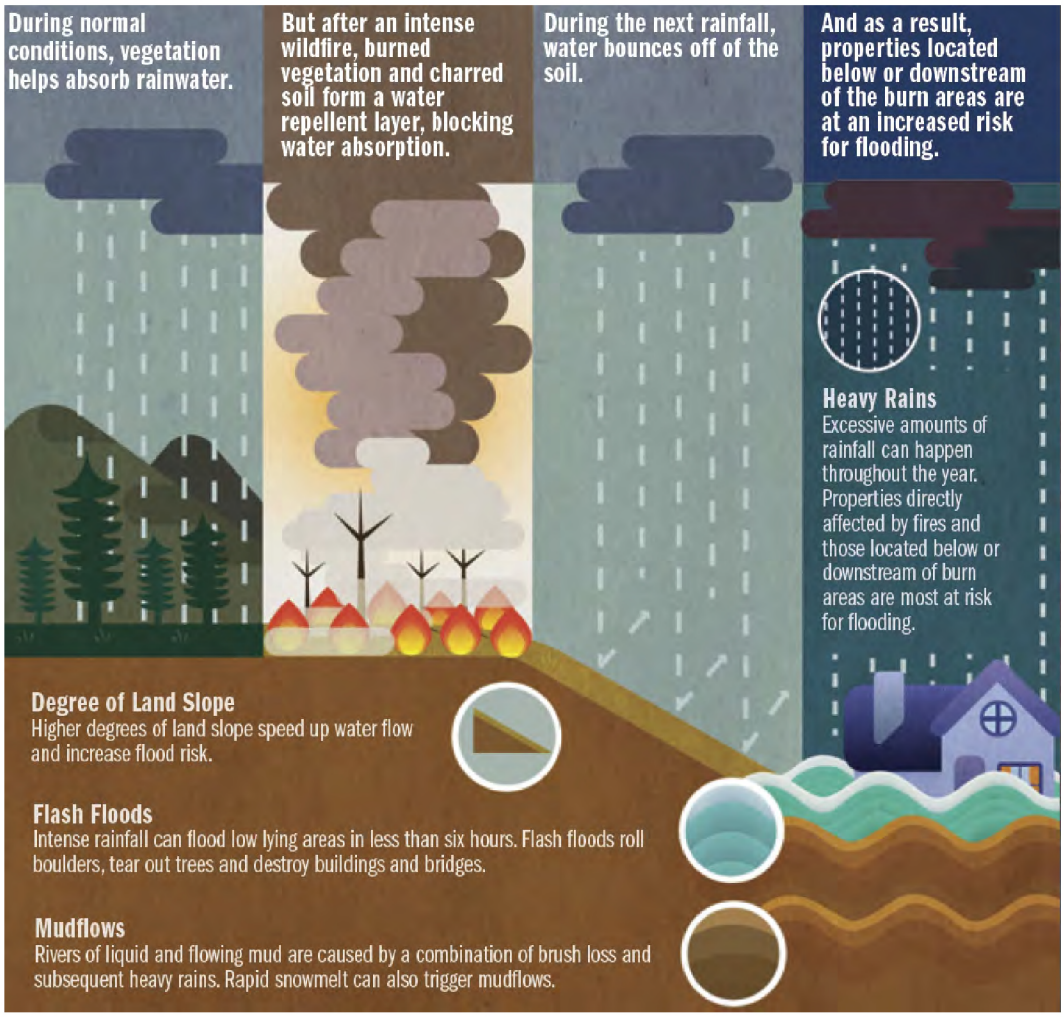


3.2.3. Overview of Cascading Impacts

Small shifts to the climate can pave the way for more intense and frequent impacts to Los Angeles communities. This type of chain reaction is also referred to as **cascading impacts**.

As temperatures rise, changes to the local environment can make it more likely for certain hazards to form. Repeat damage can lead to long-term impacts. Damage can degrade wildlife habitats, water quality, and air quality. This creates new problems. For instance, with rising temperatures and less rain, plants and trees become drier and more likely to catch fire, making it easier for wildfires to ignite and spread.

Figure 3.16 — Flood After Fire[14]



[14] U.S. Army Corps of Engineers, Portland District. "Flood After Fire," adapted from FEMA.

As wildfires become more common and more intense, affected areas also known as "burn areas" are repeatedly stripped of vegetation and topsoil and potentially become contaminated from the burned structures and materials. The vegetation that could have mitigated flooding is not present to act as sponges to absorb the precipitation. After wildfire events, there is a high potential for several dangerous hazards including debris flows, landslides, and debris-laden floods. These incidents, also called "flood-after-fire" and "post-fire flood" events, occur in areas left charred, dry, and less able to absorb water after a fire. These events are most likely to occur in hilly and mountainous areas, with the area of a single event ranging from a few square yards to hundreds of acres. Increased risk of flood-after-fire events remain higher than normal until vegetation is restored, which can be up to five years after a wildfire (USACE n.d.). These events can have compounding devastating impacts on communities, including loss of life, loss and/or damage to infrastructure, impacts to the water quality of downstream rivers and streams, and harm to habitats.

Firefighting capabilities may be strained as water sources become limited or subject to restrictions as droughts become more intense and frequent. Firefighters may have to dedicate significant time and resources to bring water in from other areas of the state during an extreme drought (Western Fire Chiefs Association 2023).

Understanding cascading impacts underscores how climate change affects all Angelenos. Impacts to one area can spill over and put stress on adjacent communities over time. Some people have access to more resources than others. Location plays a big role as well. Some people live in areas that are less exposed. An individual's health is a factor because some are less sensitive to these threats. Cascading impacts are like a domino effect. Climate change represents just the force knocking over the first block of many that causes a chain reaction. Existing models cannot anticipate exactly how or when climate change will affect Angelenos, which makes adaptation to this uncertain future even more important.

3.2.4. Why is Adaptation Important?

Over time, the impacts of climate change will become more frequent and more intense. Adaptation will become more challenging and more expensive for people. Climate scientists expect more damage will be done to communities and ecosystems. Every day, people make decisions based on risk in daily life, business decisions, and government operations. These decisions happen on an individual level, but people also make these decisions on a broader scale that together can reduce impacts. Climate scientists expect it will take less effort and investment now to address climate impacts than after climate impacts occur. Mitigation and adaptation will benefit the most vulnerable, disadvantaged communities but also reduce the long-term damage and disruption to all Angelenos.



This CVA brought together the lived experience and data to understand the risks and potential consequences of climate impacts. Using this information as a starting point, it allowed community engagement to discuss potential solutions with the best information available. When people understand the risks, the City can make informed decisions on how to address future climate impacts. This process recognizes that some of the underlying issues in this study have been ongoing for years. The difference is this CVA highlights that climate change is likely to make these issues worse.

Effective mitigation action and adaptation on a citywide, community-wide, and individual basis will be necessary to avoid more costly and harmful impacts. This CVA presents a multi-pronged approach to recommendations of mitigations and other strategies at the City, department/agency, community and individual levels. This will require action on multiple levels, including individuals adjusting where they can, businesses exploring what they can do, and City departments using new mitigation techniques. The recommendations and multi-pronged approach in Chapter 4 are intended to provide guidance on how all stakeholders can move forward with the goal of making communities and the City as a whole more resilient to climate impacts.

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4. Local Solutions Designed for Angelenos: Recommendations for Implementation

4.1. Community Solutions

The CVA is an evaluation of the City's physical and social vulnerabilities to climate change hazards. The CVA and its recommendations provide strategies and work programs to augment existing and future City climate-related efforts for the City Council and departments to consider. It also aims to provide additional mitigation and adaptation approaches for the existing climate hazards and exposure risks to projected risks and vulnerabilities.

Mitigation strategies, or community solutions to address the climate impacts as stated in Chapter 3, were developed from public input, best practices, and referencing City policies. These solutions look to address many of the previously identified issues categorized by climate hazards. The goal of the Phase 3 Outreach was to ask for gap analysis of the City's climate data, input on mitigation strategies to address projected impacts of the climate hazards, and what community priorities are for implementing these strategies. CBOs reviewed the City's climate data and shared local knowledge of gaps in the data, along with their shared lived experiences. CBOs discussed mitigation ideas with community members and provided them to the City in July 2024. The mitigations that had the strongest relationship to the issues brought forward by communities and the vulnerability assessment were added to the list of community-created strategies (Appendix A).

The project team reviewed City policies, plans, climate hazard studies, and reports that related to climate impacts, equity, and infrastructure created by various City departments in the recent past. A review of best practices, mitigation strategies, and actions from other local jurisdictions as well as nationwide successful approaches were included in a list of best practices to complement the community-generated and existing City mitigation inventory. This provides an inventory of climate resilience and mitigation approaches that can serve as a starting point for further development of adaptation measures in future studies (Appendix A).

4.1.1. Mitigation Approach

The project team compiled the issues that arose across various priority communities and climate hazard impacted populations during the Phase 2 CBO input discussion sessions. These results and the path for creating mitigations were discussed with CBOs during a review session of Phase 2 of community engagement outcomes. The approach was based on each CBO meeting with community members to take the climate impact issues and develop solutions based on their lived experience with what has been tried and what resources would be needed to help individuals and communities adapt to climate change and to increase their resilience when an extreme event occurs. A community's lived experience of past hazards and extreme weather events makes community members an expert on strategies and resources needed to help individuals and their communities be more resilient. Within the facilitation materials and resources provided to the community partners as reference materials, communities were provided with examples of mitigation strategies related to community input and intended to be used as a starting point for exploring community-inspired solutions. Community members were asked to think of a strategy as a path to a solution and an action as a step along that path. Community facilitators asked mitigation-specific questions for each hazard type to generate discussion and develop mitigations. This process led to community-inspired mitigation that aligns with the climate-related impacts and issues that are of greatest concern to communities across Los Angeles.

The Implementation Process

This section organizes issues by the previously identified high-risk climate hazards to the City. Each issue lists at least one corresponding potential action to help mitigate the issue. A cross-cutting strategies section lists mitigation strategies that look to address multiple climate hazards. The mitigation strategies are a combination of existing City mitigation strategies or strategies identified by the CVA stakeholders through the public comment process. While the CVA does not implement these strategies, it provides the foundation for implementation. The information and strategies in the CVA can serve as a helpful tool in advancing other climate hazard efforts and work programs such as the HARP or a future Climate Action and

Adaptation Plan, or they can serve as a basis for requesting funding, staffing, and/or resources to support climate-related programs of other departments.

Each section is organized by hazard, starting with context for what concepts informed the community discussion followed by a narrative about the issues related to each hazard and recommended solutions. A full list of strategies produced by community input and existing City strategies and policies can be found in Appendix A.

4.1.2. Whole Community-Based Implementation

Mitigating the impacts from climate change will take a multi-pronged, "whole community" approach from City departments, other organizations in the City and region, communities, CBOs, and individuals. The mitigation strategies discussed in this chapter will require participation and advocacy from all stakeholders that can play a role in mitigation. Several implementation programs presented as recommendations in this report will require various funding sources and types of implementation action to achieve.

City Department/Agency Implementation can include adjustments to policies, regulations, and operations to accommodate recommendations. Through the City of Los Angeles' City Budget process, City departments and agencies may request funding for the resources needed to implement the mitigation strategies. City plans such as the General Plan, CPA plans, and LHMP already include resilience strategies that complement the CVA.

Community-Based Implementation could involve other neighborhood groups initiating certain mitigation actions as they have done historically. At a community level, the strategies can become a focal point to support grant applications, action, and community organizing for projects that can help reduce impacts from climate hazards and extreme events.

Tribes, and Service Providers, Other Community Partners are frequently working on multiple resilience and climate change actions that tie into the CVA. For example, the FTBMI has multiple initiatives that they are working on from their Climate Resilience Plan. Groups such as North East Trees are active with improving the tree canopy in Los Angeles. Service providers such as schools and public health organizations can play a role in many of the strategies and actions in this CVA.

Nonprofit Organizations and Research Partners such as universities, researchers, and other research nonprofits have historically played a significant role in understanding climate impacts and public health. These efforts must continue and involve the community in the process.

Individual Implementation involves people taking small actions and make small changes in their lives that can improve their ability to adapt to climate change. Recommendations include a role for individuals to participate in educational and

outreach activities when they arise.

Other Governments such as regional governments, states, and Federal agencies can continue to make policies and provide funding to implement strategies. This CVA can serve as a guide to what kinds of policies and funding sources are needed based on community input.

4.2. Extreme Heat

The scientific consensus is that extreme heat is expected to be more severe and more frequent over time because of climate change, per the assessments in Chapter 3. Multiple resources describe mitigation approaches and policies at the federal, state, and local level. California's 2022 Extreme Heat Action Plan includes comprehensive strategies to mitigate extreme heat events. The CEMO has partnered with the University of California, Los Angeles (UCLA), FTBMI, and other organizations and communities to study heat impacts and provide resources to communities to mitigate extreme heat. CEMO recently undertook community engagement for Los Angeles' first dedicated HARP that will complement the CVA and inform future resilience plans. The following are key concepts that community members kept in mind as they developed mitigation strategies for extreme heat:

- Natural and human-built methods for creating shade
- Expanding green infrastructure
- Reducing pavement or pavement temperature
- Ways to keep people cool on hot days
- Access to water and cooling resources
- Any other concepts around heat exposure that are important to individuals, outdoor workers, and the community

The strategies in the following sections were specifically related to the input received from the community. In addition, a variety of best practices can be used to reduce the heat within our buildings and in public spaces:

Indoor Space Cooling

- Air-conditioned public and semi-public buildings (e.g., community retail spaces, grocery stores)
- Air-conditioned public transport
- Insulated buildings that stay cool and repel heat
- Building orientation and design that reduces solar gain
- Heat pumps

Outdoor Public Space Cooling

- Planting shade trees with shady undergrowth
- Covered walkways
- Solar canopies installed over pavement such as parking, streets, sidewalks, and other hardscapes
- Building design elements such as covered parking and covered walkways and outdoor amenity areas that create shade, preferably solar canopies that generate electricity
- Use of cool pavements through adding light-colored coatings
- Reducing use of pavements

Reducing Heat Absorption

- Increase building reflectivity though use of light-colored exterior materials
- All windows should include awnings and tinting to allow light but reduce unwanted passive heating
- All hardscapes — specifically walkways, sidewalks, and streets — should use light-colored paving or be green vegetated surfaces when possible to reduce UHI effects

Building on those best practices and public input, the strategies discussed in this section are intended to do the following:

- Reduce heat in urban areas
- Account for stressors that can make heat impacts worse (see Public Health section for additional strategies)
- Provide tools to help people avoid or minimize exposure to heat, including outdoor workers



4.2.1. Extreme Heat Issue 1

Issue EH1: Most of the study area is highly developed, with few tree canopies to offer shade.

Strategy EH1: Increase the amount of green space and tree canopy in areas impacted by the urban heat island effect.

CBO Quote on Extreme Heat Issue 1

"Not having enough trees and shade along the sidewalks is really detrimental, especially to kids that walk to school." — Participant at SCOPE LA event

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One of the problems with trying to provide tree canopy is finding space in a city where trees can be planted and thrive. Trees need the right amount of space, water, and care to grow and provide shade. On public property such as parks, the City plants trees in groups where possible to significantly cool a larger area. In some parts of the U.S. and in other countries, heavily treed corridors provide a shady walking route across a neighborhood or city. Landscaping policies can improve tree planting on private property. Some cities have experimented with programs that assist residents in finding space on their property to plant trees with an emphasis on canopy trees. If a canopy tree can be planted on the property, the City could subsidize its cost and planting. The following actions were developed from community input and best practices to support this strategy:

- 1a. Increase green spaces such as parks, community gardens, and streetscaping with species that are well suited to provide relief in heat conditions, with an emphasis on native species where appropriate.
- 1b. Identify areas with high urban heat island effect and introduce high quality shade tree species with large canopies and surfaces that would absorb or reflect heat and have lower surface temperatures (e.g., reflective roofs, alternative pavement materials, green space, etc.) as appropriate.
- 1c. Strengthen existing and implement new policies that protect existing trees from removal and ensure new developments include adequate green space.

4.2.2. Extreme Heat Issue 2

Issue EH2: People who are especially vulnerable to extreme heat include those who work outside, suffer from chronic or pre-existing health conditions, or do not have access to air conditioning.

Strategy EH2: Use a variety of approaches to reduce the heat impacts on vulnerable populations that are unable to remain indoors to conduct necessary daily activities (e.g., outdoor workers, transit users, etc.).

CBO Quotes on Extreme Heat Issue 2

- "New cool pavement should be installed in the hotter areas that are most vulnerable in the city as priority" — Rising Communities; "There's a lot of food insecurities here in Boyle Heights and many families have to wait in line on the sidewalk … waiting in the heat with no shade and they are elderly in their 70s or 80s." — Participant at Promesa Boyle Heights event
- "Electricity bills are too expensive, especially during heat waves which can exceed 101 degrees. During these heat waves we cannot sleep or turn on the AC because the bill is so high." — Participant at SCOPE LA event

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People frequently must be outside because of daily activities or the nature of their work without the choice to avoid the heat. It is critical to use effective techniques to cool parts of the urban area where people have to be outside. Approaches that can help outdoor workers include ordinances and creating spaces that are conducive to outdoor vending. For some industries, work hours can be shifted seasonally to avoid outdoor work during the hottest times of the day. This approach has been used for agricultural outdoor workers to reduce the risk of health impacts from heat. Similarly, this could be applied to schools particularly, where school campuses have extensive pavement and nonpermeable surfaces and little to no shade. Many people make a living from selling outdoors at a stationary location. Some cities have created food truck parks that are well suited for the conditions in their city (e.g., Portland's use of vacant lots for food truck pods). By having a designated area and allowances for vendors to set up temporary cooling shades in areas that are on the north sides of buildings or under existing shade structures, vendors can have the assurance that, on a hot day, they can reduce their heat exposure and that of customers who may be going by foot or by bus to find a vendor. People who are waiting in line or on their way to work or school

need more places where they can find relief from the heat. The following actions were developed from community input and best practices to support this strategy:

- 2a. Monitor vulnerable groups who are most at risk during heat waves.
- 2b. Install shelters, awnings, and umbrellas in public spaces, such as public transportation stops, to protect pedestrians.
- 2c. Educate communities about heat-related risks and preventative measures, including existing resources and programs that support public health, such as avoiding outdoor activities during the hottest hours of the day and staying hydrated.
- 2d. Coordinate with stakeholders, community agencies, and partners to establish hydration stations and cooling centers strategically across urban areas during heat waves.
- 2e. Reduce factors that contribute heat into the air and worsen outdoor working conditions through policies and heat plans, while also ensuring that outdoor workers are provided heat protection supplies such as sunblock, hats, cooling sleeves, dry wick clothing, and cooling neck fans.
- 2f. Install more hydration stations and better signage/wayfinding of all hydration stations.
- 2g. Add cooling centers, hydration stations, and resilience hubs that ensure safe space for all populations including LGBTQIA+ individuals, near the outdoor places where people work and shop.
- 2h. Create cool corridors using a combination of shaded walkways, shady tree-lined pedestrian corridors, and reflective or light-colored pavements to reduce heat as people travel to work, school, and home.

4.2.3. Extreme Heat Issue 3

Issue EH3: Buildings rely on power sources as the primary way to reduce heat.

Strategy EH3: Encourage use of building design elements to cool buildings using traditional methods.

CBO Quote on Extreme Heat Issue 3

"More shade would help people that pass through the area."
— Outdoor worker canvassed by Pacoima Beautiful



Traditional building methods have been used for centuries to keep buildings and outdoor places cool in hot climates throughout the world. Historically, the use of earthen and adobe construction in California kept plazas and buildings cool on hot days when combined with design elements that created shade and kept roofs from retaining heat. Shade structures and tree planting can work well for the lower floors of a building, but shade devices can also be incentivized for the upper floors on these exposures through building elements such as upper-floor solar awnings and upper-floor exterior covered walkways.

Adopting cool-roof ordinances can be a successful program if it incorporates new construction and provides retrofits through incentives for existing buildings. For example, if the City pays for or provides the paint, the owner can provide the labor for the task. The owner will benefit with lower cooling costs and the community with fewer heat islands. A result of extreme heat and a contributor to the issue is air conditioning. The process takes heat from buildings and puts it back in the environment, resulting in raised temperatures and a vicious cycle. This "waste heat" can help produce smog when combined with pollution. Smog results in heat trapping, which contributes to higher temperatures and continues the cycle. One way to slow this cycle is to create awareness for residents and businesses regarding establishing a minimum temperature that thermostats can be set for cooling. Many businesses have their thermostats set below the necessary temperature for comfort. The following actions were developed from community input and best practices to support this strategy:

- 3a. New buildings should use traditional local methods of building for hot climates such as use of thick masonry walls, adobe, terracotta tile, permanent shaded arcades, and shaded interior courtyards.
- 3b. Increase the use of exterior window shades, wider eaves, living roofs, light colored exterior coverings, and roofing materials to reduce exposure and retention of heat from sunlight.

4.2.4. Extreme Heat Issue 4

Issue EH4: Existing shade trees are not always preserved and sometimes damaged, removed, or used as places for dumping.

Strategy EH4: Enhance tree care through expanding tree maintenance programs and public education campaigns around valuing trees and maintenance.

CBO Quotes on Extreme Heat Issue 4

- "We need more trees and tree protection to keep people from cutting down the trees." — Participant at SBCC event
- "Some kind of signage on or around trees telling people to take care of them and not dump waste on them could help." — Outdoor worker canvassed by Pacoima Beautiful

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Multiple community comments talked about the importance of preserving the trees that have been planted in addition to planting more. The older a tree is, the larger a canopy it can provide to shade and cool public and private spaces. For various reasons, people remove trees or the conditions of the urban environment cause the trees to decline in health. Keeping trees watered, trash-free, and cared for may require community education, according to some community members. Also, there was a recognition that additional City resources would be needed to preserve existing trees. The following actions were developed from community input and best practices to support this strategy:

- 4a. Create and conduct a campaign to educate people on the importance of trees for reducing heat, responsible treatment and care of trees, and active City programs that manage and enhance the City's tree canopy.
- 4b. City departments should continue to work with community groups to enhance tree preservation practices.

4.2.5. Extreme Heat Issue 5

Issue EH5: Splash pads, play areas, and schools are not always healthy places to be when there is extreme heat.

Strategy EH5: Upgrade facilities used for play and cooling off by adding shade, updated hydration stations, and cooler surfaces to replace pavement.

CBO Quotes on Extreme Heat Issue 5

- "Kids get heat stroke and pass out. They need more substantial shade in open areas or other options for exercising in cooler conditions" — Participant at Promesa Boyle Heights event
- "Splash pads and pools are very helpful for the heat but they are usually in direct sunlight and so we need additional shade over the splash pads and pools." — Participant at Promesa Boyle Heights event

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Many recreational spaces were not designed for the type of heat that climate change is creating. This can lead to dangerous levels of heat in play areas that include a lot of paved area or are fully exposed to the sun. Community members recommended that areas designed for cooling such as splash pads and pools need shading and upgraded hydration stations to be effectively used when it gets hot. The following actions were developed from community input and best practices to support this strategy:

- 5a. Add shade structures over splash pads, pools, and play areas at parks and schools to reduce the heat of pavement, playgrounds, and play equipment on hot days.
- 5b. Upgrade and add hydration stations in recreational areas where existing facilities may be old and worn out, non-functional, or lacking in number to handle the needs of the people who use them.



4.3. Extreme Precipitation and Flooding

Community members focused a lot on extreme rainfall and flooding because of their lived experience with the impacts on their daily lives and communities. Because much of the Los Angeles stormwater system was designed before extreme rainfall events became more frequent, many of the drains and pipes are overwhelmed during these events. Residents noted that trash and other items can clog these drains and lead to street flooding that interferes with daily life. The following are key concepts that community members kept in mind as they developed mitigation strategies for extreme precipitation and flooding:

- Increased precipitation and flooding can be interrelated, but not always. Precipitation leads to flooding only if the landscape and infrastructure cannot handle the quantity of water produced by increased precipitation.
- Nature-based solutions such as rainfall catchment and parks can capture the benefits of rainfall without leading to flooding.
- It is important to note that stormwater infrastructure can be designed to handle increased precipitation events. However, appropriate maintenance and reducing the amount of waste flowing into storm drains requires action from City departments, communities, and individuals to ensure the system works properly.
- In the past, stormwater infrastructure was designed to handle past flooding patterns, so there is a need to upgrade stormwater infrastructure and roads to prepare for future flooding.

- Flooding can happen in areas that are not within a mapped floodplain or flood hazard zone.
- There are many natural and human-made solutions to reducing impacts from flooding.

4.3.1. Extreme Precipitation and Flooding Issue 1

Issue PF1: During heavy rainfall, the stormwater conveyances, such as drains and pipes, fail.

Strategy PF1: Make improvements to stormwater systems to mitigate urban flooding and major rainfall events.

CBO Quote on Extreme Precipitation and Flooding Issue 1

"Trash has impacts when there's heat and causes odors and causes flooding." — Participant at SBCC event

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Community members had many common experiences with stormwater issues, and this led to a variety of solutions informed by their lived experience. The following actions were developed from community input and best practices to support this strategy:

- 1a. Perform a comprehensive inventory of repetitive flood-prone areas.
- 1b. Encourage local stormwater authorities to perform regular maintenance inspections, clear debris and sediment from stormwater infrastructure, and perform other preventative maintenance to prevent blockages.
- 1c. Expand stormwater capacity or upgrade aging infrastructure by adding drains and improving street draining systems in areas of frequent flooding to account for extreme weather events and changes in land use.
- 1d. Equip pump stations with backup power sources.
- 1e. Consider the potential for more frequent and intense rain events in plans, policies, and designs for new and existing stormwater systems.

4.3.2. Extreme Precipitation and Flooding Issue 2

Issue PF2: Sustained downpours and rising floodwaters causes severe damage which leads to road closures and the displacement of residents.

Strategy PF2: Provide more tools for community members to prepare for, respond to, and recover from flooding.

CBO Quote on Extreme Precipitation and Flooding Issue 2

"Heavy precipitation is overwhelming stormwater systems in specific streets especially when there is already existing debris and trash." — Participant at SBCC event

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Densely populated areas have a high risk for flash floods because of increased runoff. Most urban areas nationwide face this issue. The City of Los Angeles has identified many strategies to address this issue. Some of the solutions involve designing with nature to create new spaces for water to flow during high precipitation events to allow water to spread out and recharge groundwater. This will also require a reduction in paving, or depaving.[15] Depaving can have a secondary effect of reducing the urban heat island effect (see complementary strategies under 4.3 Extreme Heat). High floodwaters are unsafe and unsanitary and potentially contain hazardous and biohazardous materials. The following actions were developed from community input and best practices to support this strategy:

- 2a. Encourage community members to adhere to evacuation orders and ensure alternative transportation routes are accessible.
- 2b. Promptly provide disaster recovery assistance to residents.
- 2c. Educate homeowners in areas subject to frequent flooding on how they can protect their property.
- 2d. For disaster preparations, redirect public transit resources to help people evacuate as many of these community members rely on public transportation and have no other means to evacuate.
- 2e. We need more hubs to be cooling centers and/or other support centers for youth, LGBTQIA+ individuals, and elderly that are dealing with the climate impacts of heat, flooding/rain.

[15] A more detailed discussion of depaving can be found in the Section 4.8.1 Cross-Cutting Issue 1.

4.3.3. Extreme Precipitation and Flooding Issue 3

Issue PF3: Densely populated areas have a high risk for flash floods due to increased runoff.

Strategy PF3: Use natural and upgrade existing and newly constructed infrastructure to reduce the amount of flooding in densely populated urban areas.

CBO Quote on Extreme Precipitation and Flooding Issue 3

"All along Compton there is bad flooding. It makes it hard for pedestrians because the sidewalks are inaccessible." — Participant at Rising Communities event

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Nature-based stormwater solutions can be effective methods for managing stormwater while adding green space. These approaches are designed to reduce flooding and surface runoff within an urban area. The key principle behind nature-based stormwater strategies is to maintain or use natural processes to collect, soak in, and filter stormwater runoff. Examples of nature-based solutions include green roofs, swales, permeable pavements, and bioretention systems. These approaches can also help with allowing for groundwater recharge. The following actions were developed from community input and best practices to support this strategy with priority given to the areas of greatest vulnerability and in need of upgrades to infrastructure:

- 3a. Provide structural forms of mitigation which divert floodwaters into conduits suited for controlled release outside of the metropolitan area.
- 3b. Improve resilience against flooding by mandating techniques such as elevating structures, waterproofing roofs and foundations, and retrofitting existing buildings in flood prone areas.
- 3c. Implement Low Impact Development (LID)/Green Infrastructure (GI) to provide stormwater storage and prevent runoff.
- 3d. Enhance floodplains to allow local streams and rivers to accommodate flows during storm events and capture stormwater for groundwater replenishment.
- 3e. Facilitate nature-based stormwater infrastructure that slow, spread, and sink rainfall during storm events (e.g., bioswales, rain gardens).
- 3f. Local capture of stormwater through nature-based solutions to enhance local water supply, reduce stress on aquatic ecosystems, and provide supplementary benefits like shading, cooling, and habitat.

- 3g. Use the City's emergency alert system to issue multilingual alerts, including Indigenous languages, of flooding to urban areas that frequently flood to spread early awareness of an expected flood.

4.3.4. Extreme Precipitation and Flooding Issue 4

Issue PF4: High floodwaters are unsafe and unsanitary, with potential to pollute waterways and soil with hazardous and biohazardous materials.

Strategy PF4: Reduce the potential public health impacts from flooding through awareness and reduced exposure.

CBO Quote on Extreme Precipitation and Flooding Issue 4

"Motor oil from car repairs on the roadsides and big rig trucks leaking oil and other chemicals on the asphalt get mixed with the rain water making the water toxic in a heavy storm" — Participant at Promesa Boyle Heights event

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Rainfall washes the streets and urban areas, leading to bacteria, trash, and other unsafe water quality conditions. Therefore, it is important that people understand the hazards of floodwater in terms of water quality and that steps are taken to reduce the potential pollution and trash that can get washed into the environment, waterways, and the ocean. Policies that encourage low-impact development and green infrastructure can play a role in reducing impacts from flooding. The following actions were developed from community input and best practices to support this strategy:

- 4a. Ensure emergency response personnel are aware of risks associated with after-storm floodwaters and are trained in performing necessary rescues and environmental cleanup.
- 4b. Educate the public on health-related risks associated with contaminated floodwaters and what symptoms may require medical assistance. Utilize local authorities to instruct the community to avoid direct contact with floodwaters when unsafe.
- 4c. Use Low Impact Development (LID)/Green Infrastructure (GI) wherever possible to filter stormwater and reduce pollutants from entering waterways.
- 4d. Do more pre-clearing of storm drains by the City and coordinated community-based clean up programs to remove trash and obstacles before a storm arrives. Offer community grants to CBOs to target areas that are neglected and/or have a lot of bulky items/trash at storm drains.

4.3.5. Extreme Precipitation and Flooding Issue 5

Issue PF5: Alternatives to traditional paving and land cover are needed to reduce flooding.

Strategy PF5: Use types of surfaces and paving that allows water to drain into the soil and reduces runoff.

CBO Quote on Extreme Precipitation and Flooding Issue 5

> "Because we have so much pavement, there is water that does not drain into the ground, we need more permeable pavement."
> — Participant at Promesa Boyle Heights event

As with previous strategies, any methods for reducing the amount of runoff that drains into stormwater systems help reduce the risk of flood. Paving and land cover that allow water to pass through are ideal for reducing runoff in urban environments. The following actions were developed from community input and best practices to support this strategy:

- 5a. Coverings for driveways and walkways should include gaps so that water can filter through it (permeable) and isn't designed to move water directly into storm drains but into landscaped areas.
- 5b. Where possible, remove pavement when it is no longer necessary or functional and replace it with green space.
- 5c. Encourage use of larger, consolidated planting areas and use of native landscaping and vegetated drainage areas on private property and other techniques that reduce runoff instead of hard surfaces or astroturf, and other techniques that reduce runoff.

4.4. Drought

As discussed in Chapter 3, drought is a natural part of the California climate. The severity and frequency of droughts means strategies are needed to prepare for this trend to continue. The following are key concepts that community members kept in mind as they developed mitigation strategies for drought:

- Methods will need to balance using vegetation and water to cool spaces while using drought-tolerant and native plants to conserve water.

- Drought can reduce the availability of water and increase the cost of drinking water.
- Because water supplies may decrease due to climate change, consider the role of water conservation in preparing communities and individuals for more frequent drought.

4.4.1. Drought Issue 1

Issue DR1: Rising utility bills and water usage restrictions disproportionately impact low-income communities and vulnerable populations.

Strategy DR1: Modify drought management approaches and water billing policies to reduce impacts from drought on low-income and vulnerable communities.

CBO Quote on Drought Issue 1

"There is a lot of stress, mental health issues, and worries with being able to afford to live. Water is a basic need and we need to be able to afford those basic needs." — Participant at Promesa Boyle Heights event

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Drought has a direct impact on available water supplies. Over time and in times of drought, water becomes more expensive and water bills can become a burden for low-income families. This has been a well-recognized problem, and actions are ongoing among multiple governments and entities to address this issue. The following actions were developed from community input and best practices to support this strategy:

- 1a. Ensure equitable distribution of water resources and prioritize essential needs during periods of drought and introduce a tiered pricing structure or other methods to incentivize water conservation.
- 1b. Engage community members of all socioeconomic statuses and businesses across the study area in the drought planning process, encouraging collective action to conserve water resources.
- 1c. Identify and connect stakeholders to emergency assistance programs to help vulnerable groups, including LGBTQIA+ individuals and low-income households. This may include providing access to water-saving technology or subsidies for water bills.
- 1d. Make regional power grid updates to minimize dependency on the water sector for power generation and reduce rising utility bills.

- 1e. Offer classes and implement drought planning processes, encouraging collective actions to conserve water resources such as how to irrigate urban farms, gardens, and landscaping more efficiently using rainwater.

4.4.2. Drought Issue 2

Issue DR2: Water shortages increase the vulnerability of critical infrastructure systems, businesses, and communities.

Strategy DR2: Upgrade water collection and stormwater infrastructure to replenish groundwater and recycle water.

CBO Quote on Drought Issue 2

"The City needs to monitor faucets in times of drought to check that the water system and pipes are maintained properly." — Participant at Promesa Boyle Heights event

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Water shortages are a constant concern for decision-makers, utility operators, water managers, and community members. Many actions are ongoing related to this issue. The following actions were developed from community input and best practices to support this strategy:

- 2a. Monitor groundwater to inform aquifer management and model projected water quality and quantity under potential drought conditions.



- 2b. Expand current water supply, and diversify sources including the capture, treatment, and reuse of wastewater as a water source and aggressive leak prevention actions.
- 2c. Increase water storage capacity.
- 2d. Explore options for safely using gray water for irrigation without worsening water quality in the environment.
- 2e. Build and upgrade water infrastructure with drought resilience in mind through reducing leaks in the piping and facilities.
- 2f. Supplementary water sources will be required to meet water needs in the region. Recycled water has great potential to meet this need given its year-round availability.
- 2g. Encourage water conservation and the diversification of water resources such as gray water and water recycling.

4.4.3. Drought Issue 3

Issue DR3: People don't have enough information or money to collect water and get it into the ground.

Strategy DR3: Provide education and support for water conservation and landscaping techniques that retain water.

CBO Quote on Drought Issue 3

> "We would also benefit from educational classes on invasive species and planting species best practices that help regenerate the soil, create soil stabilization, absorb high rain events and also support biodiversity." — Participant at Promesa Boyle Heights event

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Community members expressed an interest in playing a role in conservation as a means of reducing the impact of drought. The following actions were developed from community input and best practices to support this strategy:

- 3a. Provide classes and training on the benefit of rainwater harvesting, green technology, and water conservation, and provide subsidized rain barrels.
- 3b. Direct people to information on native landscaping and soil techniques for soaking up water and keeping it in the soil so they can make these changes on private land where possible.

4.5. Wildfire

As mentioned in Chapter 3, wildfire is a natural part of the California climate, but increased wildfire risks due to climate change will require new adaptation strategies because of the severity of wildfire impacts. For this section, it is recognized that many of these strategies have some crossover with public health issues that will be discussed in Section 4.7. The following are key concepts that community members kept in mind as they developed mitigation strategies for wildfire:

- Wildfire is a part of natural processes, but human activities, including preparation, can reduce fire risks.
- Strategies can address the root causes of wildfire and prevent human behavior that starts fires and worsen impacts.
- When a fire happens, think about what can reduce impacts from fire or help people and your community recover more quickly.

4.5.1. Wildfire Issue 1

Issue WF1: Wildfires disrupt transportation and utilities such as water supply, communications, and electric and gas services.

Strategy WF1: Reduce the risk of wildfire impacts on structures, people, including the unhoused, and infrastructure.

CBO Quote on Wildfire Issue 1

"Fires affect public health and the cost of electricity, water, and gas bills." — Participant at SBCC event

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Community members had a significant number of comments regarding wildfire impacts on all aspects of their lived experience. Nearly every element of a city will experience impacts, from buildings to the people in them. Therefore, a wide range of strategies were recommended. The following actions were developed from community input and best practices to support this strategy:

- 1a. Enforce zoning restrictions which prevent incompatible uses or new development in high wildfire risk areas.
- 1b. Ensure adequate road access for emergency vehicles and reliable water sources for firefighting.

- 1c. Hold tabletop exercises to identify courses of action to respond through contingency plans during next disruption of utility service.
- 1d. Strengthen power lines, utility poles, and communication networks in wildfire-prone areas to withstand fire impacts.
- 1e. Encourage communities to adhere to evacuation orders and ensure alternative transportation routes are accessible.
- 1f. Establish mutual aid agreements with neighboring utilities to share resources and personnel during emergencies.
- 1g. Assess critical infrastructure to determine where upgrades are needed and to install backup power at critical facilities to maintain essential services during power outages caused by wildfires, particularly in Very High Fire Hazard Severity Zones.
- 1h. Create and maintain fire defensible space around structures and infrastructure.
- 1i. Make buildings less vulnerable to fire risk by limiting new development in the wildland-urban interface (WUI) and requiring building codes that include use of fire resistant materials in high hazard areas.

4.5.2. Wildfire Issue 2

Issue WF2: Smoke from wildfires contains particle pollutants and carbon monoxide which can be extremely harmful to the lungs.

Strategy WF2: Help people connect with information to reduce exposure to harmful air from natural and human-caused sources of air pollution.

CBO Quote on Wildfire Issue 2

"My asthma has become much worse and my family members are now getting asthma. The heat being emitted from the ground is making the air worse." – Participant at Promesa Boyle Heights event

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Community members discussed the need to connect with tools that can help them understand the level of air quality each day. Though historically the Centers for Disease Control and Prevention (CDC) and National Oceanic and Atmospheric Administration (NOAA) have operated air quality tools for public use, a reliable method for checking local air quality can be found on the South Coast Air Quality Management

District (AQMD) Air Quality webpage where anyone can download a mobile app and sign up for Air Alerts when there is poor air quality in a resident's neighborhood. Some local emergency service providers are also offering methods for automatic notification on days with poor air quality. The California Department of Transportation (CalTrans) has a policy and practice of displaying air quality warnings on interstate message boards. Connecting community members with tools through public awareness campaigns and education can help people understand the risks on a particular day so they can take the right action for their situation. The following actions were developed from community input and best practices to support this strategy:

- 2a. Make available accessible platforms (e.g., websites or automated emergency alert texts/calls) where residents can check current air quality levels and receive advisories when air quality declines because of wildfires.
- 2b. Coordinate with public health agencies and healthcare providers to provide actionable guidelines for residents to follow during poor air quality and to respond to increases in respiratory illnesses and other health impacts related to wildfire smoke exposure.
- 2c. Equip cooling centers and resilience hubs with air filtering devices which allow them to be Cleaner Air shelters during bad air quality days.

4.5.3. Wildfire Issue 3

Issue WF3: The number of fires related to the unhoused population has been steadily climbing.

Strategy WF3: Use a variety of approaches to reduce the number of fires caused by people.

CBO Quote on Wildfire Issue 3

"Trash and encampments are a fire hazard and we have fire due to all the trash." — Participant at SBCC event

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In general, human activity is one of the most common causes of fire. Because of the large number of unhoused people in the Los Angeles area, there are many issues of concern for community members based on recent experience. When someone is living outdoors, they will frequently use fire as a way to keep warm or cook food. These fires create a risk of getting out of control when the vegetation is dry and fire risk is high. This can create a hazard for the people who start the fires and the surrounding

community. The following actions were developed from community input and best practices to support this strategy:

- 3a. Conduct fire prevention education and community awareness outreach that provide the public, including unhoused individuals and LGBTQIA+ individuals, with fire safety practices and materials.
- 3b. Enhance safety for all residents by establishing a program to encourage safe and managed campsites free of flammable debris and equipped with fire-resistant shelters, fire pits, and access to water sources.

4.5.4. Wildfire Issue 4

Issue WF4: Wildfire impacts were a top concern for community members.

Strategy WF4: Work with communities to reduce the risk and impacts of wildfire.

CBO Quote on Wildfire Issue 4

"Drought creates a big fire hazard in my community." — Participant at SBCC event

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With wildfires being a top concern for communities across the Los Angeles area, community members expressed an interest in being a part of the solution more generally. This can take many forms, including education regarding fire risk prevention and understanding how to do community projects to reduce local fire risk. The following actions were developed from community input and best practices to support this strategy:

- 4a. Enhance community engagement around wildfire risks, prevention, and evacuation, as well as grants and other programs and resources available to communities in High Fire Hazard Severity Zones.
- 4b. Clear potential fuels on property such as dry underbrush, diseased trees, and invasive species and restore native habitat and riparian areas.
- 4c. Use Indigenous and natural land management and fire prevention practices to reduce fire risk.
- 4d. Work with communities and fire officials to update wildfire, emergency response, and evacuation plans to address community needs, including BIPOC, low-income and LGBTQIA+ individuals, during fires and evacuations.

In January 2025, Los Angeles experienced the largest fire event in its modern day history. As a result of record high Santa Ana winds, a firestorm spread through the Brentwood - Pacific Palisades CPA for approximately 10 days. While there were several other fire events that occurred during this wind storm event in other parts of the City, the Pacific Palisades community was nearly completely burned down. As a result, the following additional mitigations are recommended for wildfire resiliency:

- Explore advanced technology options that help the City be more informed on climate science to help improve infrastructure and utilities resiliency.
- Encourage and incentivize fire resistant planting palettes in Very High Fire Severity Zones.
- Restrict construction activities and staging on hillside streets on Red Flag Days to ensure the maximum emergency vehicular access.

4.6. Sea Level Rise

Faced with sea level rise, coastal cities are developing responses to address local challenges and will soon be required to have Local Coastal Plans as a result of the recently passed SB 272. Though a majority of the Los Angeles population lives inland, public input described a recognition that even though sea level rise is not a problem yet, residents expect it to have impacts on their communities. Individuals understand future impacts could include displacement of people and damage to land and property. Many entities across the region and state are taking actions related to adapting to sea level rise (e.g., California Coastal Commission). Several strategies have been considered by the Port of Los Angeles and used in other parts of the country to mitigate future impacts. The following are key concepts that community members kept in mind as they developed mitigation strategies for sea level rise:

- Because sea level rise is a global phenomenon, local solutions need to acknowledge that reality.
- Nature-based solutions exist to make public beaches more resistant to impacts from sea level rise.
- Sea level rise may affect only the homes of those who live near the coast. However, sea level rise will also affect places farther away that people will work at, play in, and travel through.

4.6.1. Sea Level Rise Issue 1

Issue SLR1: Infrastructure investments are needed to prepare coastal areas for coastal flooding associated with sea level rise.

Strategy SLR1: Invest in strategic relocation of coastal infrastructure in the near term to avoid damage and disruption from sea level rise.

CBO Quote on Sea Level Rise Issue 1

"The land is being reduced due to the increasing water lines and then the properties are affected by being more premium and affects our housing opportunities." — Participant at SBCC event

Community members recognized that sea level rise will have negative impacts on utility infrastructure in low-lying areas. The following actions were developed from community input and best practices to support this strategy:

- 1a. Relocate or make improvements to utility infrastructure to make it less likely to be damaged by sea level rise.
- 1b. Flood-proof, retrofit, relocate, elevate, and add redundancy to accommodate impacts.

4.6.2. Sea Level Rise Issue 2

Issue SLR2: Updates to plans and procedures are needed to respond to sea level rise.

Strategy SLR2: Update any plans, policies, and procedures that could directly assist with responding to impacts from sea level rise, including limiting new development in coastal areas anticipated to be impacted by sea level rise.

CBO Quote on Sea Level Rise Issue 2

"Sea level rise could take away the beaches." — Participant at SBCC event

Though community members did not have specific recommendations, they understood that a significant number of plans, policies, and other guidance would be needed to address the impacts of sea level rise on the built environment and beaches and the impacts from coastal storms that lead to flooding as sea levels increase. The following actions were developed from community input and best practices to support this strategy:

- 2a. Account for future sea level rise and storm surge projections within updates to emergency response plans and procedures.

- 2b. Integrate sea level rise and storm surge projections in long-range land use planning by limiting development and/or density in sea level rise areas.

4.6.3. Sea Level Rise Issue 3

Issue SLR3: Past solutions have not always proven effective for mitigating sea level rise.

Strategy SLR3: Additional nature-based solutions are needed to mitigate sea level rise.

CBO Quote on Sea Level Rise Issue 3

> "Sea level rise will flood coastal neighborhoods and push people inland to create a worse affordable housing shortage and higher prices." — Participant at SBCC event

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Coupled with the discussions around extreme rainfall and flooding, it was recognized that nature-based solutions could be applied to sea level rise. The following actions were developed from community input and best practices to support this strategy:

- 3a. Use natural processes and green stormwater infrastructure such as low impact development, green roofs, and pavements that allow storm surge and floodwater to seep into the ground.
- 3b. Acquire and manage natural ecosystems (i.e., wetlands, floodplains, etc.) that assist in reducing flooding and storm surge.

4.7. Climate-Related Public Health

The top concerns from community members regarding the impacts of climate change on public health were primarily related to heat, flooding, and wildfire smoke. The common factors discussed that made these impacts worse, also known as stressors, were issues such as trash, older facilities that need upgrading, and concerns about power outages. Vulnerable communities and individuals are already burdened with health issues and do not always have the resources needed to adapt to climate hazards nor to recover from climate events. The following are key concepts that community members kept in mind as they developed mitigation strategies for climate-related public health:

- Wildfire smoke is hard to prevent because of the large distances it can travel. Limiting outdoor activities and exposure when air quality is worse is often all that is available.
- There are many potential ways to help vulnerable communities reduce the impacts of heat on public health. These can take the form of creating awareness, reducing exposure, increasing access to health care, and cooling near places where vulnerable populations live, among many other methods.

4.7.1. Climate-Related Public Health Issue 1

Issue PH1: A loss of power during an emergency is dangerous for those with health issues.

Strategy PH1: Create backup power solutions, preferably using renewable energy, to provide power to vulnerable populations during a loss of power.

CBO Quotes on Climate-Related Public Health Issue 1

- "Solar panels should be more widely installed to help offset other electric bills." — Participant at Rising Communities event
- "The blackouts have lasted 24 hours." — Participant at Rising Communities event

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Power outages can be dangerous or deadly when they are caused by certain types of climate events. When considering having no power, community members were concerned about keeping medicine and food cold and the ability to cool off during an extreme heat event. Many of the ideas that came out of community discussions focused on backup power solutions. The following actions were developed from community input and best practices to support this strategy:

- 1a. Solar photovoltaic and/or community solar system in combination with stationary energy storage for microgrid implementation, capable of providing backup power to entire residences for prolonged periods.
- 1b. Those with extreme health conditions should be assigned emergency generators for cases in these extreme weather conditions.
- 1c. Explore potential programs of investment to assist low-income residents getting solar systems installed on rooftops where they live and in their communities.

4.7.2. Climate-Related Public Health Issue 2

Issue PH2: Air quality issues caused by wildfire smoke, fumes, exhaust, and industrial uses make health problems worse, especially during extreme heat.

Strategy PH2: Reduce air quality issues through use of community tools such as localized air quality monitoring, nature-based mitigation solutions, and community-based enforcement.

CBO Quotes on Climate-Related Public Health Issue 2

- "Air Quality affects you when it's hot, you can get sick." — Outdoor worker surveyed by Pacoima Beautiful
- "The smoke and fumes rise in the heat and then the rain traps all those chemicals here closer to us and are what we are breathing." — Participant at Promesa Boyle Heights event

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Community members have had extensive experience with the stress caused by poor air quality while walking or riding the bus on a hot day. Sometimes these air quality issues affect the indoor air quality as community members open windows when air conditioning is not an option. Multiple comments were made about how poor air quality had a significant negative impact on people's health conditions and required visits to medical facilities. Participants offered a variety of solutions to address this public health issue. The following actions were developed from community input and best practices to support this strategy:

- 2a. Increase tree canopy and open space and decrease industry and associated air quality impacts for multiple health benefits including reduced heat, air quality, and mental health.
- 2b. Explore options for conducting regular, localized air quality monitoring in communities where residents face regular air quality issues.
- 2c. Strengthen programs that support community-based air monitoring to achieve environmental equity.
- 2d. Use existing programs and funding sources to develop community-based air quality enforcement programs.

- 2e. Residential building designs that promote cross-ventilation through the use of windows on two sides and/or skylights in new development.
- 2f. Increase research, monitoring, and documenting of climate-related illnesses and deaths.

4.7.3. Climate-Related Public Health Issue 3

Issue PH3: The process of getting to a bus stop and waiting for the bus during a hazard event can make health issues worse (e.g., protection from the elements/heat).

Strategy PH3: Work with communities and transit users to reduce exposure to heat throughout the transit process (e.g., waiting, pathways from home to bus stops).

CBO Quote on Climate-Related Public Health Issue 3

> "Many bus stops don't have any shade. There are piles of trash near or next to the bus stop." — Participant at Promesa Boyle Heights event

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A significant number of Angelenos rely on public transportation and pedestrian routes as their only form of transportation for their commute and for doing daily activities. Long walks through hot, unshaded urban areas and long waits at unshaded bus stops can lead to a health emergency. If this is combined with poor air quality and trash at bus stops, it makes the ability to breathe worse on a hot day. These issues were discussed frequently by participants and were a top priority as they touched on multiple climate hazards. The following actions were developed from community input and best practices to support this strategy:

- 3a. Work with transit riders to identify where bus shelters are needed that help provide relief from heat.
- 3b. Work with transit riders and community members to reduce heat exposure when walking on public walkways to and from destinations.

4.7.4. Climate-Related Public Health Issue 4

Issue PH4: A lack of green space in a community contributes to health issues (physical and mental).

Strategy PH4: Increase the overall amount of community green space to be more equitable when compared to other neighborhoods across the City.

CBO Quote on Climate-Related Public Health Issue 4

> "Our green spaces need more greenery, more trees and cooling vegetation. We also need to make sure our trees are properly taken care of, so they are structurally sound." — Participant at Rising Communities event

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Green space, trees, and parks can have several benefits to public health through improvements in mental health and the reduction of heat impacts. Low-income neighborhoods and places with vulnerable populations also tend to have a deficit of green spaces. This leaves these communities with fewer methods for adapting to climate change and can contribute to worse health outcomes. Adding green spaces of any kind were noted by community members as a desirable method for addressing climate impacts and public health concerns. The following actions were developed from community input and best practices to support this strategy:

- 4a. Increase access to open space and enhance trail connectivity to improve mental and physical health.
- 4b. Add new street trees along streets and sidewalks in existing and new development, preserve healthy existing trees with consistent maintenance and prevent/minimize tree removal where possible.
- 4c. Add more trees in open space areas and green spaces.
- 4d. Increase the amount of shade as much as possible in outdoor areas where people have to wait for transportation, walk, or work.

4.7.5. Climate-Related Public Health Issue 5

Issue PH5: Littering and the presence of trash creates numerous problems related to clogged drains, unsanitary conditions at bus stops, and makes air quality worse on hot days.

Strategy PH5: Use a coordinated set of targeted actions to clean up trash and reduce littering to reduce climate-related stressors to prevent the incidence of vermin, insects, odors, etc., that could potentially impact public health.

CBO Quotes on Climate-Related Public Health Issue 5

- "All along Compton there is bad flooding. It makes it hard for pedestrians because the sidewalks are inaccessible." — Participant at Rising Communities event
- "The water was up to my waist. Trash cans were flowing down the street. There needs to be less trash and less littering in order to alleviate trash accumulating in the street." — Participant at SBCC event

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Though the City has made attempts to address the amount of illegal dumping and trash left on the streets and around bus stops, the problem continues. The lived experience of many community members included experiences of overflowing trash cans at bus stops, people dumping garbage and grease next to trees, and trash left around encampments of unhoused people. Various City departments have been working on solutions, and the input from community members shows that addressing this problem is a high priority. This is a complex problem that involves the need to change behaviors and will require additional resources to reduce the amount of trash that clogs drains, worsens air quality, and serves as a general health hazard in combination with climate impacts. The following actions were developed from community input and best practices to support this strategy:

- 5a. The City should continue to develop actions and programs across City departments to prevent illegal dumping and littering.
- 5b. Add additional durable trash bins that can contain foul odors in public areas such as bus stops and parks to reduce potential public health impacts.
- 5c. The City should continue to develop options for adding permanently staffed trash collection stations or parked garbage trucks in areas where frequent dumping is occurring as a highly accessible and visible option to encourage people to safely dispose of trash instead of dumping.

- 5d. Create public-private partnerships to hire community organizations to do the trash clean up on a more local/daily basis to keep up with trash issues and illegal dumping.
- 5e. Resilience hubs should include a self-care or public health care component to address community health needs during a climate event and to make up for the loss of health resources in some communities.

4.8. Cross-Cutting Strategies

Cross-cutting strategies are more general mitigations that will positively affect efforts across multiple hazards. These overarching or general strategies emerged as communities discussed individual climate hazards, and they have not been repeated in the issue-specific sections. It will be noted within this section whether a cross-cutting strategy is relevant to specific climate hazards and impacts.

4.8.1. Cross-Cutting Issue 1

Issue CC1: The large amount of paved urban areas makes many climate impacts worse.

Strategy CC1: Increase the amount of permeable surfaces on public and private lands.

CBO Quotes on Cross-Cutting Issue 1

- "When we have so much pavement, there is no water draining into the ground so we need permeable pavement." — Participant at Promesa Boyle Heights event
- "New multifamily developments have no open space, no green spaces, and the design is not prioritizing cross wind natural ventilation." — Participant at SBCC event

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Urban areas in the U.S. tend to have more pavement than open ground or green space. Pavement, sometimes called "hardscape," prevents water from soaking into the ground and can soak up heat on hot days. This is the case in Los Angeles. The approach known as "depaving" involves identifying places where pavement can be reduced and replacing it with green space or another surface that allows water to pass through

it. This is an emerging approach to reducing storm runoff, increasing groundwater recharge, and reducing heat island effects. Various city departments are exploring options for this form of mitigation through landscaping standards and looking for nature-based solutions for handling stormwater. There also tends to be a lot of paved area on private land such as driveways, parking lots, and sidewalks within housing complexes. Some of these are necessary for people with mobility issues to get around, but other paved surfaces are not needed. This recommendation based on public input and best practices can help reduce impacts in urban areas that regularly experience extreme heat and flooding. The following actions were developed from community input and best practices to support this strategy:

- 1a. Replace pavement with green spaces on both public and private property in urban areas that regularly experience extreme heat, flooding, and places that lack green spaces.
- 1b. Encourage private property owners to replace paved surfaces with green spaces or permeable surfaces to reduce flooding and heat.

4.8.2. Cross-Cutting Issue 2

Issue CC2: There are gaps in local and community climate hazard data.

Strategy CC2: Use available options at all scales to collect climate data.

CBO Quote on Cross-Cutting Issue 2

> ""We would like to have water testing kits more widely available."
> — Participant at SBCC event

The CVA process confirmed that local data is not available for certain hazards, as has been documented in the Los Angeles County CVA and the FTBMI Climate Resilience Plan. Therefore, additional methods will be needed to collect this data using the capacity of community and City resources. As more data is gathered, it can inform processing to identify gaps in mitigation and eventually track progress on reducing climate hazard impacts.

A simple approach is for community groups and individuals to keep written and photographic records of climate events and impacts. People can start a "climate journal" for these events or include information about them in any private journal. Community groups can serve as a central recordkeeper for lived experiences or

for scientific climate data collected by community members. CBOs should consider organizing a listening session or "community data-gathering" session after a major event. This would create an opportunity to collect up-to-date information on hazards resulting from extreme weather events, such as Hurricane Hillary, that could be used for future planning. Though this is not scientific data, it is an opportunity to document lived experiences to inform processes such as an update to a CVA or a stormwater improvement program. Individuals and communities can also take photographs of what happens during, only if it is safe to do so, or after an event to document important issues such as a specific drain that always backs up or the damage caused by a severe storm. When it is extremely hot on a specific day or over a few days, document the health impacts or the experience of waiting at a specific bus stop. These resources can help create a record of local climate impacts when combined with the information and history collected by other community members and organizations. This information can be shared with City representatives to help them understand the nature of the impact as a way to develop a solution.

Citizens could work with community groups, City departments, federal agencies, or university research projects to collect specific data about their neighborhood that can help scientists and decision-makers understand how climate events are affecting where they live and lead to more action and community-based solutions. Some examples of these data-gathering projects include measuring conditions such as surface temperature on a walking route or air quality near a pollution source to create a greater understanding of climate change and factors that make those climate impacts worse. Using this data at a single location, street corridor, or neighborhood level can inform development of mitigation efforts or justify actions such as investment in shade structures, canopy trees, or air quality policies. The following actions were developed from community input and best practices to support this strategy:

- 2a. Encourage individual citizens to keep climate journals, and photos when applicable, to record lived experience of impacts on health and daily life from climate hazards.
- 2b. CBOs should periodically ask community members to share their experiences from extreme climate events, especially immediately afterward to document what happened and talk about how to work together to prepare and adapt for future events. This information can be valuable for climate resilience plans.
- 2c. CBOs and individuals should participate in or conduct "citizen-scientist" data collection efforts that can document heat in specific locations within communities. (e.g., NOAA Urban Heat Island (UHI) mapping campaign)
- 2d. Create a Citywide climate data dashboard to track data on climate hazards and provide information to the public.[16]

[16] This action was discussed during the LHMP process and has been identified as an approach by other City departments and community organizations.

4.8.3. Cross-Cutting Issue 3

Issue CC3: Community members need more resilience hubs closer to where they live and work.

Strategy CC3: Work with communities to add more resilience hubs where needed.

CBO Quote on Cross-Cutting Issue 3

"We need more hubs to be cooling centers and or other support centers for youth and elderly that are dealing with the climate impacts of heat, flooding, and rain." — Participant at SCOPE LA event

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Multiple City departments have been working together to identify additional locations for cooling centers and emergency shelters for hazard events. Over the past few years, community groups, FTBMI, and other organizations have recognized that a more holistic approach would be to make these resilience hubs go beyond serving the needs around one hazard. The FTBMI Tribal Climate Resiliency Plan was completed at the beginning of 2024 and provided valuable mitigation strategies as a form of community input. For the purpose of this recommendation, it is important to include that plan's description of the resilience hub purpose:

> *Resilience hubs are a new concept of a trusted, community-run space with added physical amenities and programming to help the community survive the brutal shocks of heat waves, earthquakes, and chronic stressors. Resilience hubs/centers are an ideal and innovative replacement for cooling centers as the hub would be at a preexisting gathering place with the community actively engaged in the co-development and operation.*

CEMO and EMD are working on developing resilience hubs across the City. An important aspect of this process is that community members and community groups should continue to play a central role in informing what services are needed and what areas need a resilience hub where critical gaps exist. This will help communities get the services they need to be protected when an extreme climate event occurs (e.g., heat wave, flooding, severe storm with an associated power outage). The following action was developed from community input and best practices to support this strategy:

- 3a. Create cooling centers/other places that create a safe space for all individuals with air conditioning and resilience hubs where residents can get support, coordinate communication, find resources, and reduce carbon pollution while enhancing quality of life.



4.8.4. Cross-Cutting Issue 4

Issue CC4: Not all City facilities, policies, operations, and infrastructure are designed to withstand expected future climate hazards.

Strategy CC4: Update or create city plans and procedures to prepare city operations and facilities for expected climate hazards impacts.

CBO Quote on Cross-Cutting Issue 4

> "The community is observing a general trend against green space and towards more pavement and removing landscaping, especially in new developments like affordable housing projects. We need open space and green spaces instead of concrete everywhere, including schools, apartment complexes, and public spaces. At the very least, there should be groundcover and pavement that reduces or deflects heat." – Participant at Promesa Boyle Heights event

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The results of the vulnerability assessments and existing city plans and policies contain many strategies and proposed actions to prepare for climate hazards. This strategy supports the entirety of city department plans and studies that describe methods, approaches, and actions for making city operations and facilities more resilient to climate hazard impacts.

The following action was developed from community input, plans, reports, and best practices to support this strategy:

- 4a. Update plans, facilities, and City operations to prepare for future climate hazard conditions in an equitable manner.

4.9. Conclusion

The Los Angeles CVA outlines the City's physical and social vulnerabilities to the ongoing and worsening climate hazards that Angelenos regularly experience. The vulnerabilities identified in this report intersect with other social, economic, and equity issues that make it more difficult for some individuals, groups, and communities to recover from or adapt to climate hazards and impacts. Though climate change is occurring, and the consensus is it will make daily life more challenging, a "whole city" approach provides an opportunity to mitigate the worst impacts and provide significant help to those who need it. From individual actions to community-organized initiatives to city-driven projects, collective action at multiple levels can effectively respond to the challenges posed by climate hazards. The City is committed to continued work with community partners, government agencies, and other stakeholder partners to continue to move forward on making Los Angeles a more resilient city for all.

4.9.1. Implementation Takeaways

1. Communities, individuals, and City departments should continue to work together to mitigate climate impacts, with a prioritization on vulnerable communities that are most negatively affected and have insufficient access to resources.

CVA insights should inform budget allocations, legislation, and infrastructure investments. With equity as a guiding principle for the City's climate action, projects must also support climate resilience and prioritize historically disadvantaged people. To maximize resources, investments should provide widespread benefits by addressing multiple hazards when possible. Continuing to mitigate GHG emissions and slow climate change will be critical to reducing impacts to communities. An integrated approach to adaptation and mitigation ensures the City simultaneously curbs and prepares for climate change.

For example, LA100 was a renewable energy study that Los Angeles DWP conducted in partnership with the National Renewable Energy Labs (NREL) in 2021. The study examined how Los Angeles could reach the goal of 100% renewable power. DWP is building on that study by working with community representatives from Pacoima Beautiful and SCOPE LA along with City Departments and agencies on the development of their revised Strategic Long-Term Resilience Plan (SLTRP), which is looking to incorporate the LA100 Equity Strategies. These strategies incorporate research and community representation to achieve community-driven and equitable results from the transition to 100% renewable energy. The CVA mitigation strategies were informed by the LA100 process so that the CVA is aligned with ongoing city mitigation projects and studies.

Sharing the CVA's findings with all City departments, related agencies, and local jurisdictions is crucial to coordinating a comprehensive climate resilience strategy

and preparing for the next phase of climate resilience plans and implementation. CVA findings and recommendations should be referenced when developing and implementing citywide and departmental strategies and work plans that incorporate climate adaptation measures. Implementation efforts should always include a strong commitment to community outreach to ensure the City maintains strong relationships with community groups in an effort to continue to address community-based needs around climate hazards and impacts.

Some departments, such as the City Planning Department, have already begun to integrate the CVA recommendations to inform their policy and work programs. Specifically, City Planning's Urban Design Studio's draft Landscape and Site Design Ordinance, the Open Space Element update, the Environmental Justice Policy team's General Plan updates, and the department's Olympics planning work programs have begun to integrate the recommended mitigation measures with regard to extreme heat.

2. Community-based organizations and climate resilience stakeholders should serve a central role in addressing climate impacts and increasing community resilience.

Consistent, regular engagement with communities, not just during planning processes, has shown positive results for City departments and the communities involved. It enables more inclusive, effective, and successful planning. Advocates can reference the CVA's data regarding social vulnerability to ensure equity considerations and community needs are a core element of improving City and community resilience.

Outside of partnering with City departments, CBOs and nonprofits have been conducting climate resilience work, and this CVA can provide useful information for that work going forward. Some coalitions of community groups and nonprofits are actively working on next steps that are reflective of or already encompass the strategies in this CVA. For example, Promesa Boyle Heights has partnered with nonprofit organizations to work on an industrial buffer zone project intended to mitigate impacts from industrial areas near the southern end of Boyle Heights. The project is promoting resilience strategies and actions including increasing cooling through use of cool roofs, cool pavement, hydration stations, bus shelters, resilience hubs, shade structures, tree canopy, and green spaces as a way of reducing extreme heat risks and providing other essential benefits and services to the residents of Boyle Heights. Community-based projects coupled with City programs and operations can serve as a useful approach for public-private-community partnership and cooperation on implementing resilience actions.

3. Other partners, local organizations, and services providers are taking action to mitigate climate change impacts and could be partners in acting on the recommendations in the CVA.

There are many different institutions, organizations, tribes, and service providers that are doing research or independent action on climate resilience. UCLA and other

institutions of higher learning have produced multiple research studies on climate impacts. Other research projects include producing datasets that can be used to inform future climate plans. There are many secondary partners that provide public health services and could be partners in addressing public health actions from the CVA. Tribal nations and communities are actively working on various climate resilience initiatives and actions and could partner with the City, community organizations, and other partners to implement the recommendations from this assessment.

4.9.2. Areas for Continuous Analysis

California's network of academic and research partners produced key insights to inform the CVA. However, there are gaps, such as flooding and precipitation risk and the adaptive capacity of communities. By supporting research through continuing partnerships with research institutions (e.g., UCLA) on emerging questions and trends related to climate change, the city can ensure our actions stay relevant. As noted in Section 4.8.2 with Cross-Cutting Issue CC2, there are gaps in local and community climate hazard data that will require data collection that is coordinated with communities to ensure the data is documenting how climate impacts are impacting daily life. Researchers at academic, state, and federal institutions are well suited to create datasets that can help the City and communities to create informed plans and strategies.

The next step that typically follows a CVA is to conduct a more comprehensive look at City functions within the context of community input and the expected impacts. This type of project would be a Climate Action and Adaptation Plan that would further develop ways to implement climate adaptation actions across City departments and operations in alignment with the City's budget.

Many individual City departments, community groups, and local organizations are already conducting climate resilience actions that align with the recommendations in this CVA. It is difficult to see who is doing what work and which departments are monitoring which hazards and climate metrics. As such, a citywide dashboard that reflects all of the climate programs being implemented by each department and shares who is monitoring the climate metrics and provides progress updates would greatly benefit all of Los Angeles' stakeholders, staff and decision makers. Future plans that add more specifics with strong connections to policies, regulations, and budgets can provide a detailed path towards developing necessary solutions. For the City, these will typically be formed through a suite of plans, programs, and policies. Addressing climate vulnerability will be an ongoing process as climate conditions change, progress is made, and community priorities evolve. This will require additional data and continued outreach to understand how Angelenos are living with and adapting to climate change. Together, the diverse communities of Los Angeles and all Angelenos can thrive through continued attention on climate vulnerability and effective actions based on the information available.

Abbreviations, Acronyms, and Initialisms

AQMD	Air Quality Management District
CalEPA	California Environmental Protection Agency
CalTrans	California Department of Transportation
CBO(s)	Community-Based Organization(s)
CDC	Centers for Disease Control and Prevention
CEMO	Climate Emergency Mobilization Office
CPAs	Community Plan Areas
CPP	Community Partners Program
CVA	Climate Vulnerability Assessment
EMD	Emergency Management Department
ER	Emergency Room
FEMA	Federal Emergency Management Agency
FTBMI	Fernandeño Tataviam Band of Mission Indians
GHG	Greenhouse Gas
GI	Green Infrastructure
HARP	Heat Action and Resilience Plan
HHE	Heat Health Event
LACP	City of Los Angeles Department of City Planning
LGBTQIA+	Lesbian, Gay, Bisexual, Transgender, Queer or Questioning, Intersex, Asexual or Ally, and Additional Identities (LGBTQIA+)
LHMP	Local Hazard Mitigation Plan
LID	Low Impact Development
LOCA	Localized Constructed Analogues
NDMC	National Drought Mitigation Center
NOAA	National Oceanic and Atmospheric Administration
NREL	National Renewable Energy Laboratory
NRI	National Risk Index
RCP	Representative Concentration Pathways
SB	Senate Bill
SBCC	Strength Based Community Change
SCOPE LA	Strategic Concepts in Organizing and Political Education LA
SLR	Sea Level Rise
UCLA	University of California, Los Angeles
UHI	NOAA Urban Heat Island
USDA	U.S. Department of Agriculture
WUI	Wildland-Urban Interface

Photo sources: Photos on pages 1, 5, and 7 from Adobe Stock; photos on pages 13, 21, 41, 59, 66, 77, 79, 84, 98, 116, 155, 177, and 209 by Gabriela Juárez, LACP



Appendices


KIDS
Dodgers
BASEBALL

Appendix A.
Mitigation Strategies Table

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
Issue EH1: Most of the study area is highly developed, with few tree canopies to offer shade. *Problema EH1: La mayor parte del área de estudio está muy desarrollada, con pocas copas de árboles que ofrezcan sombra.*	**Strategy EH1: Increase the amount of green space and tree canopy in areas impacted by the urban heat island effect.** *Estrategia EH1: Aumentar la cantidad de espacios verdes y copas de árboles en áreas afectadas por el efecto isla de calor urbano.*	**1a. Increase green spaces such as parks, community gardens, and streetscaping with species that are well suited to provide relief in heat conditions, with an emphasis on native species where appropriate.** *Incrementar los espacios verdes como parques, jardines comunitarios y paisajismo urbano con especies locales que sean adecuadas para brindar alivio en condiciones de calor, con énfasis en las especies nativas cuando corresponda.*	●					●	**CBOs FTBMI Anawakalmekak North East Trees**	DCP Landscape and Site Design Ordinance *(DCP Borrador de Ordenanza de Diseño de Sitios y Ajardinamiento)*, **2024, p. 16**; **General Plan Open Space Element** *(Elemento de Áreas Verdes del Plan General)*; **Urban Forest Management Plan** *(Plan de Manejo Forestal Urbano)*	**RAP StreetsLA Urban Forestry DCP**	**City** *Ciudad*	**Mid** *Medio*
		1b. Identify areas with high urban heat island effect and introduce high quality shade tree species with large canopies and surfaces that would absorb or reflect heat and have lower surface temperatures [e.g., reflective roofs, alternative pavement materials, green space, etc.] as appropriate. *Identifique áreas con un alto efecto de isla de calor urbano e introduzca sombra de alta calidad árboles especies con grandes copas y superficies que absorban o reflejen el calor y tengan temperaturas superficiales más bajas [por ejemplo, techos reflectantes, materiales de pavimento alternativos, espacios verdes, etc.] según corresponda.*	●					●	**CBOs FTBMI Anawakalmekak North East Trees**	A Greater LA: Climate Action Framework *(Un Gran LA: Marco de Acción Climática)*, **2016, pp. 67, 77**; **LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, p. 33-20**; **General Plan Open Space Element** *(Elemento de Áreas Verdes del Plan General)*; **Urban Forest Management Plan** *(Plan de Manejo Forestal Urbano)*; **UFEC Phase II Report** *(Informe UFEC Fase II)*; **Cool Roof Ordinance** *(Ordenanza sobre Techos Fríos)*	**Urban Forestry StreetsLA EMD DCP**	**City / Community** *Ciudad / Comunidad*	**Short** *Corto*
		1c. Strengthen existing and implement new policies that protect existing trees from removal and ensure new developments include adequate green space. *Fortalecer los existentes e implementar nuevas políticas que protєjan los árboles existentes de la remoción y garanticen que los nuevos desarrollos incluyen espacios verdes adecuados.*	●	●		●		●	**CBOs FTBMI Anawakalmekak North East Trees**	General Plan Open Space Element *(Elemento de Áreas Verdes del Plan General)*; **Urban Forest Management Plan** *(Plan de Manejo Forestal Urbano)*; DCP Landscape and Site Design Ordinance *(DCP Borrador de Ordenanza de Diseño de Sitios y Ajardinamiento)*, **2024, p. 16**	**Urban Forestry DCP**	**City** *Ciudad*	**Short** *Corto*
Issue EH2: People who are especially vulnerable to extreme heat include those who work outside, suffer from chronic or pre-existing health conditions, or do not have	**Strategy EH2: Use a variety of approaches to reduce the heat impacts on vulnerable populations that are unable to remain indoors to conduct necessary daily**	**2a. Monitor vulnerable groups who are most at risk during heat waves.** *Monitorear a los grupos vulnerables que corren mayor riesgo durante las olas de calor.*	●					●	**CBOs FTBMI Anawakalmekak**	Heat Action and Resilience Plan *(Plan de Acción y Resiliencia al Calor)*	**CEMO**	**City / Community** *Ciudad / Comunidad*	**Short** *Corto*
		2b. Install shelters, awnings, umbrellas in public spaces, such as public transportation stops, to protect pedestrians. *Instalar refugios, toldos, o sombrillas en espacios públicos, como paradas de transporte público, para proteger a los*	●					●	**CBOs FTBMI Anawakalmekak**	Heat Action and Resilience Plan *(Plan de Acción y Resiliencia al Calor)*; **DCP Landscape and Site Design Ordinance** *(DCP Borrador de Ordenanza*	**LADOT StreetsLA**	**City / Community** *Ciudad / Comunidad*	**Mid** *Medio*

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access to air conditioning. *Problema EH2: Las personas que son especialmente vulnerables al calor extremo incluyen a quienes trabajan al aire libre, sufren de condiciones de salud crónicas o preexistentes, o no tienen acceso a aire acondicionado.*	**activities (e.g., outdoor workers, transit users, etc).** *Estrategia EH2: Utilice una variedad de enfoques para reducir los impactos del calor en las poblaciones vulnerables que no pueden permanecer en el interior para realizar las actividades diarias necesarias (por ejemplo, trabajadores al aire libre, usuarios del transporte público, etc.).*	*peatones.*								*de Diseño de Sitios y Ajardinamiento)*, **2024, p. 16**; **StreetsLA Sidewalk Transit and Amenities Program (STAP)** *(StreetsLA Programa de Comodidades de Tránsito y Aceras)*			
		2c. Educate communities about heat-related risks and preventative measures, including existing resources and programs that support public health, such as avoiding outdoor activities during the hottest hours of the day and staying hydrated. *Educar a las comunidades sobre los riesgos relacionados con el calor y las medidas preventivas, como evitar actividades al aire libre durante las horas más calurosas del día y mantenerse hidratado.*	●					●	**CBOs FTBMI Anawakalmekak**	**Heat Action and Resilience Plan** *(Plan de Acción y Resiliencia al Calor)*; **LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, p. 32-3**; **Opportunity for LADWP programs to integrate distributed energy resources (DERs) like solar panels combined with battery storage in critical locations, including hospitals and emergency shelters.** *Oportunidad para que los programas LADWP integren recursos energéticos distribuidos (DER), como paneles solares combinados con almacenamiento de baterías en ubicaciones críticas, incluidos hospitales y refugios de emergencia.*	**CEMO**	**City / Community** *Ciudad / Comunidad*	**Short** *Corto*
		2d. Coordinate with stakeholders, community agencies, and partners to establish hydration stations and cooling centers strategically across urban areas during heat waves. *Coordinar con partes interesadas, agencias comunitarias y socios para establecer estaciones de hidratación y centros de enfriamiento estratégicamente en áreas urbanas durante las olas de calor.*	●					●	**CBOs Anawakalmekak**	**Heat Action and Resilience Plan** *(Plan de Acción y Resiliencia al Calor)*; **Cohesive Cooling Strategy** *(Estrategia de enfriamiento cohesivo)* **Council File: 23-1380**	**CEMO RAP LAPL**	**City / Community** *Ciudad / Comunidad*	**Short** *Corto*
		2e. Reduce factors that contribute heat into the air and worsen outdoor working conditions through policies and heat plans, while also ensuring that outdoor workers are provided heat protection supplies such as sunblock, hats, cooling sleeves, dry wick clothing, and cooling neck fans. *Reducir los factores que contribuyen al calor en el aire y empeoran las condiciones de trabajo al aire libre a través de políticas y planes de calor.*	●					●	**CBOs FTBMI Anawakalmekak**	**LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, p. 32-3, 32-7**	**CEMO EWDD DCP LADOT**	**City / Community** *Ciudad / Comunidad*	**Mid** *Medio*

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		2f. Install more hydration stations and better signage/wayfinding of all hydration stations. *Más estaciones de hidratación y mejorar la señalización de todas las estaciones de hidratación.*	●					●	**CBOs FTBMI**	Heat Action and Resilience Plan *(Plan de Acción y Resiliencia al Calor)*; Cohesive Cooling Strategy *(Estrategia de enfriamiento cohesivo)* **Council File: 23-1380**	**RAP StreetsLA LAPL**	**City** *Ciudad*	**Short** *Corto*
		2g. Add cooling centers, hydration stations, and resilience hubs that ensure safe space for all populations including LGBTQIA+ individuals, near the outdoor places where people work and shop. *Agregar centros de enfriamiento, estaciones de hidratación y centros de resiliencia que garanticen un espacio seguro para todas las poblaciones, incluidas las personas LGBTQIA+, cerca de los lugares al aire libre donde las personas trabajan y compran.*	●					●	**CBOs FTBMI**	Heat Action and Resilience Plan *(Plan de Acción y Resiliencia al Calor)*; Cohesive Cooling Strategy *(Estrategia de enfriamiento cohesivo)* **Council File: 23-1380**	**CEMO RAP LAPL StreetsLA**	**City** *Ciudad*	**Ongoing** *En curso*
		2h. Create cool corridors using a combination of shaded walkways, shady tree-line pedestrian corridors, and reflective or light-colored pavements to reduce heat as people travel to work, school, and home. *Cree corredores frescos utilizando una combinación de pasillos sombreados, corredores peatonales con árboles y pavimentos reflectantes o de colores claros para reducir el calor mientras las personas viajan al trabajo, la escuela y el hogar.*	●					●	**CBOs FTBMI Anawakalmekak**	DCP Landscape and Site Design Ordinance *(DCP Borrador de Ordenanza de Diseño de Sitios y Ajardinamiento)*, **2024, p. 16**; **LA's Green New Deal - Sustainable City pLAn** *(Nuevo Acuerdo Ecológico de L.A. pLAn de Ciudad Sostenible)*, **2019, p. 29**; **A Greater LA: Climate Action Framework** *(Un Gran LA: Marco de Acción Climática)*, **2016, p. 76**; **Cohesive Cooling Strategy** *(Estrategia de enfriamiento cohesivo)* **Council File: 23-1380**	**CEMO RAP LAPL StreetsLA**	**City** *Ciudad*	**Ongoing** *En curso*
Issue EH3: Buildings rely on power sources as the primary way to reduce heat. *Problema EH3: Los edificios dependen de fuentes de energía como la forma principal de reducir el calor.*	**Strategy EH3: Encourage use of building design elements to cool buildings using traditional methods.** *Estrategia EH3: Fomenta el uso de elementos de diseño de edificios para enfriar edificios mediante métodos tradicionales.*	**3a. New buildings should use traditional local methods of building for hot climates such as use of thick masonry walls, adobe, terracotta tile, permanent shaded arcades, and shaded interior courtyards.** *Los nuevos edificios deben utilizar métodos tradicionales locales de construcción para climas cálidos, como el uso de gruesos muros de mampostería, adobe, tejas de terracota, soportales permanentemente sombreados y patios interiores con sombra.*	●					●	**CBOs FTBMI Anawakalmekak**	A Greater LA: Climate Action Framework *(Un Gran LA: Marco de Acción Climática)*, **2016, p. 76**; DCP Landscape and Site Design Ordinance *(DCP Borrador de Ordenanza de Diseño de Sitios y Ajardinamiento)*, **2024, p. 15**	**BOE LADBS**	**City** *Ciudad*	**Long** *Largo*

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		3b. Increase the use of exterior window shades, wider eaves, living roofs, light colored exterior coverings, and roofing materials to reduce exposure and retention of heat from sunlight. *Aumentar el uso de persianas exteriores, aleros más anchos, techos verdes, revestimientos exteriores de colores claros y materiales para techos para reducir la exposición y retención del calor del sol.*	●					●	**CBOs FTBMI Anawakalmekak**	**A Greater LA: Climate Action Framework** *(Un Gran LA: Marco de Acción Climática)*, **2016, p. 76**; **DCP Landscape and Site Design Ordinance** *(DCP Borrador de Ordenanza de Diseño de Sitios y Ajardinamiento)*, **2024, p. 15**; **Cool Roof Ordinance** *(Ordenanza sobre Techos Fríos)*	**DCP**	**City / Community** *Ciudad / Comunidad*	**Long** *Largo*
Issue EH4: Existing shade trees are not always preserved and sometimes damaged, removed, or used as places for dumping. *Problema EH4: Los árboles de sombra existentes no siempre se conservan y, a veces, se dañan, se eliminan o se usan como lugares de arrojar basura.*	**Strategy EH4: Enhance tree care through expanding tree maintenance programs and public education campaigns around valuing trees and maintenance.** *Estrategia EH5: Mejorar el cuidado de los árboles mediante la ampliación de los programas de mantenimiento de árboles y campañas de educación pública sobre la importancia de los árboles y su mantenimiento.*	**4a. Create and conduct a campaign to educate people on the importance of trees for reducing heat, responsible treatment and care of trees, and active city programs that manage and enhance the City's tree canopy.** *Crear y llevar a cabo una campaña para educar a las personas sobre la importancia de los árboles para reducir el calor, el tratamiento y cuidado responsable de los árboles y programas urbanos activos que gestionan y mejoran la copa de los árboles de la ciudad.*	●					●	**CBOs Anawakalmekak North East Trees**	**LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, p. 32-7**; **Urban Forest Management Plan** *(Plan de Manejo Forestal Urbano)*	**CEMO OFM StreetsLA RAP**	**All** *Todos*	**Short** *Corto*
		4b. City departments should continue to work with community groups to enhance tree preservation practices. *Los departamentos de la ciudad deben continuar trabajando con grupos comunitarios para mejorar las prácticas de preservación de árboles.*	●					●	**CBOs Anawakalmekak North East Trees**	**DCP Landscape and Site Design Ordinance** *(DCP Borrador de Ordenanza de Diseño de Sitios y Ajardinamiento)*, **2024, p. 15**; **LADWP Wildfire Mitigation Plan** *(Plan de Mitigación de Incendios Forestales)*, **2024, p. 31**; **LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, p. 32-7**; **Urban Forest Management Plan** *(Plan de Manejo Forestal Urbano)*	**StreetsLA RAP OFM**	**All** *Todos*	**Short** *Corto*

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Issue EH5: Splash pads, play areas, and schools are not always healthy places to be when there is extreme heat. *Problema EH5: Las áreas de juegos, las plataformas para chapotear y las escuelas no siempre son lugares saludables cuando hay calor extremo.*	**Strategy EH5: Upgrade facilities used for play and cooling off by adding shade, updated hydration stations, and cooler surfaces to replace pavement.** *Estrategia EH5: Mejorar las instalaciones usadas para jugar y refrescarse añadiendo sombra, estaciones de hidratación actualizadas y superficies más frescas para reemplazar el pavimento.*	**5a. Add shade structures over splash pads, pools, and play areas at parks and schools to reduce the heat of pavement, playgrounds, and play equipment on hot days.** *Agregue estructuras de sombra sobre plataformas para chapotear, piscinas y áreas de juego en parques y escuelas para reducir el calor del pavimento, áreas de juego y equipos de juego en los días calurosos.*	●					●	**CBOs Anawakalmekak North East Trees**	Heat Action and Resilience Plan *(Plan de acción y resiliencia al calor)*; Cohesive Cooling Strategy *(Estrategia de enfriamiento cohesivo)* **Council File: 23-1380**	**CEMO StreetsLA RAP**	**All** *Todos*	**Short** *Corto*
		5b. Upgrade and add hydration stations in recreational areas where existing facilities may be old and worn out, non-functional, or lacking in number to handle the needs of the people who use them. *Mejorar y agregar estaciones de hidratación en áreas recreativas donde las instalaciones existentes puedan ser viejas y desgastadas, no funcionales o insuficientes para satisfacer las necesidades de las personas que las utilizan.*	●					●	**CBOs FTBMI**	Heat Action and Resilience Plan *(Plan de acción y resiliencia al calor)*; Cohesive Cooling Strategy *(Estrategia de enfriamiento cohesivo)* **Council File: 23-1380**	**CEMO StreetsLA RAP**	**All** *Todos*	**Short** *Corto*

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Issue PF1: During heavy rainfall, the stormwater conveyances, such as drains and pipes, fail. *Problema PF1: Durante lluvias intensas, los sistemas de drenaje, como los desagües y tuberías, fallan.*	**Strategy PF1: Make improvements to stormwater systems to mitigate urban flooding and major rainfall events.** *Estrategia PF1: Realizar mejoras en los sistemas de drenaje pluvial para mitigar las inundaciones urbanas y los eventos de lluvia intensa.*	**1a. Perform a comprehensive inventory of repetitive flood-prone areas.** *Realizar un inventario exhaustivo de áreas repetitivas propensas a inundaciones.*				●			**CBOs**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 32-9, 33-15	**BOE**	**City / Community** *Ciudad / Comunidad*	**Mid** *Medio*
		1b. Encourage local stormwater authorities to perform regular maintenance inspections, clear debris and sediment from stormwater infrastructure, and perform other preventative maintenance to prevent blockages. *Alentar a las autoridades locales de aguas pluviales a realizar inspecciones de mantenimiento periódicas, limpiar escombros y sedimentos de la infraestructura de aguas pluviales y realizar otro mantenimiento preventivo para evitar obstrucciones.*				●			**CBOs**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, p. 33-18	**LASAN**	**City** *Ciudad*	**Short** *Corto*
		1c. Expand stormwater capacity or upgrade aging infrastructure by adding drains and improving street draining systems in areas of frequent flooding to account for extreme weather events and changes in land use. *Ampliar la capacidad de aguas pluviales o mejorar la infraestructura antigua agregando drenajes y mejorando los sistemas de drenaje de las calles en áreas de inundaciones frecuentes para tener en cuenta eventos climáticos extremos y cambios en el uso de la tierra.*				●			**CBOs**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 32-12, 33-15, 44-14, 33-16, 33-17, 33-23, 33-26	**LASAN**	**City** *Ciudad*	**Long** *Largo*
		1d. Equip pump stations with backup power sources. *Equipar las estaciones de bombeo con fuentes de energía de respaldo.*				●			**CBOs FTBMI**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 32-7, 32-9, 33-20	**LADWP**	**City** *Ciudad*	**Mid** *Medio*
		1e. Consider the potential for more frequent and intense rain events in plans, policies, and designs for new and existing stormwater systems. *Considere el potencial de lluvias más frecuentes e intensas en los planes, políticas y diseños de sistemas de aguas pluviales nuevos y existentes.*				●			**CBOs Anawakalmekak**	City of Los Angeles 2020 Floodplain Management Plan *(Plan de Manejo de Llanuras Aluviales de la Ciudad de Los Ángeles)*, 2020, pp. 13-5, 13-6; LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 32-9, 32-10, 33-10, 33-11, 33-13, 33-14, 33-18, 33-20	**RAP BOE LADWP**	**City** *Ciudad*	**Mid** *Medio*

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Issue PF2: Sustained downpours and rising floodwaters causes severe damage which leads to road closures and the displacement of residents. *Problema PF2: Lluvias persistentes y el aumento de las inundaciones causan graves daños, lo que conduce al cierre de carretera y al desplazamiento de residentes.*	**Strategy PF2: Provide more tools for community members to prepare for, respond to, and recover from flooding.** *Estrategia PF2: Proporcionar más herramientas para que los miembros de la comunidad se preparen, respondan y se recuperen de las inundaciones.*	**2a. Encourage community members to adhere to evacuation orders and ensure alternative transportation routes are accessible.** *Aliente a los miembros de la comunidad a cumplir con las órdenes de evacuación y asegurar que las rutas de transporte alternativas sean accesibles.*				●			**CBOs**	**Emergency Operations Master Plan and Master Procedures and Annexes** *(Plan Maestro de Operaciones de Emergencia y Procedimientos Maestros y Anexos)*; **NotifyLA.org; Rain Readiness Resources** *(Recursos de preparación para la lluvia)*	**EMD**	**City / Community** *Ciudad / Comunidad*	**Mid** *Medio*
		2b. Promptly provide disaster recovery assistance to residents. *Proporcionar asistencia rápidamente para la recuperación ante desastres a los residentes.*				●			**CBOs**	**Emergency Operations Master Plan and Master Procedures and Annexes** *(Plan Maestro de Operaciones de Emergencia y Procedimientos Maestros y Anexos)*; **NotifyLA.org; Rain Readiness Resources** *(Recursos de preparación para la lluvia)*	**EMD**	**City / Community** Ciudad / Comunidad	**Mid** *Medio*
		2c. Educate homeowners in areas subject to frequent flooding on how they can protect their property. *Educar a los propietarios de viviendas en áreas propensas a inundaciones frecuentes sobre cómo pueden proteger su propiedad.*				●			**CBOs Anawakalmekak**		**BOE EMD**	**City / Community** *Ciudad / Comunidad*	**Mid** *Medio*
		2d. For disaster preparations, redirect public transit resources to help people evacuate as many of these community members rely on public transportation and have no other means to evacuate. *Para preparativos de desastres, redirige los recursos de transporte público para ayudar a las personas a evacuar, ya que muchos de estos miembros de la comunidad dependen del transporte público y no tienen otros medios para evacuar.*				●			**CBOs**	**Emergency Operations Master Plan and Master Procedures and Annexes** *(Plan Maestro de Operaciones de Emergencia y Procedimientos Maestros y Anexos)*; **NotifyLA.org; Rain Readiness Resources** *(Recursos de preparación para la lluvia)*	**EMD LADOT**	**City** *Ciudad*	**Short** *Corto*
		2e. We need more hubs to be cooling centers and/or other support centers for youth, LGBTQIA+ individuals, and elderly that are dealing with the climate impacts of heat, flooding/rain. *Necesitamos que más centros sean centros de enfriamiento y otros centros de apoyo para jóvenes, personas LGBTQIA+ y personas mayores que estén lidiando con los impactos climáticos del calor, las inundaciones/lluvias.*				●			**CBOs Anawakalmekak**		**CEMO RAP LAPL**	**City** *Ciudad*	**Short** *Corto*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
Issue PF3: Densely populated areas have a high risk for flash floods due to increased runoff. *Problema PF3: Las zonas densamente pobladas tienen un alto riesgo de sufrir inundaciones repentinas debido al aumento de la escorrentía.*	**Strategy PF3: Use natural and upgrade existing and newly constructed infrastructure to reduce the amount of flooding in densely populated urban areas.** *Estrategia PF3: Usar recursos naturales y mejorar la infraestructura existente y de nueva construcción para reducir la cantidad de inundaciones en áreas urbanas densamente pobladas.*	**3a. Provide structural forms of mitigation which divert floodwaters into conduits suited for controlled release outside of the metropolitan area.** *Proporcionar formas estructurales de mitigación que desvíen las aguas de las inundaciones hacia conductos adecuados para su liberación controlada fuera del área metropolitana.*				●			**CBOs**		**BOE** **LADWP**	**City** *Ciudad*	**Ongoing** *En curso*
		3b. Improve resilience against flooding by mandating techniques such as elevating structures, waterproofing roofs and foundations, and retrofitting existing buildings in flood prone areas. *Mejorar la resiliencia contra las inundaciones mediante la obligación de técnicas como elevar estructuras, impermeabilizar techos y cimientos, y adaptar edificios existentes en áreas propensas a inundaciones.*				●			**CBOs**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 32-9	**BOE** **LADBS** **DCP**	**City** *Ciudad*	**Ongoing** *En curso*
		3c. Implement Low Impact Development (LID)/Green Infrastructure (GI) to provide stormwater storage and prevent runoff. *Implementar Desarrollo de Bajo Impacto (LID)/ Infraestructura Verde (GI) para proporcionar almacenamiento de aguas pluviales y prevenir la escorrentía.*				●			**CBOs** **FTBMI** **Anawakalmekak**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 32-9, 33-15	**LADBS** **BOE** **DCP**	**City** *Ciudad*	**Ongoing** *En curso*
		3d. Enhance floodplains to allow local streams and rivers to accommodate flows during storm events and capture stormwater for groundwater replenishment. *Mejorar las llanuras aluviales para permitir que los arroyos y ríos locales se adapten a los flujos durante las tormentas y capturen las aguas pluviales para reponer las aguas subterráneas.*				●			**CBOs**		**BOE** **LADWP**	**City** *Ciudad*	**Ongoing** *En curso*
		3e. Facilitate nature-based stormwater infrastructure that slow, spread, and sink rainfall during storm events (e.g. bioswales, rain gardens). *Facilitar una infraestructura de aguas pluviales basada en la naturaleza que ralentice, propague y hunda las lluvias durante las tormentas.*				●			**CBOs** **FTBMI** **Anawakalmekak** **North East Trees**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 32-3, 32-9, 32-10, 33-13	**BOE** **BPW** **DCP**	**City** *Ciudad*	**Ongoing** *En curso*
		3f. Local capture of stormwater through nature-based solutions to enhance local water supply, reduce stress on aquatic ecosystems, and provide supplementary benefits like shading, cooling, and habitat. *Captura local de aguas pluviales a través de soluciones basadas en la naturaleza para*				●			**CBOs** **FTBMI** **Anawakalmekak**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 32-9, 33-15	**BOE** **BSS** **DCP**	**City** *Ciudad*	**Ongoing** *En curso*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
		mejorar el suministro de agua local, reducir el estrés en los ecosistemas acuáticos y proporcionar beneficios complementarios como sombra, enfriamiento y hábitat.											
		3g. Use the City's emergency alert system to issue multilingual alerts, including indigenous languages, of flooding to urban areas that frequently flood to spread early awareness of an expected flood. *Utilice el sistema de alerta de emergencia de la Ciudad para emitir alertas multilingües, incluidas las lenguas indígenas, sobre inundaciones en áreas urbanas que se inundan con frecuencia para difundir la conciencia temprana de una inundación esparada.*				●			**CBOs FTBMI Anawakalmekak**	**LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, pp. 32-7, 33-10**; **City of Los Angeles 2020 Floodplain Management Plan** *(Plan de Manejo de Llanuras Aluviales de la Ciudad de Los Ángeles)*, **2020, p. 13-5**; **A Greater LA: Climate Action Framework** *(Un Gran LA: Marco de Acción Climática)*, **2016, p. 77**; **LA Language Access Plan** *(LA Plan de Acceso Lingüístico)*; **Emergency Operations Master Plan and Master Procedures and Annexes** *(Plan Maestro de Operaciones de Emergencia y Procedimientos Maestros y Anexos)*; **NotifyLA.org**; **Rain Readiness Resources** *(Recursos de preparación para la lluvia)*	**EMD**	**City** *Ciudad*	**Ongoing** *En curso*
Issue PF4: High flood waters are unsafe and unsanitary, with potential to pollute waterways and soil with hazardous and biohazardous materials. *Problema PF4: Las inundaciones elevadas son inseguras e insalubres y pueden contaminar los cursos de agua y el suelo con materiales peligrosos y biopeligrosos.*	**Strategy PF4: Reduce the potential public health impacts from flooding through awareness and reduced exposure.** *Estrategia PF4: Reducir los posibles impactos de las inundaciones en la salud pública a través de la concientización y la reducción de la exposición.*	**4a. Ensure emergency response personnel are aware of risks associated with after-storm floodwaters and are trained in performing necessary rescues and environmental cleanup.** *Asegurar que el personal de respuesta a emergencias esté consciente de los riesgos asociados con las aguas de inundación después de la tormenta y esté capacitado para realizar los rescates y la limpieza ambiental necesarios.*				●			**CBOs FTBMI Anawakalmekak**	**Emergency Operations Master Plan and Master Procedures and Annexes** *(Plan Maestro de Operaciones de Emergencia y Procedimientos Maestros y Anexos)*; **NotifyLA.org**; **Rain Readiness Resources** *(Recursos de preparación para la lluvia)*	**EMD**	**City** *Ciudad*	**Ongoing** *En curso*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
		4b. Educate the public on health-related risks associated with contaminated floodwaters and what symptoms may require medical assistance. Utilize local authorities to instruct the community to avoid direct contact with floodwaters when unsafe. *Educar al público sobre los riesgos para la salud asociados con las inundaciones contaminadas y qué síntomas pueden requerir asistencia médica. Utilizar a las autoridades locales para instruir a la comunidad a evitar el contacto directo con las aguas de inundación cuando no sean seguras.*				●			**CBOs Anawakalmekak**	**LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, pp. 32-3, 33-13, 33-17, 33-18, 33-19; Emergency Operations Master Plan and Master Procedures and Annexes** *(Plan Maestro de Operaciones de Emergencia y Procedimientos Maestros y Anexos)*; **NotifyLA.org; Rain Readiness Resources** *(Recursos de preparación para la lluvia)*	**EMD**	**City / Community** *Ciudad / Comunidad*	**Ongoing** *En curso*
		4c. Use Low Impact Development (LID)/ Green Infrastructure (GI) wherever possible to filter stormwater and reduce pollutants from entering waterways. **Utilice Desarrollo de Bajo Impacto (LID)/** *Infraestructura Verde (GI) siempre que sea posible para filtrar las aguas pluviales y reducir la entrada de contaminantes a las vías fluviales.*				●			**CBOs Anawakalmekak**	**LASAN Low Impact Design Ordinance** *(LASAN Ordenanza de Diseño de Bajo Impacto)*	**BSS LADBS BOE DCP LASAN**	**City** *Ciudad*	**Ongoing** *En curso*
		4d. Do more pre-clearing of storm drains by the City and coordinated community-based clean up programs to remove trash and obstacles before a storm arrives. Offer community grants to CBOs to target areas that are neglected and/or have a lot of bulky items/trash at storm drains. *Realiza más limpieza previa de los desagües pluviales por parte de la ciudad y coordina programas de limpieza comunitarios para eliminar la basura y los obstáculos antes de que llegue una tormenta. Ofrezca subvenciones comunitarias a las organizaciones comunitarias para dirigirse a áreas descuidadas y/o que tengan muchos artículos voluminosos/basura en los desagües pluviales.*				●			**CBOs FTBMI Anawakalmekak**		**BSS LASAN**	**City / Community** *Ciudad / Comunidad*	**Ongoing** *En curso*
Issue PF5: Alternatives to traditional paving and land cover are needed to reduce flooding. *Problema PF5: Se necesitan alternativas al pavimento y la*	**Strategy PF5: Use types of surfaces and paving that allows water to drain into the soil and reduces runoff.** *Estrategia PF5: Usar tipos de superficies y pavimentos que permitan que el*	**5a. Coverings for driveways and walkways should include gaps so that water can filter through it (permeable) and isn't designed to move water directly into storm drains but into landscaped areas.** *Las cubiertas para entradas de vehículos y pasillos deben incluir espacios para que el agua pueda filtrarse a través de ellos (permeables) y no están diseñadas para llevar el agua directamente a los desagües pluviales, sino a áreas ajardinadas.*				●			**CBOs**	**DCP Landscape and Site Design Ordinance** *(DCP Borrador de Ordenanza de Diseño de Sitios y Ajardinamiento)*, **2024, p. 22**	**BSS**	**City / Community** *Ciudad / Comunidad*	**Ongoing** *En curso*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
cobertura del suelo tradicionales para reducir las inundaciones.	*agua drene hacia el suelo y reduzca el escurrimiento.*	**5b. Where possible, remove pavement when it is no longer necessary or functional and replace it with green space.** *Cuando sea posible, retire el pavimento cuando ya no sea necesario o funcional y reemplácelo con espacios verdes.*				●			**CBOs FTBMI Anawakalmekak**	**DCP Landscape and Site Design Ordinance** *(DCP Borrador de Ordenanza de Diseño de Sitios y Ajardinamiento)*, **2024**	**BSS DCP**	**City / Community** *Ciudad / Comunidad*	**Ongoing** *En curso*
		5c. Encourage use of larger, consolidated planting areas and use of native landscaping and vegetated drainage areas on private property and other techniques that reduce runoff instead of hard surfaces or astroturf, and other techniques that reduce runoff. *Fomenta el uso de áreas de plantación más grandes y consolidadas y el uso de paisajismo nativo y áreas de drenaje vegetadas en propiedades privadas y otras técnicas que reduzca el escurrimiento en lugar de superficies duras o césped artificial y otras técnicas que reducen la escorrentía.*	●	●		●		●	**CBOs FTBMI Anawakalmekak**	**DCP Landscape and Site Design Ordinance** *(DCP Borrador de Ordenanza de Diseño de Sitios y Ajardinamiento)*, **2024, pp. 15, 22,23;** **A Greater LA: Climate Action Framework** *(Un Gran LA: Marco de Acción Climática)*, **2016, pp. 67, 75;** **LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, p. 33-20**	**DCP**	**City / Community** *Ciudad / Comunidad*	**Ongoing** *En curso*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
Issue DR1: Rising utility bills and water usage restrictions disproportionately impact low-income communities and vulnerable communities. *Problema DR1: El aumento de las facturas de servicios públicos y las restricciones en el uso del agua impactan de manera desproporcionada a las comunidades de bajos ingresos y a las poblaciones vulnerables.*	**Strategy DR1: Modify drought management approaches and water billing policies to reduce impacts from drought on low-income and vulnerable communities.** *Estrategia DR1: Modificar los enfoques de gestión de la sequía y las políticas de facturación del agua para reducir los impactos de la sequía en las comunidades vulnerables y de bajos ingresos.*	**1a. Ensure equitable distribution of water resources and prioritize essential needs during periods of drought and introduce a tiered pricing structure or other methods to incentivize water conservation.** *Asegurar una distribución equitativa de los recursos hídricos y priorizar las necesidades esenciales durante los períodos de sequía, e introducir una estructura de precios escalonada u otros métodos para incentivar la conservación del agua.*		●				●	**CBOs Anawakalmekak**	LA100 Equity Strategies Executive Summary *(Resumen Ejecutivo de LA100 Estrategias de Equidad)*, **pp. 16—19**; LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, p. 32-4**	**LADWP**	**All** *Todos*	**Short** *Corto*
		1b. Engage community members of all socioeconomic statuses and businesses across the study area in the drought planning process, encouraging collective action to conserve water resources. *Involucrar a miembros de la comunidad de todos los niveles socioeconómicos y a las empresas en el área de estudio en el proceso de planificación para la sequía, fomentando la acción colectiva para conservar los recursos hídricos.*		●					**CBOs FTBMI Anawakalmekak**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, p. 32-4**	**LADWP**	**City** *Ciudad*	**Short** *Corto*
		1c. Identify and connect stakeholders to emergency assistance programs to help vulnerable groups, including LGBTQIA+ individuals and low-income households. This may include providing access to water-saving technology or subsidies for water bills. *Identificar y conectar a las partes interesadas con programas de asistencia de emergencia para ayudar a grupos vulnerables, incluyendo personas LGBTQIA+, y hogares de bajos ingresos. Esto podría incluir proporcionar acceso a tecnología de ahorro de agua o subsidios para las facturas de agua.*		●				●	**CBOs FTBMI Anawakalmekak**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, p. 32-4**	**LADWP**	**City / Community** *Ciudad / Comunidad*	**Ongoing** *En curso*
		1d. Make regional power grid updates to minimize dependency on the water sector for power generation and reduce rising utility bills. *Realizar actualizaciones en la red eléctrica regional para minimizar la dependencia del sector hídrico para la generación de energía y reducir las facturas de servicios públicos en aumento.*		●				●	**CBOs Anawakalmekak**	LA100 Equity Strategies Executive Summary *(Resumen Ejecutivo de LA100 Estrategias de Equidad)*, **pp. 16—19**; LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, p. 32-7**; **Opportunity for LADWP programs to integrate distributed energy resources (DERs) like solar panels combined with battery storage in critical locations, including**	**LADWP**	**City** *Ciudad*	**Long** *Largo*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
										hospitals and emergency shelters. *Oportunidad para que los programas de LADWP integren recursos de energía distribuida (DERs, por sus siglas en ingles) como paneles solares combinados con almacenamiento de baterías en lugares críticos, incluyendo hospitales y refugios de emergencia.*			
		1e. Offer classes and implement drought planning processes, encouraging collective actions to conserve water resources such as how to irrigate urban farms, gardens, and landscaping more efficiently using rainwater. *Ofrecer clases e implementar procesos de planificación para la sequía, fomentando acciones colectivas para conservar los recursos hídricos, como aprender a regar granjas urbanas, jardines y paisajes de manera más eficiente utilizando el agua de lluvia.*		●					**CBOs FTBMI Anawakalmekak**	General Plan Health Element, Programs Progress Report *(Elemento de Salud del Plan General, Informe de Progreso de Programas)*, **2023, p. 13; LADWP Water Conservation** *(LADWP Conservación del Agua)*	**LADWP**	**City / Community** *Ciudad / Comunidad*	**Mid** *Medio*
Issue DR2: Water shortages increase the vulnerability of critical infrastructure systems, businesses, and communities. *Problema DR2: La escasez de agua aumenta la vulnerabilidad de los sistemas de infraestructura críticos, las empresas y las comunidades.*	**Strategy DR2: Upgrade water collection and stormwater infrastructure to replenish groundwater and recycle water.** *Estrategia DR2: Mejorar la infraestructura de recolección de agua y aguas pluviales para reponer el agua subterránea y reciclar el agua.*	**2a. Monitor groundwater to inform aquifer management and model projected water quality and quantity under potential drought conditions.** *Monitorear el agua subterránea para informar sobre la gestión de los acuíferos y modelar la calidad y cantidad del agua proyectada en condiciones potenciales de sequía.*		●				●	**CBOs**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, p. 32-4**	**LADWP**	**City** *Ciudad*	**Short** *Corto*
		2b. Expand current water supply, and diversify sources including the capture, treatment, and reuse of wastewater as a water source and aggressive leak prevention actions. *Ampliar el suministro actual de agua y diversificar las fuentes, incluida la captura, tratamiento y reutilización de aguas residuales como fuente de agua y acciones agresivas de prevención de fugas.*		●					**CBOs**	Council File: 24-0456	**LADWP**	**City** *Ciudad*	**Long** *Largo*
		2c. Increase water storage capacity. *Aumentar la capacidad de almacenamiento de agua.*		●					**CBOs**		**LADWP**	**City** *Ciudad*	**Long** *Largo*
		2d. Explore options for safely using gray water for irrigation without worsening water quality in the environment. *Explore opciones para utilizar de forma segura aguas grises para riego sin empeorar la calidad del agua en el medio ambiente.*		●					**CBOs**	Council File: 22-1178	**LADWP**	**City** *Ciudad*	**Long** *Largo*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
		2e. Build and upgrade water infrastructure with drought resilience in mind through reducing leaks in the piping and facilities. *Construir y mejorar la infraestructura hídrica teniendo en cuenta la resiliencia a la sequía mediante la reducción de fugas en las tuberías y las instalaciones.*		●					**CBOs**		**LADWP**	**City** *Ciudad*	**Long** *Largo*
		2f. Supplementary water sources will be required to meet water needs in the region. Recycled water has great potential to meet this need given its year-round availability. *Se necesitarán fuentes de agua suplementarias para satisfacer las necesidades hídricas en la región. El agua reciclada tiene un gran potencial para cubrir esta necesidad debido a su disponibilidad durante todo el año.*		●					**CBOs FTBMI Anawakalmekak**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 32-4, 33-19; Council File: 24-0456	**LADWP**	**City** *Ciudad*	**Long** *Largo*
		2g. Encourage water conservation and the diversification of water resources such as gray water and water recycling. *Fomente la conservación del agua y la diversificación de recursos hídricos, como el uso de aguas grises y el reciclaje del agua.*		●					**CBOs**	Council File: 24-0456	**LADWP**	**City** *Ciudad*	**Long** *Largo*
Issue DR3: People don't have enough information or money to collect water and get it into the ground. *Problema DR3: La gente no tiene suficiente información ni dinero para recolectar agua y llevarla al suelo.*	**Strategy DR3: Provide education and support for water conservation and landscaping techniques that retain water.** *Estrategia DR3: Proporcionar educación y apoyo para la conservación del agua y técnicas de paisajismo que retengan el agua.*	**3a. Provide classes and training on the benefit of rainwater harvesting, green technology, water conservation and provide subsidized rain barrels.** *Proporcionar clases y capacitación sobre los beneficios de la recolección de agua de lluvia, tecnología verde, conservación del agua y proporcionar barriles de lluvia subsidiados.*		●				●	**CBOs FTBMI Anawakalmekak**	General Plan Health Element, Programs Progress Report *(Elemento de Salud del Plan General, Informe de Progreso de Programas)*, 2023, p. 13; LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, p. 32-4	**LADWP RAP**	**City** *Ciudad*	**Short** *Corto*
		3b. Direct people to information on native landscaping and soil techniques for soaking up water and keeping it in the soil so they can make these changes on private land where possible. *Dirija a las personas información sobre paisajismo nativo y técnicas de suelo para absorber agua y mantenerla en el suelo para que puedan hacer estos cambios en terrenos privados cuando sea posible.*		●				●	**CBOs FTBMI Anawakalmekak**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, p. 32-4; Urban Forest Management Plan *(Plan de Manejo Forestal Urbano)*	**Urban Forestry**	**City / Community / Individual** *Ciudad / Comunidad / Individual*	**Short** *Corto*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
Issue WF1: Wildfires disrupt transportation and utilities such as water supply, communications, and electric and gas services. *Problema WF1: Los incendios forestales interrumpen el transporte y los servicios públicos, como el suministro de agua, las comunicaciones y los servicios de electricidad y gas.*	**Strategy WF1: Reduce the risk of wildfire impacts on structures, people, including the unhoused, and infrastructure.** *Estrategia WF1: Reducir el riesgo de impactos de incendios forestales en las estructuras, las personas, incluidas las personas sin vivienda, y la infraestructura.*	**1a. Enforce zoning restrictions which prevent incompatible uses or new development in high wildfire risk areas.** *Aplicar restricciones de zonificación que impidan usos incompatibles o nuevos desarrollos en áreas de alto riesgo de incendios forestales.*			●					**CBOs FTBMI Anawakalmekak**	State Density Bonus Law and Fire Safety *(Ley estatal de bonificación por densidad y seguridad contra incendios)* Council File 25-0002-S2	**LADBS DCP**	**City** *Ciudad*	**Long** *Largo*
		1b. Ensure adequate road access for emergency vehicles and reliable water sources for firefighting. *Garantizar acceso adecuado a las carreteras para los vehículos de emergencia y fuentes de agua confiables para la extinción de incendios.*			●				**CBOs FTBMI Anawakalmekak**	Expanded Red Flag Measures *(Medidas de Alerta Ampliadas)* Council File 25-0006-S30 Council File 25-0006-S35 Council File 25-0121 Council File 25-0158	**BOE LADBS LAFD**	**City** *Ciudad*	**Long** *Largo*
		1c. Hold tabletop exercises to identify courses of action to respond through contingency plans during next disruption of utility service. *Realizar ejercicios de mesa para identificar cursos de acción para responder mediante planes de contingencia durante la próxima interrupción del servicio público.*			●				**CBOs FTBMI Anawakalmekak**	LA100 Equity Strategies Executive Summary *(Resumen Ejecutivo de LA100 Estrategias de Equidad)*, **pp. 16—19; LADWP Wildfire Mitigation Plan** *(Plan de mitigación de incendios forestales de LADWP)*; **Emergency Operations Master Plan and Master Procedures and Annexes** *(Plan Maestro de Operaciones de Emergencia y Procedimientos Maestros y Anexos)*; **NotifyLA.org**	**EMD LADWP**	**City / Community** *Ciudad / Comunidad*	**Mid** *Medio*
		1d. Strengthen power lines, utility poles, and communication networks in wildfire-prone areas to withstand fire impacts. *Reforzar líneas eléctricas, postes de servicios públicos y redes de comunicación en áreas propensas a incendios forestales para resistir los impactos del fuego.*			●				**CBOs FTBMI Anawakalmekak**	LA100 Equity Strategies Executive Summary *(Resumen Ejecutivo de LA100 Estrategias de Equidad)*, **pp. 16—19; LADWP Wildfire Mitigation Plan** *(Plan de mitigación de incendios forestales de LADWP)*	**LADWP LAFD**	**City** *Ciudad*	**Mid** *Medio*
		1e. Encourage communities to adhere to evacuation orders and ensure alternative transportation routes are accessible. *Alentar a las comunidades a cumplir las órdenes de evacuación y asegurar que las rutas de transporte alternativas sean accesibles.*			●				**CBOs FTBMI Anawakalmekak**	Emergency Operations Master Plan and Master Procedures and Annexes *(Plan Maestro de Operaciones de Emergencia y Procedimientos Maestros y Anexos)*; **NotifyLA.org**	**EMD**	**City / Community / Individual** *Ciudad / Comunidad / Individual*	**Short** *Corto*
		1f. Establish mutual aid agreements with neighboring utilities to share resources and personnel during emergencies. *Establecer acuerdos de ayuda mutua con empresas de servicios públicos vecinas para compartir recursos y personal durante emergencias.*			●				**CBOs FTBMI Anawakalmekak**	Emergency Operations Master Plan and Master Procedures and Annexes *(Plan Maestro de Operaciones de Emergencia y Procedimientos Maestros y Anexos)*; **NotifyLA.org**	**EMD**	**City** *Ciudad*	**Mid** *Medio*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
		1g. Assess critical infrastructure to determine where upgrades are needed and to install backup power at critical facilities to maintain essential services during power outages caused by wildfires, particularly in Very High Fire Hazard Severity Zones. *Evaluar la infraestructura crítica para determinar dónde se necesitan mejoras e instalar energía de respaldo en instalaciones críticas para mantener los servicios esenciales durante cortes de energía causados por incendios forestales, en particular en zonas de riesgo de incendio muy alto.*			●				**CBOs FTBMI Anawakalmekak**	LA Local Hazard Mitigation Plan (Plan de Mitigación de Peligros Locales de la Ciudad), 2024, p. 33-28; LADWP Wildfire Mitigation Plan *(Plan de Mitigación de Incendios Forestales)*, 2024; **Opportunity for LADWP programs to integrate distributed energy resources (DERs) like solar panels combined with battery storage in critical locations, including hospitals and emergency shelters.** *Oportunidad para que los programas de LADWP integren recursos de energía distribuida (DERs, por sus siglas en ingles) como paneles solares combinados con almacenamiento de baterías en lugares críticos, incluyendo hospitales y refugios de emergencia.*; **Power Outage Susceptible Areas** *(Áreas susceptibles a cortes de energía)* Council File 25-0006-S26 Council File 25-0006-S28; **Fire Preparedness** *(Preparación contra incendios)* Council File 25-0006-S36 Council File 25-0006-S37; Multifamily Green Waste Infrastructure Assessment *(Evaluación de infraestructura de desechos verdes multifamiliares)* Council File 21-1208-S1	**LADWP**	**City** *Ciudad*	**Mid** *Medio*
		1h. Create and maintain fire defensible space around structures and infrastructure. *Crear y mantener un espacio defendible alrededor de estructuras e infraestructura para protegerse de incendios.*			●				**CBOs**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, p. 32-14; LADWP Wildfire Mitigation Plan *(Plan de Mitigación de Incendios Forestales)*, 2024, p. 31	**LADBS LAFD LADWP**	**City** *Ciudad*	**Short** *Corto*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
		1i. Make buildings less vulnerable to fire risk by limiting new development in the Wildfire Urban Interface (WUI) and requiring building codes that include use of fire resistant materials in high hazard areas. *Hacer que los edificios sean menos vulnerables al riesgo de incendio limitando los nuevos desarrollos en la interfaz urbana de incendios (WUI) y exigiendo códigos de construcción que incluyan el uso de materiales resistentes al fuego en áreas de alto riesgo.*			●				**CBOs**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, p. 32-14; LADWP Wildfire Mitigation Plan *(Plan de mitigación de incendios forestales de LADWP)*; State Density Bonus Law and Fire Safety *(Ley estatal de bonificación por densidad y seguridad contra incendios)* Council File 25-0002-S2	**DCP LADBS LADWP**	**City** *Ciudad*	**Long** *Largo*
Issue WF2: Smoke from wildfires contains particle pollutants and carbon monoxide which can be extremely harmful to the lungs. *Problema WF2: El humo de los incendios forestales contiene partículas contaminantes y monóxido de carbono que pueden ser extremadamente dañinos para los pulmones.*	**Strategy WF2: Help people connect with information to reduce exposure to harmful air from natural and human-caused sources of air pollution.** *Estrategia WF2: Ayudar a las personas a conectarse con información para reducir la exposición al aire dañino proveniente de fuentes naturales y causadas por el ser humano.*	**2a. Make available accessible platforms [e.g., websites or automated emergency alert texts/calls] where residents can check current air quality levels and receive advisories when air quality declines because of wildfires.** *Proporcionar plataformas accesibles [por ejemplo, sitios web o alertas automáticas de textos/llamadas de emergencia] donde los residentes puedan verificar los niveles actuales de calidad del aire y recibir avisos cuando la calidad del aire disminuye debido a incendios forestales.*			●				**CBOs FTBMI Anawakalmekak**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, p. 32-7; Emergency Operations Master Plan and Master Procedures and Annexes *(Plan Maestro de Operaciones de Emergencia y Procedimientos Maestros y Anexos)*; NotifyLA.org	**EMD LADWP**	**City** *Ciudad*	**Short** *Corto*
		2b. Coordinate with public health agencies and healthcare providers to provide actionable guidelines for residents to follow during poor air quality and to respond to increases in respiratory illnesses and other health impacts related to wildfire smoke exposure. *Coordinar con agencias de salud pública y proveedores de atención médica para proporcionar pautas prácticas a los residentes durante la mala calidad del aire y para responder a los aumentos en enfermedades respiratorias y otros impactos en la salud relacionados con la exposición al humo de los incendios forestales.*			●			●	**CBOs FTBMI Anawakalmekak**	LADWP Wildfire Mitigation Plan *(Plan de mitigación de incendios forestales de LADWP)*; Ad Hoc Windstorm and Wildfire Recovery Committee *(Comité ad hoc de recuperación de tormentas de viento e incendios forestales)* Council File 25-0006-S33; Air Quality Monitoring and Advisories *(Monitoreo y avisos de la calidad del aire)* Council File 25-0006-S49	**EMD LADWP**	**City** *Ciudad*	**Mid** *Medio*
		2c. Equip cooling centers and resilience hubs with air filtering devices which allow them to be Cleaner Air shelters during bad air quality days. *Equipar los centros de enfriamiento y centros de resiliencia con dispositivos de filtrado de aire que les permitan ser refugios de aire más limpio durante los días de mala calidad del aire.*			●			●	**CBOs**			**City** *Ciudad*	**Mid** *Medio*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
Issue WF3: The number of fires related to the unhoused population has been steadily climbing. *Problema WF3: El número de incendios relacionados con la población sin vivienda ha ido aumentando constantemente.*	**Strategy WF3: Use a variety of approaches to reduce the number of fires caused by people.** *Estrategia WF3: Utilice una variedad de enfoques para reducir la cantidad de incendios causados por personas.*	**3a. Conduct fire prevention education and community awareness outreach that provide the public, including unhoused individuals and LGBTQIA+ individuals, with fire safety practices and materials.** *Llevar a cabo educación sobre prevención de incendios y actividades de concientización comunitaria que brinde al público, incluidas las personas sin vivienda y las personas LGBTQIA+, prácticas y materiales de seguridad contra incendios.*			●				**CBOs**	Emergency Operations Master Plan and Master Procedures and Annexes *(Plan Maestro de Operaciones de Emergencia y Procedimientos Maestros y Anexos)*; **NotifyLA.org**	**LAFD EMD**	**City / Community** *Ciudad / Comunidad*	**Short** *Corto*
		3b. Enhance safety for all residents by establishing a program to encourage safe and managed campsites free of flammable debris and equipped with fire-resistant shelters, fire pits, and access to water sources. *Mejorar la seguridad de todos los residentes mediante el establecimiento de un programa para fomentar campamentos seguros y administrados, libres de escombros inflamables y equipados con refugios resistentes al fuego, fogones y acceso a fuentes de agua.*			●				**CBOs**		**LAFD**	**City / Community** *Ciudad / Comunidad*	**Short** *Corto*
Issue WF4: Wildfire impacts were a top concern for community members. *Problema WF4: Los impactos de los incendios forestales fueron una de las principales preocupaciones de los miembros de la comunidad.*	**Strategy WF4: Work with communities to reduce the risk and impacts of wildfire.** *Estrategia WF4: Trabajar con las comunidades para reducir el riesgo y los impactos de los incendios forestales.*	**4a. Enhance community engagement around wildfire risks, prevention, and evacuation, as well as grants and other programs and resources available to communities in High Fire Hazard Severity Zones.** *Mejorar la participación comunitaria en torno a los riesgos de incendios forestales, la prevención y evacuación, así como los subsidios y otros programas y recursos disponibles para las comunidades en zonas de alta severidad de incendios.*			●			●	**CBOs FTBMI Anawakalmekak North East Trees**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 32-14, 32-15; Relief grants for small businesses and workers impacted by wildfires *(Subvenciones de ayuda para pequeñas empresas y trabajadores afectados por incendios forestales)*; **Emergency Operations Master Plan and Master Procedures and Annexes** *(Plan Maestro de Operaciones de Emergencia y Procedimientos Maestros y Anexos)*; **NotifyLA.org**	**EMD LAFD**	**City / Community** *Ciudad / Comunidad*	**Mid** *Medio*
		4b. Clear potential fuels on property such as dry underbrush, diseased trees, and invasive species and restore native habitat and riparian areas. *Eliminar posibles combustibles de la propiedad, como maleza seca, árboles enfermos y especies invasoras, y restaurar el*			●			●	**CBOs FTBMI Anawakalmekak**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 32-14, 32-15	**LADBS**	**City / Community** *Ciudad / Comunidad*	**Short** *Corto*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
		hábitat nativo y las áreas ribereñas.											
		4c. Use indigenous and natural land management and fire prevention practices to reduce fire risk. *Utilizar prácticas de manejo de tierras indígenas y naturales para evitar incendios y reducir el riesgo.*			●			●	**CBOs FTBMI Anawakalmekak**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 32-14, 32-15; Urban Forest Management Plan *(Plan de Manejo Forestal Urbano)*	**LAFD LADBS**	**City / Community** *Ciudad / Comunidad*	**Short** *Corto*
		4d. Work with communities and fire officials to update wildfire, emergency response, and evacuation plans to address community needs, including BIPOC, low - income and LGBTQIA+ individuals, during fires and evacuations. *Trabajar con las comunidades y los funcionarios de bomberos para actualizar los planes de evacuación, respuesta a emergencias y incendios forestales para abordar las necesidades de la comunidad, incluidas las personas BIPOC, de bajos ingresos y LGBTQIA+, durante incendios y evacuaciones.*			●				**CBOs**	Emergency Operations Master Plan and Master Procedures and Annexes *(Plan Maestro de Operaciones de Emergencia y Procedimientos Maestros y Anexos)*; NotifyLA.org	**LAFD EMD**	**City / Community** *Ciudad / Comunidad*	**Mid** *Medio*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
Issue SLR1: Infrastructure investments are needed to prepare coastal areas for coastal flooding associated with sea level rise. *Problema SLR1: Se necesitan inversiones en infraestructura para preparar las áreas costeras para las inundaciones costeras asociadas con el aumento del nivel del mar.*	**Strategy SLR1: Invest in strategic relocation of coastal infrastructure in the near term to avoid damage and disruption from sea level rise.** *Estrategia SLR1: Invierte en la reubicación estratégica de la infraestructura costera a corto plazo para evitar daños e interrupciones debido al aumento del nivel del mar.*	**1a. Relocate or make improvements to utility infrastructure to make it less likely to be damaged by sea level rise.** *Reubicar o mejorar la infraestructura de servicios públicos para que sea menos probable que sea dañada por el aumento del nivel del mar.*				●	●		**CBOs**	**LA100 Equity Strategies Executive Summary** *(Resumen Ejecutivo de LA100 Estrategias de Equidad)*, **pp. 16-19**; **DCP Venice Coastal Zone Sea Level Rise Vulnerability Assessment** *(DCP Evaluación de Vulnerabilidad al Aumento del Nivel del Mar en la Zona Costera de Venecia)*, **2018**; **Port of LA Sea Level Rise Adaptation Study** *(Estudio de Adaptación al Aumento del Nivel del Mar del Puerto de LA)*, **2018, pp. 73—81**; **LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024 p. 33-21**	**POLA**	**City** *Ciudad*	**Long** *Largo*
		1b. Flood-proof, retrofit, relocate, elevate, and add redundancy to accommodate impacts. *Hacer a prueba de inundaciones, adaptar, reubicar, elevar, y agregar redundancia para acomodar los impactos.*				●	●		**CBOs**	**DCP Venice Coastal Zone Sea Level Rise Vulnerability Assessment** *(DCP Evaluación de Vulnerabilidad al Aumento del Nivel del Mar en la Zona Costera de Venecia)*, **2018**	**LADBS POLA**	**City** *Ciudad*	**Mid** *Medio*
Issue SLR2: Updates to plans and procedures are needed to respond to sea level rise. *Problema SLR2: Se necesitan actualizaciones de los planes y procedimientos para responder al aumento del nivel del mar.*	**Strategy SLR2: Update any plans, policies, procedures that could directly assist with responding to impacts from sea level rise, including limiting new development in coastal areas anticipated to be impacted by sea level rise.** *Estrategia SLR2: Actualizar todos los planes, políticas y procedimientos que podrían ayudar directamente a responder a los impactos del aumento del nivel del mar, incluida la limitación de nuevos*	**2a. Account for future sea-level rise and storm surge projections within updates to emergency response plans and procedures.** *Tener en cuenta las proyecciones futuras del aumento del nivel del mar y las marejadas en las actualizaciones en los planes y procedimientos de respuesta ante emergencias.*					●		**CBOs**	**DCP Venice Coastal Zone Sea Level Rise Vulnerability Assessment** *(DCP Evaluación de Vulnerabilidad al Aumento del Nivel del Mar en la Zona Costera de Venecia)*, **2018**; **Port of LA Sea Level Rise Adaptation Study** *(Estudio de Adaptación al Aumento del Nivel del Mar del Puerto de LA)*, **2018, pp. 73—81**; **LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, p. 33-21**	**DCP POLA**	**City** *Ciudad*	**Short** *Corto*
		2b. Integrate sea level rise and storm surge projections in long-range land use planning by limiting development and/or density in sea level rise areas. *Integrar las proyecciones del aumento del nivel del mar y las marejadas ciclónicas en la planificación del uso del suelo a largo plazo.*					●		**CBOs**	**DCP Venice Coastal Zone Sea Level Rise Vulnerability Assessment** *(DCP Evaluación de Vulnerabilidad al Aumento del Nivel del Mar en la Zona Costera de Venecia)*, **2018**; **Port of LA Sea Level Rise Adaptation Study** *(Estudio de Adaptación al Aumento del Nivel del Mar del Puerto de LA)*,	**DCP POLA**	**City** *Ciudad*	**Short** *Corto*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
	desarrollos en áreas costeras que se prevé que se verán afectadas por el aumento del nivel del mar.									**2018, pp. 73—81;** **LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad),* **2024, p. 33-21**			
Issue SLR3: Past solutions have not always proven effective for mitigating sea level rise. *Problema SLR3: Las soluciones pasadas no siempre han demostrado ser efectivas para mitigar el aumento del nivel del mar.*	**Strategy SLR3: Additional nature-based solutions are needed to mitigate sea level rise.** *Estrategia SLR3: Se necesitan soluciones adicionales basadas en la naturaleza para mitigar el aumento del nivel del mar.*	**3a. Use natural processes and green stormwater infrastructure such as low impact development, green roofs, and pavements that allow storm surge and floodwater to seep into the ground.** *Utilizar procesos naturales e infraestructura verde para aguas pluviales, como desarrollos de bajo impacto, techos verdes y pavimentos que permitan que el agua de tormenta y las inundaciones se filtren en el suelo.*					●		**CBOs**	**DCP Venice Coastal Zone Sea Level Rise Vulnerability Assessment** *(DCP Evaluación de vulnerabilidad al aumento del nivel del mar en la zona costera de Venecia),* **2018;** **Port of LA Sea Level Rise Adaptation Study** *(Estudio de Adaptación al Aumento del Nivel del Mar del Puerto de LA),* **2018, pp. 73—81;** **LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad),* **2024, p. 33-21**	**DCP** **POLA**	**City** *Ciudad*	**Short** *Corto*
		3b. Acquire and manage natural ecosystems [i.e., wetlands, floodplains, etc.] that assist in reducing flooding and storm surge. *Adquirir y gestionar ecosistemas naturales [es decir, humedales, llanuras de inundación, etc.] que ayuden a reducir las inundaciones y las marejadas ciclónicas.*					●		**CBOs**	**Port of LA Sea Level Rise Adaptation Study** *(Estudio de Adaptación al Aumento del Nivel del Mar del Puerto de LA),* **2018, pp. 73—81;** **LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad),* **2024, p. 33-21**	**BOE** **RAP**	**City** *Ciudad*	**Long** *Largo*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
Issue PH1: A loss of power during an emergency is dangerous for those with health issues. *Problema PH1: La pérdida de energía durante una emergencia es peligrosa para las personas con problemas de salud.*	**Strategy PH1: Create backup power solutions, preferably using renewable energy, to provide power to vulnerable populations during a loss of power.** *Estrategia PH1: Crear soluciones de energía de respaldo, preferiblemente utilizando energía renovable, para proporcionar energía a las poblaciones vulnerables durante una pérdida de energía.*	**1a. Solar photovoltaic and/or community solar system in combination with stationary energy storage for microgrid implementation, capable of providing back-up power to entire residences for prolonged periods.** *Sistema solar fotovoltaico y/o sistema solar comunitario en combinación con almacenamiento de energía estacionario para la implementación de un microred, capaz de proporcionar energía de respaldo a hogares enteros durante períodos prolongados.*	●		●	●		●	**CBOs FTBMI Anawakalmekak North East Trees**	Council File: 23-0141; Council File: 21-1039; **Power Outage Susceptible Areas** *(Áreas susceptibles a cortes de energía)* Council File 25-0006-S26 Council File 25-0006-S28	**LADWP BOE LADBS**	**City / Community** *Ciudad / Comunidad*	**Mid** *Medio*
		1b. Those with extreme health conditions should be assigned emergency generators for cases in these extreme weather conditions. *Aquellos con condiciones de salud extremas deberían recibir generadores de emergencia para casos en estas condiciones climáticas extremas.*	●		●	●		●	**CBOs FTBMI Anawakalmekak North East Trees**	Heat Action and Resilience Plan *(Plan de Acción y Resiliencia al Calor)*; Cohesive Cooling Strategy *(Estrategia de enfriamiento cohesivo)* **Council File: 23-1380;** **Power Outage Susceptible Areas** *(Áreas susceptibles a cortes de energía)* Council File 25-0006-S26 Council File 25-0006-S28	**CEMO LADWP BOE LADBS**	**City / Community** *Ciudad / Comunidad*	**Mid** *Medio*
		1c. Explore potential programs of investment to assist low-income residents getting solar systems installed on rooftops where they live and in their communities. *Explorar posibles programas de inversión para ayudar a los residentes de bajos ingresos a instalar sistemas solares en los tejados de sus casas y de sus comunidades.*	●						**CBOs**	**Power Outage Susceptible Areas** *(Áreas susceptibles a cortes de energía)* Council File 25-0006-S26 Council File 25-0006-S28		**City / Community** *Ciudad / Comunidad*	**Long** *Largo*
Issue PH2: Air quality issues caused by wildfire smoke, fumes, exhaust and industrial uses make health problems worse, especially during extreme heat. *Problema PH2: Los problemas de calidad del aire causados por el humo de los incendios forestales, los gases de*	**Strategy PH2: Reduce air quality issues through use of community tools such as localized air quality monitoring, nature-based mitigation solutions, and community-based enforcement.** *Estrategia PH2: Reducir los problemas de calidad del aire mediante el uso de herramientas comunitarias como el monitoreo localizado de la calidad del*	**2a. Increase tree canopy and open space and decrease industry and associated air quality impacts for multiple health benefits including reduced heat, air quality, and mental health.** *Aumentar la copa de los árboles y las áreas verdes y reducir la industria y los impactos en la calidad del aire para obtener múltiples beneficios para la salud, incluida la reducción del calor, la calidad del aire y la salud mental.*	●					●	**CBOs FTBMI Anawakalmekak North East Trees**	General Plan Health Element, Programs Progress Report *(Elemento de Salud del Plan General, Informe de Progreso de Programas)*, **2023, p. 14**; **General Plan Open Space Element** *(Elemento de Áreas Verdes del Plan General)*; **Urban Forest Management Plan** *(Plan de Manejo Forestal Urbano)*; **Council File: 20-0826**	**Urban Forestry BSS DCP RAP**	**City / Community / Individual / Business Sector** *Ciudad / Comunidad / Individual / Sector empresarial*	**Short** *Corto*
		2b. Explore options for conducting regular, localized air quality monitoring in communities where residents face regular air quality issues. *Explorar opciones para realizar monitoreo regular de la calidad del aire localizado en*	●					●	**CBOs FTBMI Anawakalmekak North East Trees**	General Plan Health Element, Programs Progress Report *(Elemento de Salud del Plan General, Informe de Progreso de Programas)*, **2023, p. 15**; **Air Quality Monitoring and Advisories** *(Monitoreo y avisos*	**CEMO**	**City / Community** *Ciudad / Comunidad*	**Short** *Corto*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
escape y los usos industriales empeoran los problemas de salud, especialmente durante el calor extremo.	*aire, soluciones de mitigación basadas en la naturaleza y aplicación de la ley comunitaria.*	*comunidades donde los residentes enfrentan problemas regulares de calidad del aire.*								*de la calidad del aire)* **Council File 25-0006-S49**			
		2c. Strengthen programs that support community-based air monitoring to achieve environmental equity. *Fortalecer los programas que apoyan el monitoreo del aire comunitario para lograr la equidad ambiental.*	●					●	**CBOs**	**Air Quality Monitoring and Advisories** *(Monitoreo y avisos de la calidad del aire)* **Council File 25-0006-S49**		**City / Community** *Ciudad / Comunidad*	**Mid** *Medio*
		2d. Use existing programs and funding sources to develop community-based air quality enforcement programs. *Utilizar programas y fuentes de financiación existentes para desarrollar programas comunitarios de control de la calidad del aire.*	●					●	**CBOs**	**Air Quality Monitoring and Advisories** *(Monitoreo y avisos de la calidad del aire)* **Council File 25-0006-S49**		**City / Community** *Ciudad / Comunidad*	**Mid** *Medio*
		2e. Residential building designs that promote cross-ventilation through the use of windows on two sides and/or skylights in new development. *Diseños de edificios residenciales que promueven la ventilación cruzada mediante el uso de ventanas en dos lados y/o tragaluces en nuevos desarrollos.*	●					●	**CBOs FTBMI Anawakalmekak North East Trees**	**DCP Landscape and Site Design Ordinance Draft** *(DCP Borrador de Ordenanza de Diseño de Sitios y Ajardinamiento)*, **2024, p. 16**; **Plan for a Healthy Los Angeles** *(Plan para un Los Ángeles Saludable)*, **2021, p. 124**	**DCP LADBS**	**City / Community** *Ciudad / Comunidad*	**Short** *Corto*
		2f. Increase research, monitoring and documenting of climate-related illnesses and deaths. *Aumentar la investigación, monitoreo y documentación de nfermedades y muertes relacionadas con el clima.*	●	●				●	**Pacoima Beautiful UCLA**	**A Greater LA: Climate Action Framework** *(Un Gran LA: Marco de Acción Climática)*, **2016, p. 72**	**CEMO**	**City** *Ciudad*	**Short** *Corto*
Issue PH3: The process of getting to a bus stop and waiting for the bus during a hazard event can make health issues worse (e.g., protection from the elements/heat). *Problema PH3: El proceso de llegar a una parada de autobús y esperar el autobús durante un evento peligroso puede empeorar los problemas de*	**Strategy PH3: Work with communities and transit users to reduce exposure to heat throughout the transit process (e.g., waiting, pathways from home to bus stops).** *Estrategia PH3: Trabajar con las comunidades y pasajeros del transporte público para reducir la exposición al calor durante todo el proceso*	**3a. Work with transit riders to identify where create bus shelters are needed that help provide relief from heat.** *Trabajar con pasajeros de transporte público para identificar donde se necesitan crear refugios para autobuses que brindan alivio del calor.*						●	**CBOs**	**UCLA/CEMO - Identifying and Addressing Heat Inequities in the City of Los Angeles** *(UCLA/CEMO - Identificando y Abordando las Desigualdades de Calor en la Ciudad de Los Ángeles)*, **2023, p. 154**; **LA's Green New Deal - Sustainable City pLAn** *(Nuevo Acuerdo Ecológico de L.A. pLAn de Ciudad Sostenible)*, **2019, p. 29**; **LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad)*, **2024, p. 33-20**; **Pacoima Beautiful - UCLA Student Report: Bus Shelter**	**StreetsLA**	**City** *Ciudad*	**Mid** *Medio*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
salud (por ejemplo, protección contra los elementos/ calor).	*de transporte (por ejemplo, esperas, caminos desde el hogar hasta las paradas de autobús).*									**Equity: A study of the distribution of bus shelters in Los Angeles County and unincorporated communities** *(Pacoima Beautiful - Informe de Estudiantes de UCLA: Equidad en las Paradas de Autobús: Un estudio sobre la distribución de las paradas de autobús en el Condado de Los Ángeles y comunidades no incorporadas);* **StreetsLA Sidewalk Transit and Amenities Program (STAP)** *(StreetsLA Programa de Comodidades de Tránsito y Aceras)*			
		3b. Work with transit riders and community members to reduce heat exposure when walking on public walkways to and from destinations. *Trabajar con los usuarios del transporte público y los miembros de la comunidad para reducir la exposición al calor al caminar por senderos públicos hacia y desde los destinos.*						●	**CBOs**	**UCLA/CEMO - Identifying and Addressing Heat Inequities in the City of Los Angeles** *(UCLA/CEMO - Identificando y Abordando las Desigualdades de Calor en la Ciudad de Los Ángeles)***, 2023, p. 154**; **LA's Green New Deal - Sustainable City pLAn** *(Nuevo Acuerdo Ecológico de L.A. pLAn de Ciudad Sostenible)***, 2019, p. 29**; **LA Local Hazard Mitigation Plan** *(Plan de Mitigación de Peligros Locales de la Ciudad)***, 2024, p. 33-20**; **StreetsLA Sidewalk Transit and Amenities Program (STAP)** *(StreetsLA Programa de Comodidades de Tránsito y Aceras)*	**StreetsLA**	**City** *Ciudad*	**Short** *Corto*
Issue PH4: A lack of green space in a community contributes to health issues (physical and mental). *Problema PH4: La falta de espacios verdes en una comunidad contribuye a*	**Strategy PH4: Increase the overall amount of community green space to be more equitable when compared to other neighborhoods across the City.** *Estrategia PH4: Aumentar la cantidad total de espacios*	**4a. Increase access to open space and enhance trail connectivity to improve mental and physical health.** *Aumentar el acceso a áreas verdes y mejorar la conectividad de los senderos para mejorar la salud física y mental.*						●	**CBOs FTBMI Anawakalmekak North East Trees**	**General Plan Open Space Element** *(Elemento de Áreas Verdes del Plan General)*; **Urban Forest Management Plan** *(Plan de Manejo Forestal Urbano)*; **DCP Landscape and Site Design Ordinance Draft** *(DCP Borrador de Ordenanza de Diseño de Sitios y Ajardinamiento)***, 2024, p. 16**	**DCP LADBS Urban Forestry**	**City** *Ciudad*	**Short** *Corto*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
problemas de salud (física y mental).	*verdes comunitarios para que sean más equitativos en comparación con otros vecindarios de la ciudad.*	**4b. Add new street trees along streets and sidewalks in existing and new development, preserve healthy existing trees with consistent maintenance and prevent/ minimize tree removal where possible.** *Agregar nuevos árboles en las calles y aceras en desarrollos nuevos y existentes, preservar los árboles existentes sanos con un mantenimiento constante y evitar/minimizar la remoción de árboles cuando sea posible.*	●			●		●	**CBOs FTBMI Anawakalmekak North East Trees**	General Plan Open Space Element *(Elemento de Áreas Verdes del Plan General)*; Urban Forest Management Plan *(Plan de Manejo Forestal Urbano)*; DCP Landscape and Site Design Ordinance Draft *(DCP Borrador de Ordenanza de Diseño de Sitios y Ajardinamiento)*, **2024, p. 16**	**Urban Forestry BSS DCP**	**City** *Ciudad*	**Mid** *Medio*
		4c. Add more trees in open space areas and green spaces. *Agregue más árboles en áreas de espacios abiertos y espacios verdes.*	●			●		●	**CBOs FTBMI Anawakalmekak North East Trees**	General Plan Open Space Element *(Elemento de Áreas Verdes del Plan General)*; Urban Forest Management Plan *(Plan de Manejo Forestal Urbano)*; DCP Landscape and Site Design Ordinance Draft *(DCP Borrador de Ordenanza de Diseño de Sitios y Ajardinamiento)*, **2024, p. 16**	**Urban Forestry BSS RAP**	**City** *Ciudad*	**Mid** *Medio*
		4d. Increase the amount of shade as much as possible in outdoor areas where people have to wait for transportation, walk, or work. *Aumentar la cantidad de sombra tanto como sea posible en áreas al aire libre donde las personas tienen que esperar por el transporte, caminar o trabajar.*	●			●		●	**CBOs FTBMI Anawakalmekak North East Trees**	General Plan Open Space Element *(Elemento de Áreas Verdes del Plan General)*; Urban Forest Management Plan *(Plan de Manejo Forestal Urbano)*; DCP Landscape and Site Design Ordinance Draft *(DCP Borrador de Ordenanza de Diseño de Sitios y Ajardinamiento)*, **2024, p. 16**	**Urban Forestry BSS DCP**	**City** *Ciudad*	**Mid** *Medio*
Issue PH5: Littering and the presence of trash creates numerous problems related to clogged drains, unsanitary conditions at bus stops, and makes air quality worse on hot days. *Problema PH5: La basura y la presencia de basura crean numerosos*	**Strategy PH5: Use a coordinated set of targeted actions to clean up trash and reduce littering to reduce climate-related stressors to prevent the incidence of vermin, insects, odors, etc. that could potentially impact public health.** *Estrategia PH5: Utilizar acciones programadas*	**5a. The City should continue to develop actions and programs across City departments to prevent illegal dumping and littering.** *La ciudad debe seguir desarrollando acciones y programas en todos los departamentos de la ciudad para prevenir los vertidos y basura ilegales.*	●			●		●	**CBOs**	City of Los Angeles Controller - Piling Up: Addressing LA's Illegal Dumping Problem *(Contralor de la Ciudad de Los Ángeles - Acumulación: Abordando el problema de la basura ilegal en LA)*, **2021 p. 33-32**	**LASAN BSS**	**City / Community** *Ciudad / Comunidad*	**Ongoing** *En curso*
		5b. Add additional durable trash bins that can contain foul odors in public areas such as bus stops and parks to reduce potential public health impacts. *Agregar más contenedores de basura duraderos que puedan contener olores desagradables en áreas públicas como paradas de autobús y parques para reducir los posibles impactos en la salud pública.*	●			●		●	**CBOs**	City of Los Angeles Controller - Piling Up: Addressing LA's Illegal Dumping Problem *(Contralor de la Ciudad de Los Ángeles - Acumulación: Abordando el problema de la basura ilegal en LA)*, **2021 p. 33-32**	**LASAN BSS**	**City** *Ciudad*	**Ongoing** *En curso*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
problemas relacionados con desagües obstruidos, condiciones insalubres en las paradas de autobús y empeoran la calidad del aire en los días calurosos.	*y coordinadas específicas para limpiar la basura y reducir la basura para reducir los factores estresantes relacionados con el clima y prevenir la incidencia de plagas, insectos, olores, etc. que podrían afectar potencialmente la salud pública.*	**5c. The City should continue to develop options for adding permanently staffed trash collection stations or parked garbage trucks in areas where frequent dumping is occurring as a highly accessible and visible option to encourage people to safely dispose of trash instead of dumping.** *La ciudad debe seguir desarrollando opciones para agregar estaciones de recolección de basura con personal permanente o camiones de basura estacionados en áreas donde se producen vertidos frecuentes, como una opción altamente accesible y visible para alentar a las personas a deshacerse de la basura de manera segura en lugar de tirarla.*	●			●		●	**CBOs**	City of Los Angeles Controller - Piling Up: Addressing LA's Illegal Dumping Problem *(Contralor de la Ciudad de Los Ángeles - Acumulación: Abordando el problema de la basura ilegal en LA)*, **2021 p. 33-32;** Multifamily Green Waste Infrastructure Assessment *(Evaluación de infraestructura de desechos verdes multifamiliares)* Council File 21-1208-S1	**LASAN BSS**	**City / Community** *Ciudad / Comunidad*	**Ongoing** *En curso*
		5d. Create public-private partnerships to hire community organizations to do the trash clean up on a more local/daily basis to keep up with trash issues and illegal dumping. *Crear asociaciones público-privadas para contratar organizaciones comunitarias para que realicen la limpieza de la basura de forma más local/diaria para mantenerse al día con los problemas de basura y los vertidos ilegales.*	●			●			**CBOs**		**LASAN BSS**	**City / Community** *Ciudad / Comunidad*	**Ongoing** *En curso*
		5e. Resilience hubs should include a self-care or public health care component to address community health needs during a climate event and to make up for the loss of health resources in some communities. *Los centros de resiliencia deben incluir un componente de autocuidado o atención de salud pública para abordar las necesidades de salud de la comunidad durante un evento climático y compensar la pérdida de recursos de salud en algunas comunidades.*	●			●		●	**CBOs**			**City** *Ciudad*	**Mid** *Medio*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
Issue CC1: The large amount of paved urban areas makes many climate impacts worse. *Problema CC1: La gran cantidad de áreas urbanas pavimentadas empeora muchos impactos climáticos.*	**Strategy CC1: Increase the amount of permeable surfaces on public and private lands.** *Estrategia CC1: Aumentar las superficies permeables en terrenos públicos y privados.*	**1a. Replace pavement with green spaces on both public and private property in urban areas that regularly experience extreme heat, flooding, and places that lack green spaces.** *Reemplazar el pavimento con espacios verdes en áreas urbanas que regularmente experimentan calor extremo, inundaciones y carecen de áreas verdes, tanto en propiedades públicas como privadas.*	●	●		●		●	**CBOs FTBMI Anawakalmekak North East Trees**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 33-10, 33-11, 33-23—33-35; Urban Forest Management Plan *(Plan de Manejo Forestal Urbano)*	**BSS CEMO DCP**	**City** *Ciudad*	**Ongoing** *En curso*
		1b. Encourage private property owners to replace paved surfaces with green spaces or permeable surfaces to reduce flooding and heat. *Alentar a los propietarios privados a reemplazar las superficies pavimentadas con espacios verdes o superficies permeables para reducir las inundaciones y el calor.*	●			●			**CBOs**			**City** *Ciudad*	**Short** *Corto*
Issue CC2: There are gaps in local and community climate hazard data. *Problema CC2: Hay falta de datos sobre peligros climáticos locales y comunitarios.*	**Strategy CC2: Use available options at all scales to collect climate data.** *Estrategia CC2: Utilizar las opciones disponibles en todas las escalas para recopilar datos climáticos.*	**2a. Encourage individual citizens to keep climate journals, and photos when applicable, to record lived experience of impacts on health and daily life from climate hazards.** *Alentar a los ciudadanos individuales a llevar diarios climáticos y fotografías, cuando corresponda, para registrar las experiencias vividas de los impactos de los peligros climáticos en la salud y la vida diaria.*	●	●	●	●	●	●	**CBOs**		**CEMO**	**City / Community / Individual** *Ciudad / Comunidad / Individual*	**Short** *Corto*
		2b. CBOs should periodically ask community members to share their experiences from extreme climate events, especially immediately afterward to document what happened and talk about how to work together to prepare and adapt for future events. This information can be valuable for climate resilience plans. *Las organizaciones deben pedir periódicamente a los miembros de la comunidad que compartan sus experiencias de eventos climáticos extremos, especialmente inmediatamente después para documentar lo sucedido y hablar sobre cómo trabajar juntos para prepararse y adaptarse a eventos futuros. Esta información puede ser valiosa para los planes de resiliencia climática.*	●	●	●	●	●	●	**CBOs**		**CEMO**	**City** *Ciudad*	**Short** *Corto*
		2c. CBOs and individuals should participate in or conduct "citizen-scientist" data collection efforts that can document heat in specific locations within communities. (e.g., NOAA Urban Heat Island (UHI) mapping	●					●	**CBOs**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 33-10, 33-11, 33-23—33-35	**CEMO**	**City / Community / Individual** *Ciudad / Comunidad /*	**Short** *Corto*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
		campaign) *Las organizaciones comunitarias y los individuos deben participar o realizar esfuerzos de recopilación de datos "ciudadanos-científicos" que puedan documentar el calor en lugares específicos dentro de las comunidades. (por ejemplo, campaña de mapeo de islas de calor urbano (UHI) de la NOAA)*										*Individual*	
		2d. Create a Citywide climate data dashboard to track data on climate hazards and provide information to the public. *Crear un panel de datos climáticos en toda la ciudad para realizar un seguimiento de los datos sobre los peligros climáticos y proporcionar información al público.*	●	●	●	●	●		**CBOs**	LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, pp. 33-10, 33-11, 33-23—33-35	**CEMO**	**City** *Ciudad*	**Short** *Corto*
Issue CC3: Community members need more resilience hubs closer to where they live and work. *Problema CC3: Los miembros de la comunidad necesitan más centros de resiliencia más cerca de donde viven y trabajan.*	**Strategy CC3: Work with communities to add more resilience hubs where needed.** *Estrategia CC3: Trabajar con las comunidades para agregar más centros de resiliencia donde sea necesario.*	**3a. Create cooling centers/other places that create a safe space for all individuals with air conditioning and resilience hubs where residents can get support, coordinate communication, find resources, and reduce carbon pollution while enhancing quality of life.** *Crear centros de enfriamiento/otros lugares que crean un espacio seguro para todas las personas con aire acondicionado y centros de resiliencia donde los residentes puedan obtener apoyo, coordinar la comunicación, encontrar recursos y reducir la contaminación de carbono mientras mejoran la calidad de vida.*	●	●	●	●	●	●	**CBOs FTBMI Anawakalmekak North East Trees**	UCLA/CEMO - Identifying and Addressing Heat Inequities in the City of Los Angeles *(UCLA/CEMO - Identificando y Abordando las Desigualdades de Calor en la Ciudad de Los Ángeles)*, 2023, p. 220; A Greater LA: Climate Action Framework (*Un Gran LA: Marco de Acción Climática*), 2016, p. 77; LA Local Hazard Mitigation Plan *(Plan de Mitigación de Peligros Locales de la Ciudad)*, 2024, p. 33-24; Cohesive Cooling Strategy *(Estrategia de enfriamiento cohesivo)* Council File: 23-1380	**CEMO RAP LAPL**	**City** *Ciudad*	**Ongoing** *En curso*

Issue *Problema*	**Strategies** *Estrategias*	**Examples** *Ejemplos*	**Heat** *Calor*	**Drought** *Sequía*	**Wildfire** *Incendios*	**Precip / Flood** *Lluvia / Inundación*	**Sea Level Rise** *Aumento del Nivel del Mar*	**Public Health** *Salud Publica*	**Community Partner Input** *Comentarios de los Socios Comunitarios*	**Source Document / Work Program*** *Documentos de Referencia / Programas**	**Lead Department(s)*** *Departamento(s) Principal(es)**	**Scale / Level*** *Escala / Nivel**	**Timeframe*** *Periodo de Tiempo**
Issue CC4: Not all City facilities, policies, operations, and infrastructure are designed to withstand expected future climate hazards. *Problema CC4: No todas las instalaciones, políticas, operaciones e infraestructura de la ciudad están diseñadas para resistir los peligros climáticos futuros esperados.*	**Strategy CC4: Update or create city plans and procedures to prepare city operations and facilities for expected climate hazards impacts.** *Estrategia CC4: Actualizar o crear planes y procedimientos de la ciudad para preparar las operaciones e instalaciones de la ciudad para los impactos esperados de los peligros climáticos.*	**4a. Update plans, facilities, and City operations to prepare for future climate hazard conditions in an equitable manner.** *Actualizar los planes, instalaciones y operaciones de la ciudad para prepararse para futuras condiciones de peligro climático de manera equitativa.*	●	●	●	●	●	●	**CBOs Anawakalmekak**	Heat Action and Resilience Plan *(Plan de acción y resiliencia al calor)*; LA Local Hazard Mitigation Plan (Plan de Mitigación de Peligros Locales de la Ciudad), 2024, pp. 33-9, 33-10, 33-11, 33-23—33-35; Plan for a Healthy Los Angeles *(Plan para un Los Ángeles Saludable)*, 2021, p. 132; Emergency Operations Master Plan and Master Procedures and Annexes *(Plan Maestro de Operaciones de Emergencia y Procedimientos Maestros y Anexos)*; NotifyLA.org	**CEMO EMD DCP**	**City** *Ciudad*	**Ongoing** *En curso*

*** The Source Document / Work Programs Column lists source documents where some strategies are outlined or identified as well as work programs that either are currently existing or could be expanded to capture the recommended strategy in that row. The Lead Department(s) Column lists a city department or departments that is/are leading work programs or have authority and/or jurisdiction over that scope as defined in the City Charter and Administrative Code. The Scale Column identifies our assessment of scale such as Citywide, Community or a combination. The Scale / Level Column identifies our assessment of the timeframe for the strategy to be implemented, where Short Term is five years or less to implement, Mid Term is 5 -10 years to implement, Long Term is over 10 years to implement, and Ongoing is meant for programs that should be done on a continuous basis.**

La columna Documentos de referencia /Programas enumera los documentos fuente donde se describen o identifican algunas estrategias, así como programas de trabajo que existen actualmente o que podrían ampliarse para capturar la estrategia recomendada en esa fila. La columna Departamento(s) Principal(es) enumera uno o varios departamentos de la ciudad que dirigen programas de trabajo o que tienen autoridad y/o jurisdicción sobre ese alcance como se define en los Estatutos de la Ciudad y el Código Administrativo. La columna de Escala identifica nuestra evaluación de escala, como en toda la ciudad, comunidad o una combinación. La columna Periodo de Tiempo identifica nuestra evaluación del marco de tiempo para la estrategia a implementar, donde el Corto Plazo es cinco años o menos para implementarse, el Medio Plazo es de 5 a 10 años para implementarse, el Largo Plazo es más de 10 años para implementarse y En curso está destinado a programas que deben realizarse de forma continua.

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¿Qué muestra esta imagen?
Extreme Heat

Appendix B.
Data Set and Methodology

Source Overview

Title	Owner	Last Updated	URL	Overview of Document/Source	Secondary Sources Related to CVA
Protecting Californians From Extreme Heat: A State Action Plan to Build Community Resilience	California Natural Resources Agency	2022	https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/Climate-Resilience/2022-Final-Extreme-Heat-Action-Plan.pdf	State-level strategic and comprehensive set of actions to address extreme heat impacts spanning economic, cultural, ecological, and social impacts. Actions focus on: public awareness/notification, community services and response, the built environment, and Nature-based Solutions. Provides status updates on completed actions and recommendations for future actions.	UHI for California, California Tree Canopy, CA Nature GIS (30x30), Human Right to Water in California (CalHRTW 1.0)
Port of Los Angeles Sea Level Rise Adaptation Study	Port of Los Angeles	2018	https://kentico.portoflosangeles.org/getmedia/29acdb3a-c9a1-4e9c-a233-0a4e74438a3c/2018_Sea_Level_Rise_Adaptation_Study	Identifies the areas of state public trust lands that are projected to be exposed to sea level rise by the years 2030, 2050, and 2100, and provides an overview of vulnerabilities and a suite of adaptation strategies to both adapt over time and stay resilient to sea level rise.	N/A
California Climate Adaptation Strategy	California Natural Resources Agency	2021	https://climateresilience.ca.gov/	Links together the state's existing and planned climate adaptation efforts, showing how they fit together to achieve California's six climate resilience priorities. The Strategy is organized around outcome-based priorities, enabling a coordinated, integrated approach to building climate resilience.	CA Fourth Climate Change Assessment: Los Angeles Region Report
UCLA Heat Maps	UCLA	2022	https://innovation.luskin.ucla.edu/climate-2/heat/	The California Healthy Places Index: Extreme Heat Edition, developed by the Public Health Alliance of Southern California in partnership with the UCLA Luskin Center for Innovation. The tool provides datasets on projected heat exposure for California, place-based indicators measuring community conditions, and sensitive populations. It provides a list of state resources and funding opportunities that can be used to address extreme heat.	N/A
UCLA Heat Data	UCLA	2018	https://sites.google.com/g.ucla.edu/uclaheatmaps/map?authuser=0	Interactive map of heat-related health outcomes in California, showing excess daily emergency room visits that occur on an extreme heat day compared to the usual, non-extreme heat day. Data is displayed by county and ZIP code.	CalEnviroScreen 4.0

Source Overview

Title	Owner	Last Updated	URL	Overview of Document/Source	Secondary Sources Related to CVA
Southern California Climate Adaptation Framework	Southern California Association of Governments	2021	https://maps.scag.ca.gov/climate/	The tool is designed to assist local jurisdictions and PR actioners by outlining the SB 379 Compliance Curriculum for Local Jurisdictions steps to conduct a vulnerability assessment, providing publicly available data on climate impacts and vulnerabilities across the SCAG region, and making relevant resources easily accessible, all in a central platform.	Cal-Adapt
South Coast Air Quality Monitoring Data	South Coast Air Quality Management District	2023	https://scaqmd-online.maps.arcgis.com/apps/webappviewer/index.html?id=3d51b5d2fc8d42d9af8c04f3c00f88d3	SCAQMD records daily Air Quality Index (AQI) values at 28 sensor/stations using a SCAQMD-developed method that blends measurements from high-quality regulatory monitors, hundreds of quality-controlled and calibrated low-cost sensors, and an air quality model. The program also collects data on ozone, nitrogen dioxide, carbon monoxide, fine particulate matter (2.5 and 10 ppm), temperature, wind speed and wind direction.	Historical Air Quality Data
City of Los Angeles Social Equity Index	City of Los Angeles Controller	2020	https://storymaps.arcgis.com/stories/ca477e68657643c9a2bad1fddfe24359	This index examines socioeconomic, environmental, education, and resource accessibility characteristics of the City's Census tracts to identify neighborhoods that experience less equity and opportunity. The Equity Index scores tracts on a scale from one (less equitable) to 10 (more equitable).	N/A
Cool Spots LA App	CEMO, LADWP, StreetsLA, the Department of Recreation and Parks, Los Angeles Public Libraries, and the Data Team of the Office of the Mayor	2023	https://lahub.maps.arcgis.com/apps/instant/nearby/index.html?appid=d3bea5218c3b4adca485a32c9e3fabee&center=-118.494;33.9779&level=11&hiddenLayers=LMS_Data_Public_5706;featColl_7801;Youthsource_centers_1444;featColl_3296;PoolLocations_9291;Cooling_Centers_In_City_Only_9371;Hydration_Stations_August_2022_3524	Interactive map for the public to locate Cooling Centers, libraries, senior centers, recreation centers, shade structures, bus shelters and hydration stations throughout Los Angeles.	N/A
City of Los Angeles Health Atlas	City of Los Angeles Department of City Planning	2013	https://planning.lacity.org/interactive-health-atlas/index/index.html	The Health Atlas accompanied the Plan for a Health Los Angeles, adopted in 2015 and updated in 2021. This tool uses 2010 Census data, but static (PDF) maps are available with more recent data (updated 2021).	N/A

Source Overview

Title	Owner	Last Updated	URL	Overview of Document/Source	Secondary Sources Related to CVA
Open Space Land Use — City of Los Angeles	City of Los Angeles Department of City Planning	2021	https://geohub.lacity.org/datasets/labos::open-space-land-use-city-of-los-angeles/explore?location=33.807314%2C-118.295532%2C9.35	Shapefile of all land zoned open space in the City of Los Angeles.	N/A
City of Los Angeles General Plan: Safety Element	City of Los Angeles Department of City Planning	2021	https://clkrep.lacity.org/onlinedocs/2020/20-1213_misc_04-11-22.pdf	The Safety Element is one of eight State mandated elements of the General Plan and details local hazards, vulnerability to hazards, and emergency preparedness. This Safety Element incorporates the Local Hazard Mitigation Plan (LHMP), including future updates or amendments to the LHMP, into the Los Angeles General Plan Safety Element.	N/A
Tree Canopy	USDA	2018	https://data.fs.usda.gov/geodata/rastergateway/treecanopycover/index.php	Interactive map of urban tree canopy in California	Los Angeles Urban Forest Equity Assessment Report; TreeKeeper data by StreetsLA; NavigateLA
CalEnviroscreen 4.0	California Office of Environmental Health Hazard Assessment (OEHHA)	2021	https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40	A screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution such as hazardous waste, solid waste, pesticide use, ozone, etc.	SB 535 Disadvantaged Communities
City of Los Angeles Building Footprints	City of Los Angeles Department of Building Services	2017	https://geohub.lacity.org/datasets/813fcefde1f64b209103107b26a8909f_0/explore?location=34.016055%2C-118.410168%2C10.70	This dataset captures all buildings over 64 square feet, based on 2014 aerial imagery. This dataset has unique building IDs, as well as building heights and elevations.	City of Los Angeles Parcels
2023 State of California Hazard Mitigation Plan	Cal OES	2023	https://www.caloes.ca.gov/wp-content/uploads/Hazard-Mitigation/Documents/2023-California-SHMP_Volume-1-Exec-Summary_11.10.2023.pdf	The plan serves as the state-level roadmap to identify hazards impacting the State, assess the risk of these hazards, inventory the State's adaptive capacity, and identify opportunities and actions to reduce risk to these hazards. Hazards include natural, climate hazards and human-caused hazards.	Multiple
City of Los Angeles Parcels	City of Los Angeles Department of Public Works	2020	https://geohub.lacity.org/datasets/lahub::la-city-parcels/	This dataset captures parcels within City boundaries, based on 2015 data and last updated in 2020.	N/A

Source Overview

Title	Owner	Last Updated	URL	Overview of Document/Source	Secondary Sources Related to CVA
City of Los Angeles 2021 Community Greenhouse Gas Inventory	City of Los Angeles Department of Sanitation and Environment	2023	https://www.lacitysan.org/cs/groups/public/documents/document/y250/mdg4/~edisp/cnt088358.pdf	This annual report inventories the sources of the City's greenhouse gas emissions and tracks the City's progress toward climate goals.	N/A
Report on Equitable Building Decarbonization	City of Los Angeles Climate Emergency Mobilization Office	2022	https://www.climate4la.org/wp-content/uploads/2022/09/Report-on-Equitable-Building-Decarbonization-FINAL-September-15-2022.pdf	This report summarizes stakeholder input from community-based organizations representing the most pollution-burdened areas of Los Angeles. The process focuses on equity-based solutions to reduce emissions, improve public health, increase house security, lower utility bills, build habitable and health homes and neighborhoods, and create opportunities for well-paying jobs in the green energy industry.	N/A
One Water LA 2040 Plan: Volume 6 — Climate Risk & Resilience Assessment for Wastewater and Stormwater Infrastructure	City of Los Angeles Department of Sanitation and Environment	2018	https://www.lacitysan.org/cs/groups/sg_owla/documents/document/y250/mdmw/~edisp/cnt030192.pdf	This assessment includes a review and summary of current climate science, climate projections, and existing climate impact assessments; a vulnerability assessment of existing wastewater and stormwater infrastructure and systems; and identification and evaluation of adaptation options and strategies.	EPA Climate Resilience and Awareness Tool: Risk Assessment Application for Water Utilities
California Heat Assessment Tool (CHAT)	California Natural Resources Agency		https://www.cal-heat.org/explore	Interactive tool to identify heat health events presently and how these events are projected to change in the future.	Multiple
HistoricPlacesLA	City of Los Angeles Department of City Planning	2017	http://historicplacesla.org/map	This resource inventories the City's significant historic resources, including architecturally significant buildings and places of social importance, as well as historic districts, bridges, parks, and streetscapes.	Zone Information and Map Access Systems
Climate Mapping for Resilience and Adaptation	National Oceanic and Atmospheric Administration	2022	https://resilience.climate.gov/	This tool provides current and future climate hazard information to assist federal agencies and the recipients of federal funds with prioritizing, identifying, and implementing climate-informed infrastructure investments.	N/A
Special Flood Hazard Areas	City of Los Angeles Department of Public Works, Bureau of Engineering	2021	https://engineering.lacity.gov/about-us/divisions/clean-water/floodplain-mapping	The Bureau of Engineering provides information about the City's floodplain management plan (last updated 2021) and publishes NFIP-related maps (LOMC/LOMA, SFHAs, FIS, etc.).	N/A

Source Overview

Title	Owner	Last Updated	URL	Overview of Document/Source	Secondary Sources Related to CVA
2020 County of Los Angeles All-Hazard Mitigation Plan	County of Los Angeles Chief Executive Office and Office of Emergency Management	2020	https://ceo.lacounty.gov/wp-content/uploads/2022/04/County-of-Los-Angeles-All-Hazards-Mitigation-Plan-APPROVED-05-2020.pdf	The plan to assess risks posed by natural hazards and to develop a mitigation action plan for reducing the risks in Los Angeles County. Hazards assessed include climate change, dam failure, earthquake, flood, landslide, tsunami, and wildfire.	Multiple
Our Coast, Our Future (OCOF)	Point Blue Conservation Science, US Geological Survey (USGS)	2019	https://ourcoastourfuture.org/hazard-map/	Point Blue and USGS partnered to develop this data viewer as a decision-support tool for planners engaged in the climate adaptation planning process. Users can select from multiple sea level rise and magnitude (or frequency) scenarios and flood metrics (e.g., wave height, flood duration).	N/A
Tree Inventory	City of Los Angeles, Department of Public Works, Bureau of Street Services (StreetsLA)	2023	https://streetsla.lacity.org/tree-inventory	StreetsLA has been updating the City's street tree inventory by collecting information tree location, species, size, and distance from infrastructure, and producing Neighborhood Council reports. The results will be made available through a public viewer using TreeKepper software.	https://losangelesca.treekeepersoftware.com/index.cfm?deviceWidth=1920
Treekeepers	City of Los Angeles, Department of Public Works, Bureau of Street Services (StreetsLA); Davey Resource Group	2023	https://losangelesca.treekeepersoftware.com/index.cfm	This data viewer displays the updated street tree inventory and enables users to produce neighborhood-level reports on tree types, benefits (including ecosystem services), and health.	N/A
Los Angeles County Climate Vulnerability Assessment	County of Los Angeles Chief Executive Office	2021	https://ceo.lacounty.gov/wp-content/uploads/2021/10/LA-County-Climate-Vulnerability-Assessment-1.pdf	This analysis conducts a Climate Hazard Assessment, Social Vulnerability Assessment, Physical Vulnerability Assessment, and a Cascading Impacts Assessment to cumulatively evaluate which areas, assets, and population may be susciptible to climate-exacerbated hazards. The assessments use a mixed-methods approach to incorporate both qualitative and quantitative information. Most asset-specific analyses are overlay analyses or reclassification of existing datasets.	Multiple
Los Angeles Flood Risk	University of California, Irvine (UCI) Flood Study	2022	https://storymaps.arcgis.com/stories/80af8f6b7b8749258b3305fe5a9d4815	For this study, a UCI-led team used an urban flood risk modeling system to map the 100-year flood zone across the Los Angeles coastal plain to show the populations affected.	N/A

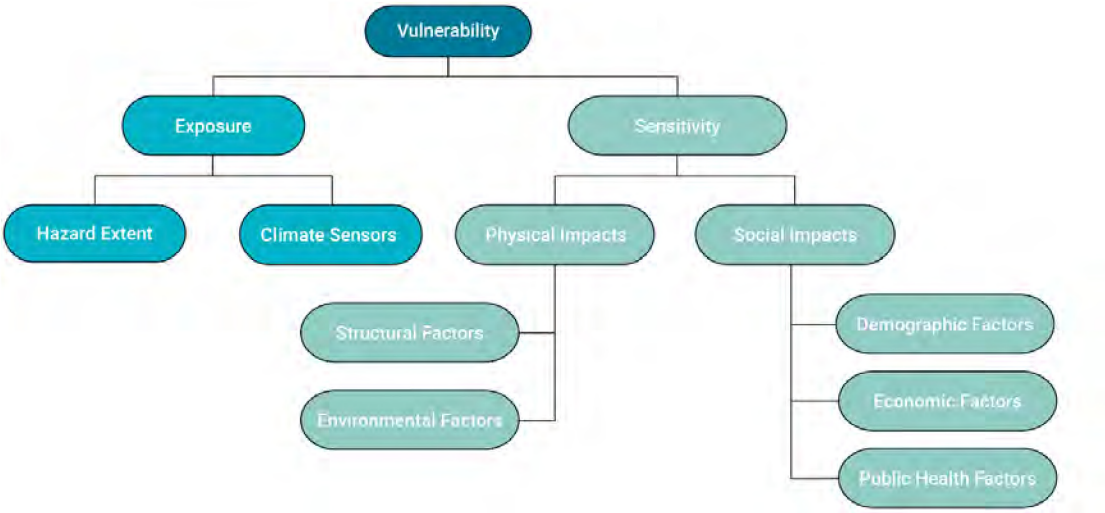
1. Assessment Framework

This document summarizes the literature review conducted to identify data sources for the City of Los Angeles Climate Vulnerability Assessment, or CVA. This document will be included within the appendix of the final report. The CVA focuses on these seven hazards: extreme heat, extreme precipitation, flooding, drought, wildfire, sea level rise, and vectors. Those hazards were selected by reviewing the city's most recent Local Hazard Mitigation Plan, or LHMP, from 2024 and identifying hazards known to be influenced by climate change. This list is not exhaustive of all the hazards threatening the city.

Vulnerability refers to what extent an area, asset, or population will be harmed by a hazard. This approach characterizes vulnerability as a function of two components: exposure and sensitivity. The assessment uses quantitative and qualitative data to comprehensively characterize the city's vulnerability to selected climate-influenced hazards.

The factors that influence each hazard's frequency, severity, and extent vary, as well as how these factors are affected by projected climate change impacts. In recognition of these differences, the exposure and sensitivity methods are tailored to each hazard by using best available data and metrics. **Figure 1** illustrates the CVA's framework.

Figure 1: Climate Vulnerability Assessment Framework



Exposure evaluates the likelihood an area, asset, or population will physically intersect with a hazard event, such as a flood or drought. The likelihood of a hazard occurring depends on several factors that influence event frequency and severity, such as regional climate patterns. The CVA focuses on how climate-related factors, or climate stressors, are expected to change the extent and intensity of hazard events and which areas, assets, and populations are exposed.

Sensitivity characterizes to what extent an area, asset, or population is expected to experience adverse impacts because of that hazard. These adverse impacts can be more likely to occur because of structural or environmental attributes, such as the year a building was built, specifically referencing before or after hazard-resistant building codes took effect. They can also be compounded because of underlying social factors, such as lower income, lack of access to health care, or low English proficiency. These social factors describe a community's social vulnerability, which refers to the degree to which a community can prevent human suffering and financial loss because of a hazard. A community with a high share of these contributing factors is said to have high social vulnerability. Often, communities and neighborhoods that experience many of these conditions have historically been underserved and/or marginalized, resulting in residual generational impacts.

2. Literature Review

2.1. Extreme Heat

Extreme heat refers to an extended period, at least two to three days, of temperatures and humidity levels that exceed seasonal averages in each area. What is considered an extreme heat event varies based on the region being studied. In most parts of the country, an extreme heat event refers to when temperatures and humidity levels exceed 90 degrees Fahrenheit. For warmer and drier climates, such as in Los Angeles, more localized data is critical to evaluate extreme heat events and their impacts. For the purposes of this CVA, an extreme heat event is any day that has a maximum temperature that exceeds the 98th percentile value of the 30-year average (California Energy Commission 2021). Historically, Los Angeles has had an annual average of two (2) days exceeding this threshold of 95.2 degrees Fahrenheit (California Energy Commission 2021).

2.1.1. Exposure

All areas are exposed to extreme heat, but certain development patterns can exacerbate the local effects of these events. More urbanized areas tend to experience hotter localized temperatures than less developed ones because of the lack of wind and a higher concentration of heat absorbing materials, such as pavement or concrete, and less tree canopy and vegetation, which provide shade and hold

moisture. Some communities may experience increased health and respiratory conditions due to exposure to air pollution impacted by factors including but not limited to smog and greenhouse gas emissions from large sources like airports making them more susceptible to heat-related impacts.

The frequency and intensity, including duration, of extreme heat events depend on long term climate patterns, such as average temperatures and precipitation rates. Extreme heat events are likely to become more frequent, intense, and longer in duration as average temperatures steadily rise. **Table 1** summarizes sources that can provide potential geospatial data to support the identification of these areas.

Table 1: Extreme Heat Exposure Data Sources

Source	Indicator Description	Available Time Horizons/Projections	Available Aggregations
California Heat Assessment Tool	Annual number of high temperature days expected to produce public health impacts	Two-decade increments from 2011 to 2099	Census tract
Cal-Adapt	Annual number of days with maximum temperature exceeding 95.2 degrees, or 98th percentile value of the 30-year average	Baseline (1961 to 1990); midcentury (2035 to 2064); end century (2070 to 2099)	County; city; census tract; ZIP code

2.1.2. Sensitivity

The susceptibility of an area, asset, or population to suffer adverse impacts because of extreme heat depends on several factors. For physical assets, such as roads or wastewater facilities, extreme heat events can warp equipment and disrupt critical systems by simultaneously reducing system capacity and increasing usage when residents increasingly use air conditioners to remain comfortable.

On an individual level, extreme heat can cause heat-related illnesses, such as heat exhaustion, heat stroke, and dehydration, which can result in harm or death. Children younger than five (5) years of age and people older than 65 years of age may have difficulties regulating their body temperature to stay cool during these events, elevating the chance for heat-related illnesses. These events can also worsen underlying medical conditions, such as respiratory issues.

People who spend significant time outside, such as outdoor workers, face elevated risks of heat-related illnesses. Some people may lack the resources to react to extreme heat events. For example, people who are not proficient in English may not

understand warning notifications, and those without health insurance or stable housing may struggle to get medical attention during extreme heat events. Cumulatively, these individual level impacts can lead to sharp increases, such as daily emergency room visits and hospitalizations, which can stress health care systems. Conversely, public cooling centers can provide critical refuges to people who lack access to air conditioning or are suffering from dehydration during an extreme heat event. **Table 2** summarizes sources that can provide potential geospatial data to support the characterization of sensitivity to extreme heat.

Table 2: Extreme Heat Sensitivity Data Sources

Source	Indicator Description	Available Time Horizons/Projections	Available Aggregations
UCLA Heat Maps	Rate or number of daily excess emergency room visits	Baseline (2018)	County
Cool Spots LA	Number of cool spots within specified radius and library locations as resilience centers	Baseline (2023)	N/A
U.S. Forest Service Region 5	Percent tree canopy	Baseline (2018)	Urban areas; census tracts, neighborhoods
City of Los Angeles Tree Inventory	Number of street trees	Baseline (2020)	Council district
Health Atlas/LACP Land Use Data	Acres of all land zoned for open space	Baseline (2021)	N/A
CalEnviro-Screen 4.0	Ozone; PM2.5; diesel particulate matter; traffic impacts; asthma; cardiovascular disease	Baseline (2021)	Census tract
CDC Social Vulnerability Index	Composite index based on 16 U.S. census variables	Baseline (2020)	Census tract

2.2. Extreme Precipitation

Precipitation refers to water vapor that is released from the atmosphere in the form of rain, sleet, hail, or snow and that falls to the Earth's surface. This process is a natural part of the water cycle, but it can become a hazard during intense and short-lived precipitation events. Extreme precipitation threatens flooding, particularly in urban areas. Heavy rainfall in a short period can overwhelm stormwater systems and quickly surpass natural infiltration capacities, which includes the capacity of soils or waterways to absorb or hold moisture. For the purposes of this CVA, an extreme precipitation event is any two-day period in which precipitation amounts exceed 1.38 inches, or the 95th percentile value of the 30-year average (California Energy Commission 2021). Historically, Los Angeles has had an annual average of two (2) extreme precipitation events exceeding this threshold (California Energy Commission 2021).

2.2.1. Exposure

All areas are exposed to extreme precipitation events, but topological and development patterns make flooding caused by precipitation more likely in certain areas. Urbanized areas face a higher risk of flooding caused by precipitation because of the higher concentration of nonporous materials, such as pavement, and limited natural infiltration capabilities, such as open space. Hilly or mountainous areas or those that lack stormwater infrastructure likewise cannot absorb precipitation as fast as it comes down. These factors can increase the speed with which water moves across the ground, potentially producing dangerous velocities that transport debris and people as well as cause physical damage to assets and buildings.

The frequency and intensity of extreme precipitation events depend on longer term climate patterns that influence how quickly water moves through the water cycle, such as evapotranspiration rates. For example, as temperatures rise, the rate at which water evaporates from soils, vegetation, and other sources will accelerate, leading to more water vapor stored in the atmosphere. As a result, when precipitation events occur, they are expected to release much more water in a shorter period. **Table 3** summarizes a source that can provide potential geospatial data to support the identification of these areas.

Table 3: Extreme Precipitation Exposure Data Source

Source	Indicator Description	Available Time Horizons/Projections	Available Aggregations
Cal-Adapt	Annual number of two-day rainfall totals exceeding 1.38 inches, the 95th percentile value of the 30-year average	Baseline (1961 to 1990); midcentury (2035 to 2064); end century (2070 to 2099)	County; city; census tract

2.2.2. Sensitivity

The likelihood of an area, asset, or population to endure damage or harm because of extreme precipitation highly depends on the area's ability to absorb, store, and redirect runoff or stormwater. Areas with limited open or green space and vegetation are more likely to experience flooding or overflows because of extreme precipitation. Conversely, areas with high concentrations of nonporous surfaces, such as pavement or concrete, have limited absorption capabilities. In the absence of vegetation or soil to absorb rainfall, rainfall runoff moves more quickly over these surfaces, increasingly picking up velocity and elevating the risk for potential damage.

Runoff can carry debris, pesticides, chemicals, and other pollutants long distances, traversing streets and neighborhoods before being deposited into a body of water. Stormwater runoff can introduce bacteria and other harmful substances into drinking water and recreational bodies of water, elevating potential health risks for people who rely on these resources. Communities that exhibit certain social characteristics, such as people living in poverty or overcrowded housing, may be more susceptible to health impacts and financial losses after an extreme precipitation event. These events can also trigger cascading economic impacts, such as if someone without access to a personal vehicle that relies on public transit service cannot travel to work or school because of service interruptions. **Table 4** summarizes sources that can provide potential geospatial data to support the characterization of sensitivity to extreme precipitation.

Table 4: Extreme Precipitation Sensitivity Data Sources

Source	Indicator Description	Available Time Horizons/Projections	Available Aggregations
City of Los Angeles Tree Inventory	Gallons of stormwater runoff avoided annually	Baseline (2020)	Council district
Health Atlas/LACP Land Use Data	Acres of all land zoned for open space	Baseline (2021)	N/A
CalEnviro-Screen 4.0	Pesticide use; cleanup sites; groundwater threats; hazardous threats; impaired waters	Baseline (2021)	Census tract
CDC Social Vulnerability Index	Composite index based on 16 U.S. census variables	Baseline (2020)	Census tract

2.3. Flooding

Flooding refers to the temporary inundation of dry land because of excess water in rivers, lakes, and other bodies of water. Flooding potential is influenced by climate trends, local weather, and topography, which includes elevations, latitude, and bodies of water and waterways. Areas that are expected to be vulnerable to inundation during a flood are called floodplains. A floodplain is flat land adjacent to a river, creek, or stream that is subject to periodic inundation and is designated when floodwater exceeds the capacity of the main channel or water escapes the channel through bank erosion. The CVA uses the 100-year floodplain to identify areas that are exposed to flooding.

2.3.1. Exposure

The Federal Emergency Management Agency's, or FEMA Special Flood Hazard Area, or SFHA establishes the area that has flood insurance and floodplain management requirements. An SFHA is defined as the area that will be inundated by the flood event having a 1% chance of being equal to or exceeded in any given year. The one percent (1%) annual chance flood is also referred to as the base flood or 100-year flood. Areas outside the SFHA can be subject to flooding of different types or magnitudes. For example, flooding outside the SFHA may include urban flooding caused by precipitation and flash flooding. Future flooding conditions, from factors such as Sea Level Rise and changes in rainfall, are not included in FEMA's development of floodplain mapping. As such, floodplain maps may underestimate flood risk in many areas in the region. **Table 5** summarizes sources that can provide potential geospatial data to support the identification of these areas.

Table 5: Flooding Exposure Data Source

Source	Indicator Description	Available Time Horizons/Projections	Available Aggregations
Special Flood Hazard Areas	100-year floodplain	Baseline (2021)	N/A
University of California, Irvine (UCI) Flood Study	100-year flood zone current conditions	Baseline (2022)	N/A

2.3.2. Sensitivity

The likelihood of a flood causing harm or damage depends on flood depth and velocity. The deeper and faster flood flows become, the more damage they can cause. Areas with high concentrations of nonporous surfaces, such as pavement or concrete, have limited absorption capabilities. In the absence of vegetation or soil to absorb

floodwaters, liquid moves more quickly over these surfaces, picking up velocity and elevating the risk for potential damage.

Floodwaters produce runoff that can carry debris, pesticides, chemicals, and other pollutants through streets and neighborhoods before being deposited into a body of water. This runoff can introduce bacteria and other harmful substances into drinking water and recreational bodies of water, elevating potential health risks for people who rely on these resources. Communities that exhibit certain social characteristics, such as people living in poverty or overcrowded housing, may be more susceptible to health impacts and financial losses after an extreme precipitation event. These events can also trigger cascading economic impacts, such as if someone that is transit-dependent and has no access to a personal vehicle cannot travel to work or school because of service interruptions. If a person has a flooded home but they have limited disposable income, they may struggle to replace necessities or pay for repairs and remediation for issues such as mold. **Table 6** summarizes sources that can provide potential geospatial data to support the characterization of sensitivity to flooding.

Table 6: Flooding Sensitivity Data Sources

Source	Indicator Description	Available Time Horizons/Projections	Available Aggregations
CalEnviro-Screen 4.0	Pesticide use; cleanup sites; groundwater threats; hazardous threats; impaired waters	Baseline (2021)	Census tract
CDC Social Vulnerability Index	Composite index based on 16 U.S. census variables	Baseline (2020)	Census tract

2.4. Drought

A drought is a period of abnormally dry weather and little precipitation that is long enough to cause water shortages or otherwise affect everyday life. Droughts are naturally occurring phenomena, but they can cause a range of secondary impacts from reduced agricultural productivity to increased wildfire risks and public health and safety issues. Climate and human-made factors influence the severity and geographic extent of a drought. For example, unusually low precipitation over several months or longer can create or worsen a water deficit in affected regions, but so too can a large influx of people to an area with limited water infrastructure or capacity. For the purposes of the CVA, it is assumed all areas are exposed to drought.

2.4.1. Exposure

All areas are exposed to drought hazard events.

2.4.2. Sensitivity

The likelihood of an area, asset, or population experiencing harm because of a drought depends on several factors that are difficult to measure, such as population growth and water efficiency trends. However, areas that are expected to experience more extreme heat events as well as lower precipitation amounts may be more sensitive to the impacts of drought.

Communities that exhibit certain social characteristics, such as limited-income households, may be more susceptible to health impacts and financial losses during a drought because they are unable to access additional water resources. **Table 7** summarizes sources that can provide potential geospatial data to support the identification of these areas.

Table 7: Drought Sensitivity Data Sources

Source	Indicator Description	Available Time Horizons/Projections	Available Aggregations
Cal-Adapt	Annual number of days with maximum temperature exceeding the 98th percentile value of the 30-year average; average annual precipitation	Baseline (1961 to 1990); mid-century (2035 to 2064); end century (2070 to 2099)	County; city; census tract; ZIP code
CDC Social Vulnerability Index	Composite index based on 16 U.S. census variables	Baseline (2020)	Census tract

2.5. Wildfire

A wildfire is any uncontrolled fire occurring on undeveloped land that requires fire suppression. Wildfires can be ignited by natural forces such as lightning or by human activity such as leaving campfires unattended; using mechanical equipment improperly, such as vehicles; burning debris or litter, such as cigarettes; and committing arson. Fires are a natural part of the ecosystem lifecycle, as they can serve beneficially to clear out dying vegetation, restore soil nutrients, and support the reproduction of various species. However, wildfires become a hazard when they threaten people, buildings, and assets. Wildfire smoke presents serious public health risks and can be exacerbated depending on local weather conditions, such as wind speed and direction.

In urbanized areas, such as Los Angeles, the potential for significant damage to life and property exists in areas designated as wildland-urban interface, or WUI, referring to places where the landscape transitions from undeveloped, vegetated areas to developed ones. Within California, the standard for wildfire data is the Fire Hazard Severity Zones, or FHSZ provided by the California Department of Forestry and Fire Protection, also known as CALFIRE. This data considers the impacts of fuel, weather, terrain, and probability of future occurrence. The CVA uses the FHSZ to identify areas that face wildfire risks.

2.5.1. Exposure

Areas in the WUI are more susceptible and have higher exposure to wildfire events. The probability of a wildfire catching and spreading in an area, however, depends on factors such as fuel availability, weather patterns, including wind strength and direction, terrain, and an exposed asset's construction materials, such as brick versus wood. Climate patterns, such as precipitation rates or drought conditions, influence how frequently wildfires may occur and how quickly they spread. Rising temperatures will accelerate the water cycling, leading to faster evaporation of moisture held in soils and vegetation, which serves as fuel for wildfires. These warmer, drier conditions are ideal for wildfires to light and quickly spread. **Table 8** summarizes sources that can provide potential geospatial data to support the identification of these areas.

Table 8: Wildfire Exposure Data Sources

Source	Indicator Description	Available Time Horizons/Projections	Available Aggregations
CalFIRE Fire Hazard Severity Zones	Wildlands classified as Moderate, High, or Very High fire hazard based on fuel loading, slope, weather, terrain, and probability of future occurrence	Baseline (2023)	N/A
CalFIRE Wildland Urban Interface	Wildland intermix and interface areas	Baseline (2020)	N/A
Cal-Adapt	Decadal wildfire probability	Baseline (1961 to 1990); midcentury (2035 to 2064); end century (2070 to 2099)	N/A

2.5.2. Sensitivity

The likelihood of wildfire damage depends on an asset's construction materials. For instance, structures made of wood can ignite and burn, whereas those made of concrete or metal may be fire resistant. Identifying more vulnerable structures can be done if adequate structure data is available.

Population exposure to wildfires can trigger secondary yet serious public health impacts because of smoke. Wind patterns can carry smoke quickly and over long distances, affecting more than just people in a wildfire's path. Wildfire smoke threatens serious and longer-term health impacts. These events can also worsen underlying medical conditions, such as respiratory issues. Children younger than five (5) years of age and people older than 65 years of age may face heightened risks depending on their level of exposure. People who spend significant time outside, such as outdoor workers, face elevated risks to breathing in wildfire smoke and experiencing adverse health impacts. Some people may lack the resources to react or mitigate these impacts. For example, people who are not proficient in English may not understand warning notifications or recommended precautions to avoid wildfire smoke exposure. Additionally, those that do not have health insurance may have difficulties getting medical attention if they are exposed to smoke. **Table 9** summarizes sources that can provide potential geospatial data to support the characterization of sensitivity to wildfires.

Table 9: Wildfire Sensitivity Data Sources

Source	Indicator Description	Available Time Horizons/Projections	Available Aggregations
CalEnviro-Screen 4.0	Ozone; PM2.5; diesel particulate matter; traffic impacts; asthma; cardiovascular disease	Baseline (2021)	Census tract
City of Los Angeles GeoHub — Parcel Data	Construction year and/or building materials	Baseline (2020)	N/A
City of Los Angeles GeoHub — Building Footprints	Construction year and/or building materials	Baseline (2017)	N/A
CDC Social Vulnerability Index	Composite index based on 16 U.S. census variables	Baseline (2020)	Census tract

2.6. Sea Level Rise

Sea level rise is the increase in the ocean's surface height relative to the height of a specific point of adjacent land. There are two types of sea level rise: global and local or relative. Global sea level rise refers to the increase observed in the average global sea level trend. This increase is primarily attributed to changes in ocean volume because of ice melt and thermal expansion of ocean waters. The melting of glaciers and continental ice masses can contribute significant amounts of freshwater input to oceans. In addition, observed increase in global ocean temperature causes an expansion of seawater, increasing ocean volume (NASA 2020).

The rate of global sea level rise has accelerated over the past century, and global mean sea level has risen by eight (8) to nine (9) inches since 1880. In 2021, global sea level set a record high of 3.8 inches above 1993 levels (Lindsey 2022). The National Oceanic and Atmospheric Administration (NOAA) tidal gauge in Los Angeles has shown a trend of 0.04 inches of sea level rise per year from 1975 through 2020 (OEHHA 2022). The CVA will assess sea level rise impacts based on the extent of the 100-year return interval flood scenario.

2.6.1. Exposure

Low-lying coastal areas are exposed to sea level rise. However, sea level rise increases water levels in tidal water bodies, elevating the risk for inland flooding. Sea level rise is affected by local and global trends. Local factors, such as coastal elevations and the presence of local land subsidence, influence on what degree an area is exposed to sea level rise. Global trends, such as climate change, influence how quickly sea levels will rise. Rising temperatures produce several effects that lead to sea level rise, such as melting glaciers and snowpacks, thermal oceanic expansion, and post-glacial rebound. **Table 10** summarizes a source that can provide potential geospatial data to support the identification of these areas.

Table 10: Sea Level Rise Exposure Data Source

Source	Indicator Description	Available Time Horizons/Projections	Available Aggregations
Cal-Adapt	CalFloD2d-TFS (50m) median flood scenarios	Baseline/mid-century (2020 to 2040); late century (2080 to 2100)	N/A

2.6.2. Sensitivity

Sea level rise intensifies the risks that coastal areas face because of flooding and other hazards, such as landslides. The intrusion of saltwater can threaten local ecosystems and habitats, which can lead to cascading economic impacts for coastal

communities dependent on tourism. However, the presence of beach nourishment activities can stem sea level impacts by reversing or reducing erosion trends.

Communities that exhibit certain social characteristics, such as limited-income households, may be more susceptible to health impacts and financial losses because of sea level rise and associated increased flood risks. For example, a person with limited financial resources may be unable to afford mitigation projects to protect their property, or if they rent, they may be limited to what degree they can implement these types of improvements. **Table 11** summarizes sources that can provide potential geospatial data to support the identification of these areas.

Table 11: Sea Level Rise Sensitivity Data Sources

Source	Indicator Description	Available Time Horizons/Projections	Available Aggregations
Our Coast Our Future	CalFloD2d-TFS median shoreline position	Baseline (2019)	N/A
CDC Social Vulnerability Index	Composite index based on 16 U.S. census variables	Baseline (2020)	Census tract

2.7. Secondary Hazards: Vectors and Public Health

This is typically considered a hazard classification but is analyzed as a secondary hazard within the context of heat, drought, wildfire, sea level rise, and flooding. Climate impacts and hazard impacts can generate a wide variety of potential health impacts both within and outside the scope of this study. Vectors refer to organisms that can transfer infectious diseases to other organisms, including humans. Common examples of vectors include mosquitos and ticks, and examples of vector-borne diseases include West Nile virus, Valley fever, Lyme disease, and malaria. Flooding and heat can lead to an increase in standing water and preferable conditions for mosquito reproduction and water-born organisms that cause infectious diseases. There are a multitude of other potential health impacts from climate change that have not yet been fully defined and additional research identifies additional potential impacts regularly. However, common disasters are known to have specific impacts such as wildfire smoke inhalation that can lead to lung damage or repeated lifetime exposure to extreme heat that can lead to kidney damage. Heat can worsen existing medical conditions among vulnerable populations as a primary public health consideration within the CVA. This study is not intended to provide a full inventory of public health risks as they involve medical expertise that goes beyond the scope of a climate vulnerability assessment's focus on vulnerability. A separate study by medical public

health officials and medical professionals would be needed to conduct data analysis of the full scope of public health impacts from climate change.

2.7.1. Exposure

For the purposes of the CVA, all areas are assumed to be exposed to potential vectors. Exposure to health impacts from other hazards will be defined by the exposure evaluation described in prior sections for each respective hazard.

2.7.2. Sensitivity

Extreme Heat can exacerbate existing health conditions and lead to an increase in emergency room visits as noted within Section 2.1 and the corresponding datasets. Vector-borne diseases can produce long-term health impacts and, in some cases, death. People with existing medical conditions may be especially vulnerable to contracting these diseases and enduring the most severe impacts. Similarly, children younger than five (5) years of age and people older than 65 years of age may face heightened risks depending on the type of pathogen and its transmission mode. Some people may lack the resources to mitigate the threat of vector-borne diseases. For example, people who are not proficient in English may not understand warning notifications or precautionary recommendations. Additionally, those that do not have health insurance may have difficulties getting medical attention if they are infected. Unsafe living conditions and overcrowded housing can contribute to the spread of vector-borne diseases. Socio-economic factors could preclude paying for services to address disease sources. **Table 12** summarizes potential geospatial data sources for hazard sensitivity.

Table 12: Vectors Sensitivity Data Sources

Source	Indicator Description	Available Time Horizons/Projections	Available Aggregations
CalEnviro-Screen 4.0	Asthma; cardiovascular disease	Baseline (2021)	Census tract
CDC Social Vulnerability Index	Composite index based on 16 U.S. census variables	Baseline (2020)	Census tract

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Strength Based Community

Appendix C.
Social Vulnerability Analysis

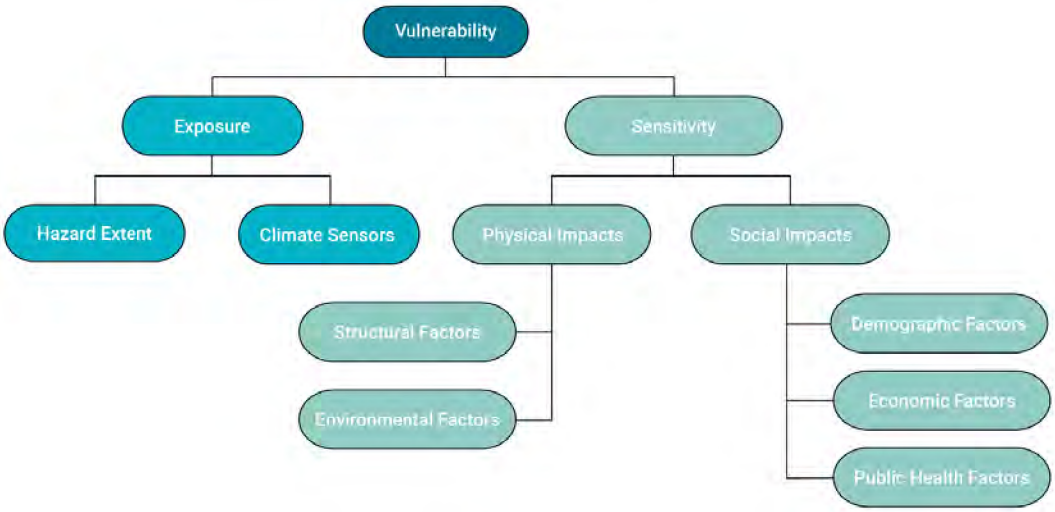
1. Objective

The ability of a community to prepare for, respond to, and recover from climatic impacts is a foundational piece of developing a communitywide Climate Vulnerability Assessment (CVA). The same disaster may affect certain populations and communities at a disproportionately higher rate because of social vulnerabilities. Social vulnerability is not a measure of an individual's weaknesses or inability to adapt, but instead it reflects external factors that are typically beyond an individual's control. These vulnerabilities may include factors such as age, mobility, access to transportation, access to information, educational attainment, etc.

Identifying concentrations of social vulnerability can assist communities in targeting mitigation actions to build resilience. A resilient community requires the entirety of the community to be equipped with the resources and knowledge to withstand current and future climatic conditions and impacts. Reducing social vulnerability can decrease human suffering and economic loss.

Social vulnerability can influence an individual's sensitivity and exposure to the effects of climate change and disaster impacts. Within the CVA's framework, social vulnerability is addressed within the social impacts assessed under sensitivity; see **Figure 1**.

Figure 1: City of Los Angeles Climate Vulnerability Assessment Framework



Throughout the development of the CVA, the City of Los Angeles engaged community organizations and members to effectively identify and address the community's most pressing needs, barriers, and concerns. This participatory approach has facilitated the identification of mitigation strategies that are centered on community interests and explicitly designed to incorporate considerations for socially vulnerable populations.

2. Defining Social Vulnerability

Several definitions exist to define the term "social vulnerability" and capture the stressors that result in disproportionate impacts to communities. During the planning process for the CVA, the project team worked with the City of Los Angeles Department of City Planning to identify the definition that best represents social vulnerability for the community and is consistent with existing City plans and documents.

The project team reviewed the City's Local Hazard Mitigation Plan (LHMP) from 2024, State of California Hazard Mitigation Plan, City of Los Angeles GIS Hub, and other resources to assess how social vulnerability is represented within these resources. The Centers for Disease Control and Prevention's (CDC) definition is used across these resources. The project team presented this information to City Planning and gained consensus to continue using the CDC's social vulnerability definition. The CDC defines social vulnerability as the potential negative effects on communities caused by external stresses on human health. Such stresses include natural or human-caused disasters or disease outbreaks.

In addition to the concept of social vulnerability, several other principles related to equity exist, each with distinct definitions. Recognizing these differences is essential for understanding how each concept interacts with various social dynamics, necessitating tailored approaches for effective intervention. The CVA predominantly encompasses social vulnerability while also acknowledging the significance of incorporating considerations from the additional equity-related concepts outlined below.

Key Terms

Socially Vulnerable Populations: Populations or groups who have access and functional needs, including but not limited to people without vehicles, people with disabilities, older adults, and people with limited English proficiency (CDC n.d.).

Underserved Communities: Populations and geographic communities sharing characteristics that have been systematically denied a full opportunity to participate in aspects of economic, social, or civic life (U.S. presidential Executive Order 13985 2021).

Underrepresented Communities: Populations or groups lacking historical or current representation in decision-making or aspects of economic, social, or civic life. This includes individuals who may not have been captured by the census.

Historically Marginalized Communities: Groups and communities that experience discrimination and exclusion (social, political, and economic) because of unequal power relationships across economic, political, social, and cultural dimensions (National Collaborating Centre for Determinants of Health n.d.).

3. Identifying Social Vulnerability for the City of Los Angeles

Often, populations and communities are categorized based on shared characteristics that create additional barriers to accessing resources leading to increased vulnerability. The intersection of location, ability, age, class, race, ethnicity, nationality, gender, sexuality, spoken language, and economic status compounds the lived experience of people affected by disasters and climatic impacts.

Population figures and percentages provide quantitative data, or measurable data, on who is represented within the community. Qualitative data, describing qualities or characteristics, provides an understanding of why things may be the way they are. Qualitative data was obtained from community input during the CVA's planning process and by reviewing prior outreach efforts, such as those completed for the LHMP. The qualitative data collected provided insight into how the community self-identifies barriers that may contribute to social vulnerability.

Combining the quantitative and qualitative data provides an opportunity to apply a lens of intersectionality to develop a comprehensive assessment of social vulnerability for the City of Los Angeles. Intersectionality is the overlap of characteristics that may contribute to vulnerability. When an individual has multiple barriers, their vulnerability to a disaster or hazard is compounded. For instance, an older adult may be faced with mobility challenges in addition to depending upon a limited or fixed income. In this example, this individual could face physical challenges evacuating and financial challenges with securing transportation or shelter to evacuate.

Within Los Angeles, specific populations and communities were identified that face disproportionately higher vulnerability to climate hazards. These populations include but are not limited to:

- Black, Indigenous, and People of Color (BIPOC)
- Children (under 5 years of age)
- Economically disadvantaged people
- Individuals experiencing sheltered and unsheltered homelessness
- Individuals living in group quarters
- Individuals with disabilities
- Individuals with limited access to transportation
- Individuals with limited English proficiency
- Individuals who rely on electricity-dependent durable medical and assistive equipment (DME)
- Lesbian, gay, bisexual, transgender, queer or questioning, intersex, asexual, and additional identities (LGBTQIA+)
- Older adults (over 65 years of age)
- Outdoor and agriculture workers

For the CVA, information collected through the National Risk Index (NRI), CDC, U.S. Census Bureau, and other sources is used to provide data on vulnerable populations and barriers contributing to social vulnerability. It is important to note that there are multiple resources available to assess social vulnerability and more specific barriers and challenges. The data may be incomplete and not provide a full depiction of the City's population because of multiple factors including distrust of government, immigration status, or other factors.

3.1. Social Vulnerability Indicators

3.1.1. Age

Risk is disproportionately higher for children because of their dependency on others to safely access resources during emergencies and the potential for long-term impacts of trauma experienced during a crisis. During an emergency, children may not be able to avoid hazards or make critical decisions for their safety; this requires them to depend on others. Extended disruptions in education systems during recovery can have lifelong impacts on the developmental capabilities of children (UNICEF 2016). Additionally, children may often experience increased health risks from exposure to hazards. Strategies such as Child-Centered Disaster Risk Reduction prioritize preparing and protecting children by focusing on six sectors where children have the highest vulnerabilities (UNICEF 2016).

Older adults are susceptible to myriad increased risks because of several factors, including health, finances, and mobility. Those living on their own may have more difficulty evacuating their homes, and those living in group quarters, such as senior care and living centers, depend on facility operators executing emergency preparedness measures. Older adults may face greater limitations with driving and therefore require special evacuation plans. They may also have hearing or vision impairments that could make receiving emergency instructions difficult.

3.1.2. Access to Transportation

Individuals with limited or no access to transportation face a higher risk during emergencies because of the challenges of being unable to move out of harm's way. With people remaining in place during emergencies, first responders may be unable to help because of inaccessible roadways or other conditions present during a disaster.

3.1.3. Agricultural and Outdoor Workers

Agricultural and outdoor workers experience heightened vulnerability to climatic hazards because of their occupational exposure to environmental elements, the physically demanding nature of their work, and their limited authority over working conditions. These individuals are at risk of heat-related illnesses, hypothermia, frostbite, prolonged sun exposure, and exposure to poor air quality, among other risks.

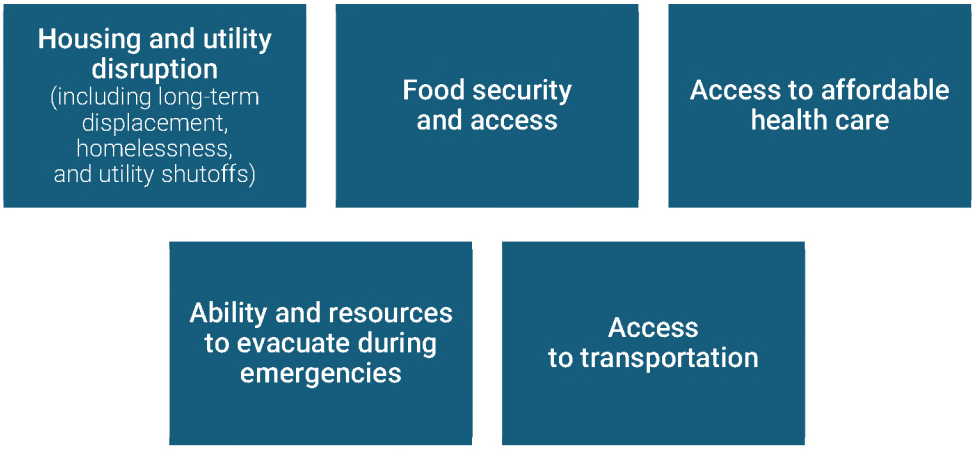
Agricultural workers are at a higher risk of no-notice natural disasters because of their work occurring outdoors, and multiple social factors increase the risk to migrant and seasonal agricultural workers. Language barriers and the lack of communication pose a significant challenge for conveying and disseminating emergency information. In instances in which language is not a barrier, distrust of government and lack of integration into the local community can result in migrant and seasonal agricultural workers being ill-prepared for disasters (Rosenbaum 2018).

3.1.4. Disabilities and Access and Functional Needs

The CDC defines a disability as a "condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions)" (CDC 2020). These impairments may increase the level of difficulty that individuals face during a hazard event. Cognitive impairments may reduce an individual's capacity to receive, process, and respond to emergency information or warnings. Individuals with a physical or sensory disability may face issues of mobility, sight, hearing, or reliance on specialized medical equipment.

3.1.5. Economics

Limited finances pose a barrier to obtaining resources and supplies to prepare for emergencies and disasters. Individuals and households facing financial challenges are likely to evaluate their risk and make decisions based on the major economic impact to their family, including determining whether they have the financial means to safely evacuate, or even the ability to upgrade their home with assets like HVAC systems or insulation. Economically disadvantaged individuals and households may require additional support and resources in the following areas:



3.1.6. English Proficiency

Individuals who are not fluent or do not possess a working proficiency in English may have difficulty understanding information being conveyed to them. Cultural differences can also add complexity to how information is being conveyed to populations with limited English proficiency (CDC 2021). These individuals are Limited English Proficient, meaning they do not speak English as their primary language and have limited ability to speak, write, or understand English. If emergency information, notifications, and warnings are prepared only in English and not translated into other languages, these individuals may face greater risks.

3.1.7. Lesbian, Gay, Bisexual, Transgender, Queer or Questioning, Intersex, Asexual or Ally, and Additional Identities (LGBTQIA+)

Historic discriminatory practices and policies toward LGBTQIA+ communities have lasting impacts on present-day efforts to execute the disaster management process. These communities may be excluded from having safe, affordable housing options and therefore must reside in higher-risk, hazard-prone areas with lower-quality housing options (NAACP 2018). Access to safe and adequate sheltering is also a concern for LGBTQIA+ communities. The NAACP notes that shelters might refuse to accept transgender or gender nonconforming individuals; this may result in these individuals being physically exposed to hazards. In instances in which LGBTQIA+ individuals are admitted into a shelter during an emergency, they may face discrimination leading to additional concerns regarding safety and access to medical services. These considerations will be incorporated into state and local sheltering because of the passage of Senate Bill 990 in 2024. This bill requires the State Office of Emergency Services within the office of the governor to update the State Emergency Plan (SEP) to include proposed policies and best practices for local government and nongovernmental entities to equitably serve lesbian, gay, bisexual, transgender, queer, questioning, and plus (LGBTQ+) communities during an emergency or natural disaster. The bill requires the office to coordinate with specified representatives from LGBTQ+ communities in complying with this requirement and make related findings and declarations.

3.1.8. Individuals Living in Group Quarters

The term “group quarters” refers to people living in communal settings, which can include inmates in a prison, students in a dorm, and older adults or individuals with access and functional needs living in group care facilities. The concentration of multiple individuals within one location compounds the impacts of a disaster should the structure incur damage. In circumstances in which the group quarters house individuals with access and functional needs, residents may require additional assistance with evacuating because of mobility and/or cognitive limitations. It is important to ensure each group quarter facility has its own emergency plan to account for the unique needs of its residents during a hazard event.

3.1.9. Individuals Experiencing Sheltered and Unsheltered Homelessness

Individuals experiencing homelessness may face a higher vulnerability to hazard impacts because of inability to evacuate or find appropriate shelter (Substance Abuse and Mental Health Services Administration 2022). Additional factors may contribute to the vulnerability of this group including an increase in exposure to disease in congregate sheltering, traumatization and mental health challenges, and discrimination at sheltering sites.

3.1.10. Individuals Who Rely on Electricity-dependent Durable Medical and Assistive Equipment (DME)

Severe weather events and other emergencies, particularly those resulting in extended power outages, pose significant risks to individuals dependent on electricity-driven durable medical and assistive equipment (DME) — including ventilators, dialysis machines, and oxygen concentrators. These individuals necessitate a continuous and stable power supply. It is essential to incorporate emergency backup power solutions, alongside the establishment of heating and cooling centers, shelters for inclement weather, evacuation and staging areas, and temporary and long-term shelters, to ensure access to resources and information for this vulnerable population.

3.1.11. Race and Ethnicity

Often BIPOC populations make up frontline communities. Frontline communities are "neighborhoods or populations of people who are directly affected by climate change [and other natural hazards] and inequity in society at higher rates than people who have more power in society. They are on the frontlines of the problem" (NAACP 2018). This poses a greater risk to BIPOC populations as structural and institutional inequities often create additional barriers that prevent these populations from being adequately prepared to withstand and recover from a disaster or emergency. "Decades of underinvestment and unjust systems have left frontline communities with high levels of poverty and pollution, a lack of quality jobs and education opportunities, outdated and weak critical infrastructure, disproportionately high costs for energy, transportation and basic necessities, and limited access to public services" (The Greenlining Institute 2019).

The social, political, and economic history of a community can have lasting impacts that perpetuate the oppression of BIPOC populations in present day. Discriminatory housing policies, such as redlining, can result in vulnerable BIPOC populations residing in hazard-prone areas and/or with housing options that are lower quality and do not provide adequate physical protection against natural hazards (NAACP 2018).

4. Social Vulnerability Analysis

To identify areas within the City with higher indicators of social vulnerability, the project team used the Community Health and Equity Index as a weighting forum. This index uses data on the physical and social aspects of the City of Los Angeles to assess vulnerabilities. Additionally, using the Community Health and Equity Index ensures the social vulnerability analysis for the CVA is consistent and comparable with other planning processes and studies occurring in the City, such as the LHMP.

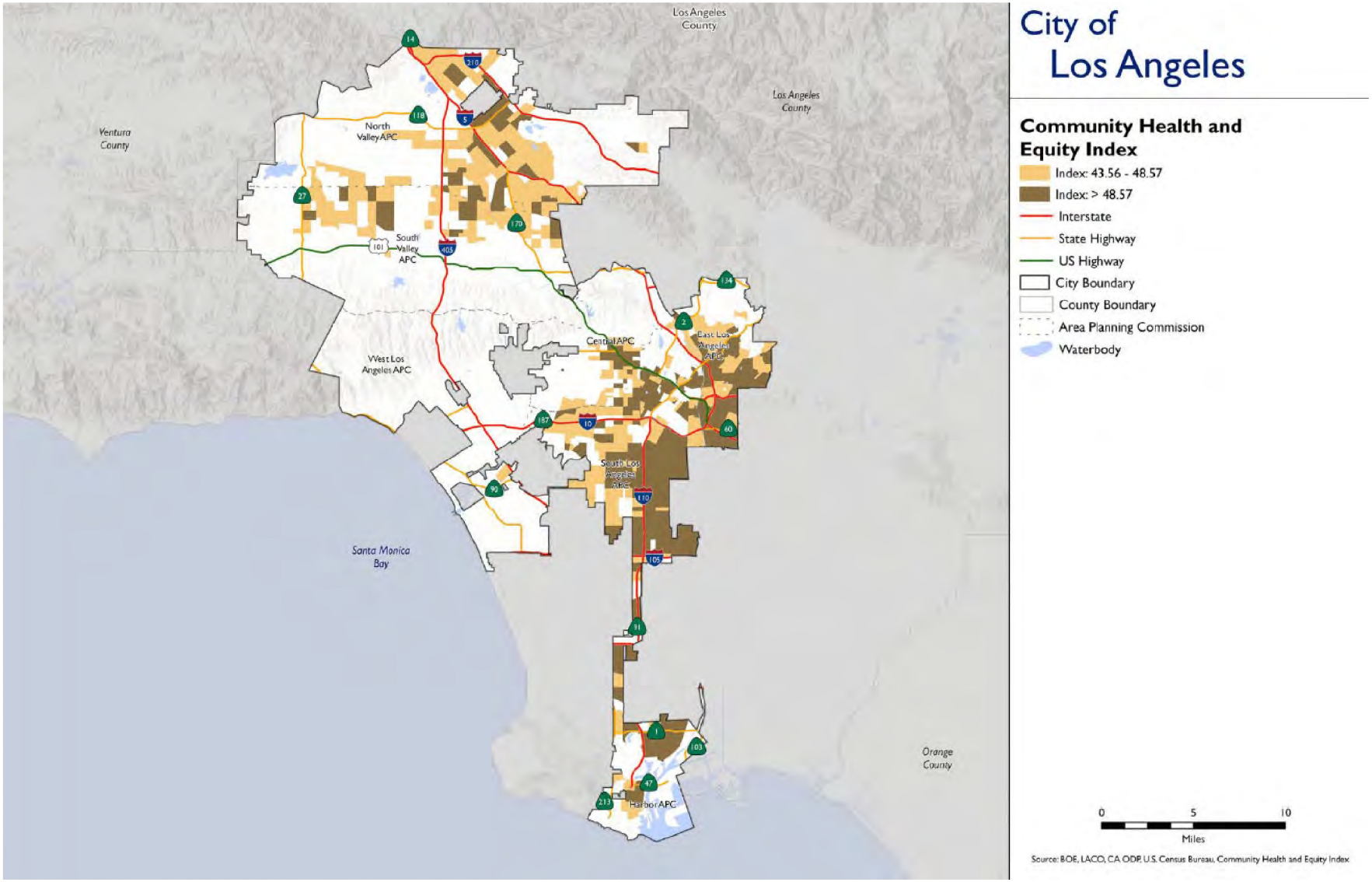
Additionally, the Community Health and Equity Index is a culmination of the data used to develop the City's Health Atlas. The index standardizes the data on a scale of 0 to 100, with lower values indicating better community health and equitable conditions whereas higher values indicate greater vulnerability (Los Angeles City Planning 2021).

The City's Health Atlas incorporates nine categories of factors that provide a quantitative measure of social vulnerability. These categories include demographic and social characteristics, economic conditions, education, health, land use, transportation, food systems, crime, and housing. The information within the Health Atlas informs the assessment of social vulnerability and subsequent public health outcomes as they relate to climate vulnerability. The Health and Equity Index provides data on:

- Hardship Index
- Life Expectancy
- Health Variables (e.g., heart disease mortality, emergency department visits for heart attacks, respiratory disease mortality, diabetes mortality, stroke mortality, childhood obesity, percentage of low-birth-weight infants, number of emergency department visits for asthma for under 17 and 18+ age groups)
- Walkability Index
- Complete Communities Index (e.g., amenities and establishments serving the community)
- Transportation Index
- Modified Retail Food Environment Index
- Crime Rate (e.g., violent crimes, property crimes)
- Pollution Burden (e.g., pollution exposure, environmental effects)

Figure 2 shows the census tracts with the highest index values as of 2021: tracts with values greater than 48.57, representing the highest 20% of all tracts in the City; and those with values of 43.56 to 48.57, representing the next highest 20%. For the CVA, those two categories (combined, the 40% of tracts in the City with the highest index values) are used to represent the City's socially vulnerable communities.

Figure 2: Community Health and Equity Index Values Greater Than 43.56 [1]



[1] City of Los Angeles 2024 Local Hazard Mitigation Plan

Table 1 provides a breakdown of the percentage of the population with higher values in the Community Health and Equity Index broken down by community plan areas.

Table 1: Percent of Population with Higher Community Health and Equity Index Value by Community Plan Area

	Index 43.56 to 48.57		Index Greater than 48.57	
Community Plan Area	**Number**	**% of City Total**	**Number**	**% of City Total**
Arleta - Pacoima	43,424	5.2%	41,113	4.9%
Bel Air - Beverly Crest	0	0.0%	0	0.0%
Boyle Heights	10,655	1.3%	65,623	7.8%
Brentwood - Pacific Palisades	0	0.0%	0	0.0%
Canoga Park - Winnetka - Woodland Hills - West Hills	34,197	4.1%	8,176	1.0%
Central City	375	<0.1%	515	0.1%
Central City North	1,740	0.2%	1,556	0.2%
Chatsworth - Porter Ranch	8,192	1.0%	0	0.0%
Encino - Tarzana	1,220	0.1%	0	0.0%
Granada Hills - Knollwood	21,125	2.5%	0	0.0%
Harbor Gateway	8,853	1.1%	22,193	2.6%
Hollywood	15,394	1.9%	18,511	2.2%
Los Angeles International Airport	0	0.0%	0	0.0%
Mission Hills - Panorama City - North Hills	44,476	5.3%	14,158	1.7%
North Hollywood - Valley Village	37,856	4.6%	7,566	0.9%
Northeast Los Angeles	77,470	9.3%	75,808	9.0%
Northridge	7,034	0.8%	0	0.0%
Palms - Mar Vista - Del Rey	6,077	0.7%	0	0.0%
Port of Los Angeles	0	0.0%	0	0.0%
Reseda - West Van Nuys	41,572	5.0%	20,979	2.5%
San Pedro	25,456	3.1%	14,303	1.7%
Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass	0	0.0%	0	0.0%
Silver Lake - Echo Park - Elysian Valley	11,130	1.3%	8,136	1.0%

	Index 43.56 to 48.57		Index Greater than 48.57	
Community Plan Area	Number	% of City Total	Number	% of City Total
South Los Angeles	114,045	13.7%	148,936	17.6%
Southeast Los Angeles	13,738	1.7%	238,415	28.2%
Sun Valley - La Tuna Canyon	53,010	6.4%	18,108	2.1%
Sunland - Tujunga - Lake View Terrace - Shadow Hills - East La Tuna Canyon	9,715	1.2%	4,896	0.6%
Sylmar	36,127	4.3%	9,826	1.2%
Van Nuys - North Sherman Oaks	31,539	3.8%	12,087	1.4%
Venice	0	0.0%	0	0.0%
West Adams - Baldwin Hills - Leimert	114,672	13.8%	23,693	2.8%
West Los Angeles	0	0.0%	0	0.0%
Westchester - Playa del Rey	0	0.0%	0	0.0%
Westlake	5,221	0.6%	21,242	2.5%
Westwood	0	0.0%	0	0.0%
Wilmington - Harbor City	15,618	1.9%	47,023	5.6%
Wilshire	41,986	5.0%	21,544	2.6%
City of Los Angeles (Total)	**831,919**	**21.5%**	**844,409**	**21.8%**

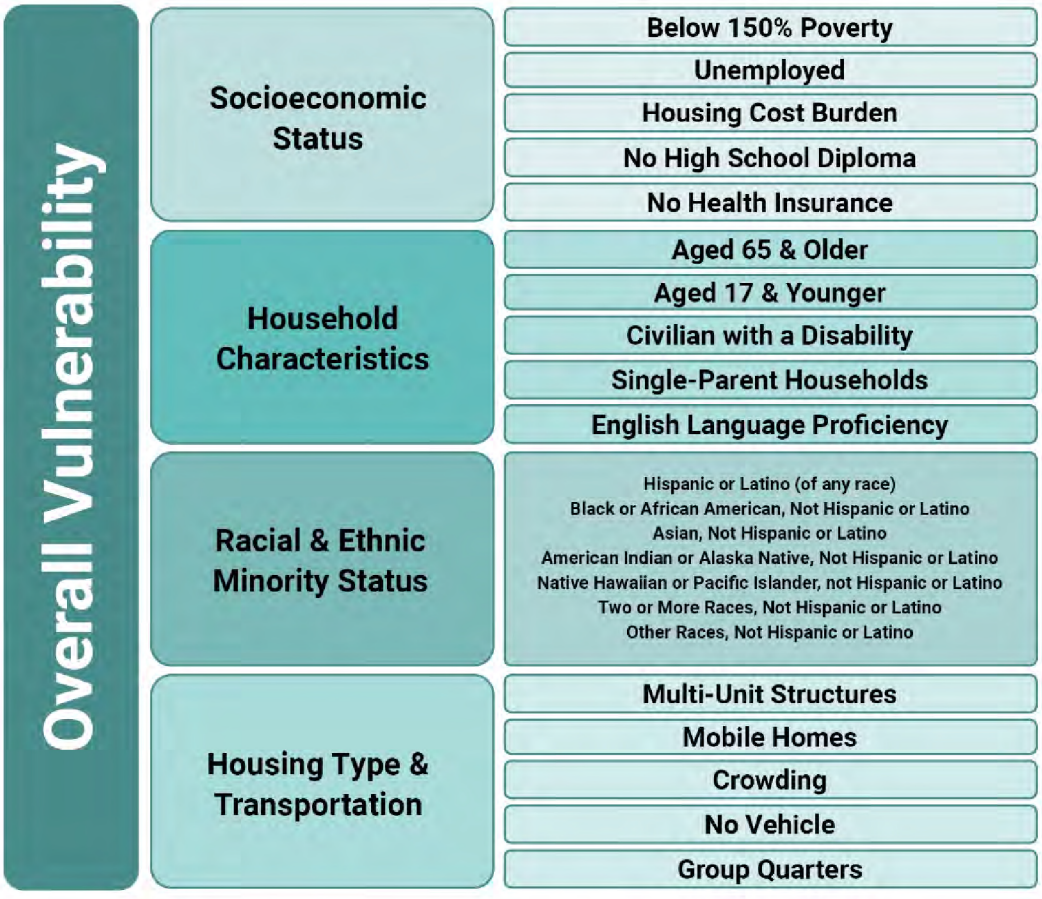
Source: Community Health and Equity Index; City of Los Angeles Department of City Planning 2021
Note: Population totals may over- or underrepresent the population because the numbers do not directly reflect population derived from the decennial census statistics because this information is not available. Population is estimated per CPA jurisdiction based upon the assignment to residential structures.

In addition to data available from the Community Health and Equity Index, the project team also evaluated the potential use of data from the U.S. Census Bureau and the CDC and Agency for Toxic Substances and Disease Registry (ATSDR). The U.S. Census Bureau provides quantitative data for these categories:

- Age (e.g., children under 5, adults over 65)
- Economics (e.g., household income)
- Living Conditions (e.g., group living quarters, homeownership)
- Race and Ethnicity
- English proficiency
- Disabilities
- Access and Functional Needs

The CDC and ATSDR developed a social vulnerability index (SVI) to identify and quantify communities experiencing social vulnerability. The CDC/ATSDR SVI is a combination of 16 social factors that contribute to social vulnerability as shown in **Figure 3**. These social factors are grouped together in four themes to provide an indication of social vulnerability concerning socioeconomic status, household characteristics, racial and ethnic minority status, and housing type and transportation. By combining all factors, a vulnerability index is established. The rankings are based on a percentile ranging from 0 to 1, with higher values indicating greater vulnerability.

Figure 3: CDC/ATSDR SVI Social Factors [2]



[2] CDC/ATSDR 2020

For the social vulnerability analysis, the following datasets were assessed for exposure vulnerability and to identify intersections of geographic areas with higher social vulnerability within mapped hazard areas:

- Population, including specific indicators of social vulnerability to include ages under 5 and over 65, individuals with limited English proficiency, individuals with disabilities, and individuals below the U.S. poverty level.
- City of Los Angeles Health and Equity Index

4.1. Analysis Results

To assess how hazards may be exacerbated by social vulnerabilities, spatial hazard data was intersected with the Community Health and Equity Index. This information was further supported by the lived experiences and qualitative data collected through community engagement and outreach efforts during the development of the CVA. These results provide information regarding what geographic areas in the City may be most susceptible to certain hazards because of pre-existing social vulnerabilities in these areas.

4.1.1. Extreme Heat

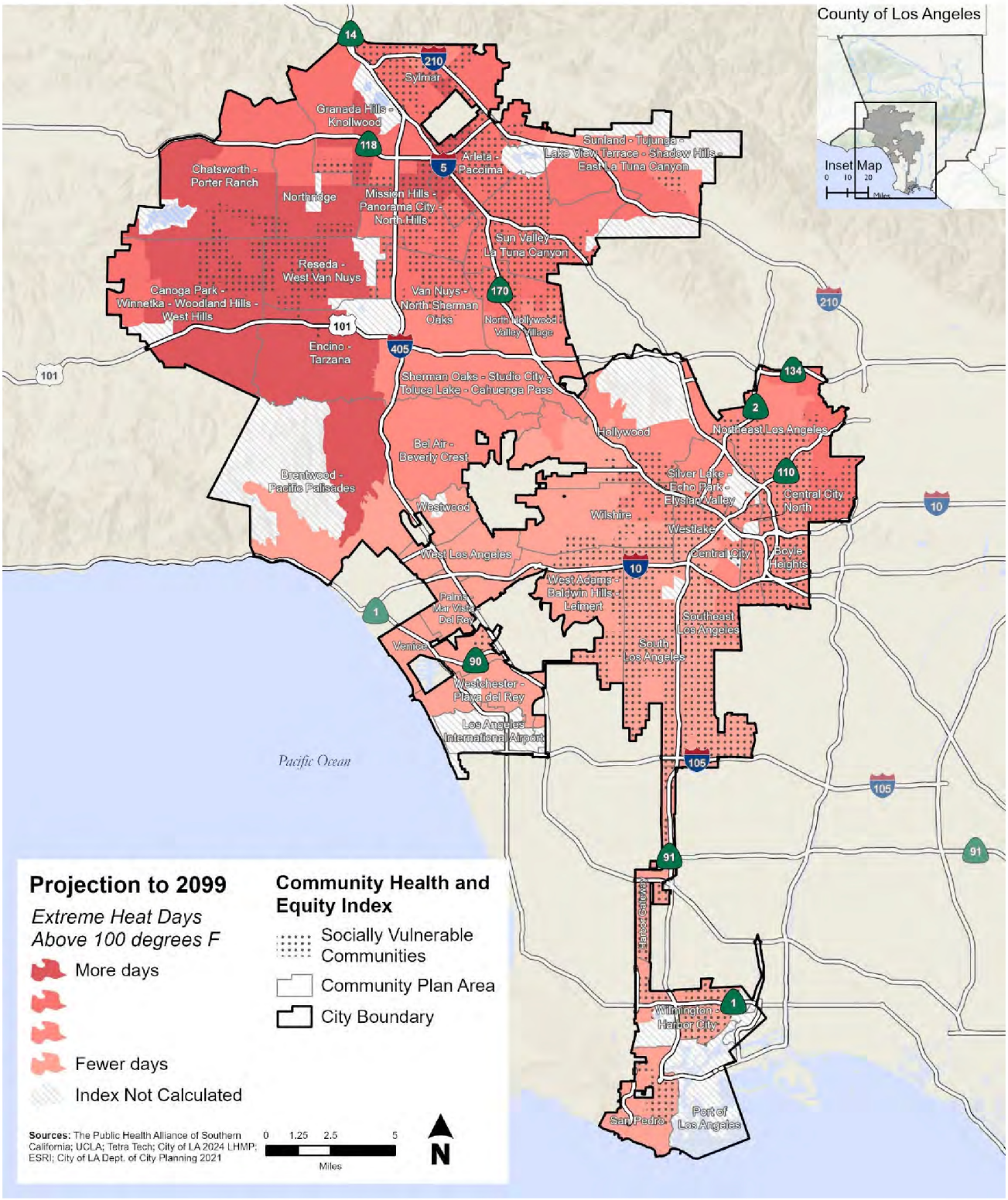
Everyone can be affected by extreme heat, but some people are more vulnerable to harm than others. People with underlying medical conditions may be more sensitive to hotter temperatures because they are unable to regulate their body temperatures by sweating. Households that have limited incomes or live on fixed incomes may not be able to afford purchasing an air conditioner, let alone running it. They may also be less willing to receive medical attention or health care because they cannot afford the out-of-pocket costs.

Bad air quality, particularly when coupled with extreme heat, worsens allergies, creates breathing problems, increases the amount of respiratory issues, and worsens asthma. Vulnerable communities are regularly exposed to harmful chemicals that are known to cause cancer according to local monitoring data. Sometimes these air quality issues affect the indoor air quality as community members open windows when air conditioning is not an option. Poor air quality has a significant negative impact on people's health conditions and contributes to the increase in emergency room visits during extreme heat events.

Others may depend on jobs that require being outside or do not provide paid time off, making them less able to miss work. Additionally, people who rent also tend to live in multifamily buildings, which are typically in more urbanized areas with less green space and more development, have older buildings that are not well insulated, increasing the risk for urban heat islands to form (Pierce, Gabbe and Rosser 2022).

Areas that are exposed to extreme heat also tend to have lower community health scores. In particular, the Community Plan Areas that are expected to experience the highest temperatures and have the lowest community health scores include Northeast Los Angeles, Central City North, and Boyle Heights. See **Figure 4** for additional information.

Figure 4: Socially Vulnerable Population in the Extreme Heat Hazard Area



As everyday temperatures rise, extreme heat events become more likely to occur. Between 1961 and 1990, Los Angeles experienced an average of two extreme heat days. Extreme heat days are days where the maximum daily temperature was at least 95.2 degrees Fahrenheit during any given year. By 2050, there may be between nine and 14 extreme heat days each year. By 2100, extreme heat may rise up to 15 to 30 days annually (Cal-Adapt 2019). In the past, these types of events would last around two days. However, by 2050, the average extreme heat event may last between four and five days, which the City experienced this past summer (Cal-Adapt 2019). By 2100, a typical extreme heat event could span five to eight days. These types of extreme heat days threaten health and well-being. Furthermore, some people and neighborhoods are more vulnerable than others.

Community members provided these responses when asked about extreme heat conditions in their communities:

- "Our community is observing a general trend against green space and towards pavement/removing landscaping, especially in new development like affordable housing projects. We need open and green spaces instead of concrete everywhere, including schools, apartment complexes, and public spaces. At the very least, there should be groundcover/pavement that offsets or deflects heat."
  — Participants at Promesa Boyle Heights, Pacoima Beautiful, and Strength Based Community Change (SBCC) events
- "When turning on the AC during the summer, residents have an increased financial strain due the electricity bills being high."
  — Participants at Rising Communities, Promesa Boyle Heights, Pacoima Beautiful, SBCC, and Strategic Concepts in Organizing and Political Education (SCOPE) LA events

A majority of community survey respondents did not believe there was enough tree coverage in their neighborhoods to provide adequate shade.

4.1.2. Extreme Precipitation and Flooding

Flooding can disrupt daily life by closing roads or transit routes, causing power outages or damage to communication towers, and displacing residents or damaging their property. People who have disabilities or have access and functional needs may have challenges if they need to evacuate or move to a higher place within their home to avoid floodwaters.

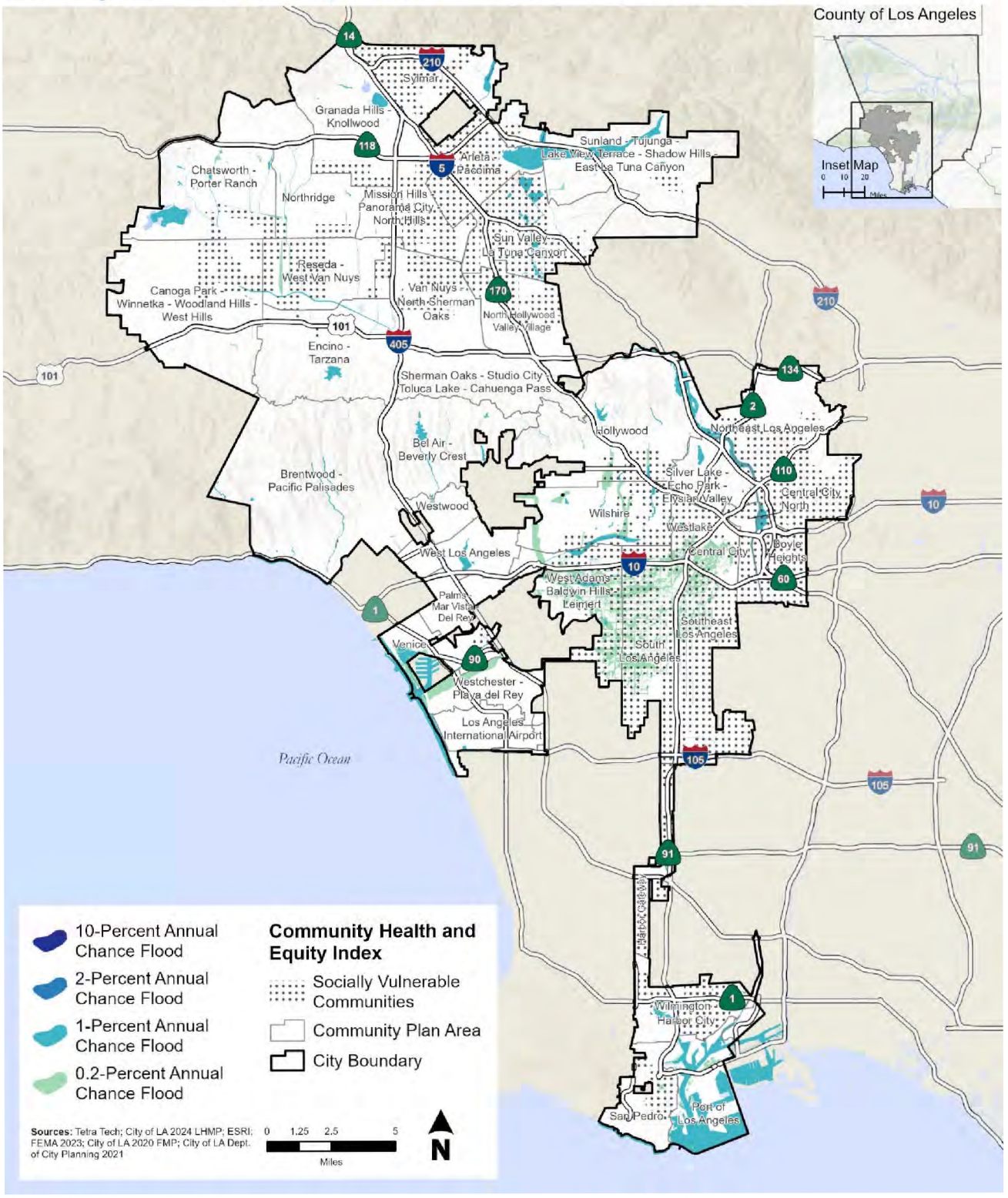
Some flood events can cause significant damage. Just one inch of flooding can cause $26,000 in damage and lead to mold or other health concerns (NLIHC & PAHRC 2021). For some households, repairing this type of damage may be impossible. Even still, people who have limited incomes or do not have a consistent roof over their heads may become displaced, unable to return to where they were staying or to afford temporary shelter, such as a hotel. Moreover, people who rent their home have limited control over improvements to the structure and may have to seek temporary alternative shelter or have to wait for property management or owners to implement repairs.

Areas that are exposed to extreme precipitation and flooding include South Los Angeles and Central City. Other areas with lower community health scores and flood exposure include Wilshire, Westlake, and Sun Valley - La Tuna Canyon. See **Figure 5** for additional information.

Climate change will bring about warmer temperatures. The warmer the air is, the more water it holds. More moisture in the atmosphere means more precipitation. These changes will intensify seasonal patterns. The spring and summer months will receive less precipitation, whereas fall and winter months will receive more. Between 1950 and 2013, Los Angeles County received 2.14 inches of rain between April and September and 14.26 inches from October to March (NOAA 2024). By the late century, the County will receive between 7% and 16% less rainfall during the spring and summer, and 4% to 5% more during the fall and winter (NOAA 2024).

More precipitation during the fall and winter months may seem like a good thing because of the City's reliance on the Eastern Sierra snowpack. However, as temperatures rise, precipitation will fall as rain, rather than snow that can later melt to provide water during the dry season. As winter precipitation shifts from snow to rain, more water will flow into downstream areas and urban centers, making floods more likely to occur. By the late century, the Sierra Nevada will produce 50% more runoff compared with rates recorded between 1996 and 2005 (Huang, et al. 2020).

Figure 5: Socially Vulnerable Population in the Flood Hazard Area



Community members provided these responses when asked about extreme precipitation and flooding in their communities:

- "Our community is covered by cement, so there are few places where water could go and be captured. We should have trees with root systems that can absorb high volumes of rain and that don't raise the sidewalks." — Participant at Promesa Boyle Heights event
- "Water accumulation leads to an increase in mosquitoes." — Participants at Promesa Boyle Heights and SBCC events
- "Increased precipitation damages infrastructure like in our walls, and causes mold." — Participant at SBCC event
- "Sidewalks get flooded and back up storm drains so it is impossible to use the sidewalks. Trash buildup contributes to flooding by blocking the storm drains." — Participants at Promesa Boyle Heights and SBCC events

4.1.3. Drought

Drought can have critical impacts on the lives of community members because of the extensive dependence and uses of water. Water deficiency can have substantial impacts to public health and safety and the environment. Social vulnerabilities can further exacerbate these impacts in communities where individuals have higher health complications that can be worsened by poor air quality and compromised nutritious food resulting from drought conditions (CDC 2020).

Prolonged droughts can also affect the local economy. If water restrictions are put in place, it may limit some businesses, such as landscapers and agricultural workers, from normal operations. For people employed in these industries, they may have to deal with secondary impacts, such as reduced wages or unemployment.

Though spatial data is unavailable to identify areas that are more prone to drought, resources are available to indicate areas in the City that may experience greater impacts. In the City of Los Angeles, about two-thirds of the water supply comes from the Eastern Sierra's snowpack, which produces less snowmelt, or water, when winter temperatures are warmer as a result of droughts. Warming winters make it harder for snow to accumulate. By the late century, the Sierra Nevada snowpack will be between 48% and 65% smaller compared with historical averages (California Department of Water Resources 2022).

Since 2000, Los Angeles has experienced more intense and prolonged droughts. In the future, droughts will occur more often and, when they do happen, will be more prolonged and severe because of a combination of hotter temperatures and changes to seasonal precipitation trends. Warming winters make it harder for snow to accumulate.

These evolving drought conditions will continue to exacerbate the social vulnerabilities present in the community.

Community members provided these responses when asked about drought conditions in their communities:

- "There is a lot of stress and worry with affording basic needs like water. In the summer, there are water limitations. We need more hydration stations. Food prices also go up during a drought." — Participants at Promesa Boyle Heights, SBCC, SCOPE LA, Pacoima Beautiful, and Rising Communities events
- "There are significant water rate changes during a drought and landlords change water pressures, but these impacts are not being felt by wealthier communities and businesses who don't conserve water/take responsibility." — Participants at Promesa Boyle Heights, SBCC, SCOPE, and Rising Communities events
- "During droughts, people can't use water to cool down when it is very hot. There are no splash pads, and there are restrictions on other water sources." — Participant at SBCC event

4.1.4. Wildfire

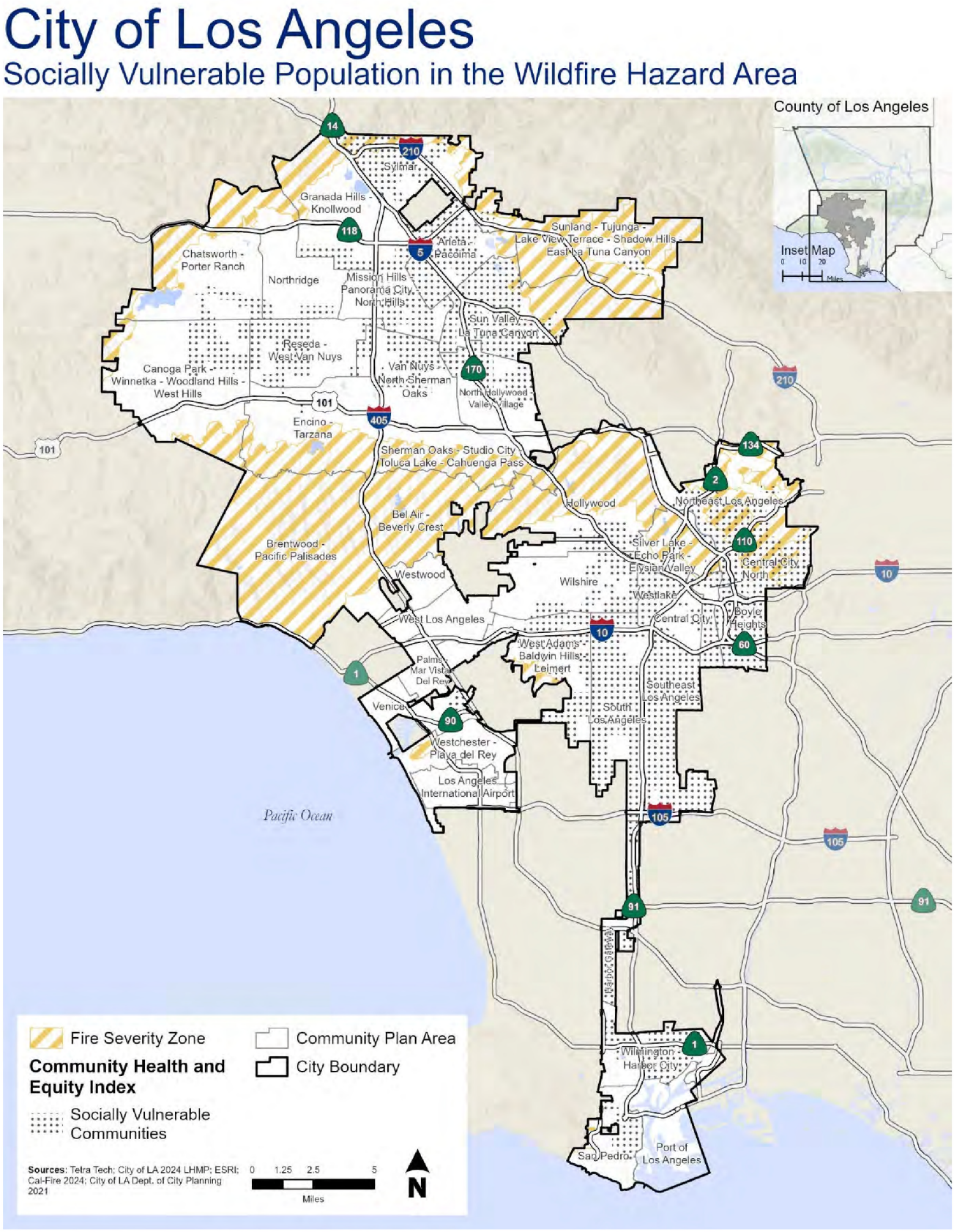
Wildfires can damage homes and businesses, block roads and evacuation routes, cause power outages, interrupt utilities, and lead to public health problems. The loss of homes can result in the displacement of people and, potentially, entire communities. In addition to the risk of damage and/or loss of structures in WUI areas, wildfires and burn areas can result in the release of air pollutants that make health issues worse. Health concerns include poor air quality and reduction in visibility caused by wildfire smoke, toxic waste, and debris in burn areas.

Wildfires can also impact people's livelihoods through the loss of businesses that range from traditional brick and mortar businesses to mobile businesses and services. Business owners, service workers, including food and hospitality workers, domestic service workers including in-home care, childcare and housekeeping services, as well as outdoor workers including landscaping services and street vendors are at risk of being displaced and losing their source of income. The loss of businesses also has several economic impacts that ripple throughout the local economy.

People who have limited incomes or rent may not be able to mitigate their properties to reduce their risk to wildfires, such as through fire-resistant roofs and building materials and landscaping. They may be unable to pay for repairs incurred from these events, especially if they rent their home and have limited control over physical changes to the structure. Recent changes in wildfire scale and severity have also caused all types of housing and property insurance costs to dramatically increase, especially in areas with a higher risk of wildfire. For those with low or fixed incomes, the higher insurance costs are an additional burden and can lead to individuals canceling policies to save money. In some communities with high wildfire risk, insurance companies are no longer offering fire insurance policies. As a result, many people may not have the resources to fully recover from the losses suffered during a wildfire.

Several of the CPAs exposed to wildfire do not exhibit low Community Health and Equity Index scores. However, those that are exposed and exhibit among the highest Community Health and Equity Index scores include Arleta - Pacoima, Sylmar, Silver Lake - Echo Park - Elysian Valley, Northeast Los Angeles, Central City, and Central City North. See **Figure 6** for additional information.

Figure 6: Socially Vulnerable Population in the Wildfire Hazard Area



As temperatures rise, evapotranspiration, when water in the earth, plants, and other surfaces turns into vapor and is absorbed into the atmosphere, accelerates, leading to drier soils and vegetation (Frankson, et al. 2022). In the spring and summer months, when Los Angeles has seen the least precipitation, and expects to see even less in the coming decades, the ideal conditions for wildfires to catch and spread will become more common, increasing community exposure to them.

Community members provided these responses when asked about wildfire conditions in their communities:

- "Community members were significantly concerned with the impact wildfires were believed to have on tribal practices and expressed the need to protect the cultural and ecologic heritage rooted in wildfire-risk land." — FTBMI Tribal Climate Resiliency Plan
- "Wildfires cause air pollution, which contribute to negative health effects." — Participant at SBCC event

4.1.5. Sea Level Rise

The greatest threat of sea level rise is that it could make some areas uninhabitable if they were to become permanently inundated. However, rising sea levels also cause floods and storms to reach farther inland, leading to more damage to buildings and infrastructure and carrying water that may be contaminated with toxins or pollutants into neighborhoods that previously were not exposed.

Low-income individuals are also more likely to be adversely affected because they have fewer financial resources to protect against and support recovery from these hazards (EPA 2021). For people with limited incomes or access to capital, they may be unable to afford the needed repairs or renovations to their homes to prevent these impacts. Renters may face restrictions to make essential repairs or renovations that help mitigate sea level rise exposure and must rely on landlords. Secondary impacts include potential loss of jobs for individuals employed in the coastal tourism and service industries. Additionally, racial and ethnic wealth gaps, which are larger than income gaps and have stronger correlations with property value than income, leave many of these groups more likely to be excluded from protection decisions that consider economic factors (EPA 2021).

Coastal communities are the most vulnerable to sea level rise. With just one meter, or three feet, of sea level rise, Community Plan Areas, such as the Port of Los Angeles, Venice, and Wilmington - Harbor City, will become more exposed to flooding from a 100-year storm. Though the majority of the City's neighborhoods are not expected to be affected by sea level rise, one that will is Wilmington - Harbor City. The Wilmington - Harbor City Community Plan Area exhibits lower community health compared with the rest of the City. See **Figure 7** for additional information.

Los Angeles could experience one foot to 2.6 feet of sea level rise by 2050 and 2.2 to 6.4 feet of sea level rise by 2080 (OEHHA 2022). As sea level rise continues to occur in Los Angeles, coastal flooding, beach erosion, bluff retreat, loss of ecosystems, salinization of soils, ground and surface water, and impeded drainage will increase, threatening lives, property, and critical infrastructure.

Rising sea levels bring about more floodwaters when floods do occur. This in turn means any associated waves and erosion will be more forceful, destructive, and farther reaching. Sea levels rise as the land remains at the same elevation as the current landscape that has been shaped by current sea levels and storm events. Therefore, tides and storm surge will occur on top of a higher sea level and be able to reach farther into coastal areas, especially when big wave storms occur at or near peak high tides. Where rivers and creeks meet the ocean, floodwater created by high precipitation events will meet the ocean at a higher sea level and make flooding worse. Additional study would be needed to understand specific conditions for localized flooding on the coast due to sea level rise.

Sea level rise also risks saltwater intrusion into water supplies and leads to higher groundwater, which can lead to more intense flooding during high tide or intense precipitation.

The assessment focuses on two scenarios: 1 meter (mid-range scenario) and 1.41 meters (extreme potential outcome) of sea level rise.

- **1-Meter Sea Level Rise with 100-year Storm** is the extent of flooding during a 100-year storm if sea levels were to rise by one meter (about 3.2 feet).
- **1.41-Meter Sea Level Rise with 100-year Storm** is the extent of flooding during a 100-year storm if sea levels were to rise by 1.41 meters (about 4.6 feet).

Figure 7: Socially Vulnerable Population in the Sea Level Rise Hazard Area

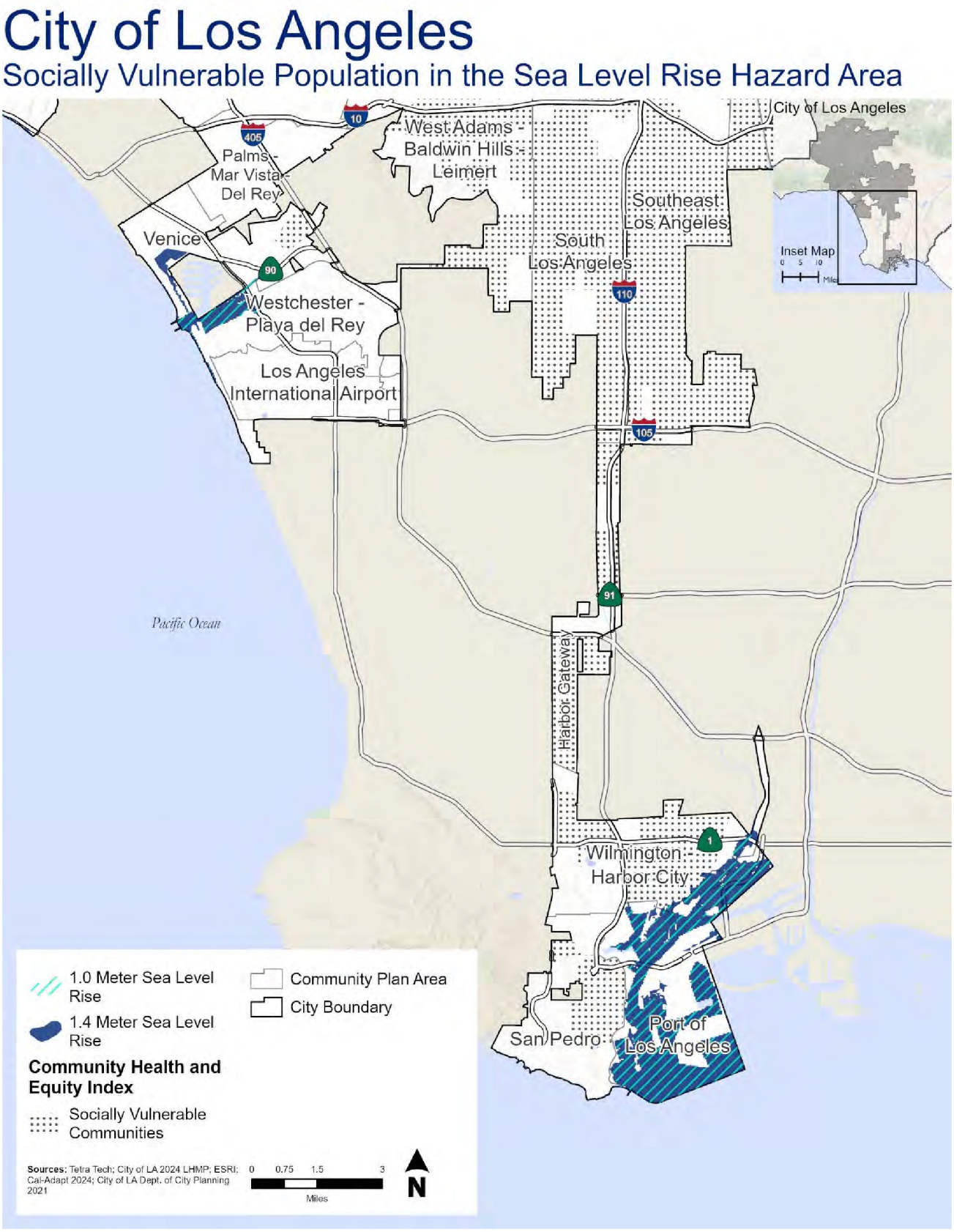


Table 2 and **Table 3** provide a breakdown of the number of individuals living within each respective scenario and also in an area with higher social vulnerability.

Population exposure to sea level rise is rather limited in that under 0.1% of all City residents are exposed. Nonetheless, community members are still concerned about potential impacts.

Community members provided these responses when asked about extreme heat conditions in their communities:

- "Sea level rise will flood coastal neighborhoods and push people inland to create a worse affordable housing shortage and higher prices." — Participant at SBCC event
- "Sea level rise could take away the beaches where we go to play and cool off." — Participant at SBCC event

Table 2: Persons Located Within the Community Health and Equity Index Areas and 1.0-Meter Sea Level Rise Hazard Area

Community Plan Area	Community Health and Equity Index 43.56 to 48.57	% of City Total	Community Health and Equity Index Greater than 48.57	% of City Total
Arleta - Pacoima	0	0.0%	0	0.0%
Bel Air - Beverly Crest	0	0.0%	0	0.0%
Boyle Heights	0	0.0%	0	0.0%
Brentwood - Pacific Palisades	0	0.0%	0	0.0%
Canoga Park - Winnetka - Woodland Hills - West Hills	0	0.0%	0	0.0%
Central City	0	0.0%	0	0.0%
Central City North	0	0.0%	0	0.0%
Chatsworth - Porter Ranch	0	0.0%	0	0.0%
Encino - Tarzana	0	0.0%	0	0.0%
Granada Hills - Knollwood	0	0.0%	0	0.0%
Harbor Gateway	0	0.0%	0	0.0%
Hollywood	0	0.0%	0	0.0%
Los Angeles International Airport	0	0.0%	0	0.0%
Mission Hills - Panorama City - North Hills	0	0.0%	0	0.0%
North Hollywood - Valley Village	0	0.0%	0	0.0%
Northeast Los Angeles	0	0.0%	0	0.0%
Northridge	0	0.0%	0	0.0%
Palms - Mar Vista - Del Rey	0	0.0%	0	0.0%
Port of Los Angeles	0	0.0%	0	0.0%
Reseda - West Van Nuys	0	0.0%	0	0.0%
San Pedro	0	0.0%	0	0.0%
Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass	0	0.0%	0	0.0%
Silver Lake - Echo Park - Elysian Valley	0	0.0%	0	0.0%
South Los Angeles	0	0.0%	0	0.0%
Southeast Los Angeles	0	0.0%	0	0.0%
Sun Valley - La Tuna Canyon	0	0.0%	0	0.0%

Community Plan Area	Community Health and Equity Index 43.56 to 48.57	% of City Total	Community Health and Equity Index Greater than 48.57	% of City Total
Sunland - Tujunga - Lake View Terrace - Shadow Hills - East La Tuna Canyon	0	0.0%	0	0.0%
Sylmar	0	0.0%	0	0.0%
Van Nuys - North Sherman Oaks	0	0.0%	0	0.0%
Venice	0	0.0%	0	0.0%
West Adams - Baldwin Hills - Leimert	0	0.0%	0	0.0%
West Los Angeles	0	0.0%	0	0.0%
Westchester - Playa del Rey	0	0.0%	0	0.0%
Westlake	0	0.0%	0	0.0%
Westwood	0	0.0%	0	0.0%
Wilmington - Harbor City	0	0.0%	0	0.0%
Wilshire	0	0.0%	0	0.0%
City of Los Angeles (Total)	**0**	**0.0%**	**0**	**0.0%**

Table 3: Persons Located Within the Community Health and Equity Index Areas and 1.41-Meter Sea Level Rise Hazard Area

Community Plan Area	Community Health and Equity Index 43.56 to 48.57	% of City Total	Community Health and Equity Index Greater than 48.57	% of City Total
Arleta - Pacoima	0	0.0%	0	0.0%
Bel Air - Beverly Crest	0	0.0%	0	0.0%
Boyle Heights	0	0.0%	0	0.0%
Brentwood - Pacific Palisades	0	0.0%	0	0.0%
Canoga Park - Winnetka - Woodland Hills - West Hills	0	0.0%	0	0.0%
Central City	0	0.0%	0	0.0%
Central City North	0	0.0%	0	0.0%
Chatsworth - Porter Ranch	0	0.0%	0	0.0%

Community Plan Area	Community Health and Equity Index 43.56 to 48.57	% of City Total	Community Health and Equity Index Greater than 48.57	% of City Total
Harbor Gateway	0	0.0%	0	0.0%
Hollywood	0	0.0%	0	0.0%
Los Angeles International Airport	0	0.0%	0	0.0%
Mission Hills - Panorama City - North Hills	0	0.0%	0	0.0%
North Hollywood - Valley Village	0	0.0%	0	0.0%
Northeast Los Angeles	0	0.0%	0	0.0%
Northridge	0	0.0%	0	0.0%
Palms - Mar Vista - Del Rey	0	0.0%	0	0.0%
Port of Los Angeles	0	0.0%	0	0.0%
Reseda - West Van Nuys	0	0.0%	0	0.0%
San Pedro	0	0.0%	0	0.0%
Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass	0	0.0%	0	0.0%
Silver Lake - Echo Park - Elysian Valley	0	0.0%	0	0.0%
South Los Angeles	0	0.0%	0	0.0%
Southeast Los Angeles	0	0.0%	0	0.0%
Sun Valley - La Tuna Canyon	0	0.0%	0	0.0%
Sunland - Tujunga - Lake View Terrace - Shadow Hills - East La Tuna Canyon	0	0.0%	0	0.0%
Sylmar	0	0.0%	0	0.0%
Van Nuys - North Sherman Oaks	0	0.0%	0	0.0%
Venice	0	0.0%	0	0.0%
West Adams - Baldwin Hills - Leimert	0	0.0%	0	0.0%
West Los Angeles	0	0.0%	0	0.0%
Westchester - Playa del Rey	0	0.0%	0	0.0%
Westlake	0	0.0%	0	0.0%
Westwood	0	0.0%	0	0.0%
Wilmington - Harbor City	0	0.0%	190	100.0%
Wilshire	0	0.0%	0	0.0%
City of Los Angeles (Total)	**0**	**0.0%**	**190**	**100.0%**

4.2. Limitations

Exposure assessments and hazard-specific vulnerability evaluations rely on the best available data and methodologies. Uncertainties are inherent in any methodology and arise in part from incomplete scientific knowledge concerning natural hazards and their effects on the built environment. Uncertainties also result from:

1. Approximations and simplifications necessary to conduct such a study
2. Incomplete or dated inventory, demographic, or economic parameter data
3. The unique nature, geographic extent, and severity of each hazard
4. Mitigation measures already used by the participating municipalities
5. The amount of notice residents have to prepare for a specific hazard event
6. Uncertainty of climate change projections

These factors can result in a range of uncertainty. Therefore, potential exposure is approximate. These results do not predict precise results and should be used to understand relative risk. Over the long term, the City and County will collect additional data and update and refine existing inventories to assist in estimating potential exposure.

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Appendix D. Technical Analysis

1. Methodology

The CVA Technical Analysis presents the findings of the physical climate vulnerability assessment by purpose of detailing data used for each of the identified hazard categories and their health impacts and the compounding impacts of social vulnerabilities and issues such as air pollution and wildfire smoke. This technical analysis includes these components:

- Definition of physical vulnerability;
- Parameters used to measure vulnerability;
- An overview of the physical vulnerability by climate hazard assessed;
- Other qualitative or cascading impacts associated with the analysis when appropriate; and
- Mapping that illustrates key findings from this analysis (maps have been relocated to the CVA report and with additional maps of results in Appendix E).

The likelihood that a person, place, or thing can be negatively affected by hazards is called **vulnerability**. What makes something more likely to experience harm depends on internal and external factors. These factors are also called **sensitivity** and **exposure**.

- **Vulnerability** is the likelihood of being harmed.
- **Exposure** is the physical contact or intersection with a threat (such as flooding).
- **Sensitivity** is the capacity to return to daily life or function when conditions change.

A set of specific assumptions around each of these factors were used as part of the analysis.

- **Vulnerability** = (Exposure + Sensitivity) – Adaptive Capacity
- **Exposure** = Physical assets exposed to each hazard of concern (i.e., asset location in proximity to hazard of concern)
- **Sensitivity** = Physical assets affected by hazard of concern (i.e., estimated damages from loss modeling)
- **Adaptive Capacity** = The ability of a city, neighborhood, or individual to mitigate exposure and impacts to physical assets

Every community consists of a network of assets that serve its residents' fundamental needs. For the purposes of this assessment, these assets are called **resilience assets**. When working properly, resilience assets work together to enable all other aspects of society to function.

- **Resilience assets** are the services, capabilities, and physical assets used every day to support a community's ongoing fundamental needs and can absorb disturbances while adapting to stress and change.

The assessment organizes resilience assets into specific categories aligned with the Community Lifelines framework developed by the Federal Emergency Management Agency (FEMA). This framework emphasizes vital community functions crucial for human health and safety as well as economic stability. Categorizing resilience assets in this manner allows for a thorough evaluation that considers the interconnected nature of these assets.

- **Communications** includes assets that allow people to exchange information with each other.
    - **Examples:** Communication towers, responder communications, alerts, warnings, and messaging systems, finance, and 911 and dispatch services.
- **Energy** includes assets that power homes, businesses, hospitals, and other essential services.
    - **Examples:** Power grids and fuel supplies.
- **Food, hydration, shelter** includes assets that provide for basic human needs.
    - **Examples:** Food and water suppliers, shelter locations, and agriculture.
- **Hazardous material** includes assets that protect people from environmental risks through safe handling and disposal of potentially harmful substances.
    - **Examples:** Hazardous materials facilities, HAZMAT, pollutant, and contaminant control.
- **Health and medical** includes assets that take care of community well-being through disease prevention and emergency response.
    - **Examples:** Medical care, public health, patient movement, medical supply chain, and fatality management.
- **Safety and security** includes assets that protect communities and the things people care about from potential harm or damage.
    - **Examples:** Law enforcement, security, fire services, search and rescue services, government services, and community safety (including dams).
- **Transportation** includes assets that allow people to move throughout a city to access jobs, education, health care, and other everyday activities.
    - **Examples:** Highway, roadway, and motor vehicle networks; mass transit; railways; aviation; and maritime facilities.

The full list of categories is listed in the next section of this analysis document.

The project team used data analyses, local knowledge, and existing reports as a starting point for this vulnerability analysis. This analysis uses the outcomes from the literature review and data gap analysis performed during the early stages of the CVA to establish a foundation of known hazards and impacts throughout the region. Within the Risk Assessment, a quantitative geographic information system (GIS), or mapping, analysis was completed through an online mapping tool that was used by community-based organizations (CBOs) during the engagement process. The data within this analysis document supplemented the lived experiences and knowledge of local leaders and community members. Through development of the City of Los Angeles 2024 Local Hazard Mitigation Plan (LHMP), the community was surveyed to identify the hazards that pose the greatest risk to the region. The survey responses established the hazards profiled in the vulnerability assessment and the analysis of impacts on the identified sectors. The following sections describe the data that was used within this CVA and the outcomes of the technical analysis of physical hazards and vulnerabilities.

1.1. Asset Inventories

For the vulnerability assessment, the following types of assets were assessed for exposure vulnerability: population, buildings, resilience assets, and the environment. Some assets might be more vulnerable because of their physical characteristics and socioeconomic uses.

1.1.1. Buildings

The General Building Stock that was recently developed for the LHMP was incorporated into this assessment, considering that it is the best available data. This inventory represents all the structures within Los Angeles, and they have been assigned structure-specific occupancy classes, based on the source data available at the time of development.

1.1.2. Resilience Assets

Critical facility and community lifelines datasets compiled for the LHMP were used to identify a baseline for critical resources and assets for the community. These were refined into a list of facilities for the CVA to inventory those that people use to mitigate climate impacts or rely on during a climate event. That list of assets and resources served as the “resilience assets” for this CVA and are considered the best available data. This inventory represented all the resilience assets structures within Los Angeles.

Resilience assets included these categories:

- 911 and dispatch
- Agriculture and food facilities
- Airports
- AM and PM radio towers
- Banks
- Behavioral health facilities
- Bus stations
- Cellular towers
- Communication towers
- Cooling centers
- Cool spots (including recreational centers)
- Correctional facilities
- County fueling stations
- Dams
- Electrical substations
- Emergency Operations Centers
- Ferry terminals
- Fire support, services and stations
- Food assistance services
- Government services
- Hazardous materials facilities
- Heliports
- Highway bridges
- Highway, roadway, or motor vehicle facilities
- Hospitals
- Medical centers
- Human services facilities
- Law enforcement and security
- Light rail and rail bridges and stations
- Long-term care facilities
- Maritime
- Natural gas processing plants
- Oil and gas facilities and wells
- Pharmacies
- Potable water facilities
- Power plants
- Educational facilities
- Public works
- Red Cross office
- School administrative office
- Search and Rescue
- Shelter
- TRI facilities
- Wastewater management

1.1.3. Environment

Relevant environmental datasets identified during the literature and data review at the beginning of the process were integrated into the CVA, specifically for the extreme heat and flood hazards. Examples of environmental datasets for the purpose of the CVA were spatial data such as tree canopy layers from the City of Los Angeles' Recreation and Parks and Street Services and open space land use data from the City of Los Angeles. Not all hazards and climate impacts have the same relationships with each type of environmental dataset, so they were used when relevant to a particular impact.

1.2. Analysis Methodology

The accepted scenario models that form the basis of most data are the Representative Concentration Pathways (RCPs) that were formally adopted by the Intergovernmental

Panel on Climate Change (IPCC). RCPs are climate change scenarios based on projected greenhouse gas concentrations considered possible depending on the amount of greenhouse gases (GHG) emitted. The four RCPs — originally RCP 2.6, RCP 4.5, RCP 6, and RCP 8.5 — are labeled after a possible range of radiative forcing values, or the amount of solar energy that hits the Earth's surface, in the year 2100. The distinctive number for each scenario describes the quantity of expected solar irradiance, or the amount of the sun's energy that reaches the Earth's surface, in terms of watts per meter squared, represented as 4.5 W/m2 for RCP 4.5 and 8.5 W/m2 for RCP 8.5, for example. Current best practices used by Cal-Adapt focus on use of only the RCP 4.5 and RCP 8.5 scenarios in the available data. RCP 4.5 is viewed as the most likely moderate future scenario, and RCP 8.5 is viewed as a less likely but possible high emissions scenario. To be best prepared for the future, this methodology used RCP 8.5 to account for a potential likely outcome in which actual future climate impacts that unfold over time might range between the RCP 4.5 moderate emissions scenario and RCP 8.5 high emissions scenario by 2100.

1.2.1. Extreme Heat

Extreme heat data from Cal-Adapt was used for this analysis to understand the assets within the region that are susceptible to impacts from the extreme heat hazard. The extreme heat hazard data includes the RCP 8.5 high emissions scenario. In this scenario, everyday temperatures will rise and extreme heat events become more likely. From 1961 to 1990, Los Angeles experienced an average of two extreme heat days. By 2050, there may be nine to 14 extreme heat days each year. By 2100, RCP 4.5 and 8.5 projections indicate it may rise to 15 to 30 days annually (Cal-Adapt 2019). In the past, these types of events would last around two days. By 2050, the average extreme heat event may last four to five days (Cal-Adapt 2019). By 2100, a typical extreme heat event could span five to eight days. California's Fourth Climate Change Assessment notes that heat waves lead to dry conditions and drought that increase wildfire risk, as noted in the hazard sections that follow. Typically, the Los Angeles area experiences a rainy season and monsoons that lead to vegetative growth followed by seasonally dry conditions. When heat and drought lead to those dry conditions, the increased vegetation dries out and becomes fuel for wildfires.

To determine the assets at risk, the structure inventory and resilience assets were overlaid with the hazard area spatial boundary. Structure inventory and resilience assets that intersect with the extreme heat hazard area were totaled to estimate the number of buildings and infrastructure in the projected extreme heat hazard area. UCLA ER visit data documents heat-related public health outcomes and were used to add context for the Cal-Adapt data and resilience assets.

To estimate the total population and vulnerable population, the extreme heat hazard area was used to extract the area of each Community Plan Area (CPA) in Los Angeles in the extreme heat hazard area. The population susceptible to extreme heat was calculated for each CPA by obtaining the percentage of total land area in

the extreme heat hazard area from each CPA multiplied against the city's total population and vulnerable population types. CPA boundaries were used to aggregate results because of higher spatial resolution of the dataset compared with the neighborhood boundaries.

1.2.2. Extreme Precipitation and Flooding

Flood projections tend to describe an increase in the frequency of heavy precipitation events but do not include changes in flood maps. For example, the 100-year flood zone would still be the same geographic area, but the probability of that level of flooding would increase as heavy rainfall events become more frequent. Therefore, analysis of flooding was primarily discussed through text descriptions and charts regarding the expected changes in flood and precipitation. RCP 8.5, which represents a high emissions scenario where greenhouse gas emissions continue to rise throughout the 21st century, indicates the most extreme potential impacts of climate change on precipitation patterns according to Cal-Adapt's climate models. Essentially, it shows how precipitation might change under a worst-case scenario of continued high emissions. RCP 8.5 is considered the "business as usual" scenario, where greenhouse gas emissions continue to rise significantly throughout the century. Under RCP 8.5, Cal-Adapt models may project changes like increased intensity of extreme precipitation events, altered precipitation patterns, and potential shifts in precipitation seasons depending on the region.

Per the University of California, Irvine (UCI), the flood model data that was created by its team models current flooding conditions and does not include forecasts, but that data was added within the Technical Analysis. This high-resolution flood modeling platform can assess risk every 10 feet across the 2,700-square-mile expanse of the greater Los Angeles basin and provides additional detail beyond the current FEMA datasets. This data was used in combination with FEMA data to assess flooding risk for the 100-year flood zone. However, the structure of the model has not been developed as a tool for projections for RCP 4.5 and 8.5. In summary, an authoritative projected flood risk hazard spatial layer from FEMA was provided within future analyses to support mitigation strategies within the final report.

From 1950 to 2013, Los Angeles County received 2.14 inches of rain from April to September and 14.26 inches from October to March (National Oceanic and Atmospheric Administration [NOAA] 2024). The forecasts for 2100 indicate Los Angeles County will receive 7% to 16% less rainfall during the spring and summer and 4% to 5% more during the fall and winter (NOAA 2024).

According to California's Fourth Climate Change Assessment, rainfall on burn areas typically increases the amount of floodwaters, loss of sediment, landslides, and debris flow. Therefore, projected variability in precipitation will lead to increases in vegetation growth. Seasonal dry conditions dry out the increased vegetation that grew during prior years, leading to increased wildfire risk as the vegetation becomes fuel. Wildfires

create burn areas that lead to increased flooding during extreme precipitation events. This cycle has been a part of the Los Angeles climate, but climate assessments indicate that increasing variability can lead to more unpredictable conditions.

1.2.3. Wildfire

Wildfire data available from Cal-Adapt was used for this analysis to understand the assets within the region that are susceptible to impacts from the wildfire hazard. The wildfire hazard data includes the precipitation RCP 8.5 high emissions scenario. Per the explanation of wildfire data and modeling on the Cal-Adapt website, wildfire scenario projections used a statistical model based on historical data of climate, vegetation, population density, and fire history coupled with regionally downscaled climate projections. The Cal-Adapt modeled data is available for four global climate models using scenarios RCP 4.5 and 8.5, and three population growth conditions (high, low, and business as usual) using California Department of Finance (DOF) projections of county-level population growth. Under this modeling framework, the maximum area burned statewide would increase 178% by the end of the century under the RCP 8.5 scenario, and extreme wildfires (i.e., fires larger than 24,710 acres) would occur 50% more frequently (Statewide Summary Report, California's Fourth Climate Change Assessment, Page 29). According to California's regional report for the Los Angeles region as part of this assessment, overall burned area is projected to increase over 60% for Santa Ana-based fires and over 75% for non-Santa Ana fires (Los Angeles Region, California's Fourth Climate Change Assessment, Page 18). Localized projections and models for wildfire are not included because of the unpredictable nature of wildfire occurrence and would be influenced by the trends in heat and precipitation covered in other sections. What existing data and models demonstrate is that as temperatures rise, evapotranspiration accelerates. This means the water in the earth, plants, and other surfaces turns into vapor and is absorbed into the atmosphere. This leads to drier soils and vegetation in a landscape more prone to wildfire (Frankson, et al. 2022). The spring and summer months are when Los Angeles has the least precipitation, and forecasts predict even less in the coming decades. The ideal conditions for wildfires to catch and spread will become more common throughout the year.

To determine the assets at risk, the structure inventory and resilience assets were overlaid with the hazard area spatial boundary. Structure inventory and resilience assets that intersect with the wildfire hazard area were totaled to estimate the number of buildings and infrastructure in the projected wildfire hazard area.

To estimate the total population and vulnerable population, the wildfire hazard area was used to extract the area of each CPA in Los Angeles in the wildfire hazard area. The population susceptible to wildfire was calculated by obtaining the percentage of total land area in the wildfire hazard area for each CPA multiplied against the city's total population and vulnerable population types. The CPA boundaries were used to aggregate results because of higher spatial resolution of the dataset compared with

the neighborhood boundaries. Inventory data included identifying attributes that provide the CPA and neighborhood wildfire hazard designations for use by the city.

Wildfire projections tend to describe an increase in the frequency and intensity of events but do not include changes in wildfire maps because of their connection to topographical features and types of vegetation. Therefore, analysis of wildfire was primarily discussed through existing modeling of wildfire risk from Cal-Adapt based on datasets maintained by Cal-Fire. The Cal-Adapt data is the authoritative projected wildfire risk hazard spatial layer and was analyzed to support mitigation strategies within the final report and complemented with text descriptions of expected impacts from climate change. Since there is no reliable spatial data to display the direct public health impacts from wildfire in the Los Angeles area, analysis was discussed in narrative form the cascading impacts of wildfire on public health.

1.2.4. Sea Level Rise

Sea level rise data from Cal-Adapt is being recommended for this analysis to understand the assets within the region that are susceptible to impacts from the sea level rise hazard. Two scenarios were included in this analysis, and the scenarios available from Cal-Adapt are: 0.0 meters, 0.5 meters, 1.0 meters, and 1.41 meters. Based on these scenarios, Los Angeles could experience one foot to 2.6 feet of sea level rise by 2050 and 2.2 feet to 6.4 feet of sea level rise by 2080 (California Office of Environmental Health Hazard Assessment [OEHHA] 2022). To determine the assets at risk, the structure inventory and resilience assets were overlaid with the hazard area spatial boundary. Structure inventory and resilience assets that intersect with the sea level rise hazard area were totaled to estimate the number of buildings and infrastructure in the projected sea level rise hazard area.

To estimate the total population and vulnerable population, the sea level rise hazard area was used to extract the area of each CPA in Los Angeles in the extreme sea level rise hazard area. The population susceptible to sea level rise was calculated by CPA. The percentage of total land area in the sea level rise hazard was compared against the corresponding population and vulnerable population types for each CPA. This analysis included comparing land uses and areas vulnerable to sea level rise. FEMA Hazus modeling was run for the two determined scenarios as a coastal flood model. The FEMA Hazus program estimates losses to the community's building stock, resilience assets, transportation systems, and utility systems based on physical damage. Social losses, such as casualties and shelter requirements, were also estimated. The CPA boundaries were used to aggregate results because of higher spatial resolution of the dataset compared with the neighborhood boundaries. During this analysis, sea level rise was reviewed and discussed with the City staff to determine whether data could be feasibly and legibly displayed by census tract.

1.3. Data Source Summary

The full detailed list of data sources is in CVA report Appendix B. **Table 1** provides an overview of the GIS data used for mapping outputs as part of this technical analysis.

Table 1: GIS Data Used for Mapping

Data	Source	Date	Format
Population Data	U.S. Census Bureau; City of Los Angeles Department of City Planning	2020, 2021	Tabular format; Digital (GIS) format
Socially Vulnerable Population	Health Atlas index maps	2021	Digital (GIS) format
General Building Stock	Los Angeles City Planning; California Governor's Office of Emergency Services (Cal OES); RSMeans	2022, 2023	Digital (GIS) format
Resilience Assets	City of Los Angeles; City of Los Angeles Department of Emergency Management; County of Los Angeles; Los Angeles Unified School District (LAUSD); California Department of Public Health; California Open Data Portal; California Energy Commission; Cal OES; OpenStreetMap	2023	Digital (GIS) format
Sea Level Rise	Cal-Adapt	2024	Digital (GIS) format
Extreme Heat	Cal-Adapt	2024	Digital (GIS) format
	UCLA ER Visits	2024	
Extreme Precipitation and Flooding	FEMA	2024	Digital (GIS) format
	UCI Flood Study	2022	
Wildfire	Cal-Adapt/CAL FIRE	2024	Digital (GIS) format

1.3.1. Limitations

Loss estimates, exposure assessments, and hazard-specific vulnerability evaluations rely on the best available data and methodologies. Uncertainties are inherent in any loss estimation methodology and arise in part from incomplete scientific knowledge concerning natural hazards and their effects on the built environment. Uncertainties also result from:

1. Approximations and simplifications necessary to conduct such a study
2. Incomplete or dated inventory, demographic, or economic parameter data
3. The unique nature, geographic extent, and severity of each hazard
4. Mitigation measures already used by the participating municipalities
5. The amount of notice residents have to prepare for a specific hazard event
6. Uncertainty of climate change projections

These factors can result in a range of uncertainty in loss estimates, possibly by a factor of two or more. Therefore, potential exposure and loss estimates were approximate. These results do not predict precise results and should be used to understand relative risk. Over the long term, the City and County will collect additional data and update and refine existing inventories to assist in estimating potential losses.

Potential economic loss is based on the present value of the General Building Stock using the best available data. The project team acknowledges that significant impacts might occur to critical facilities and infrastructure as a result of these hazard events, including great economic loss. However, monetized damage estimates to critical facilities and infrastructure and economic impacts were not quantified and require more detailed loss analyses. In addition, economic impacts to industries such as tourism and the real estate market were not analyzed.

2. Technical Analysis Results

As temperatures continue to rise, changes to the water cycle and other environmental conditions, such as soil moisture, are triggered. These incremental changes build up and alter the climate that people are accustomed to. In many instances, these changes lead to conditions that people are not prepared for based on how everything has been done in the past. Future conditions will affect every aspect of everyday life, including the way the City considers building, power generation, commuting options, and greening opportunities.

To assess risk, a community must systematically evaluate the assets that are exposed and susceptible to damage within the designated hazard area. The subsequent section conducts an analysis and quantifies the potential impact of the identified hazards on the City of Los Angeles. Maps to support the findings are in Appendix E.

2.1. Extreme Heat

Extreme heat is at least two to three days with temperatures and humidity levels that exceed seasonal averages. For this assessment, an extreme heat event is any day when the maximum air temperatures exceed 95.2 degrees Fahrenheit, which is hotter than 98% of daily maximum temperatures recorded from 1961 to 1990 (Cal-Adapt 2019).

Major cities across the United States, including Los Angeles, are experiencing more frequent, prolonged, and intense extreme heat events (Environmental Protection Agency [EPA] 2022). Heat waves longer than six days were not observed until 1956, when the first six-day heat wave was recorded. Heat waves began to regularly occur in the 1970s (Tamrazian, et al. 2008).

Urban areas, such as Los Angeles, are more likely to experience extreme heat events because of the **urban heat island effect**. The urban heat island effect is when densely developed areas with more buildings and paved roads and fewer green spaces are hotter than surrounding rural or suburban areas. This happens because the materials used to build homes, roads, and other developments such as concrete, asphalt, and glass, absorb and trap more heat. Natural landscapes such as grass, trees, and native vegetation tend to not absorb as much heat. This heat is then slowly released over time, making it feel much hotter than surrounding areas.

Extreme heat typically does not affect buildings directly; however, elevated summer temperatures can lead to increased energy demands for cooling systems. This rise in demand may result in inefficiencies or losses associated with overheating in heating, ventilation, and air conditioning (HVAC) systems.

Extreme heat events may lead to temporary utility failures, commonly known as brownouts, as a result of heightened demand from air conditioning units and other energy-intensive appliances. This situation can hinder resilience assets in carrying out their essential operations. To ensure continuity of operations during such hazardous events, it is advisable for critical facilities and infrastructure to have backup power systems in place.

As land uses change and development occurs, the risk posed by extreme heat may increase. The resilience of new development can be enhanced through updated land use practices to preserve green spaces that help lower surface temperatures during extreme heat conditions. Continued urbanization is likely to intensify the urban heat island effect, which exacerbates elevated temperatures and may amplify the adverse effects of extreme heat.

2.2. Extreme Precipitation and Flooding

Extreme precipitation refers to heavy rainfall in a short period. In urban areas, buildings, highways, and other paved surfaces reduce the ground's ability to absorb rainfall, causing more water to enter the storm drainage system. This is known as

storm water runoff. When precipitation falls faster than it can be absorbed by the ground or drainage systems, it results in **flooding**. Flooding is the temporary overflow of excess water from rainfall or waterbodies onto typically dry land. For this assessment, an extreme precipitation event is any two-day period that records at least 1.38 inches of precipitation. That type of rainfall event is greater than 95% of totals recorded during two-day precipitation events from 1961 to 1990 (Cal-Adapt 2019).

All structures within Los Angeles are exposed to extreme precipitation; structures within the FEMA Special Flood Hazard Area (SFHA), or floodplain, are at a higher risk of flooding. Potential damages from extreme precipitation and flooding include structural repair and content replacement costs.

In areas that are directly affected by flooding, renovations of commercial and industrial buildings may be necessary, disrupting associated services. This could result in the loss of facility use for resilience assets. Debris management may also be a large expense after a flood event.

The majority of Los Angeles is not at risk of flooding; however, some areas, such as coastal communities and those containing rivers, lakes, and other waterbodies, face more exposure. CPAs to the north, including Chatsworth - Porter Ranch and Granada Hills - Knollwood, have some exposure to the 10-year flood. Coastal areas tend to have higher exposure to the 100-year flood, such as Los Angeles International Airport, Venice, Westchester - Playa del Rey, San Pedro, the Port of Los Angeles, and Wilmington - Harbor City. Areas that may be exposed to the most extreme event, the 500-year flood, are concentrated in some of the most highly developed areas, including South Los Angeles, Westlake, Central City, the Port of Los Angeles, Westchester - Playa del Rey, Venice, and Los Angeles International Airport.

According to the multiple resources from the U.S. Geological Survey (USGS), there are many variables and factors that they use in their models to calculate what would be a certain type of event. For example, a 100-year flood is based on the probability that this intensity of flood is likely to only happen one time during a 100-year time span. For a 500-year flood, this is based on the probability that this intensity of flood is likely to only happen one time during a 100-year time span. Cal-Adapt data provides forecasts on the increase of heavy precipitation events and only states that flooding behavior may change without indicating whether 100-year and 500-year events may or may not become more frequent. Recent research at UCLA that models future flood projections for California suggests that extreme flood events could increase in general due to climate change based on the medium and high emissions scenarios.[1]

Future development in flood-prone areas will require adherence to flood damage prevention standards to reduce risks posed by extreme precipitation and flooding. If new construction occurs in areas that currently support valuable floodplain functions, such as conservation areas, there may be negative impacts on flooding in adjacent

[1] "Climate change is increasing the risk of a California megaflood," UCLA's Center for Climate Science, 2022

locations. An increase in development, particularly in low-lying and coastal regions, can exacerbate flooding issues. Impervious surfaces, such as roads and parking lots, significantly contribute to urban and stormwater flooding. To effectively manage stormwater associated with new development and to mitigate the impacts of flooding and rising sea levels, communities may explore nature-based and sustainable solutions such as rain gardens, bioswales, and permeable pavement.

2.3. Drought

Drought is a period of abnormally dry weather and little precipitation that causes water shortages that affect everyday life. Drought reduces the amount of water available for watering crops and green spaces, maintaining personal hygiene, and supporting recreation and wildlife habitats, among other impacts. Because droughts affect regions and widespread areas, the entire City is considered exposed to drought for this assessment.

A drought event is not anticipated to have a direct impact on any structures or resilience assets. However, the risk to structures may be elevated during drought conditions because of the potential reduction in firefighting capabilities stemming from a restricted water supply for fire suppression activities.

The operation of resilience assets may be affected during droughts because of the lack of the availability of potable water to support employees who are providing services. Resilience assets, such as hospitals and medical centers, require access to potable water to continue providing health and safety services. Additionally, resilience assets such as water and wastewater facilities can be significantly affected.

As land uses change and development occurs, the risk posed by drought may increase. The resilience of new development can be enhanced through updated land use practices to preserve green spaces that assist with lowering surface temperatures during drought conditions. Continued urbanization is likely to intensify the urban heat island effect, which exacerbates elevated temperatures and may amplify the adverse effects of drought conditions.

2.4. Wildfire

A **wildfire** is uncontrolled fire on undeveloped land that requires extinguishing. Wildfires can be ignited by natural forces such as lightning or by human activity such as smoking, campfires, equipment use, and arson. Wildfires can threaten people, buildings, and assets, and wildfire smoke presents serious public health risks. The potential for significant damage to life and property exists in areas designated as **wildland-urban interface areas**. This is known as the WUI and indicates where development is adjacent to densely vegetated areas.

The three key factors that influence wildfire severity are fuel, weather, and topography.

- **Fuel** may include living and dead vegetation on the ground, along the surface as brush and small trees, and above the ground in tree canopies. Lighter fuels such as grasses, leaves, and needles quickly expel moisture and burn rapidly, while heavier fuels such as tree branches, logs, and trunks take longer to warm and ignite. Trees killed or defoliated by forest insects and diseases are more susceptible to wildfire.
- **Weather** includes temperature, relative humidity, wind speed and direction, and precipitation amount and duration. Strong, dry winds, such as Santa Ana winds, can carry a spark so a fire spreads much more quickly. Such winds generally reach peak velocities during the night and early morning. Moisture in vegetation and soils due to precipitation influences how much fuel is available and how quickly it can ignite.
- **Topography** includes slope and elevation. These factors matter for wildfires because it is related to how precipitation and wind move through an area. Natural barriers, such as lakes, can also prevent fires from spreading. Certain landforms are more vulnerable than others. For example, fires spread more rapidly when moving uphill versus downhill.

All these factors are influenced by climate change, as are many others. As temperatures rise, evapotranspiration accelerates. This means the water in the earth, plants, and other surfaces turns into vapor and is absorbed into the atmosphere. This leads to drier soils and vegetation in a landscape more prone to wildfire (Frankson, et al. 2022). The spring and summer months are when Los Angeles has the least precipitation, and forecasts predict even less in the coming decades. The ideal conditions for wildfires to catch and spread will become more common throughout the year. This increases community exposure to wildfire conditions.

The structures most susceptible to wildfire incidents are those within the WUI. Buildings composed of wood or vinyl siding exhibit a higher likelihood of fire damage compared with those constructed with materials such as brick or concrete.

During and subsequent to a wildfire event, the availability of essential services may be compromised if resilience assets and critical infrastructure are directly damaged or if transportation routes necessary for accessing these facilities are affected. Blocked or damaged roadways can result in the isolation of residents and impede access across the planning area, including for emergency service providers who require passage to reach at-risk populations or to undertake necessary repairs.

Furthermore, after wildfire events, there is a high potential for several dangerous hazards including debris flows, landslides, and debris-laden floods. These incidents, also called “flood-after-fire” and “post-fire flood” events, result in areas left charred, dry, and less able to absorb water after a fire and are most likely to occur in hilly and mountainous areas, with the area of a single event ranging from a few square yards to

hundreds of acres. Increased risk of flood-after-fire events remain higher than normal until vegetation is restored, which can be up to five years after a wildfire. These events can have compounding devastating impacts on communities, including loss of infrastructure and life, impact the water quality of downstream rivers and streams, and damage habitat.

Many of Los Angeles' central and northern neighborhoods face severe wildfire exposure. This means these are areas where wildfire is most likely to occur. These include Brentwood - Pacific Palisades, Bel Air - Beverly Crest, Toluca Lake - Cahuenga Pass, Hollywood, Silver Lake - Echo Park - Elysian Valley, Northeast Los Angeles, Central City North, Canoga Park – Winnetka - Woodland Hills - West Hills, Chatsworth - Porter Range, Northridge, Granada Hills - Knollwood, Sylmar, Arleta - Pacoima, and Sunland – Tujunga - Lake View Terrace - Shadow Hills - East La Tuna Canyon. There are also small areas of isolated wildfire risk, including South Los Angeles and Westchester - Playa del Rey. Further prioritization of these areas based on vulnerability occurs through the Social Vulnerability Analysis because this analysis only identifies areas based on their exposure and not on social vulnerability factors. This risk may elevate the risk of neighboring communities if conditions become severe enough. Those that are exposed to wildfire and exhibit among the lowest community health scores include Silver Lake - Echo Park - Elysian Valley, Northeast Los Angeles, and Central City North.

2.5. Sea Level Rise

Sea level rise is the increase in the ocean's surface height compared with the height of nearby land. Coastal low-lying areas are exposed to sea level rise, but it also raises water levels in tidal and upstream waterbodies, increasing the exposure of inland communities to flooding.

Sea levels rise because of a combination of global and local factors that are intensified by climate change. Globally, as air temperatures warm, the ocean must absorb more heat. As ocean waters warm, they take up more space and begin encroaching onto land (NASA 2020). This is also referred to as **thermal expansion**. At the local level, changes to wind patterns and land elevation along the coast can also influence how much sea levels rise at any location.

Los Angeles could experience one foot to 2.6 feet of sea level rise by 2050 and 2.2 to 6.4 feet of sea level rise by 2080 (OEHHA 2022). As sea level rise continues in Los Angeles, coastal flooding, beach erosion, bluff retreat, loss of ecosystems, salinization of soils, ground and surface water, and impeded drainage will increase, threatening lives, property, and critical infrastructure.

Rising sea levels bring about more floodwaters during floods, which means any associated waves and erosion will be more forceful, destructive, and farther reaching. Sea level rise also risks saltwater intrusion into water supplies and leads to higher

groundwater, which can lead to more intense flooding during high tide or intense precipitation. The assessment focuses on two scenarios: 1 meter (mid-range scenario) and 1.41 meters (extreme potential outcome) of sea level rise.

- **1-Meter Sea Level Rise with 100-Year Storm** is the extent of flooding during a 100-year storm if sea levels were to rise by 1 meter (about 3.2 feet).
- **1.41-Meter Sea Level Rise with 100-Year Storm** is the extent of flooding during a 100-year storm if sea levels were to rise by 1.41 meters (about 4.6 feet).

Coastal communities are the most vulnerable to sea level rise. With just one meter of sea level rise, CPAs such as the Port of Los Angeles, Venice, and Wilmington - Harbor City will become more exposed to flooding from a 100-year storm. Population exposure is limited (under 0.1% of all City residents), but some neighborhoods have a large share of their buildings and resilience assets exposed.

More than a third (35%) of the buildings in the Port of Los Angeles are exposed under the 1-meter sea level rise scenario; more than 40% are exposed under the 1.41-meter scenario. Of all exposed buildings, more than half are commercial structures, and roughly a third are industrial. Few residential neighborhoods are affected by either scenario, except for Venice. While Venice is exposed to sea level rise, it is not considered a socially vulnerable community as defined in this CVA. Under the 1.41-meter sea level rise scenario, nearly 11% of residents and 10% of all structures are exposed to a 100-year storm. The overwhelming majority of those exposed structures are residential.

Sea level rise can also pose threats to community resilience assets and infrastructure. Nearly 3% of all resilience assets are exposed to sea level rise, more than half of which are in Wilmington - Harbor City. Many of these are energy assets that power homes, businesses, hospitals, and other essential services. If these are repeatedly damaged by sea level rise, impacts may be felt throughout the region. For additional information, see **Table 2** and **Table 3**.

Table 2: Buildings in the 1.0-Meter Sea Level Rise Hazard Area

	Jurisdiction Total Buildings		Number of Buildings		Replacement Cost Value	
Community Plan Area	Count	Replacement Cost Value	Count	% of Jurisdiction Total	Value	% of Jurisdiction Total
Arleta - Pacoima	16,867	$13,551,550,119	0	0.0%	$0	0.0%
Bel Air - Beverly Crest	8,086	$7,162,040,067	0	0.0%	$0	0.0%
Boyle Heights	15,342	$17,681,487,775	0	0.0%	$0	0.0%
Brentwood - Pacific Palisades	15,629	$15,351,960,622	0	0.0%	$0	0.0%
Canoga Park - Winnetka - Woodland Hills - West Hills	42,302	$42,428,514,044	0	0.0%	$0	0.0%
Central City	2,723	$45,537,188,491	0	0.0%	$0	0.0%
Central City North	1,901	$14,591,125,765	0	0.0%	$0	0.0%
Chatsworth - Porter Ranch	23,756	$31,062,514,987	0	0.0%	$0	0.0%
Encino - Tarzana	17,736	$19,399,842,025	0	0.0%	$0	0.0%
Granada Hills - Knollwood	16,713	$11,407,372,214	0	0.0%	$0	0.0%
Harbor Gateway	7,785	$11,605,954,988	0	0.0%	$0	0.0%
Hollywood	34,827	$45,066,541,096	0	0.0%	$0	0.0%
Los Angeles International Airport	120	$2,201,624,577	0	0.0%	$0	0.0%
Mission Hills - Panorama City - North Hills	20,303	$18,563,848,831	0	0.0%	$0	0.0%
North Hollywood - Valley Village	23,178	$22,379,417,663	0	0.0%	$0	0.0%
Northeast Los Angeles	56,523	$38,334,689,276	0	0.0%	$0	0.0%
Northridge	14,239	$11,384,261,996	0	0.0%	$0	0.0%
Palms - Mar Vista - Del Rey	19,151	$16,462,444,466	0	0.0%	$0	0.0%
Port of Los Angeles	94	$2,142,565,047	33	35.1%	$1,187,875,164	55.4%
Reseda - West Van Nuys	22,643	$17,613,656,740	0	0.0%	$0	0.0%
San Pedro	18,726	$11,822,698,225	0	0.0%	$0	0.0%
Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass	19,619	$20,236,987,630	0	0.0%	$0	0.0%

Community Plan Area	Jurisdiction Total Buildings		Number of Buildings		Replacement Cost Value	
	Count	Replacement Cost Value	Count	% of Jurisdiction Total	Value	% of Jurisdiction Total
Silver Lake - Echo Park - Elysian Valley	18,763	$11,326,667,243	0	0.0%	$0	0.0%
South Los Angeles	55,101	$36,603,898,370	0	0.0%	$0	0.0%
Southeast Los Angeles	51,088	$41,642,122,341	0	0.0%	$0	0.0%
Sun Valley - La Tuna Canyon	17,534	$19,821,865,187	0	0.0%	$0	0.0%
Sunland - Tujunga - Lake View Terrace - Shadow Hills - East La Tuna Canyon	17,601	$9,949,297,432	0	0.0%	$0	0.0%
Sylmar	15,339	$12,874,163,627	0	0.0%	$0	0.0%
Van Nuys - North Sherman Oaks	24,700	$26,181,885,366	0	0.0%	$0	0.0%
Venice	10,728	$7,476,297,540	4	<0.1%	$3,292,745	<0.1%
West Adams - Baldwin Hills - Leimert	40,139	$29,035,079,510	0	0.0%	$0	0.0%
West Los Angeles	14,409	$26,025,967,994	0	0.0%	$0	0.0%
Westchester - Playa del Rey	12,676	$21,747,591,693	23	0.2%	$138,521,137	0.6%
Westlake	6,174	$18,849,660,468	0	0.0%	$0	0.0%
Westwood	4,732	$7,997,854,681	0	0.0%	$0	0.0%
Wilmington - Harbor City	15,192	$17,665,077,611	97	0.6%	$1,178,332,679	6.7%
Wilshire	37,205	$58,417,985,163	0	0.0%	$0	0.0%
City of Los Angeles (Total)	**739,644**	**$781,603,700,870**	**157**	**<0.1%**	**$2,508,021,724**	**0.3%**

Source: CAL OES; BOE; Los Angeles City Planning 2023; Cal-Adapt; RS Means 2022

Table 3: Buildings in the 1.41-Meter Sea Level Rise Hazard Area

	Jurisdiction Total Buildings		Number of Buildings		Replacement Cost Value	
Community Plan Area	Count	Replacement Cost Value	Count	% of Jurisdiction Total	Value	% of Jurisdiction Total
Arleta - Pacoima	16,867	$13,551,550,119	0	0.0%	$0	0.0%
Bel Air - Beverly Crest	8,086	$7,162,040,067	0	0.0%	$0	0.0%
Boyle Heights	15,342	$17,681,487,775	0	0.0%	$0	0.0%
Brentwood - Pacific Palisades	15,629	$15,351,960,622	0	0.0%	$0	0.0%
Canoga Park - Winnetka - Woodland Hills - West Hills	42,302	$42,428,514,044	0	0.0%	$0	0.0%
Central City	2,723	$45,537,188,491	0	0.0%	$0	0.0%
Central City North	1,901	$14,591,125,765	0	0.0%	$0	0.0%
Chatsworth - Porter Ranch	23,756	$31,062,514,987	0	0.0%	$0	0.0%
Encino - Tarzana	17,736	$19,399,842,025	0	0.0%	$0	0.0%
Granada Hills - Knollwood	16,713	$11,407,372,214	0	0.0%	$0	0.0%
Harbor Gateway	7,785	$11,605,954,988	0	0.0%	$0	0.0%
Hollywood	34,827	$45,066,541,096	0	0.0%	$0	0.0%
Los Angeles International Airport	120	$2,201,624,577	0	0.0%	$0	0.0%
Mission Hills - Panorama City - North Hills	20,303	$18,563,848,831	0	0.0%	$0	0.0%
North Hollywood - Valley Village	23,178	$22,379,417,663	0	0.0%	$0	0.0%
Northeast Los Angeles	56,523	$38,334,689,276	0	0.0%	$0	0.0%
Northridge	14,239	$11,384,261,996	0	0.0%	$0	0.0%
Palms - Mar Vista - Del Rey	19,151	$16,462,444,466	0	0.0%	$0	0.0%
Port of Los Angeles	94	$2,142,565,047	39	41.5%	$1,250,564,701	58.4%
Reseda - West Van Nuys	22,643	$17,613,656,740	0	0.0%	$0	0.0%
San Pedro	18,726	$11,822,698,225	0	0.0%	$0	0.0%
Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass	19,619	$20,236,987,630	0	0.0%	$0	0.0%

	Jurisdiction Total Buildings		Number of Buildings		Replacement Cost Value	
Community Plan Area	Count	Replacement Cost Value	Count	% of Jurisdiction Total	Value	% of Jurisdiction Total
Silver Lake - Echo Park - Elysian Valley	18,763	$11,326,667,243	0	0.0%	$0	0.0%
South Los Angeles	55,101	$36,603,898,370	0	0.0%	$0	0.0%
Southeast Los Angeles	51,088	$41,642,122,341	0	0.0%	$0	0.0%
Sun Valley - La Tuna Canyon	17,534	$19,821,865,187	0	0.0%	$0	0.0%
Sunland - Tujunga - Lake View Terrace - Shadow Hills - East La Tuna Canyon	17,601	$9,949,297,432	0	0.0%	$0	0.0%
Sylmar	15,339	$12,874,163,627	0	0.0%	$0	0.0%
Van Nuys - North Sherman Oaks	24,700	$26,181,885,366	0	0.0%	$0	0.0%
Venice	10,728	$7,476,297,540	1,081	10.1%	$485,223,027	6.5%
West Adams - Baldwin Hills - Leimert	40,139	$29,035,079,510	0	0.0%	$0	0.0%
West Los Angeles	14,409	$26,025,967,994	0	0.0%	$0	0.0%
Westchester - Playa del Rey	12,676	$21,747,591,693	25	0.2%	$141,292,743	0.6%
Westlake	6,174	$18,849,660,468	0	0.0%	$0	0.0%
Westwood	4,732	$7,997,854,681	0	0.0%	$0	0.0%
Wilmington - Harbor City	15,192	$17,665,077,611	169	1.1%	$1,578,902,189	8.9%
Wilshire	37,205	$58,417,985,163	0	0.0%	$0	0.0%
City of Los Angeles (Total)	**739,644**	**$781,603,700,870**	**1,314**	**0.2%**	**$3,455,982,661**	**0.4%**

Source: CAL OES; BOE; Los Angeles City Planning 2023; Cal-Adapt; RS Means 2022


Community Health and Equity Index
South Los Angeles
Community Health and Equity Index
Southeast Los Angeles

Appendix E. Maps

Main CVA Maps

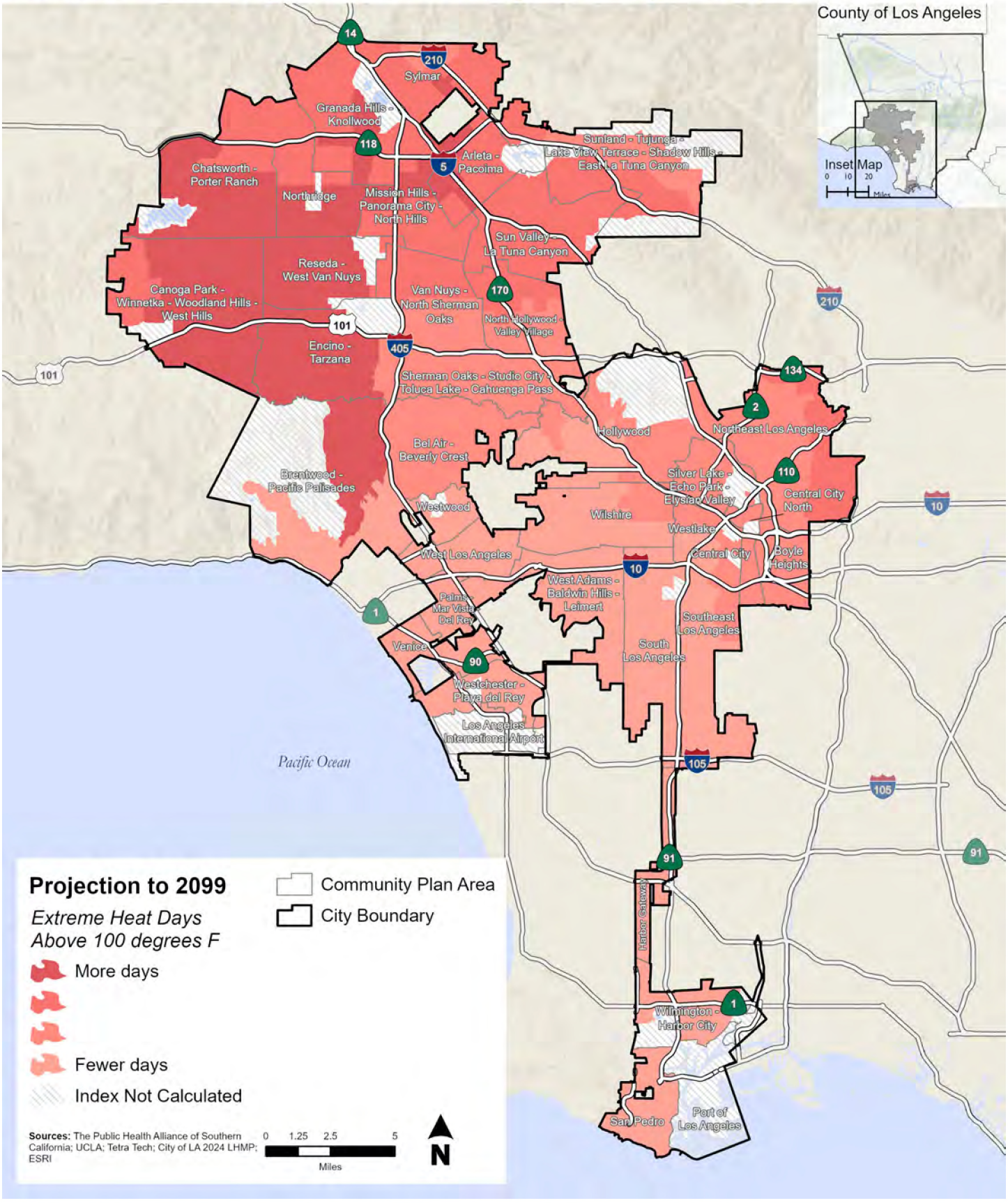
City of Los Angeles

Community Plan Areas



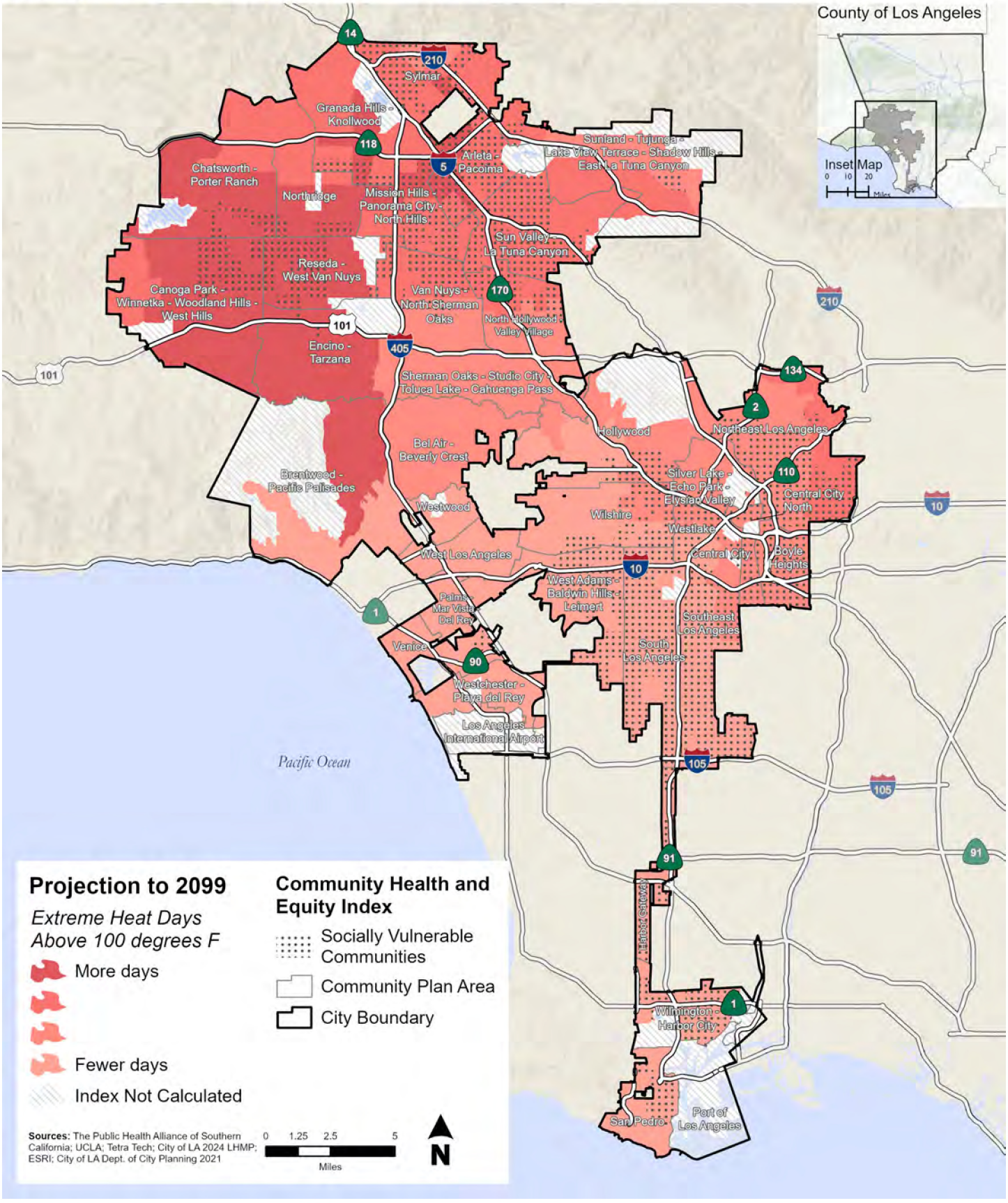
City of Los Angeles

Extreme Heat: Days Above 100 degrees F by Tract (2070-2099)



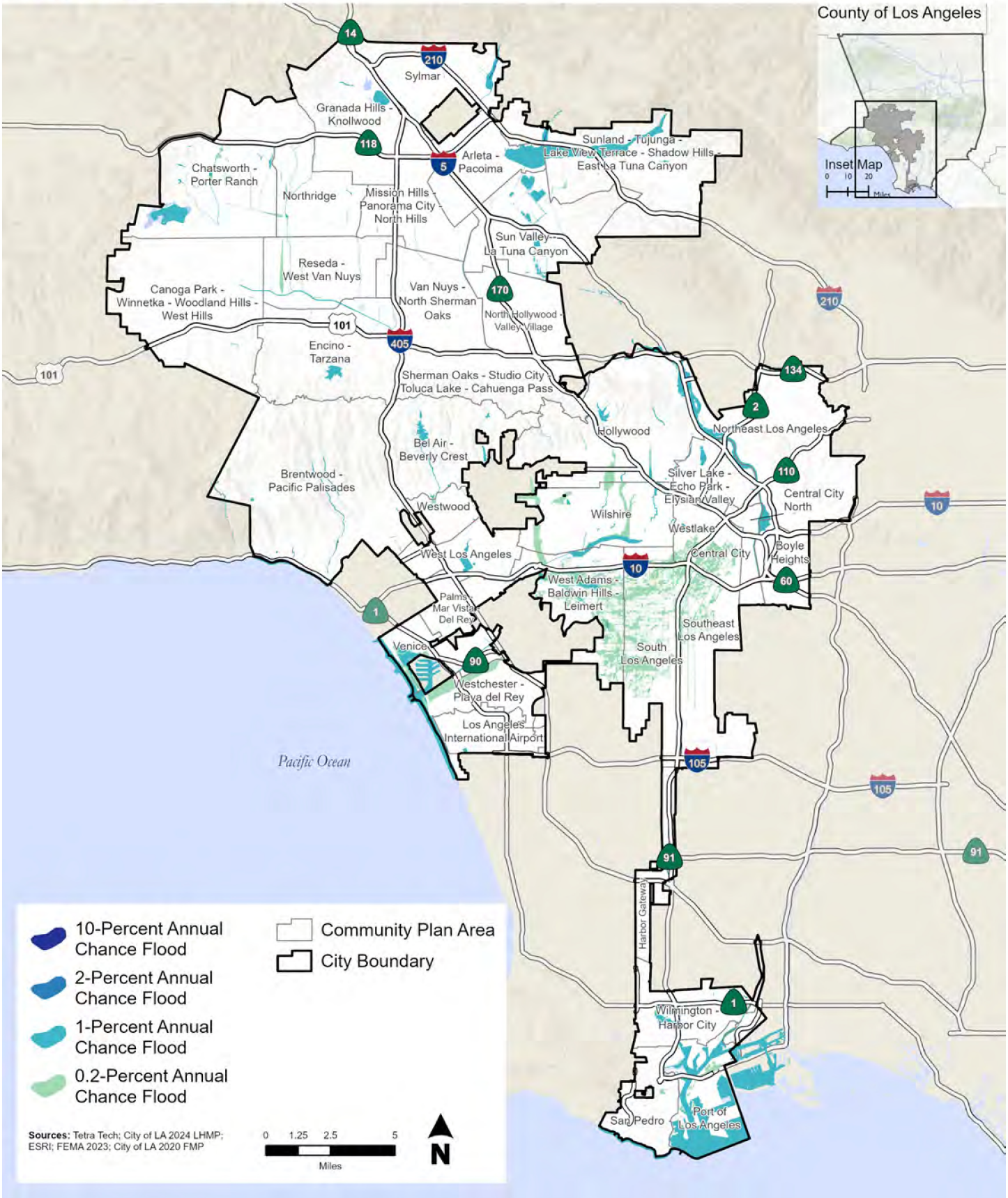
City of Los Angeles

Socially Vulnerable Population in the Extreme Heat Hazard Area



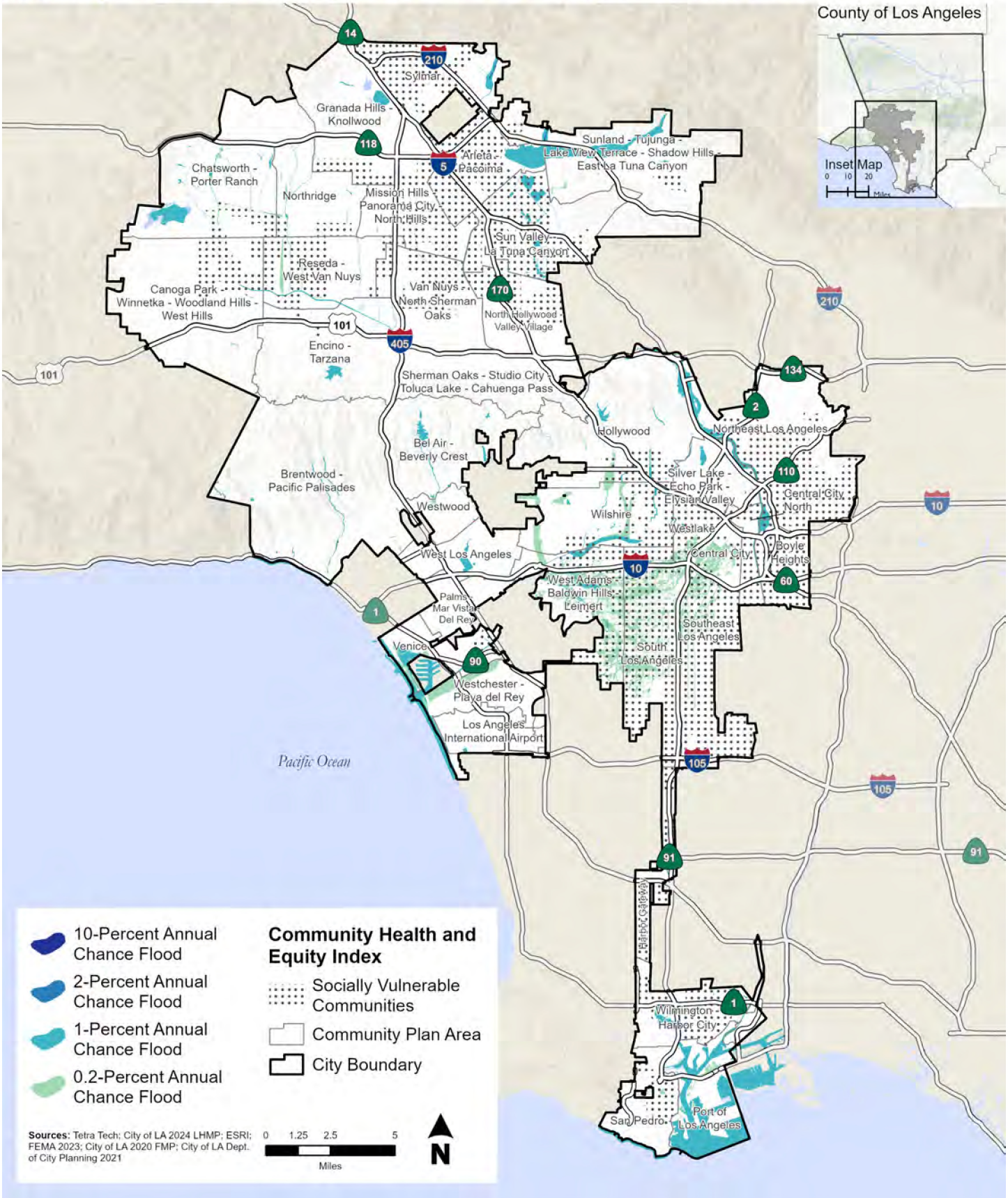
City of Los Angeles

Flood Hazard Area



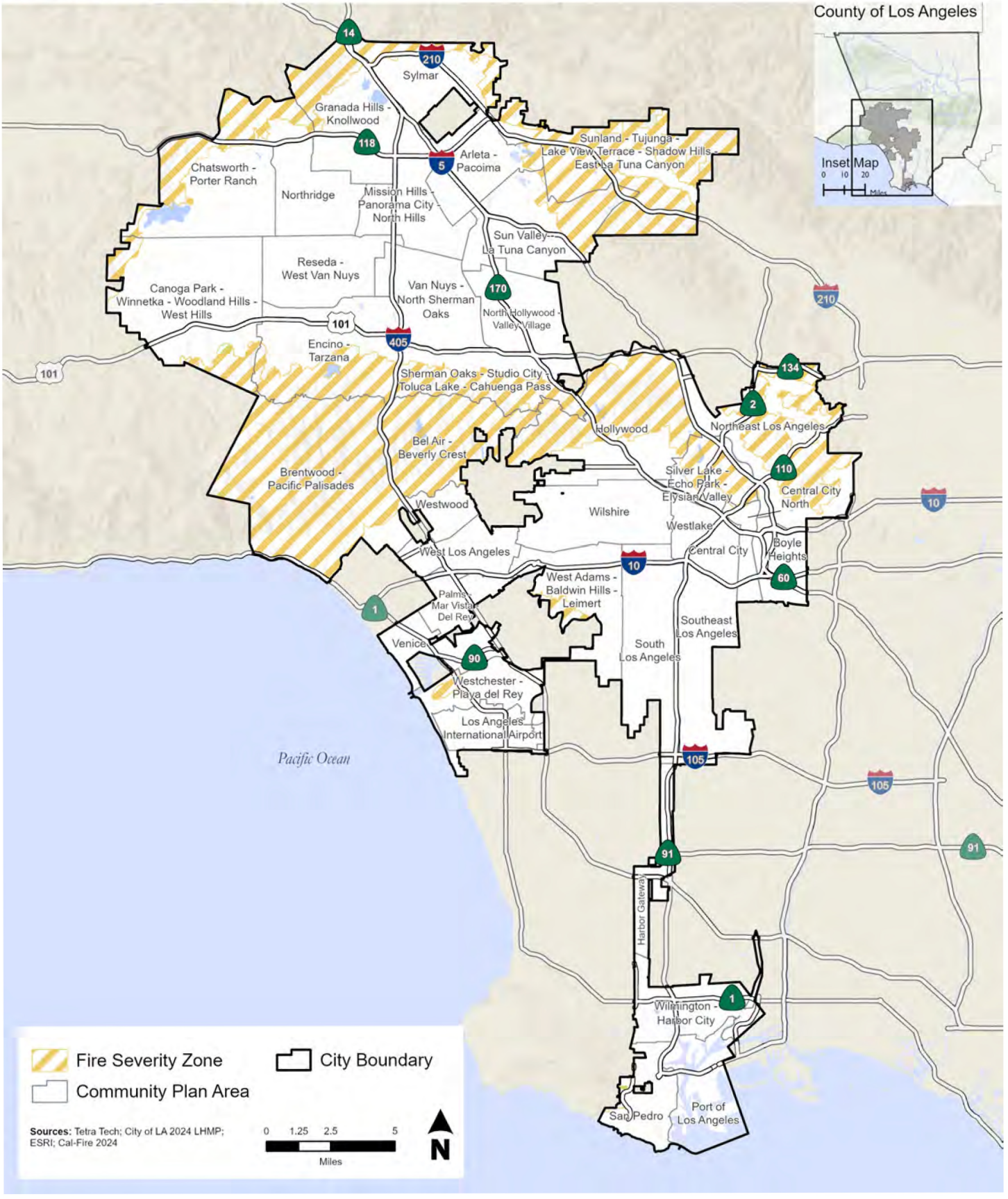
City of Los Angeles

Socially Vulnerable Population in the Flood Hazard Area



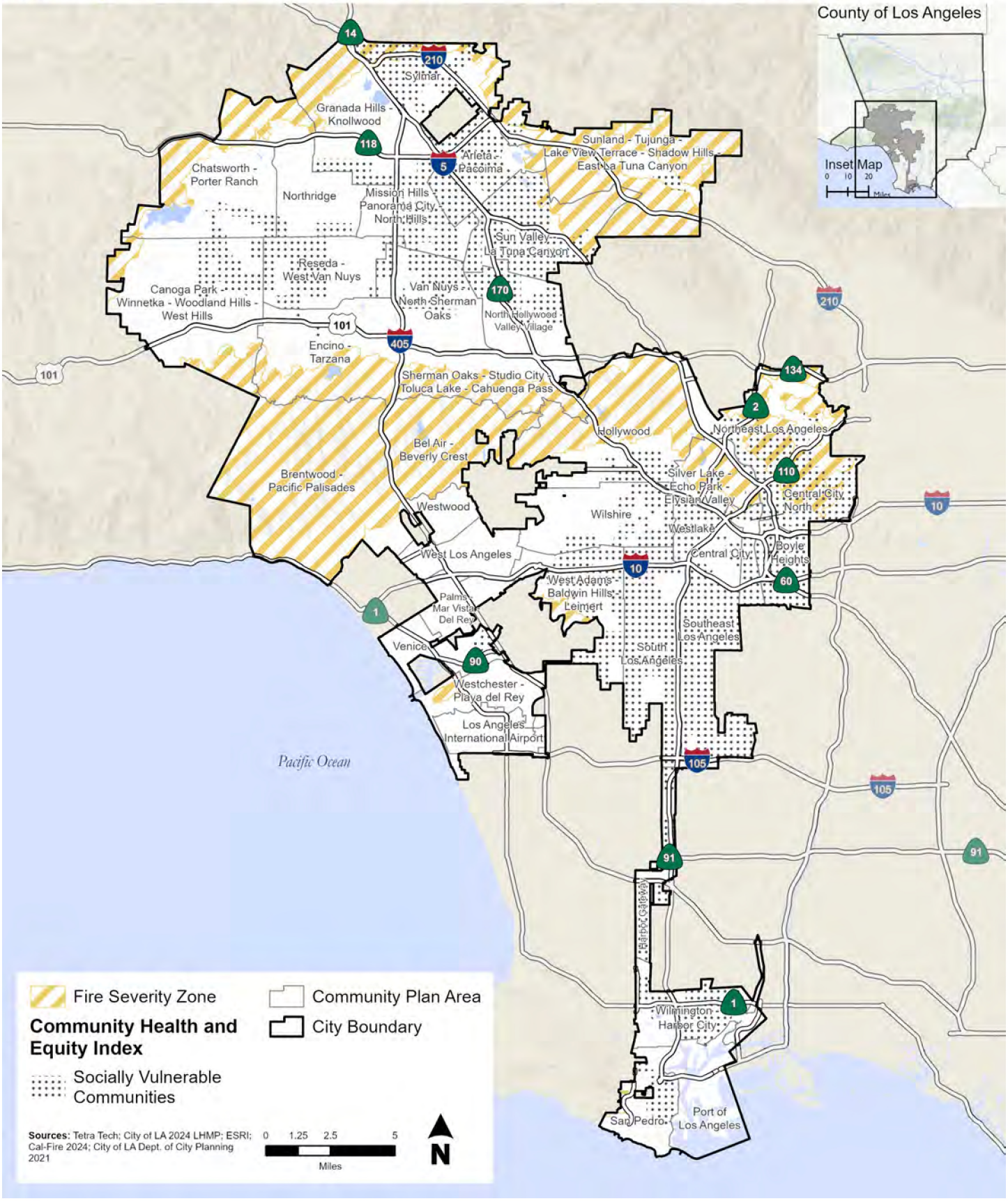
City of Los Angeles

Wildfire Hazard Area



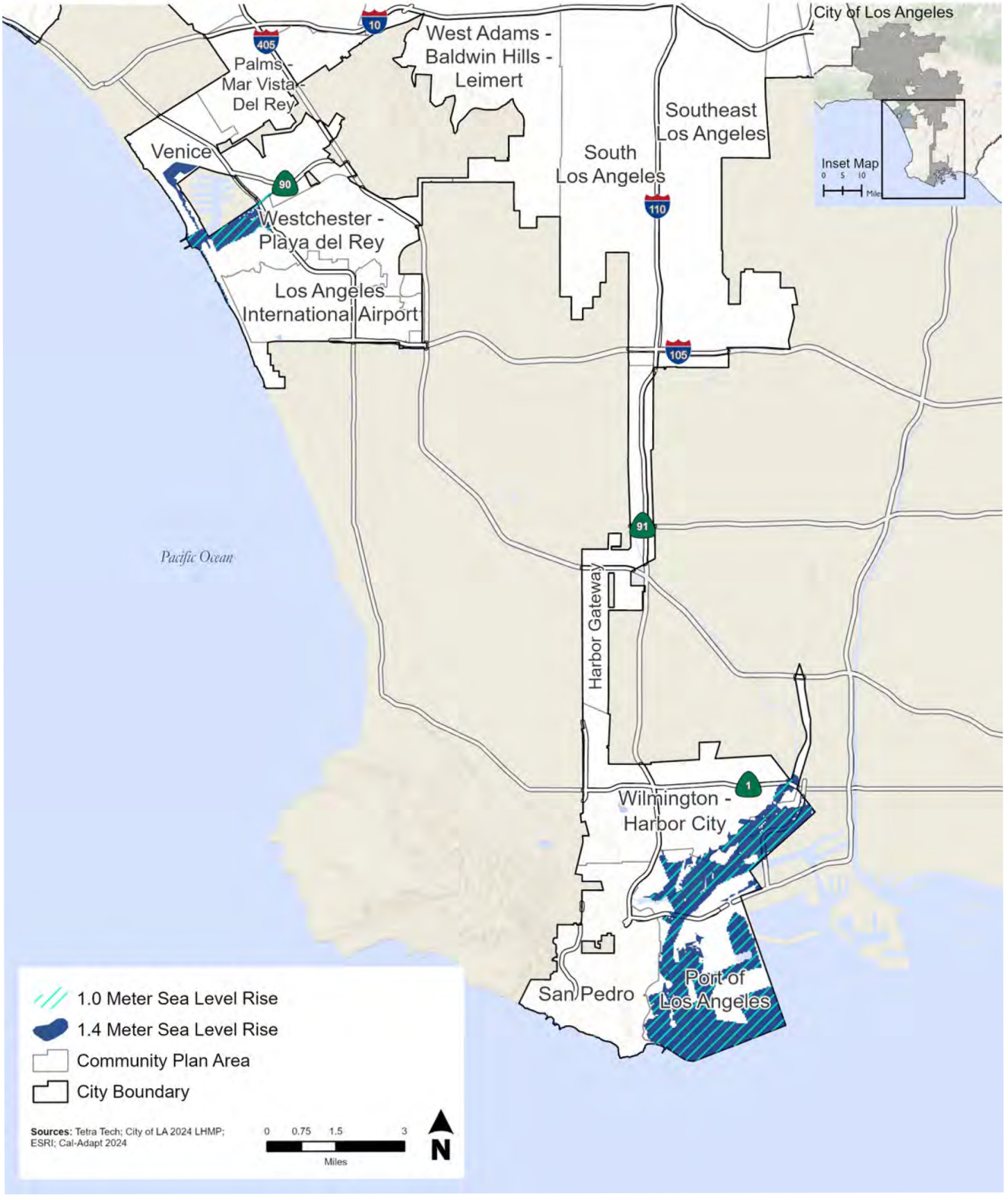
City of Los Angeles

Socially Vulnerable Population in the Wildfire Hazard Area



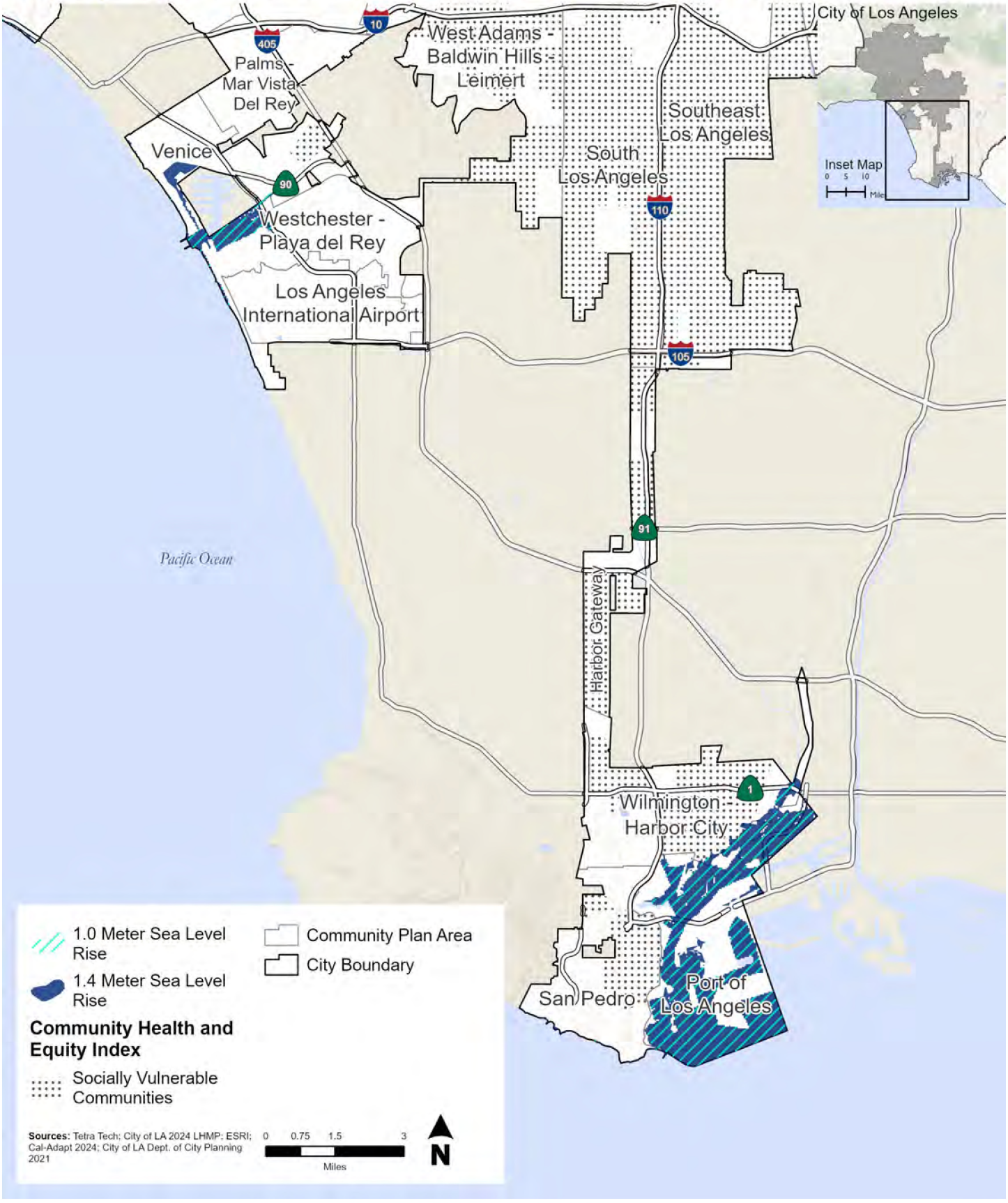
City of Los Angeles

Sea Level Rise Hazard Area



City of Los Angeles

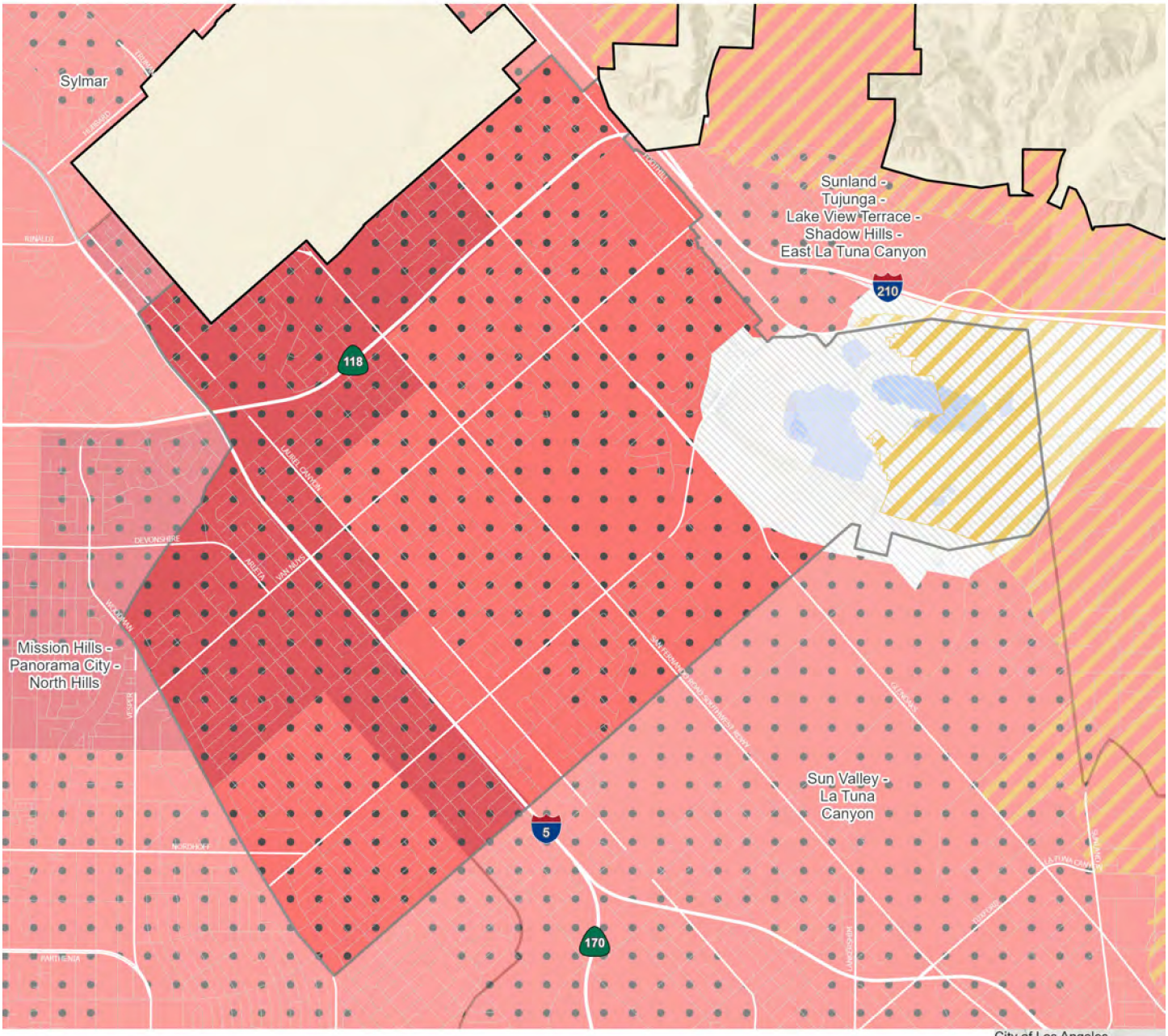
Socially Vulnerable Population in the Sea Level Rise Hazard Area



Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Areas

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Arleta - Pacoima

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

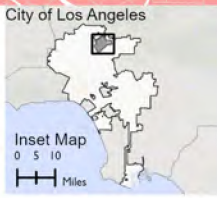
Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary



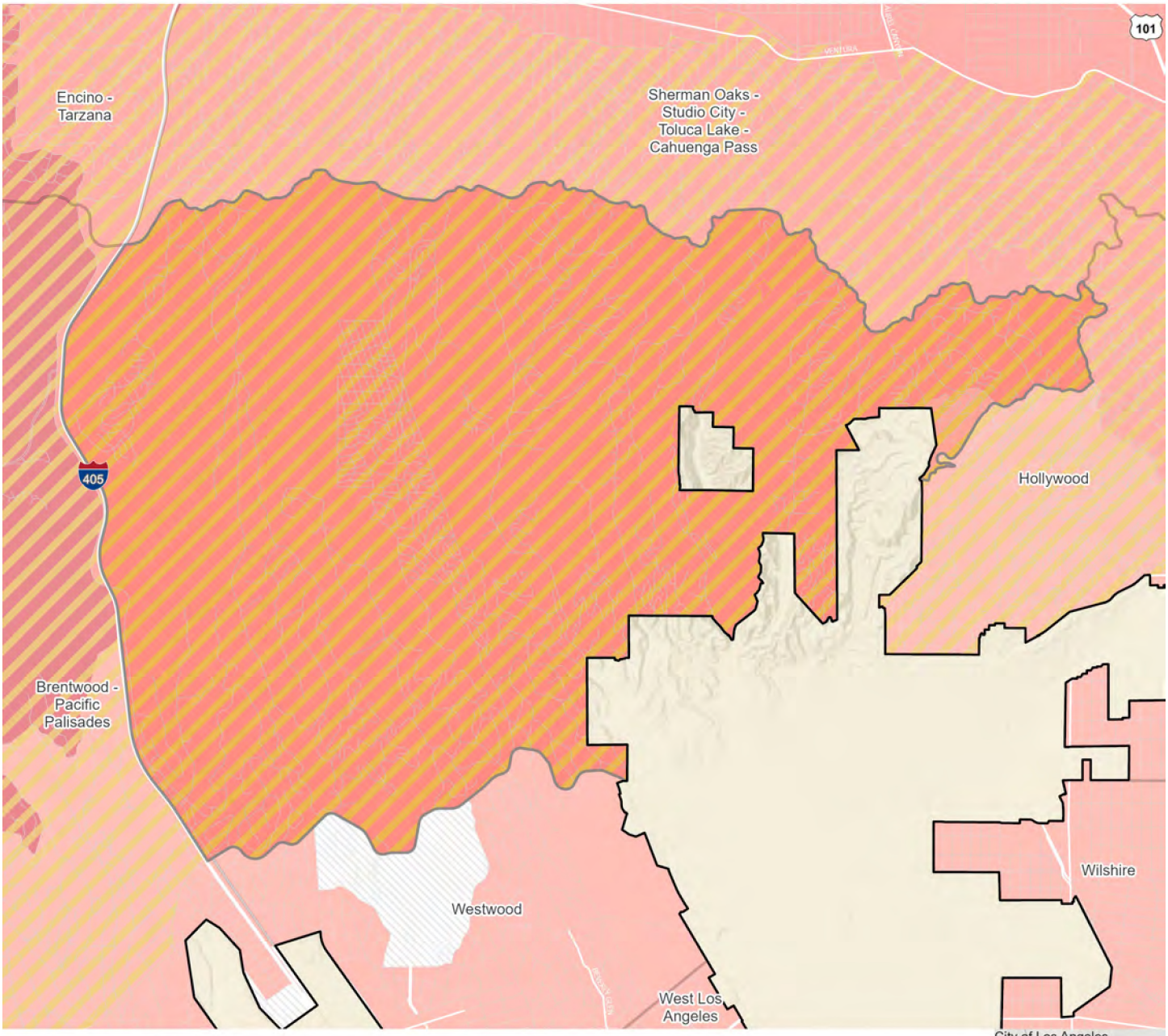
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.2 0.4 0.8
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Bel Air - Beverly Crest

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

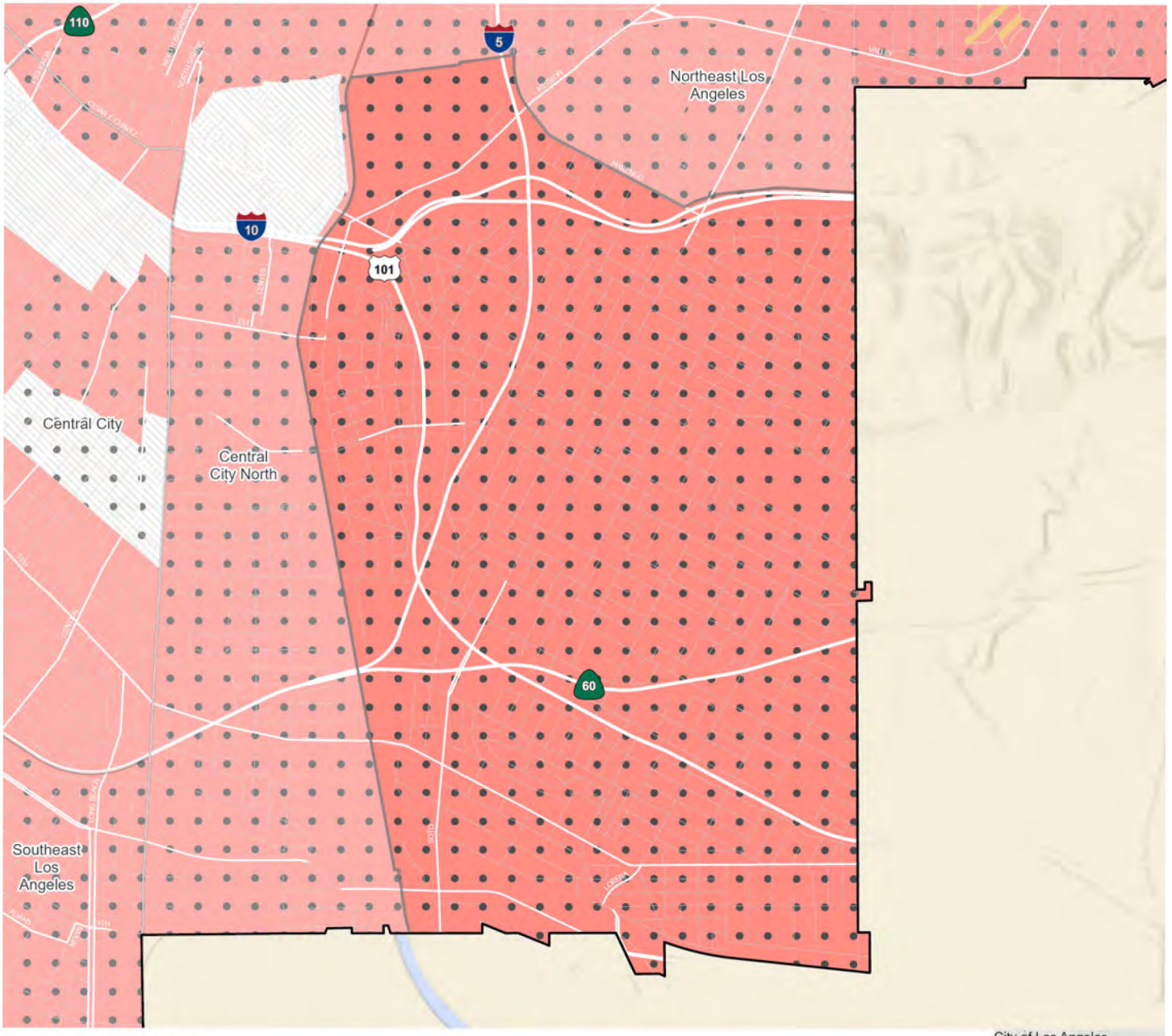
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Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Boyle Heights

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary



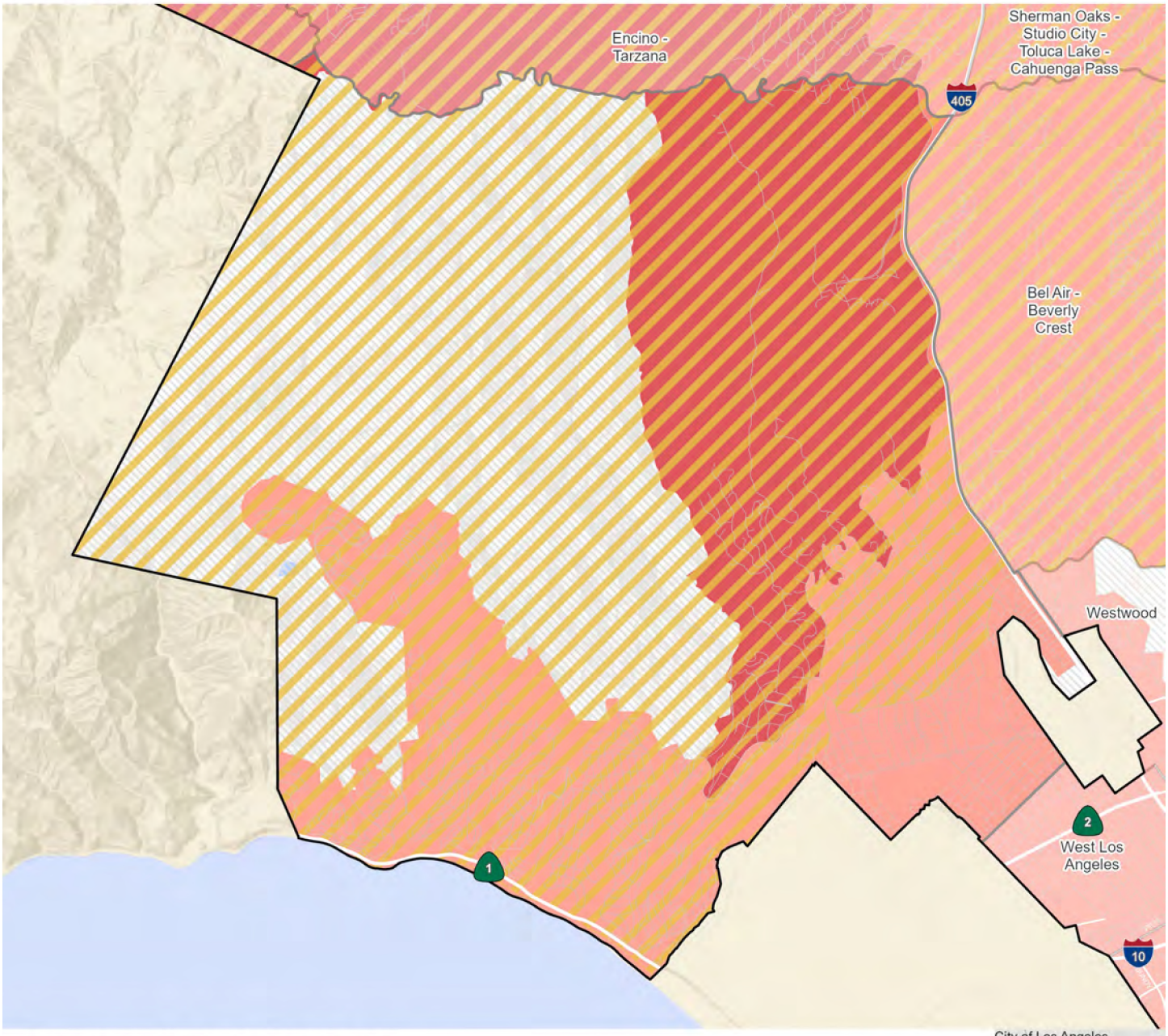
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.15 0.3 0.6
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Brentwood - Pacific Palisades

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



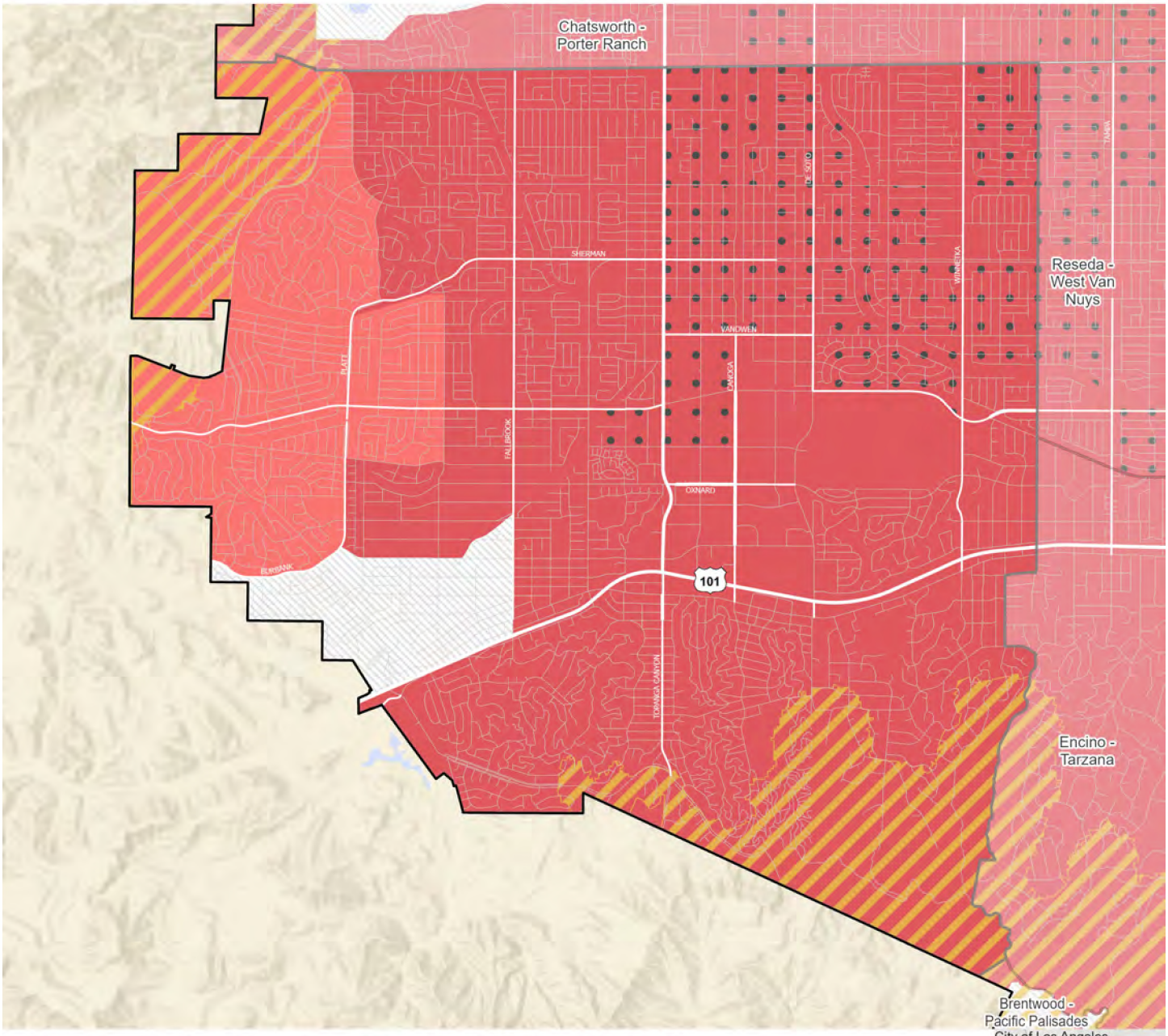
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.33 0.65 1.3
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Canoga Park - Winnetka - Woodland Hills - West Hills

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



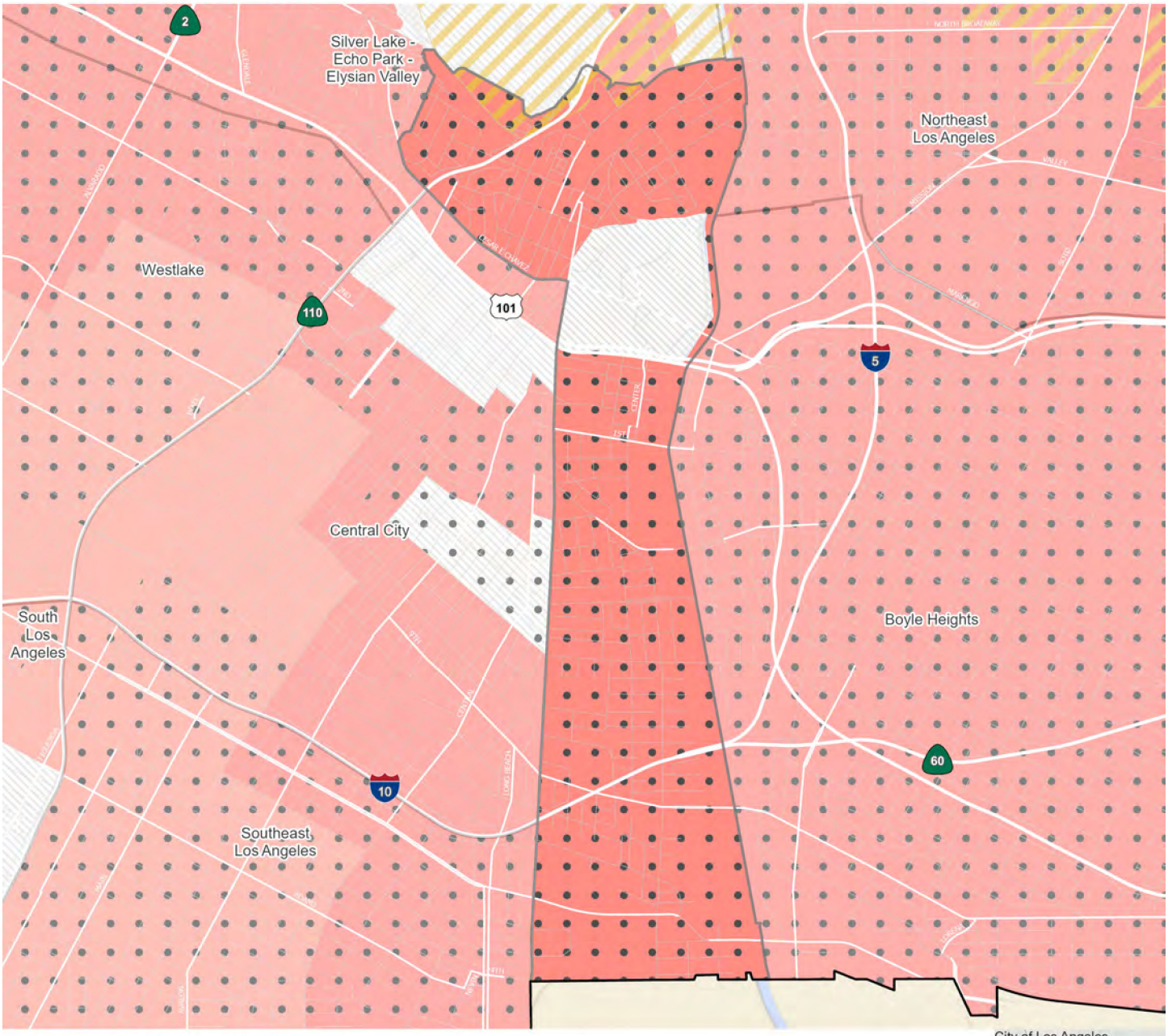
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0 0.28 0.55 1.1
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Central City North

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

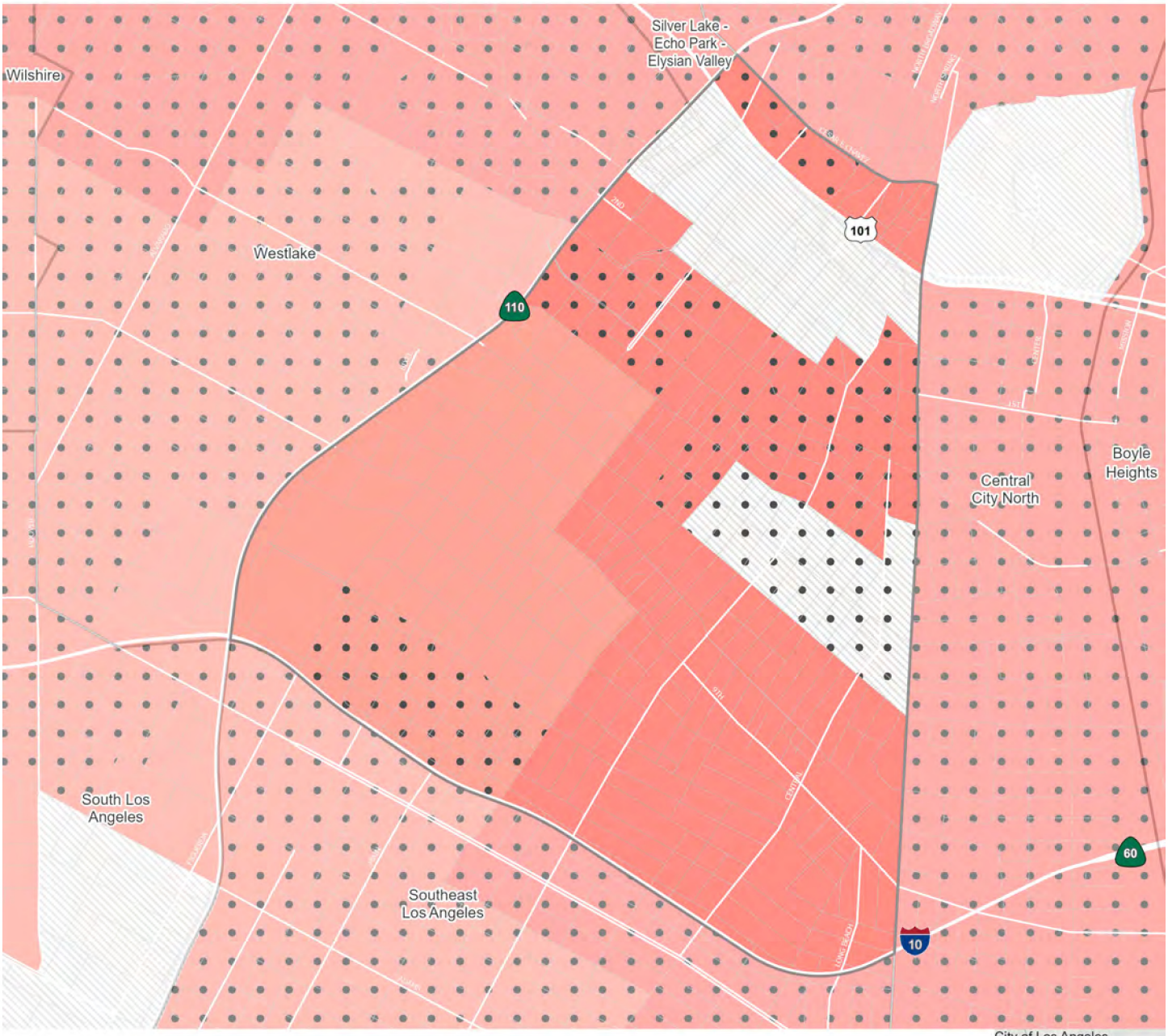
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Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Central City

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

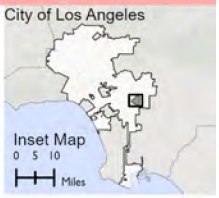
Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary



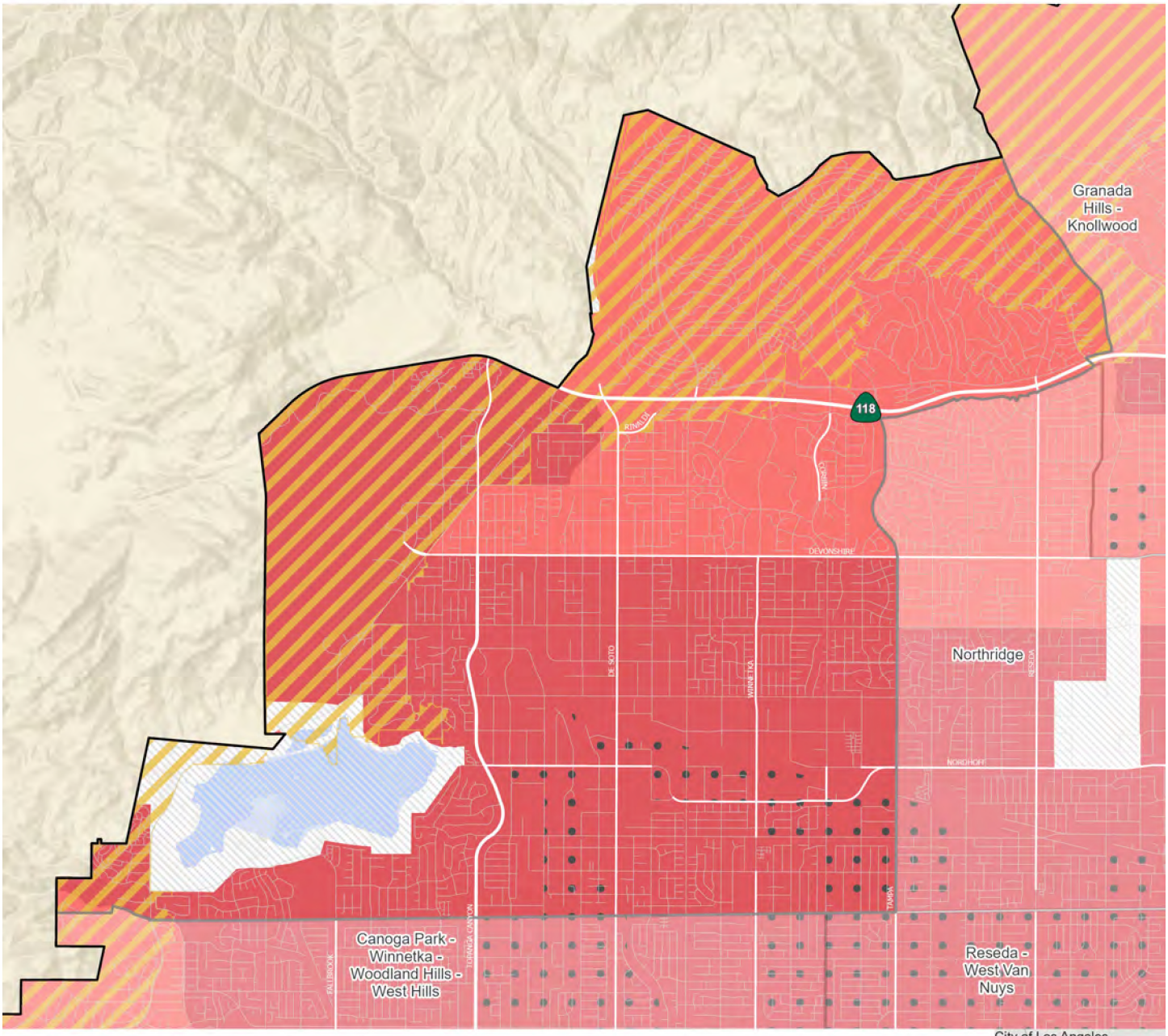
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.13 0.25 0.5
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Chatsworth - Porter Ranch

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

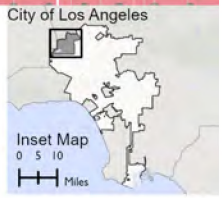
Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



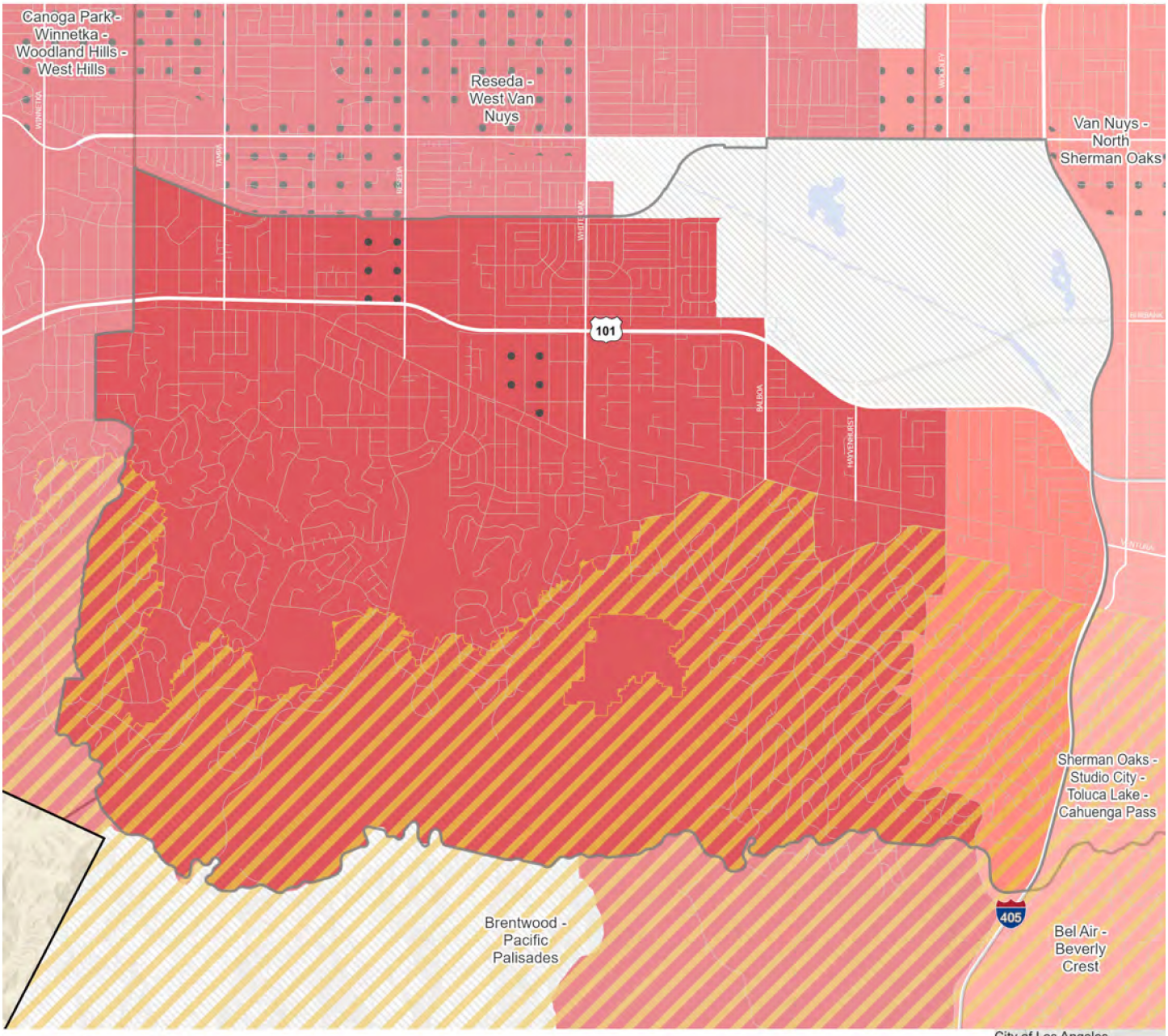
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0 0.3 0.6 1.2
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Encino - Tarzana

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



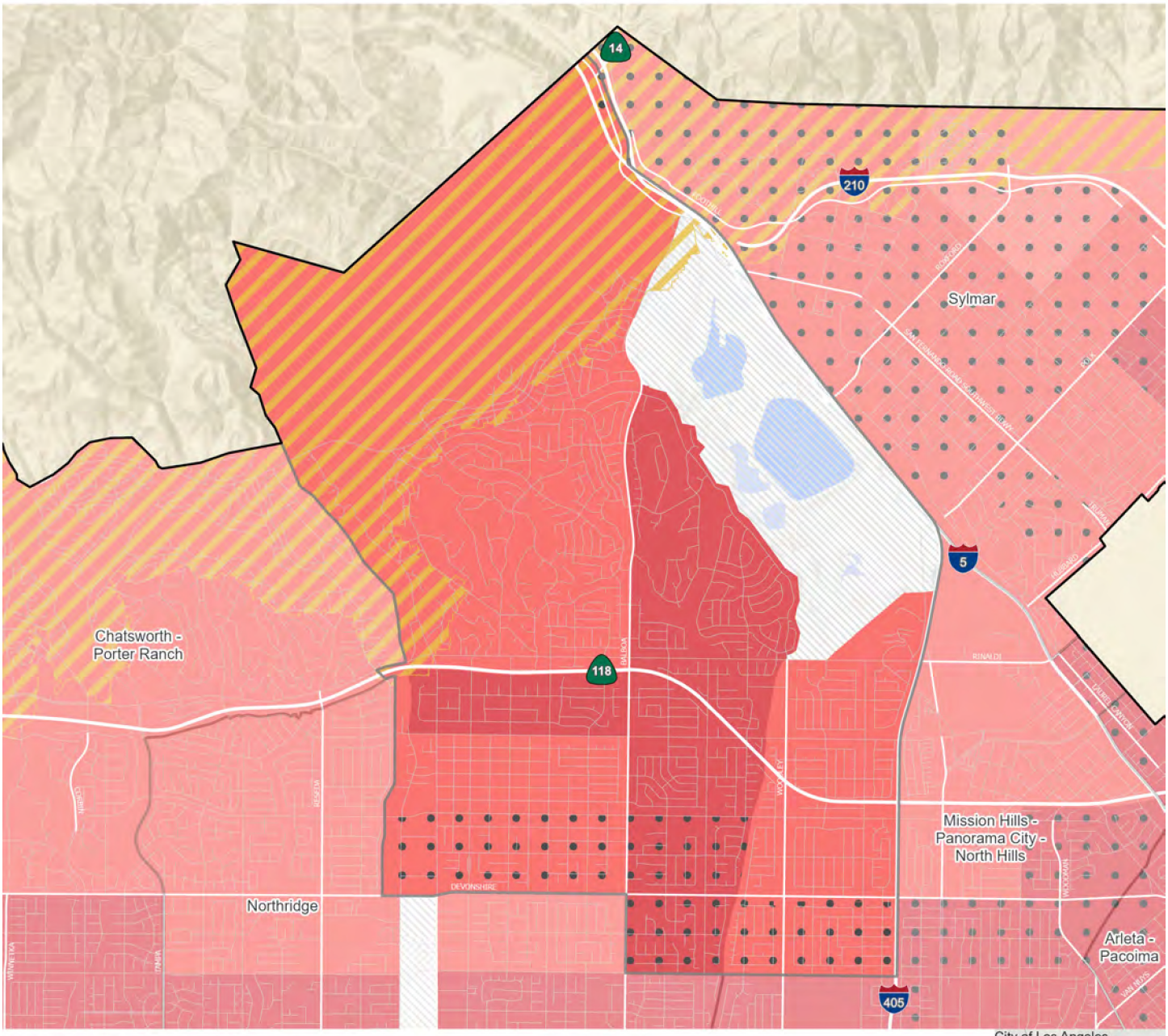
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.23 0.45 0.9
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Granada Hills - Knollwood

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

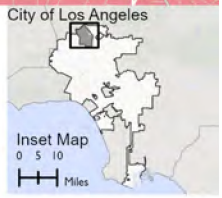
Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



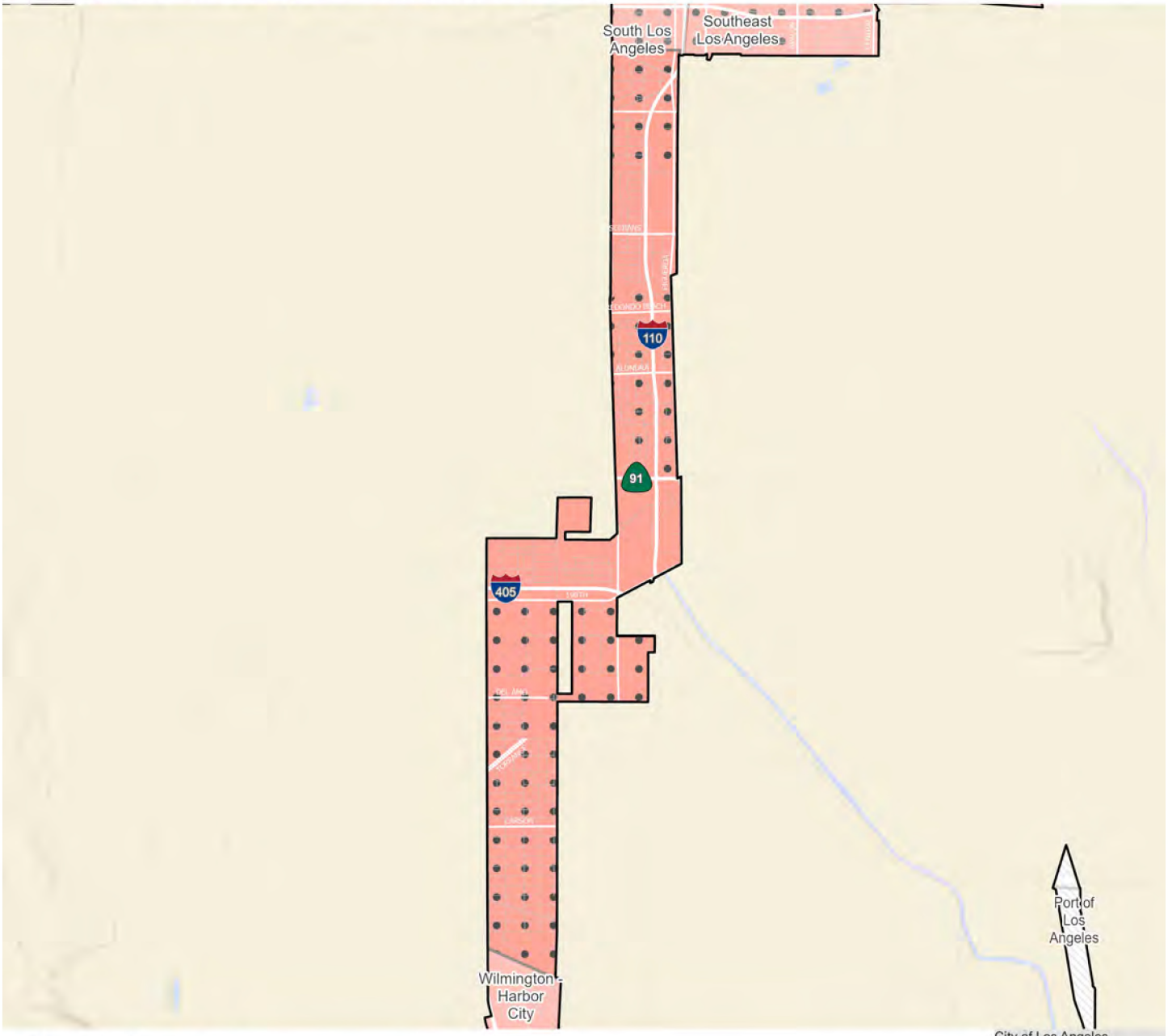
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.28 0.55 1.1
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Harbor Gateway

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

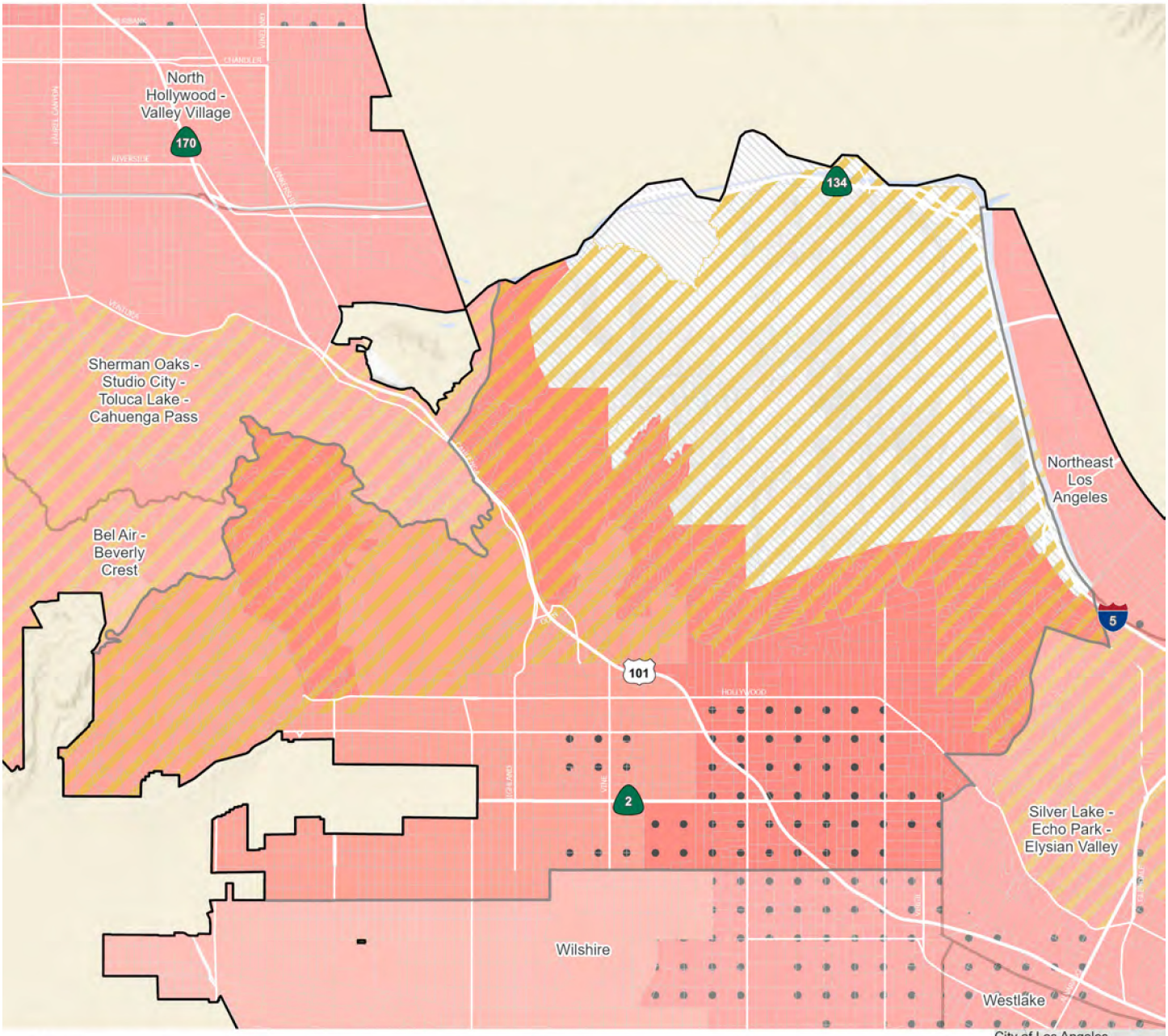
0 0.33 0.65 1.3

Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Hollywood

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

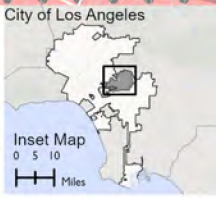
Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

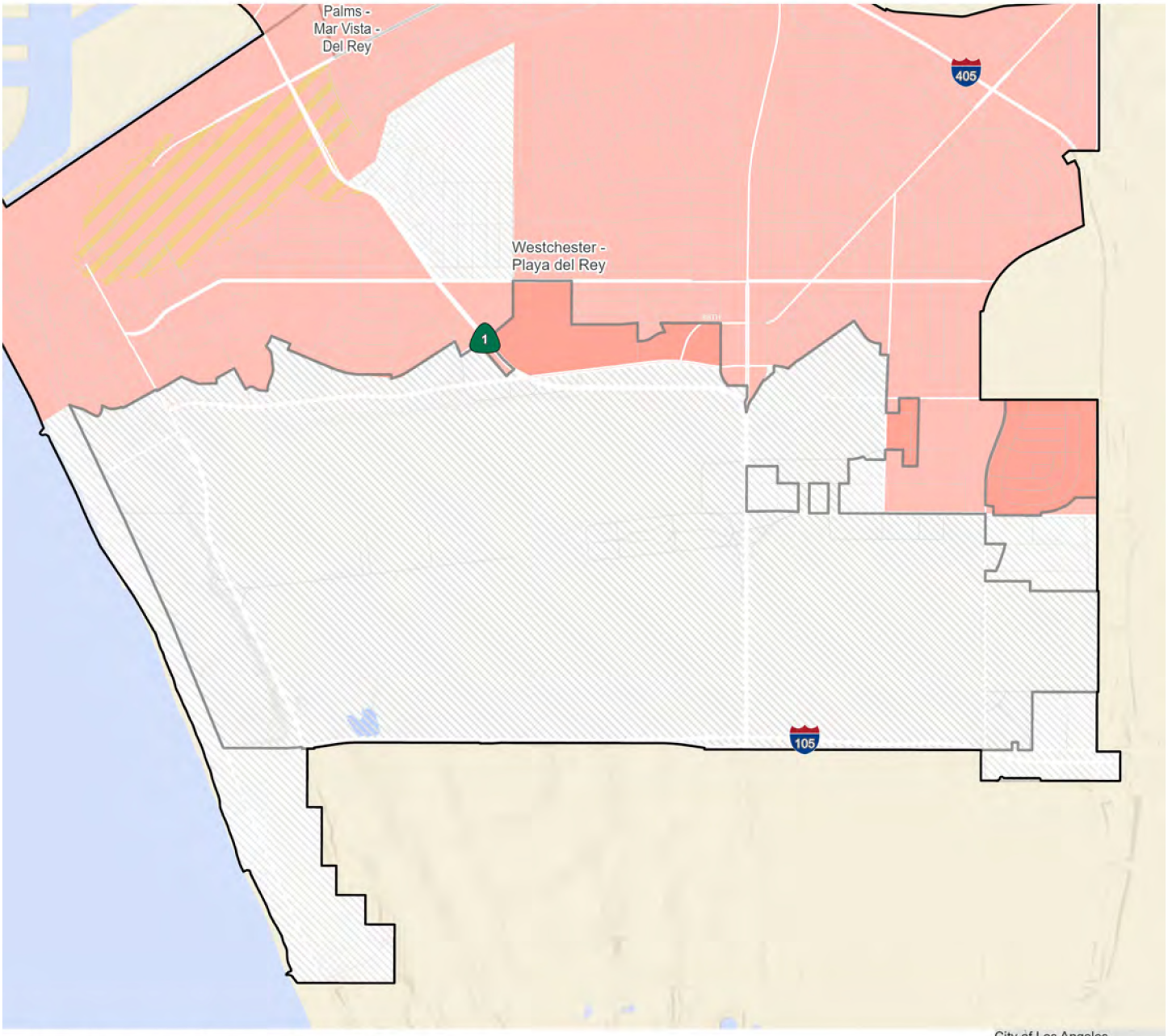
0 0.3 0.6 1.2

Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Los Angeles International Airport

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary



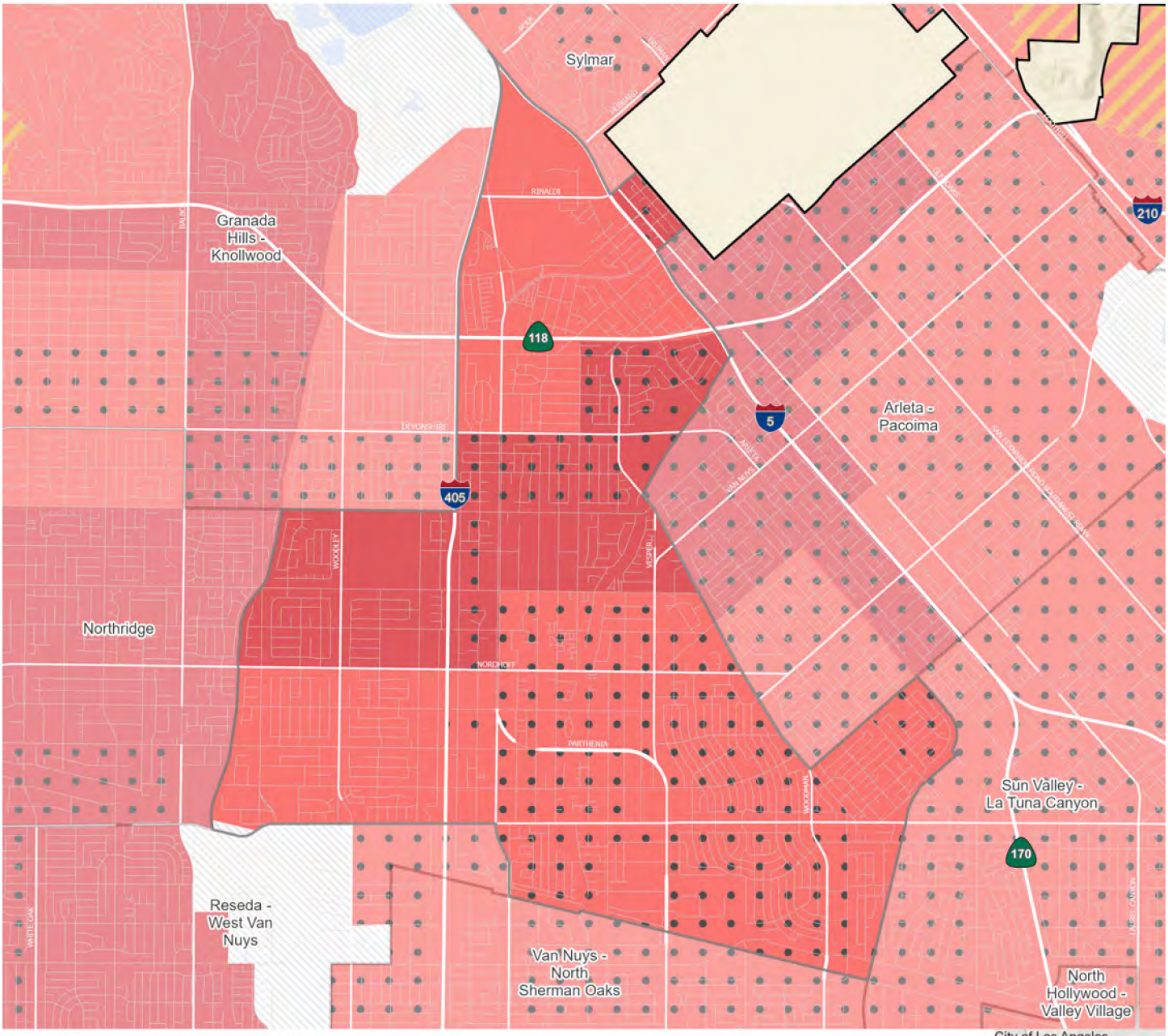
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Mission Hills - Panorama City - North Hills

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



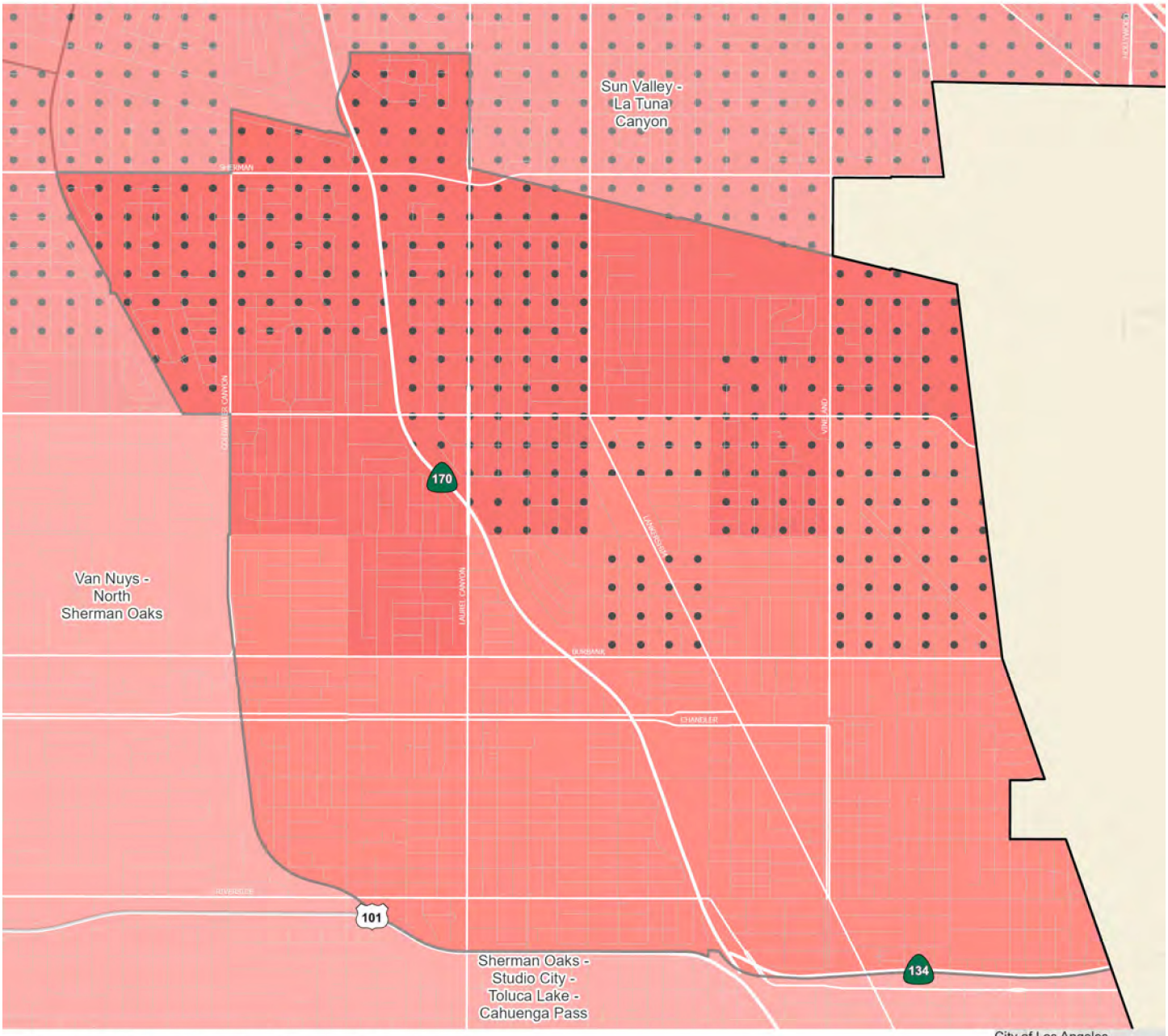
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.28 0.55 1.1
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



North Hollywood - Valley Village

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

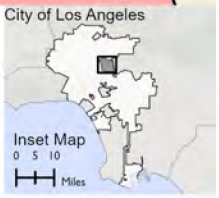
Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



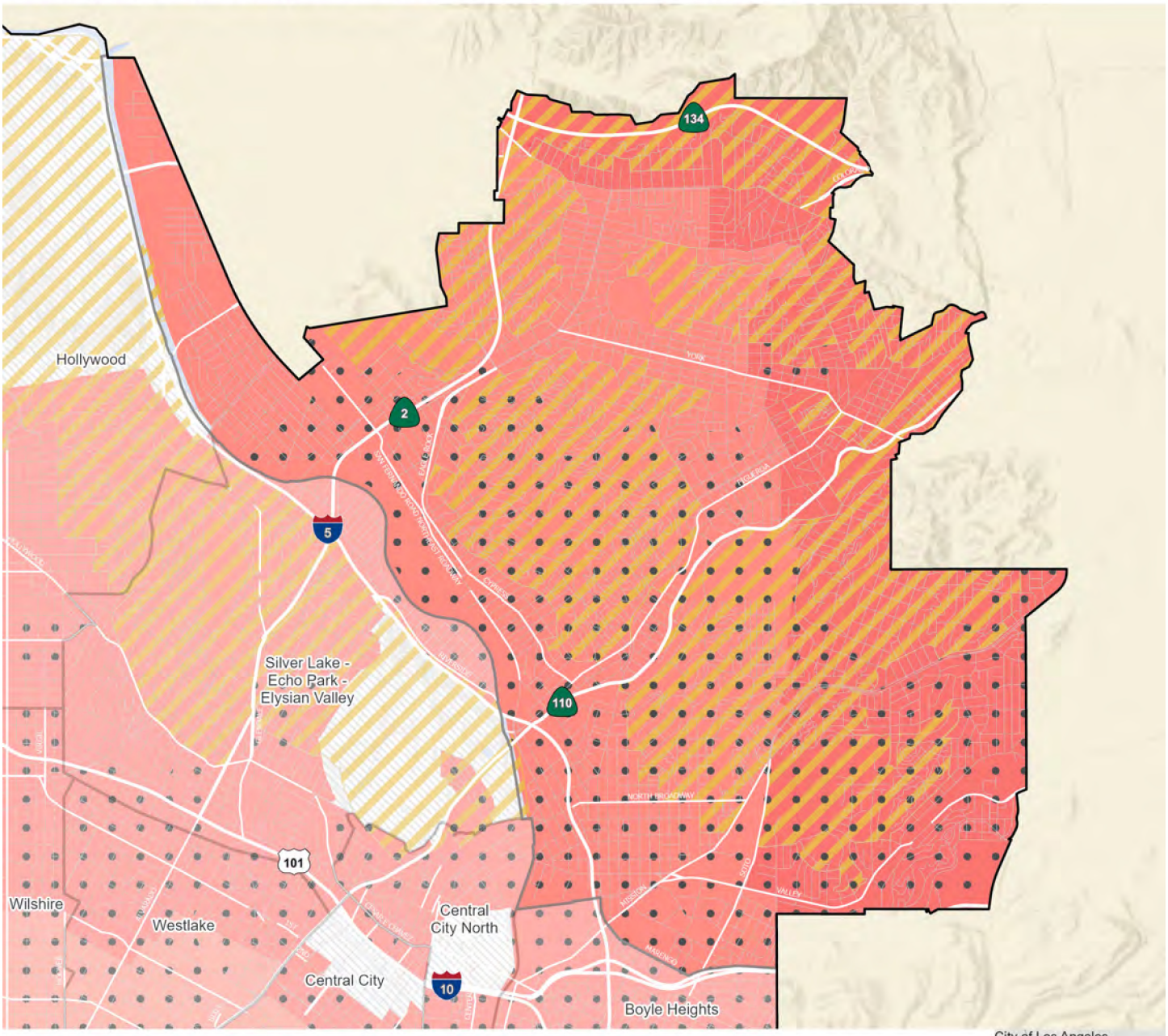
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Northeast Los Angeles

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary



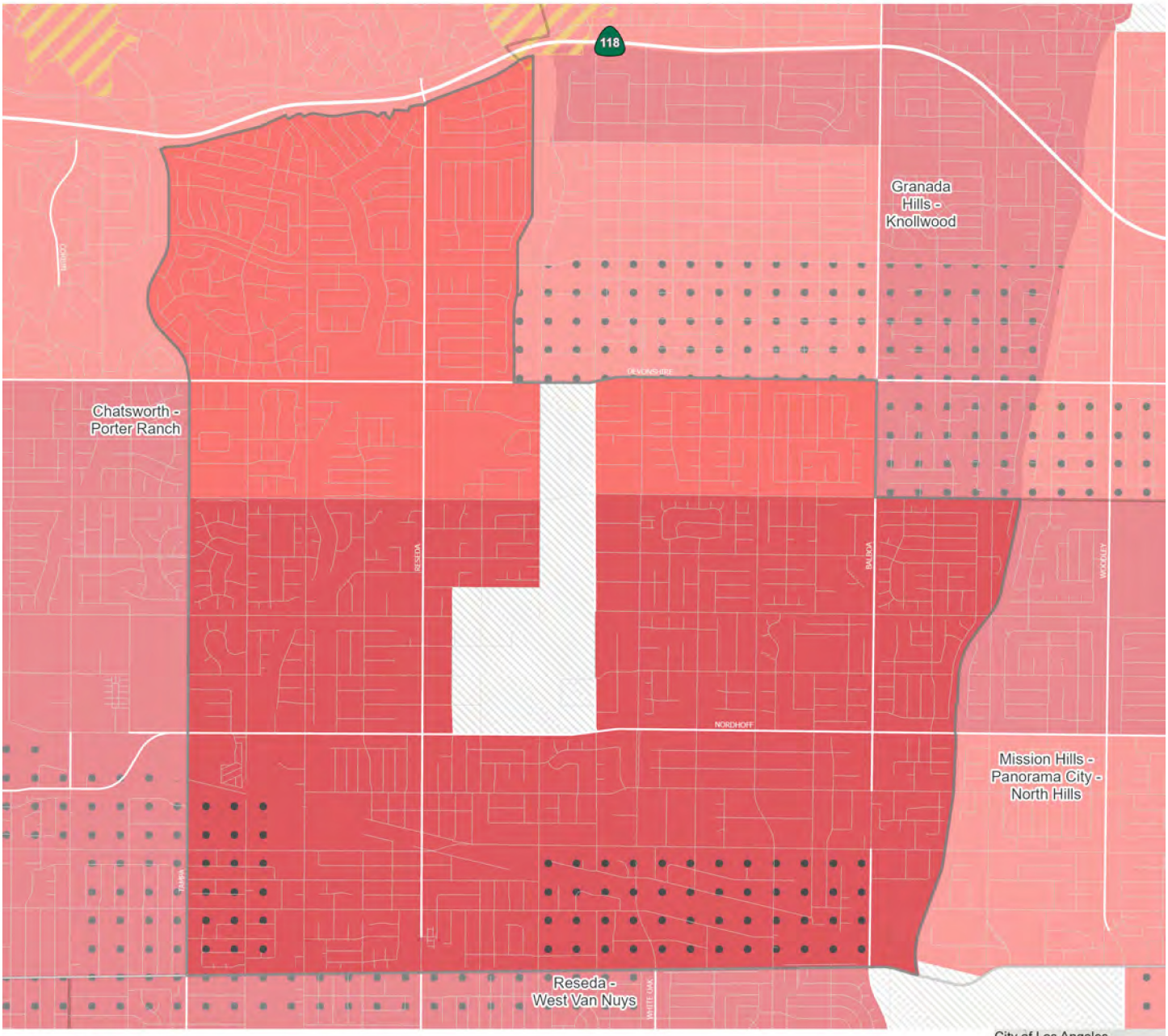
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.3 0.6 1.2
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Northridge

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

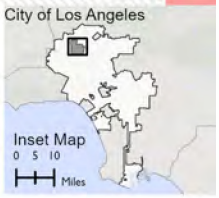
Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



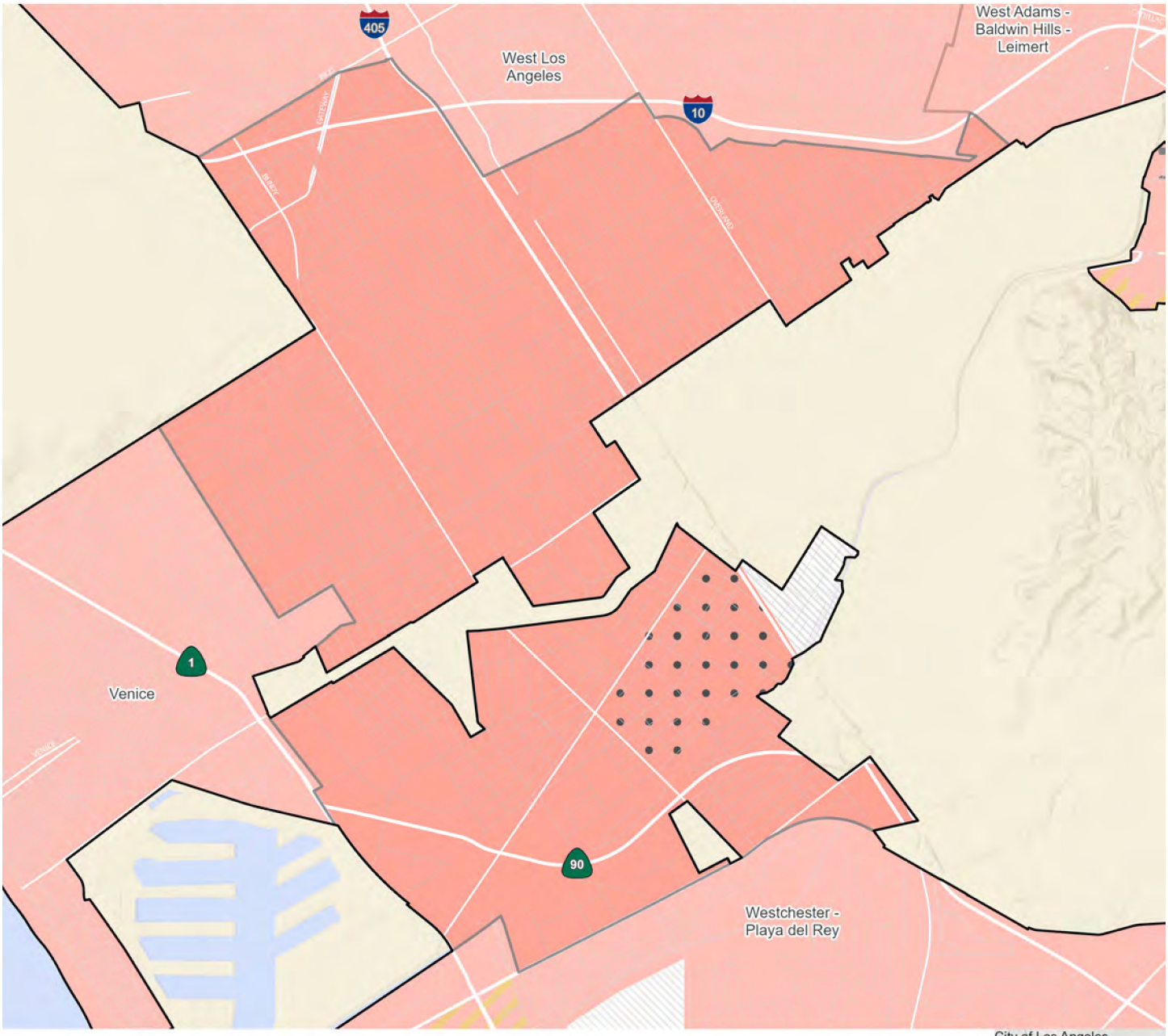
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Palms - Mar Vista - Del Rey

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



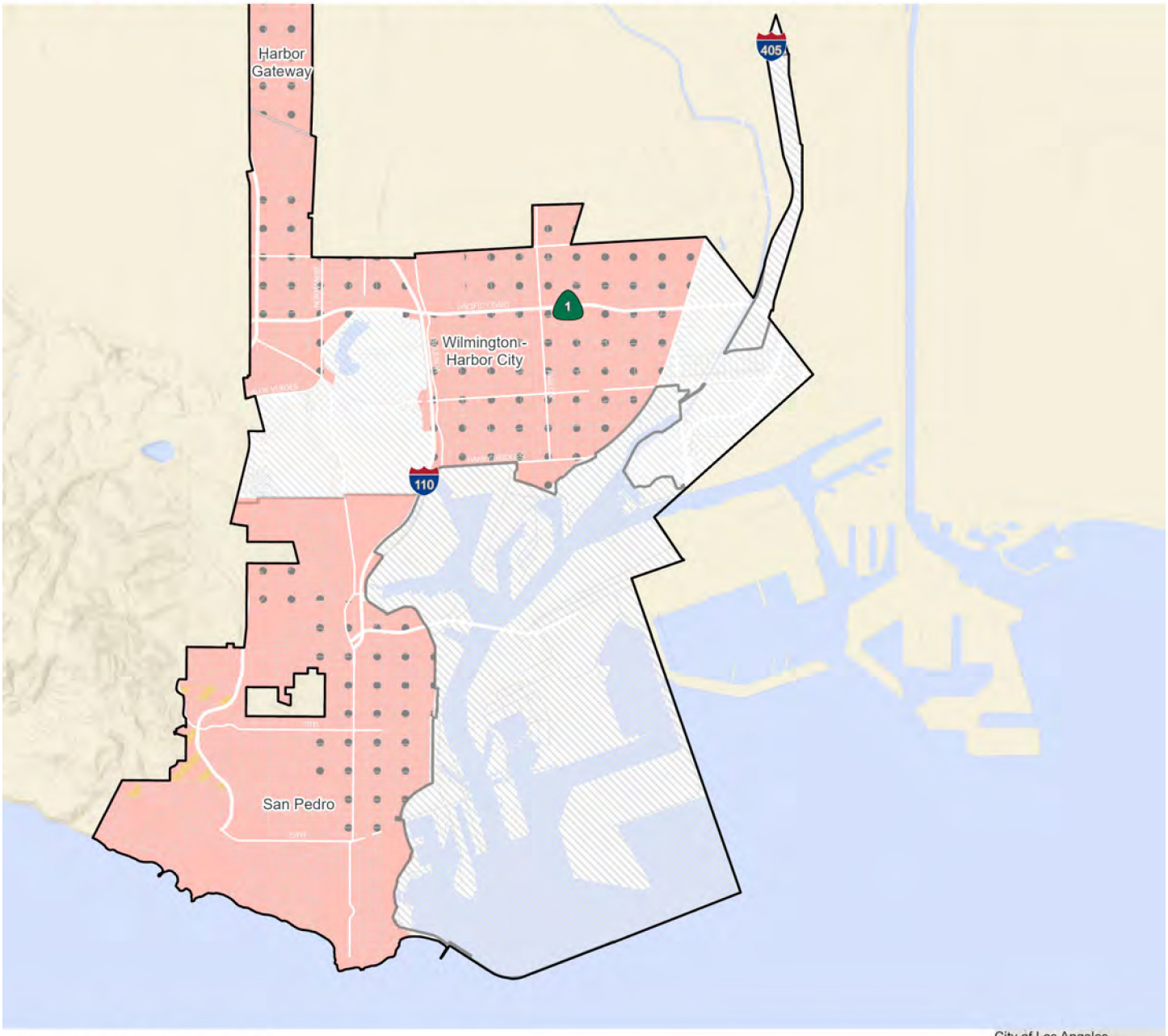
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Port of Los Angeles

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

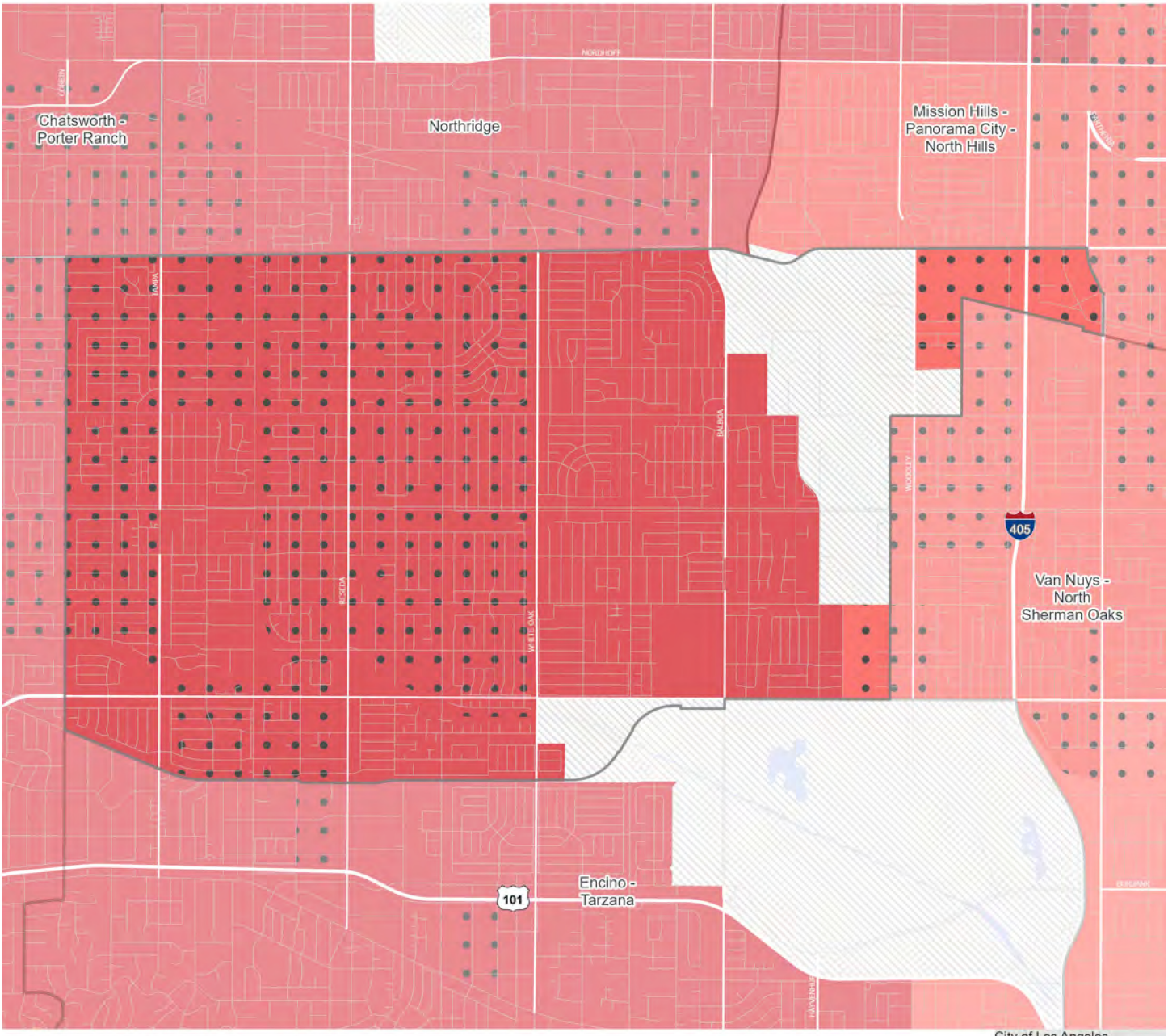
0 0.38 0.75 1.5

Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Reseda - West Van Nuys

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

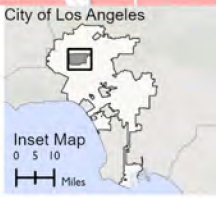
Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



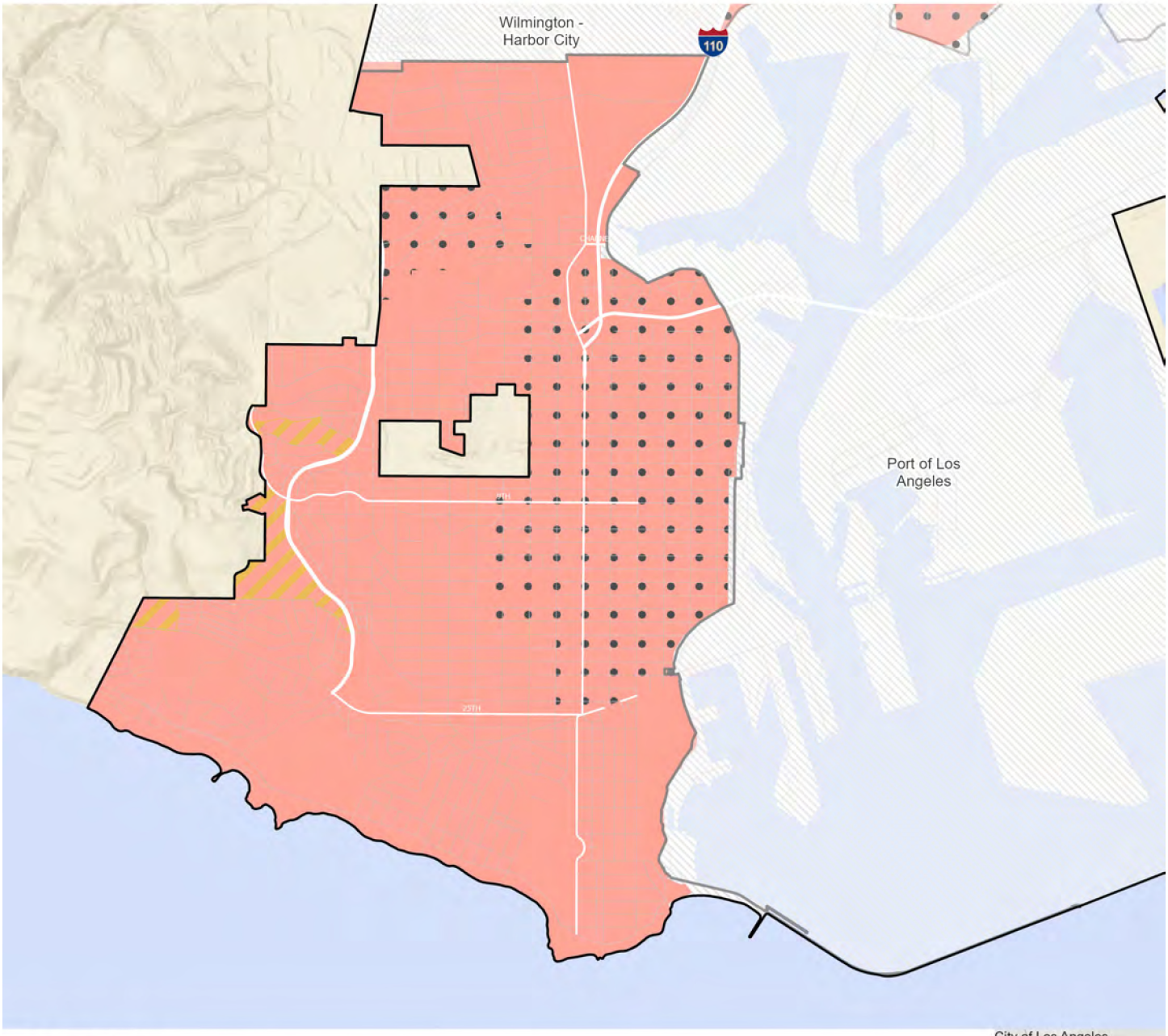
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.2 0.4 0.8
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



San Pedro

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



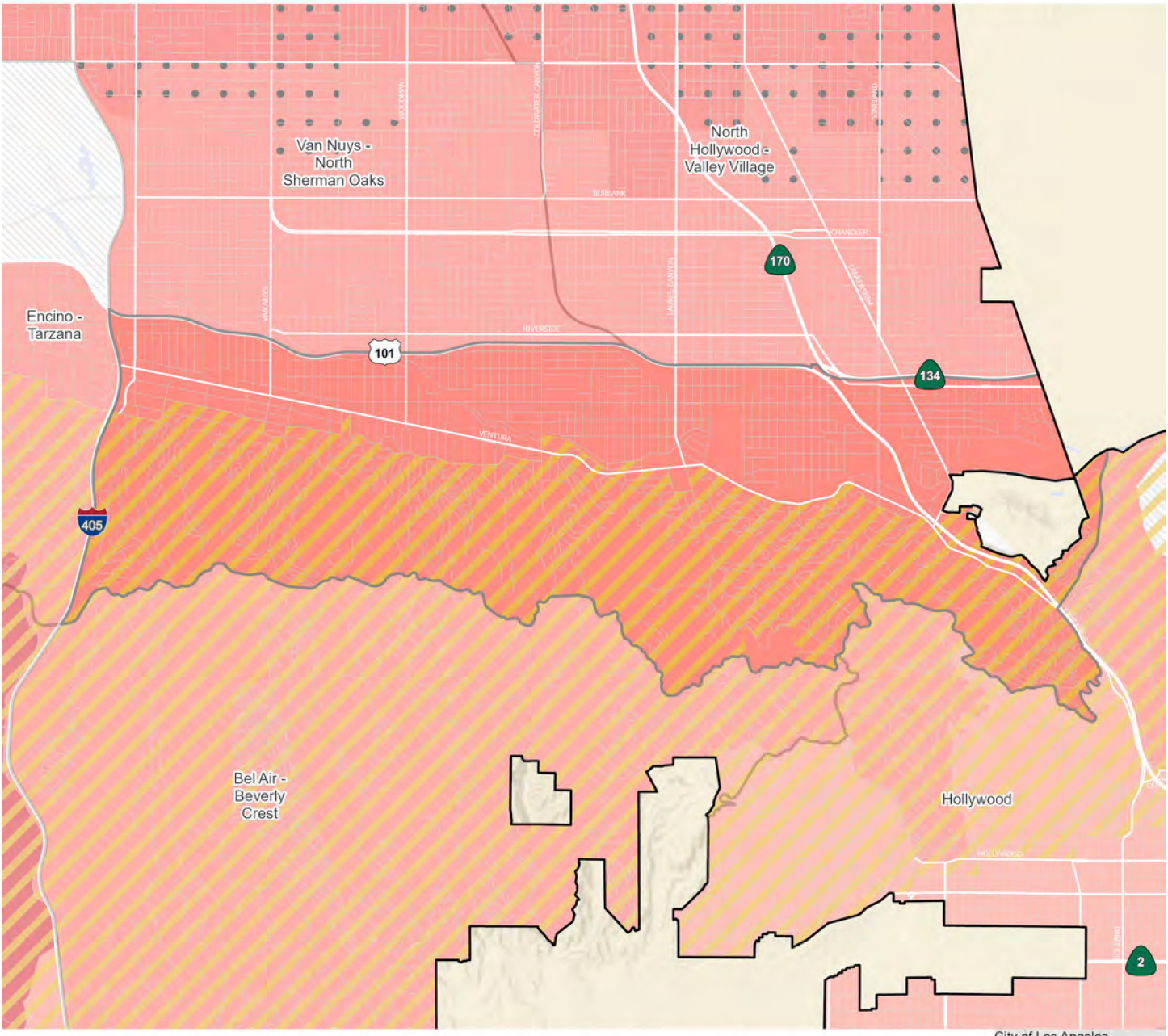
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

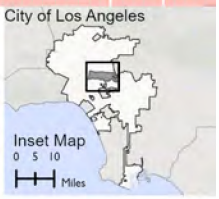
Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.3 0.6 1.2
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Silver Lake - Echo Park - Elysian Valley

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

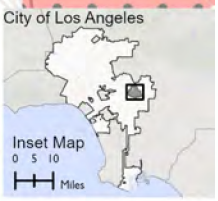
Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary



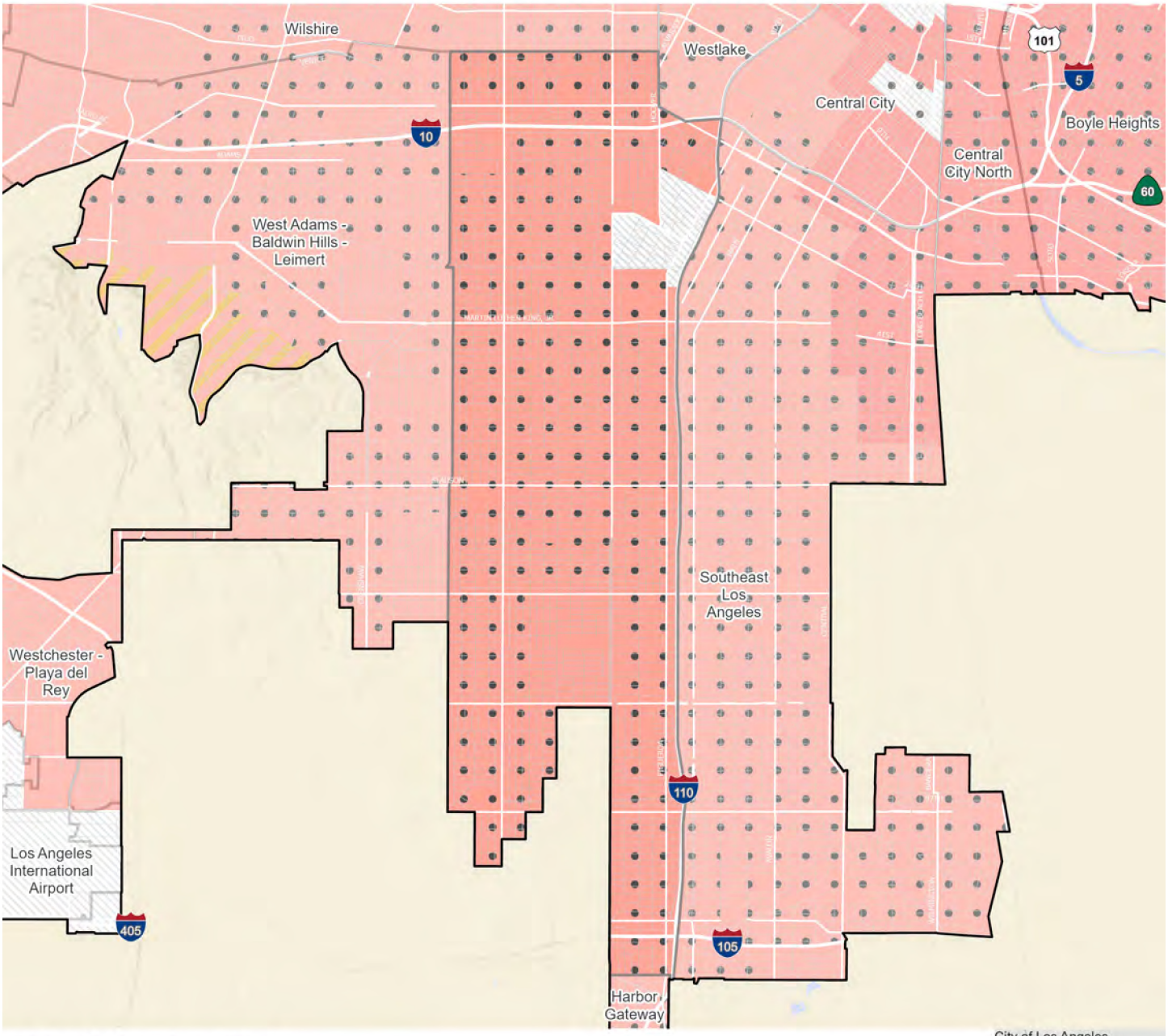
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.15 0.3 0.6
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



South Los Angeles

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



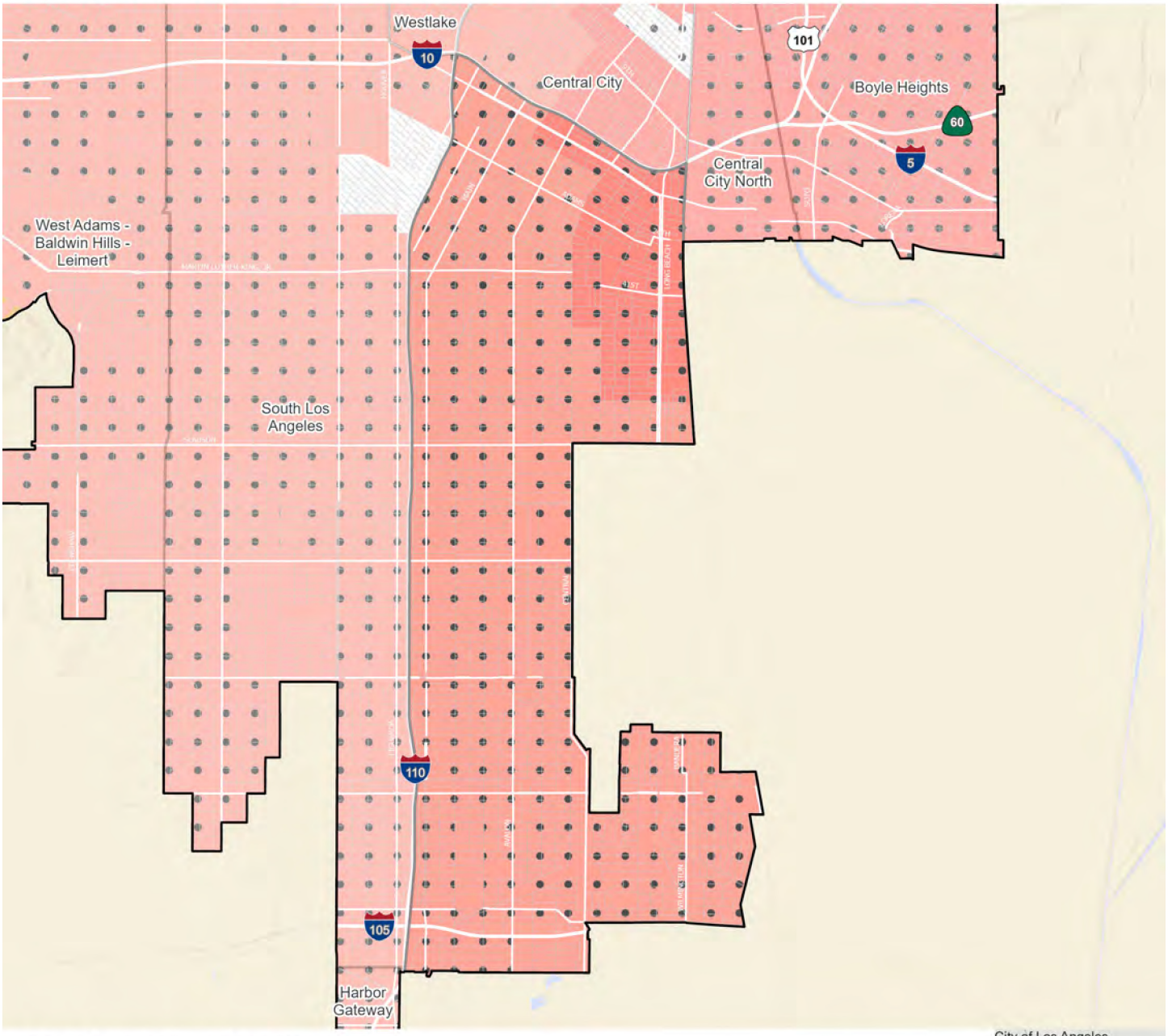
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.38 0.75 1.5
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Southeast Los Angeles

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



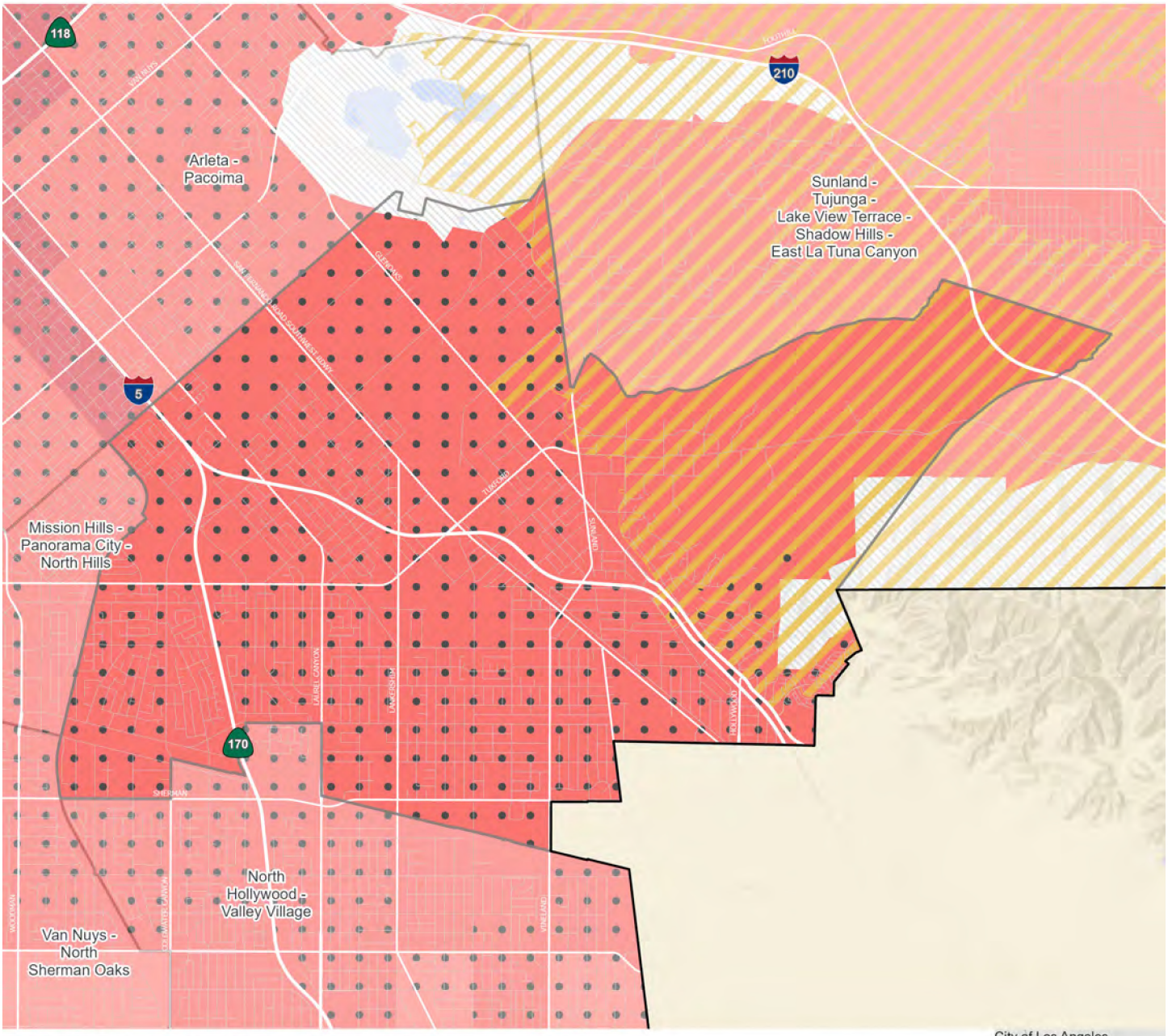
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.35 0.7 1.4
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Sun Valley - La Tuna Canyon

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



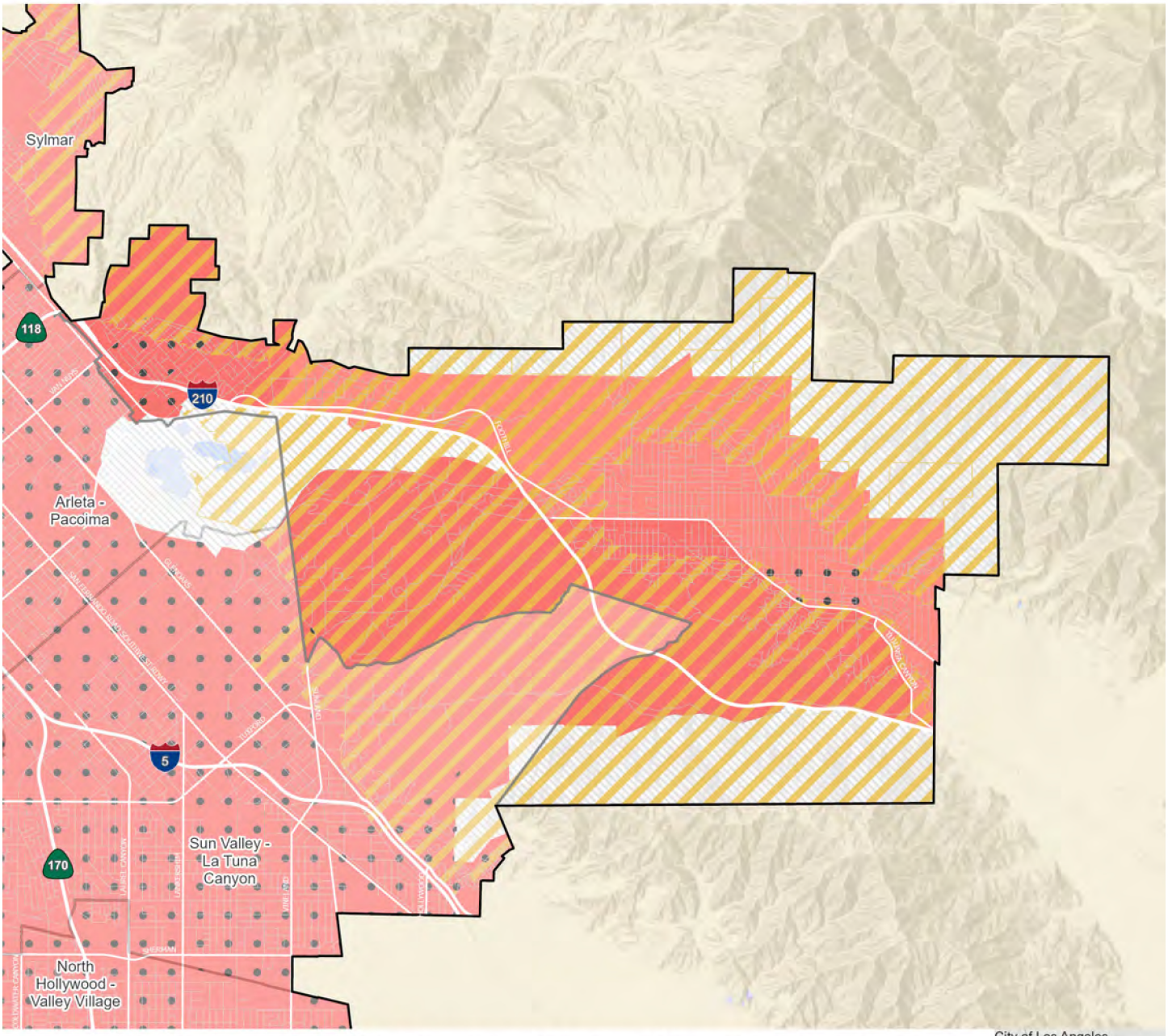
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.28 0.55 1.1
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Sunland - Tujunga - Lake View Terrace - Shadow Hills - East La Tuna Canyon

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



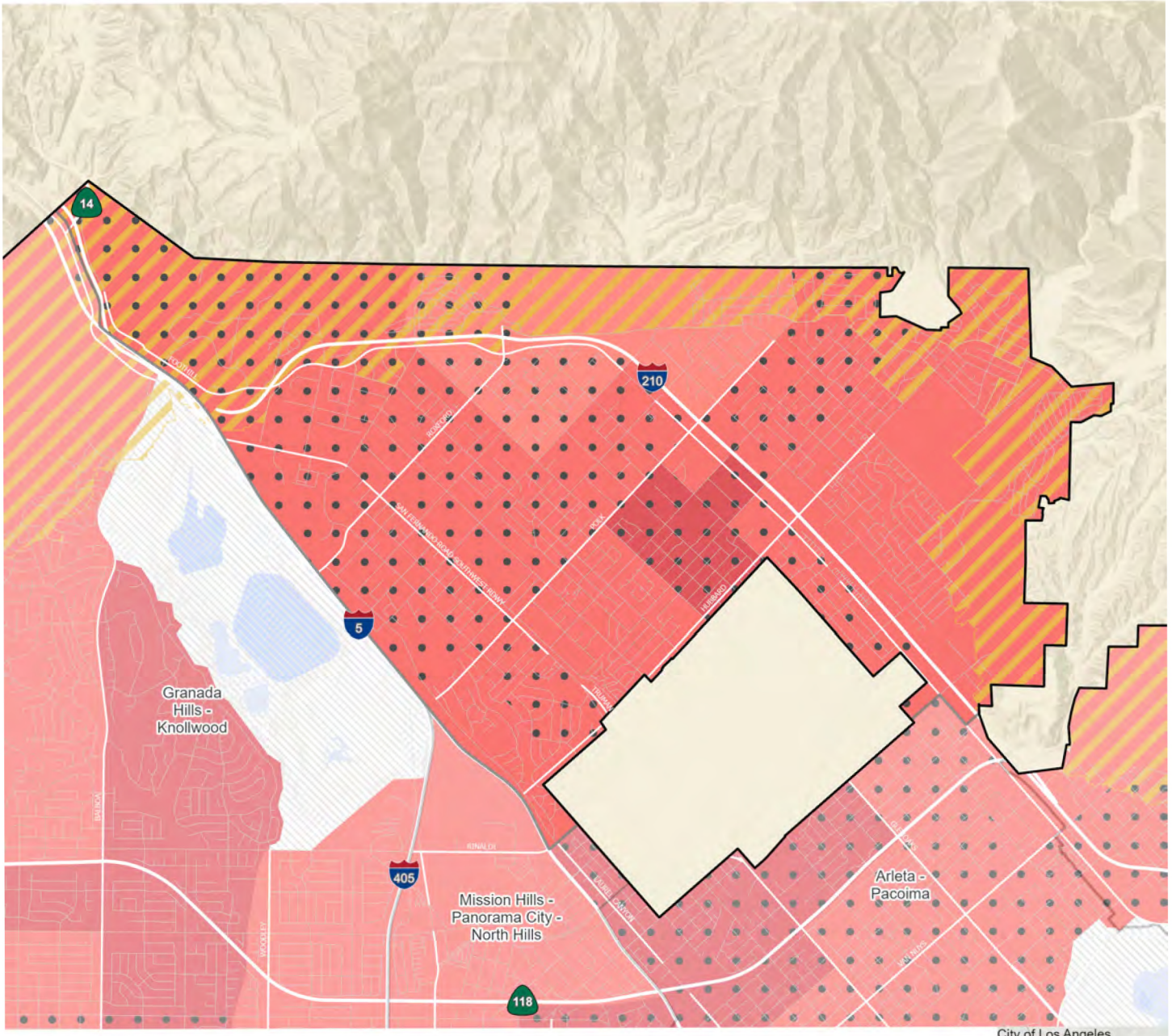
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.38 0.75 1.5
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Sylmar

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary



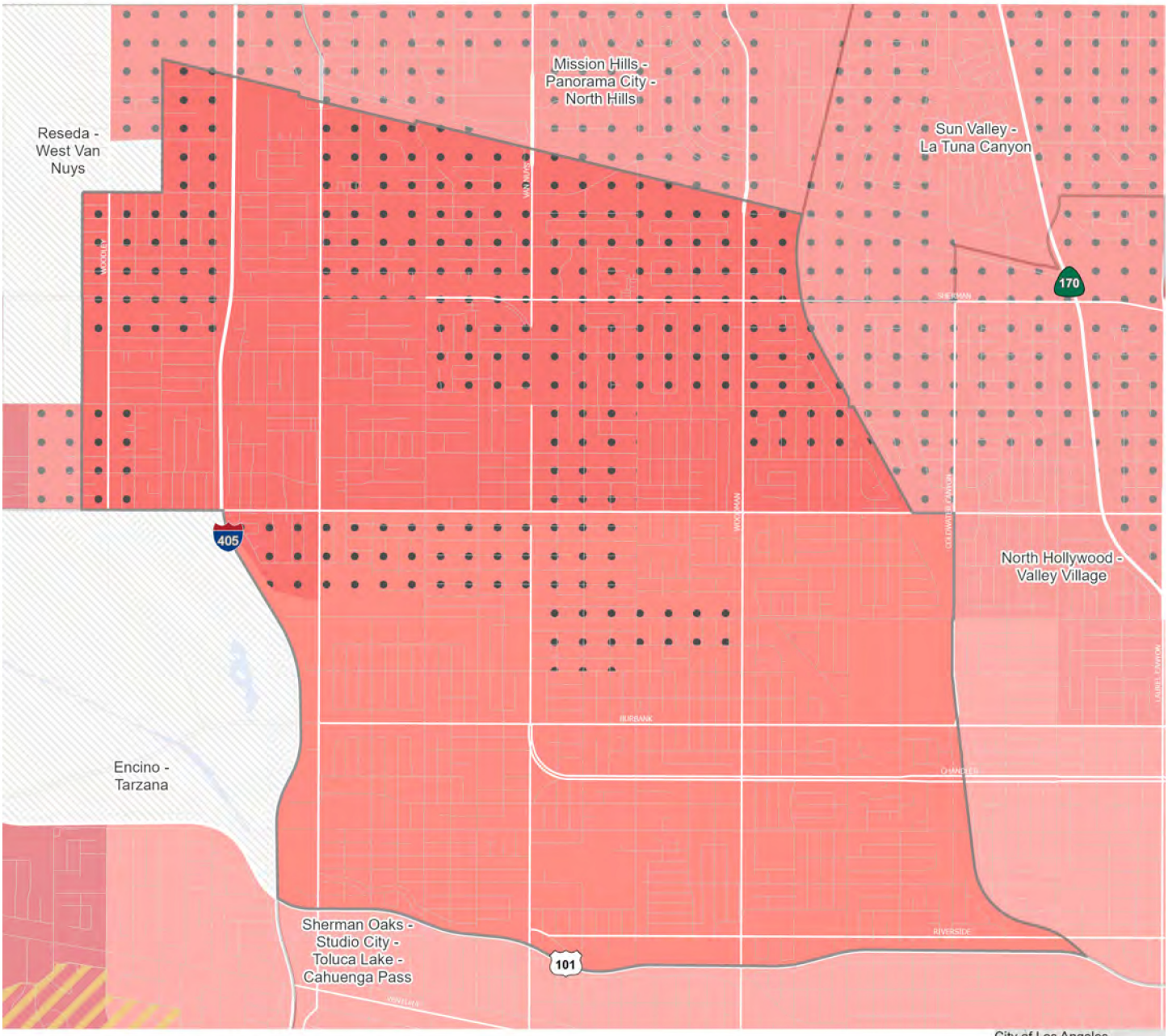
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.25 0.5 1
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Van Nuys - North Sherman Oaks

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

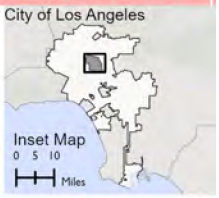
Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



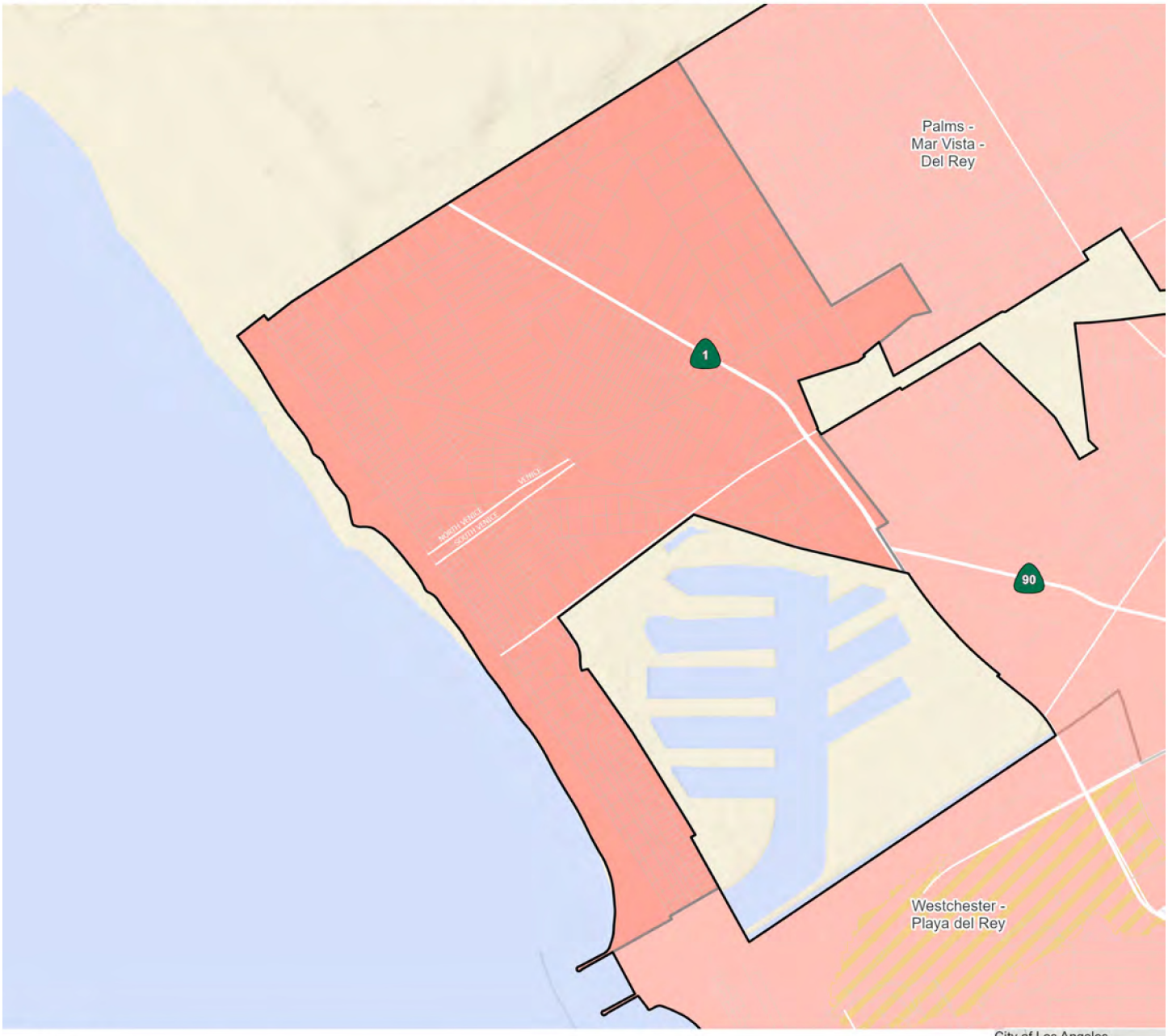
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Venice

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary



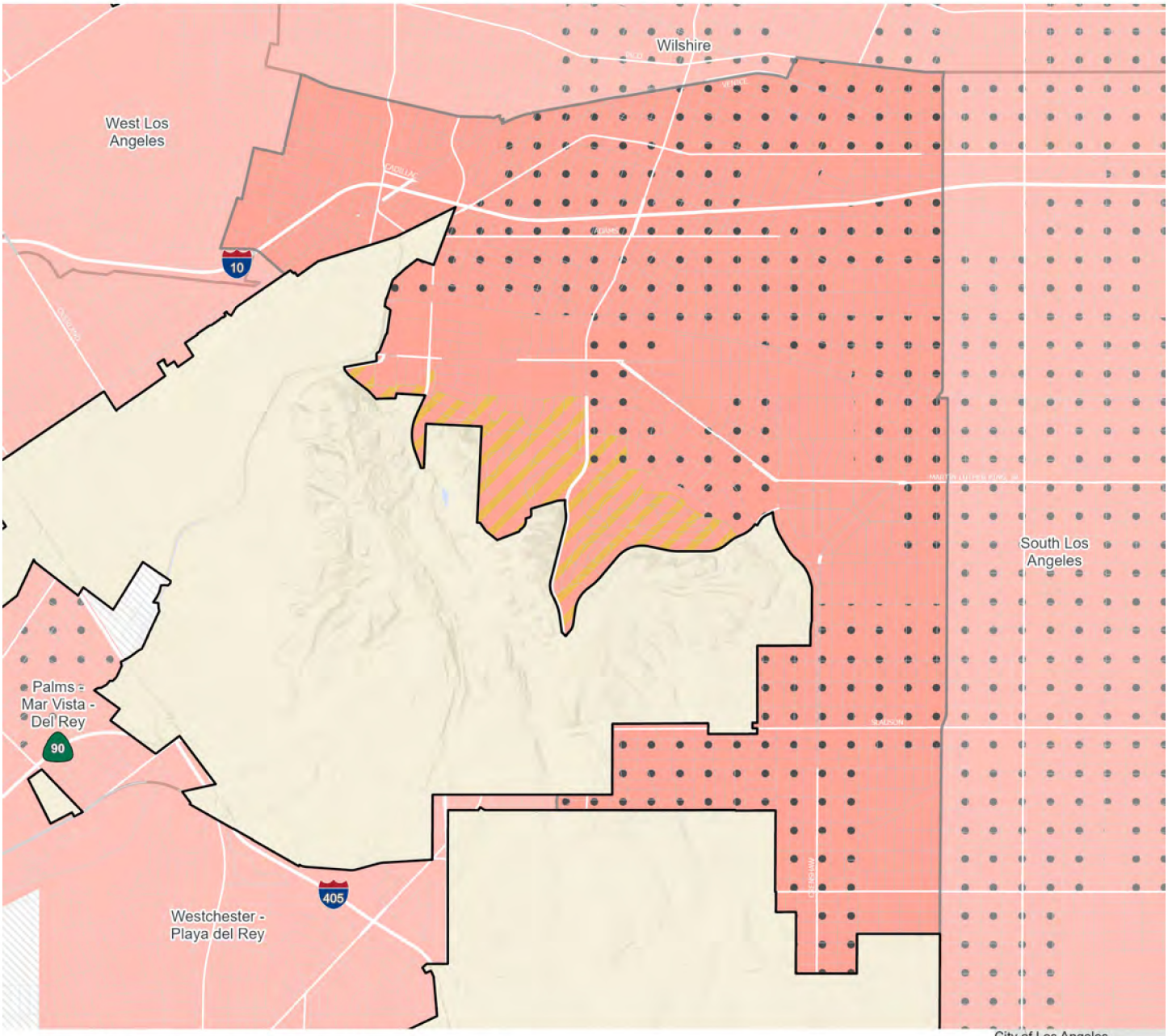
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.15 0.3 0.6
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



West Adams - Baldwin Hills - Leimert

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



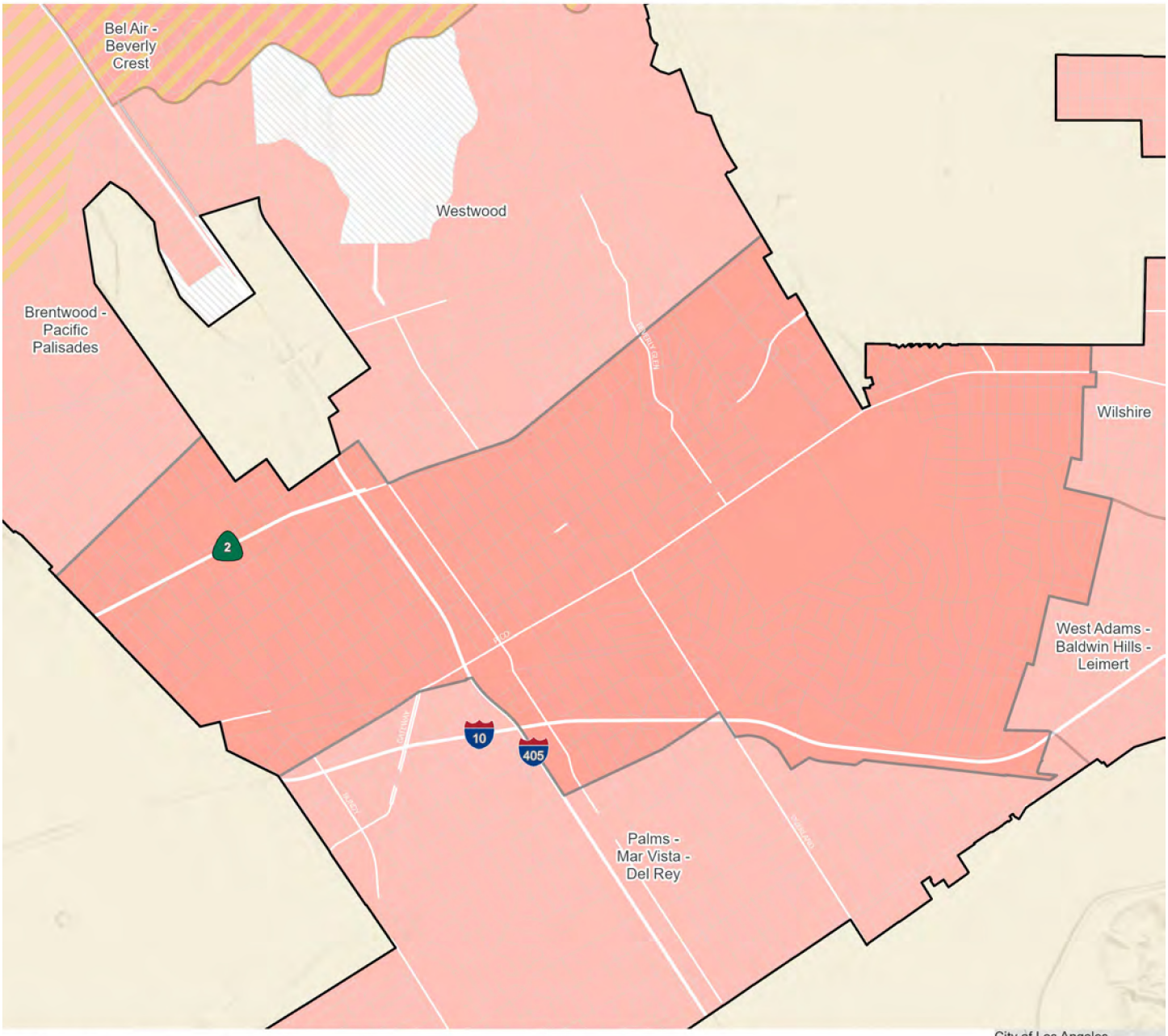
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.25 0.5 1
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



West Los Angeles

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



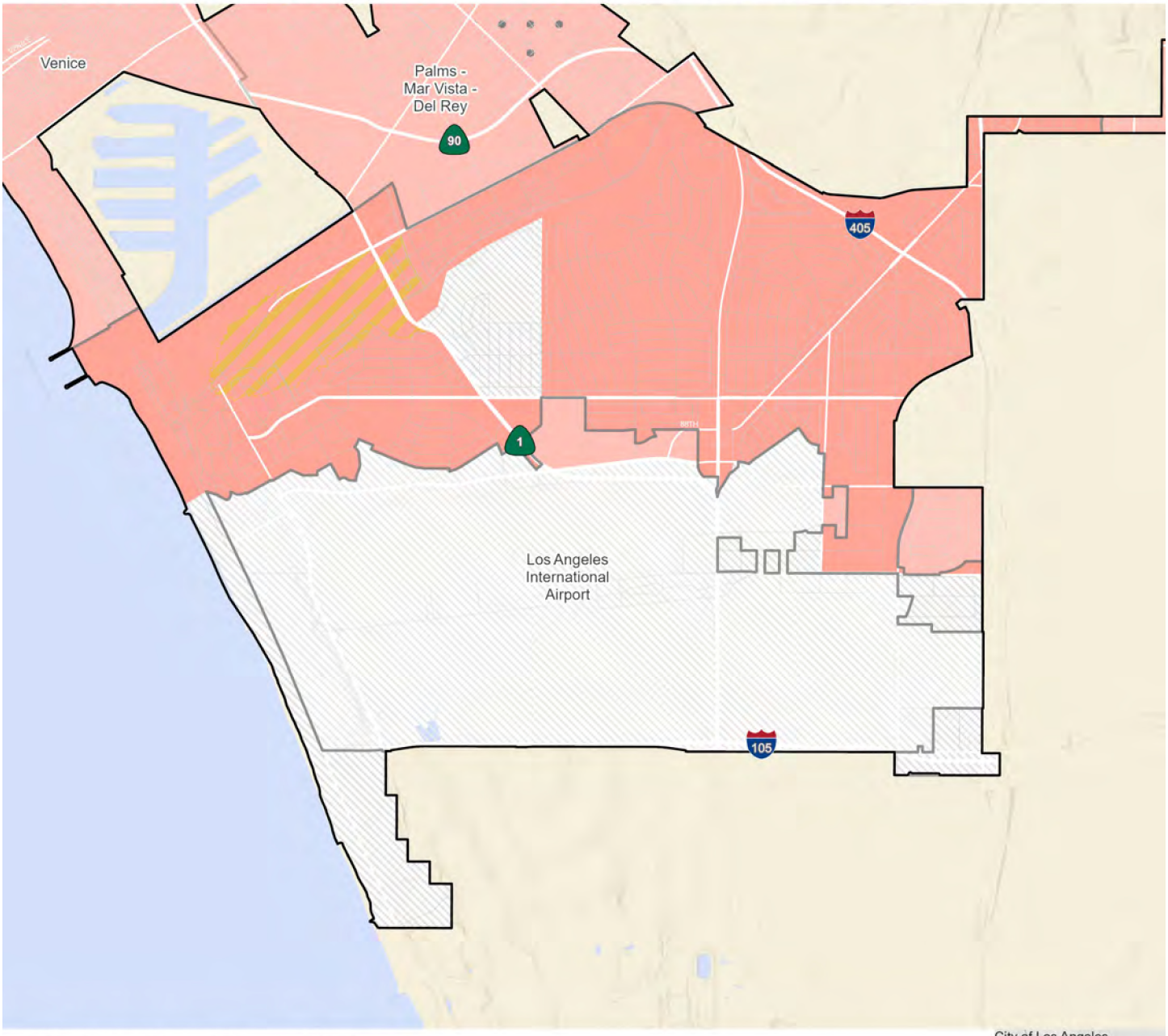
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Westchester - Playa del Rey

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

- More days
- Fewer days
- Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

- Socially Vulnerable Communities

Community Plan Area

City Boundary



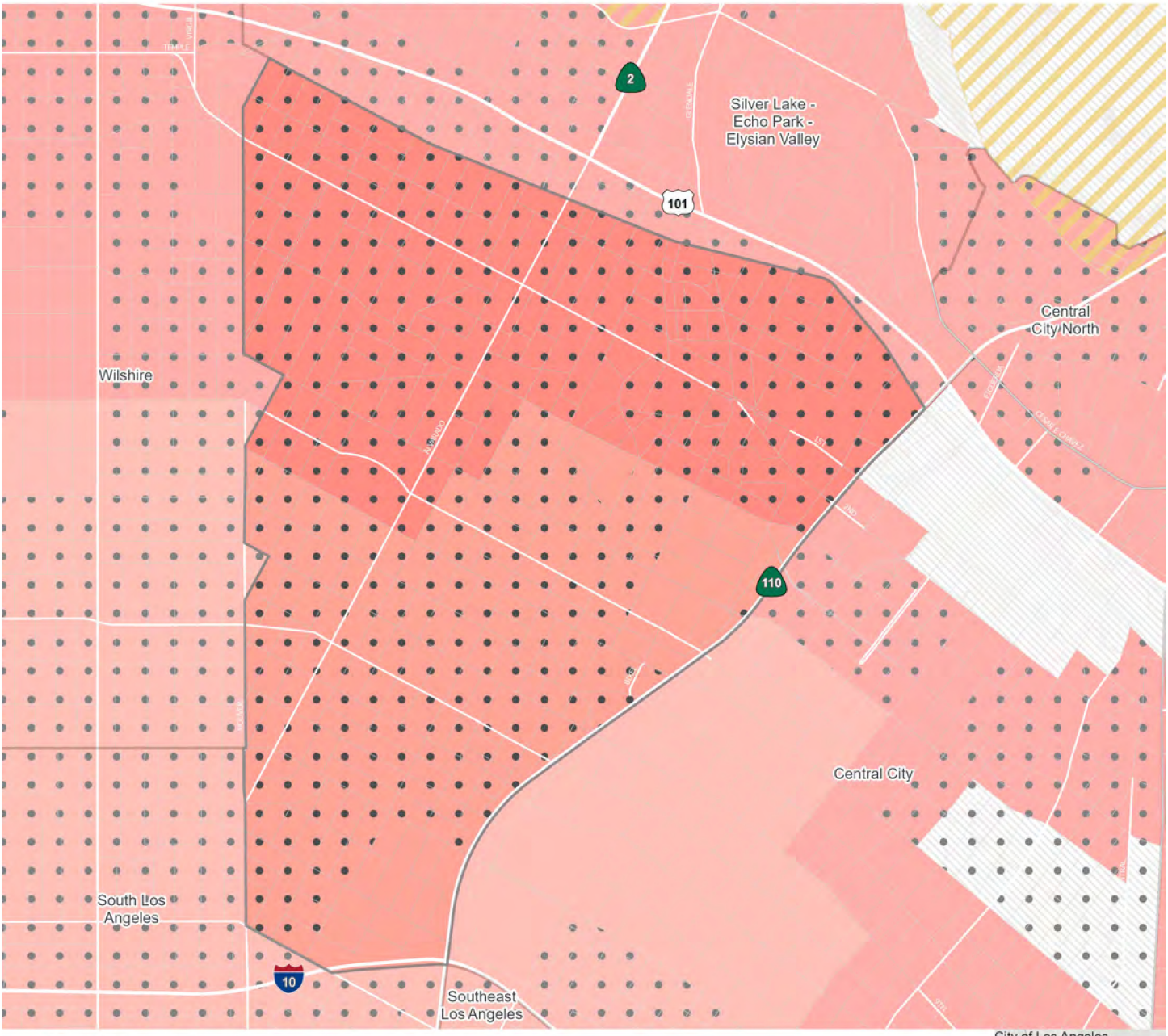
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.23 0.45 0.9
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Westlake

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

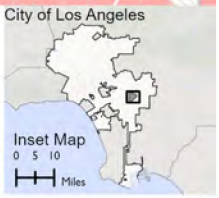
Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary



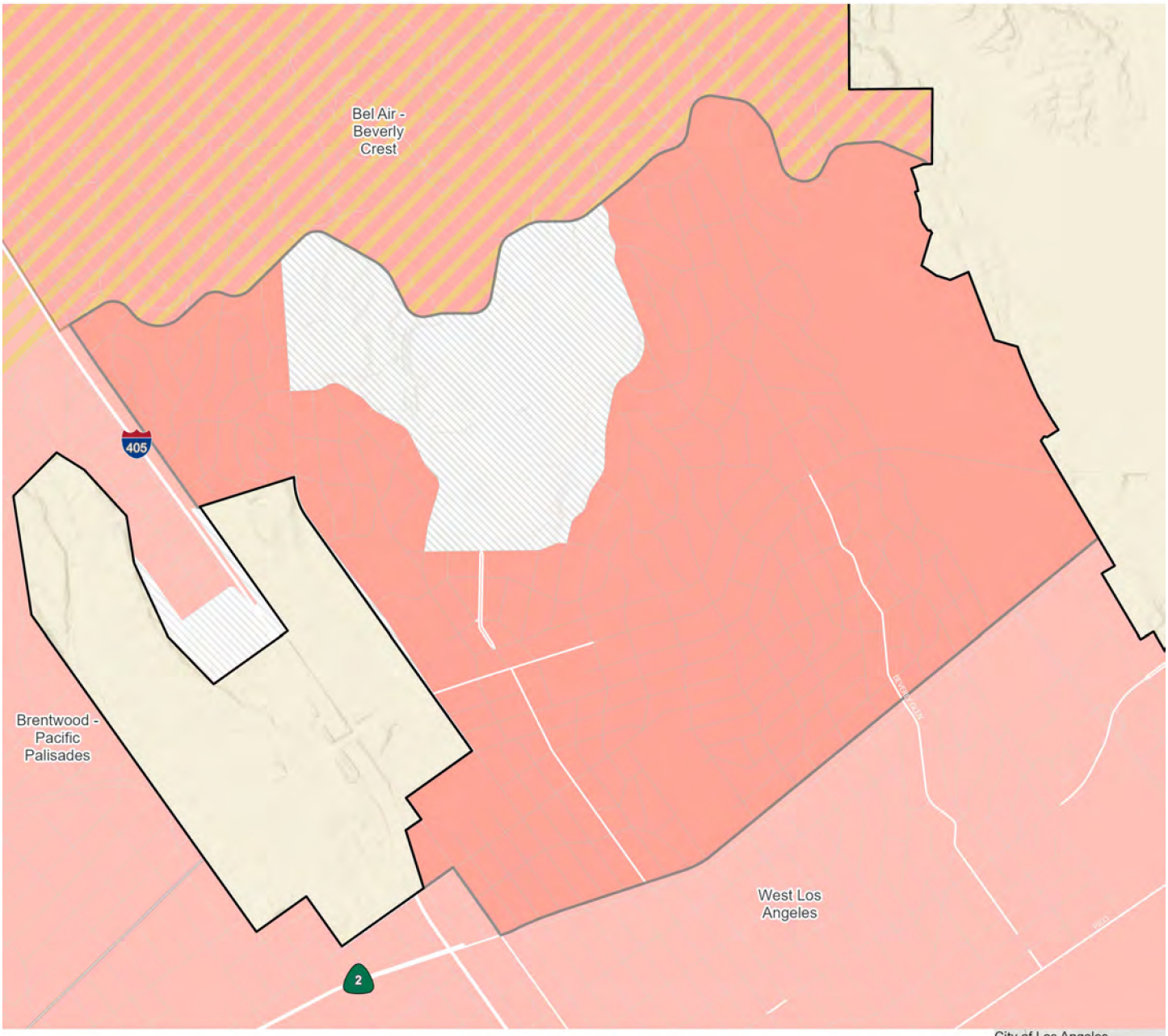
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.1 0.2 0.4
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Westwood

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary



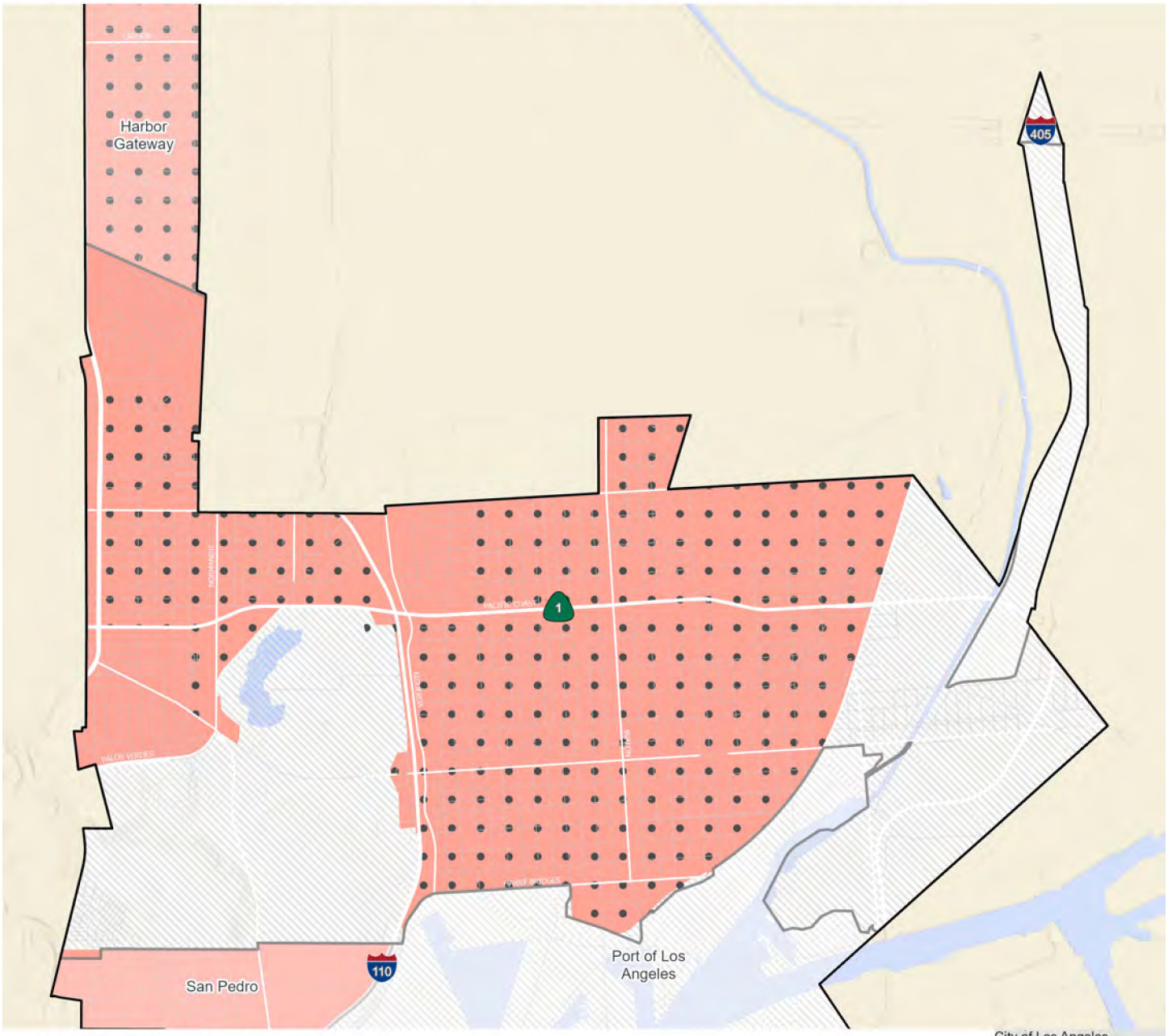
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.1 0.2 0.4
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Wilmington - Harbor City

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary



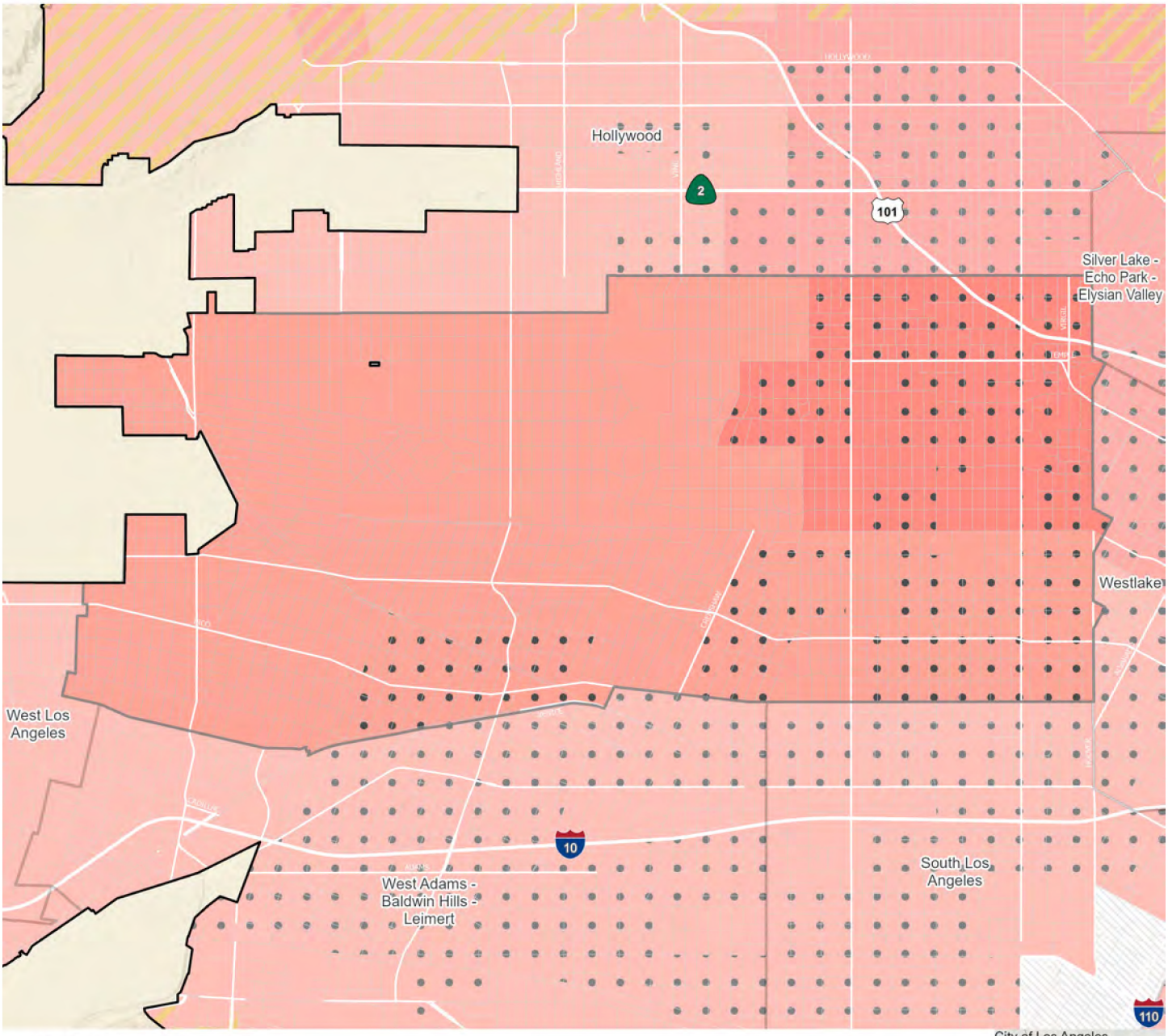
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

0 0.2 0.4 0.8
Miles

N

City of Los Angeles

Socially Vulnerable Population in Extreme Heat and Wildfire Hazard Area



Wilshire

Projection for 2070-2099

Extreme Heat Days Above 100 degrees F

More days

Fewer days

Index Not Calculated

Fire Severity Zone

Community Health and Equity Index

Socially Vulnerable Communities

Community Plan Area

City Boundary



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; Cal-Fire 2024; City of LA Dept. of City Planning 2021

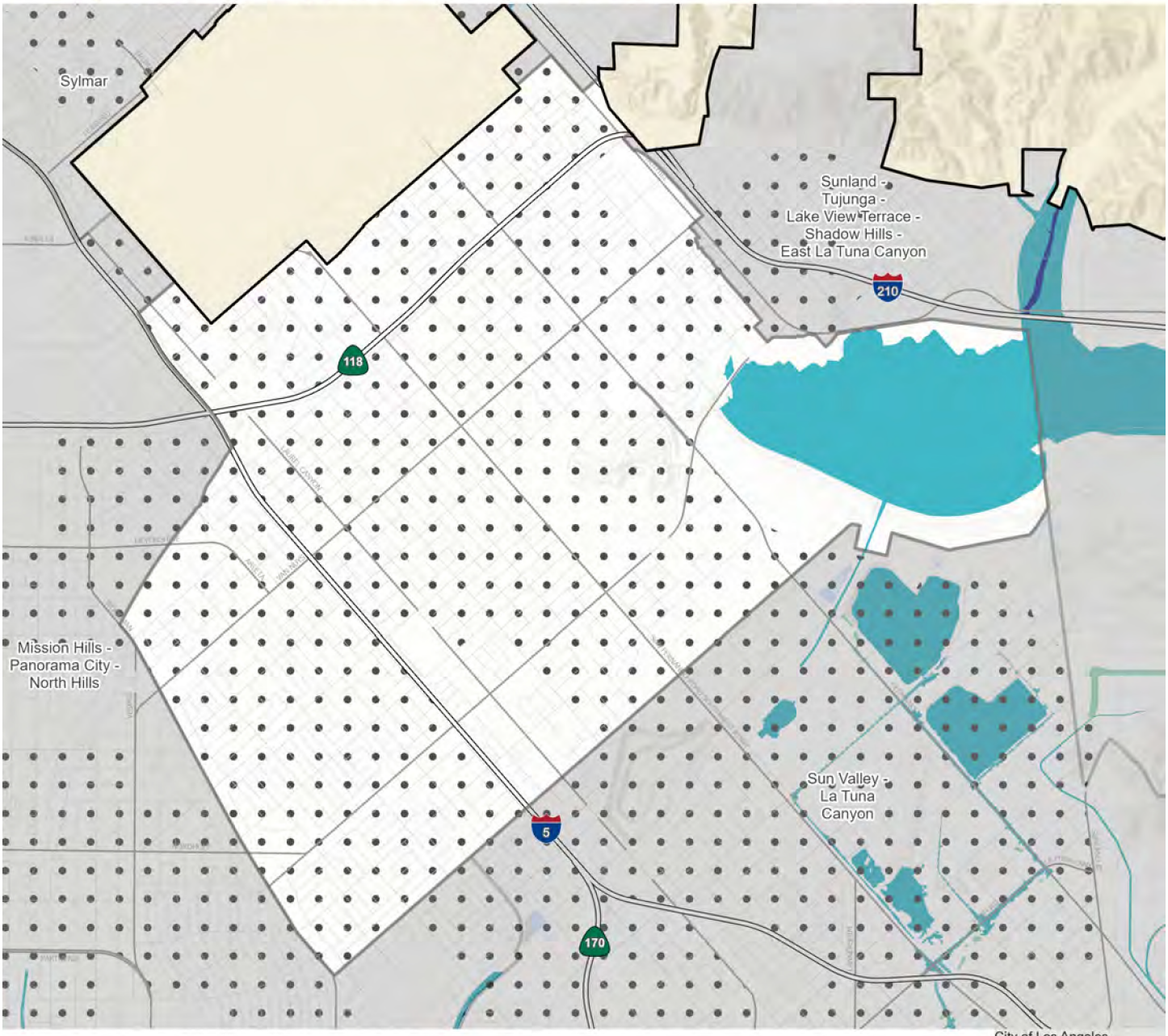
0 0.25 0.5 1
Miles

N

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Areas

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



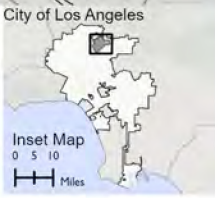
Arleta - Pacoima

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

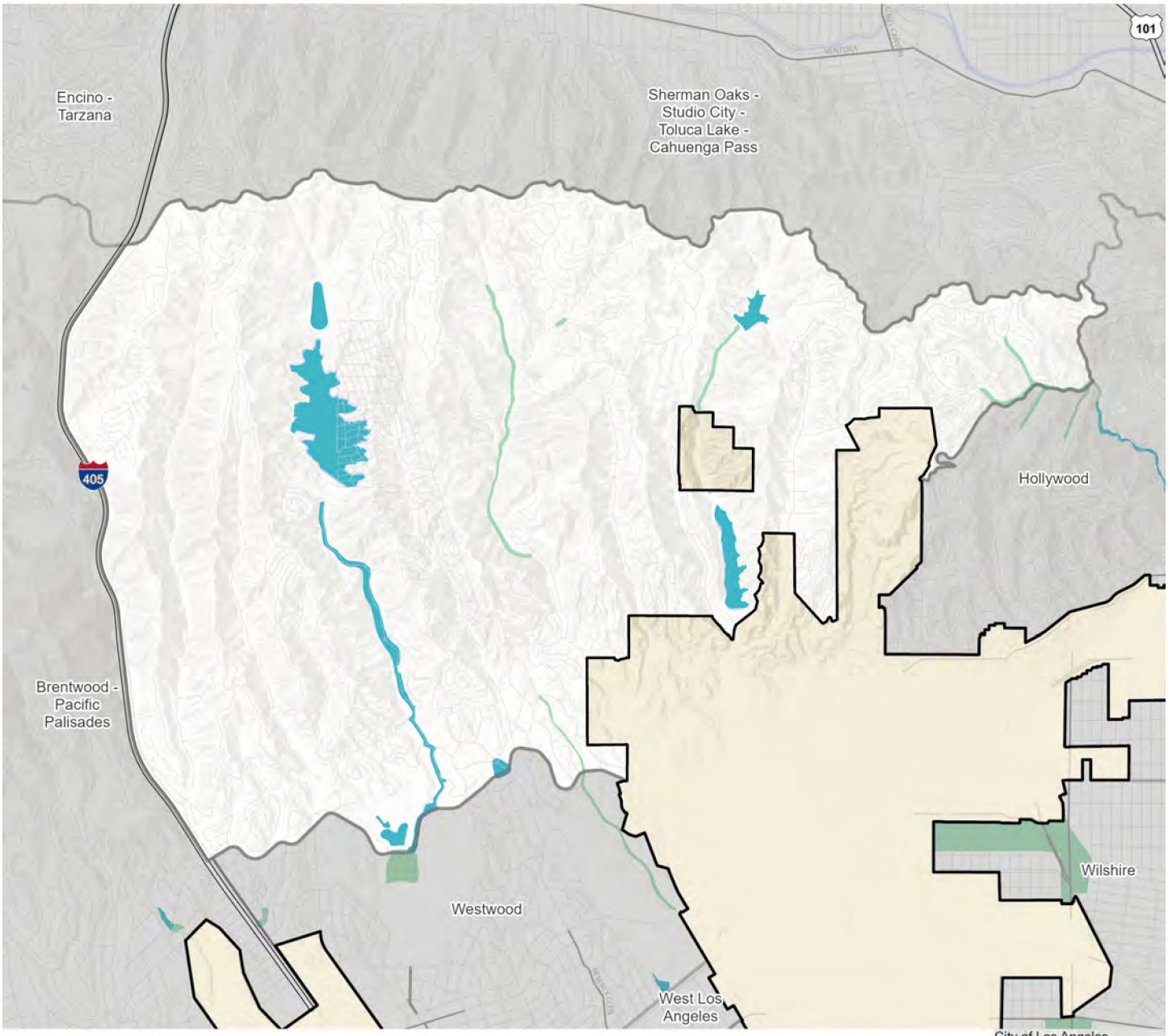
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.2 0.4 0.8
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



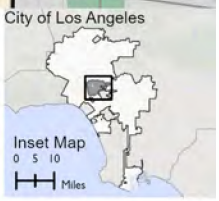
Bel Air - Beverly Crest

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

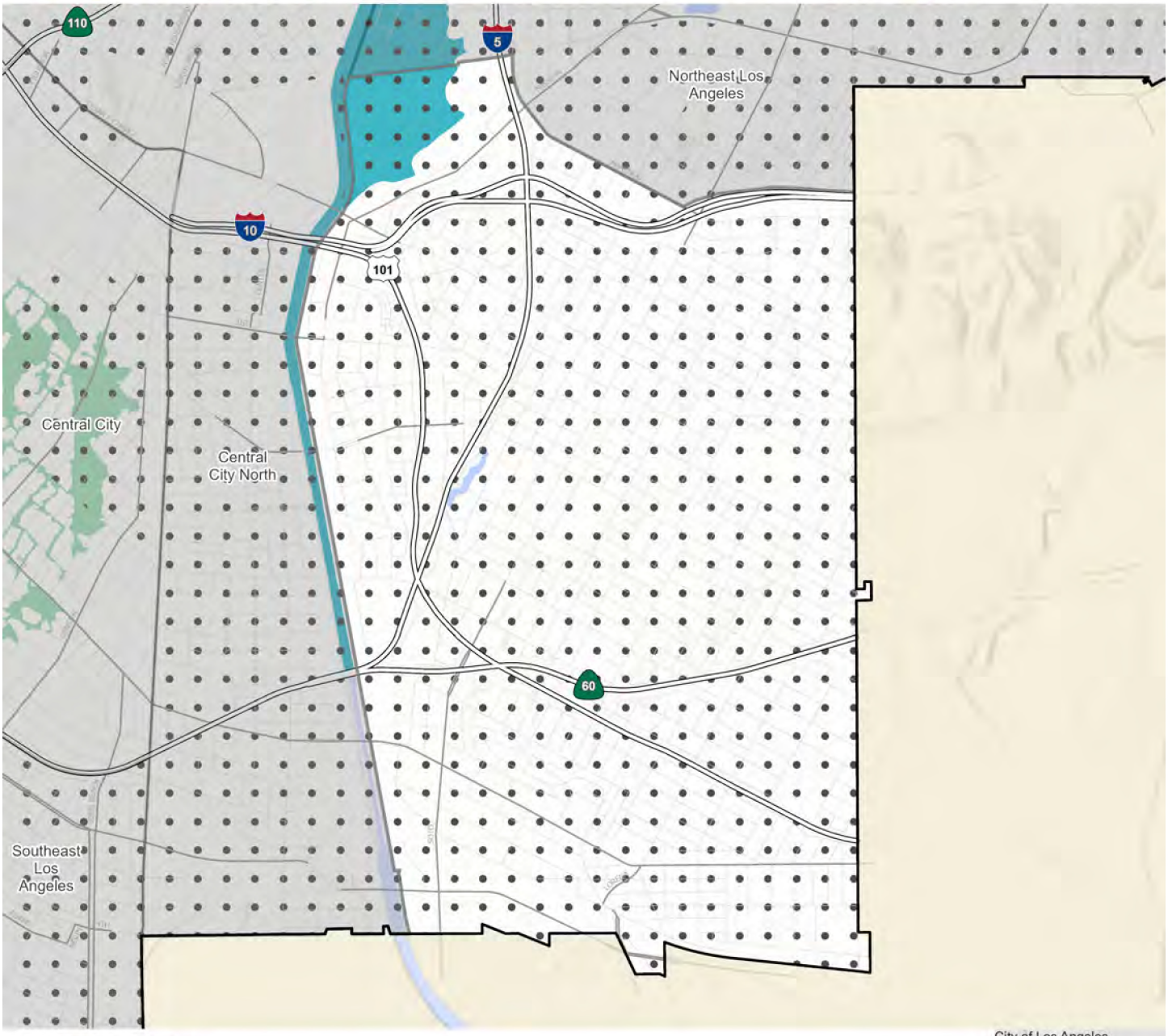
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.25 0.5 1
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Boyle Heights

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

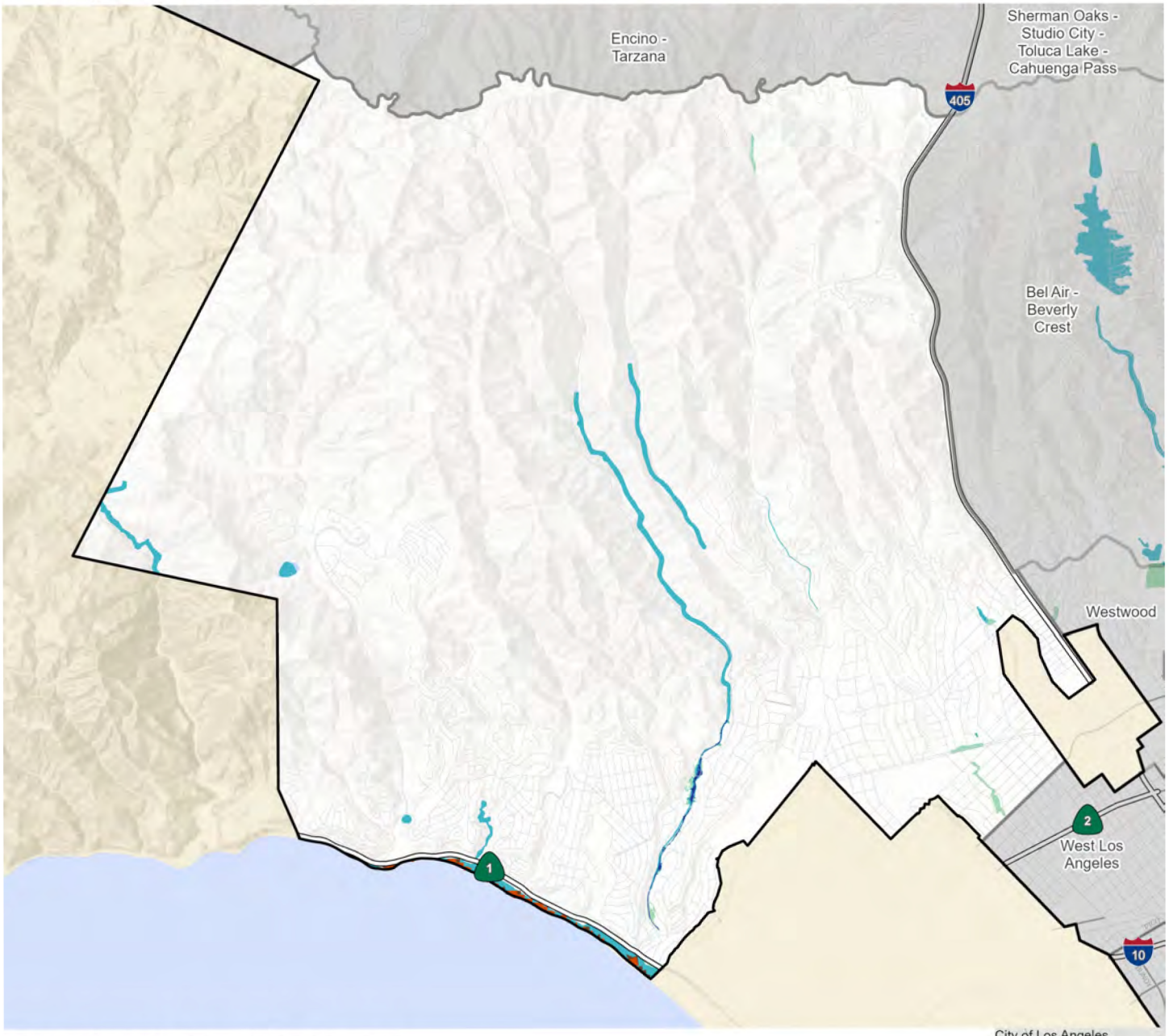
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.15 0.3 0.6
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



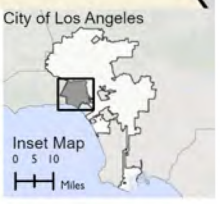
Brentwood - Pacific Palisades

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

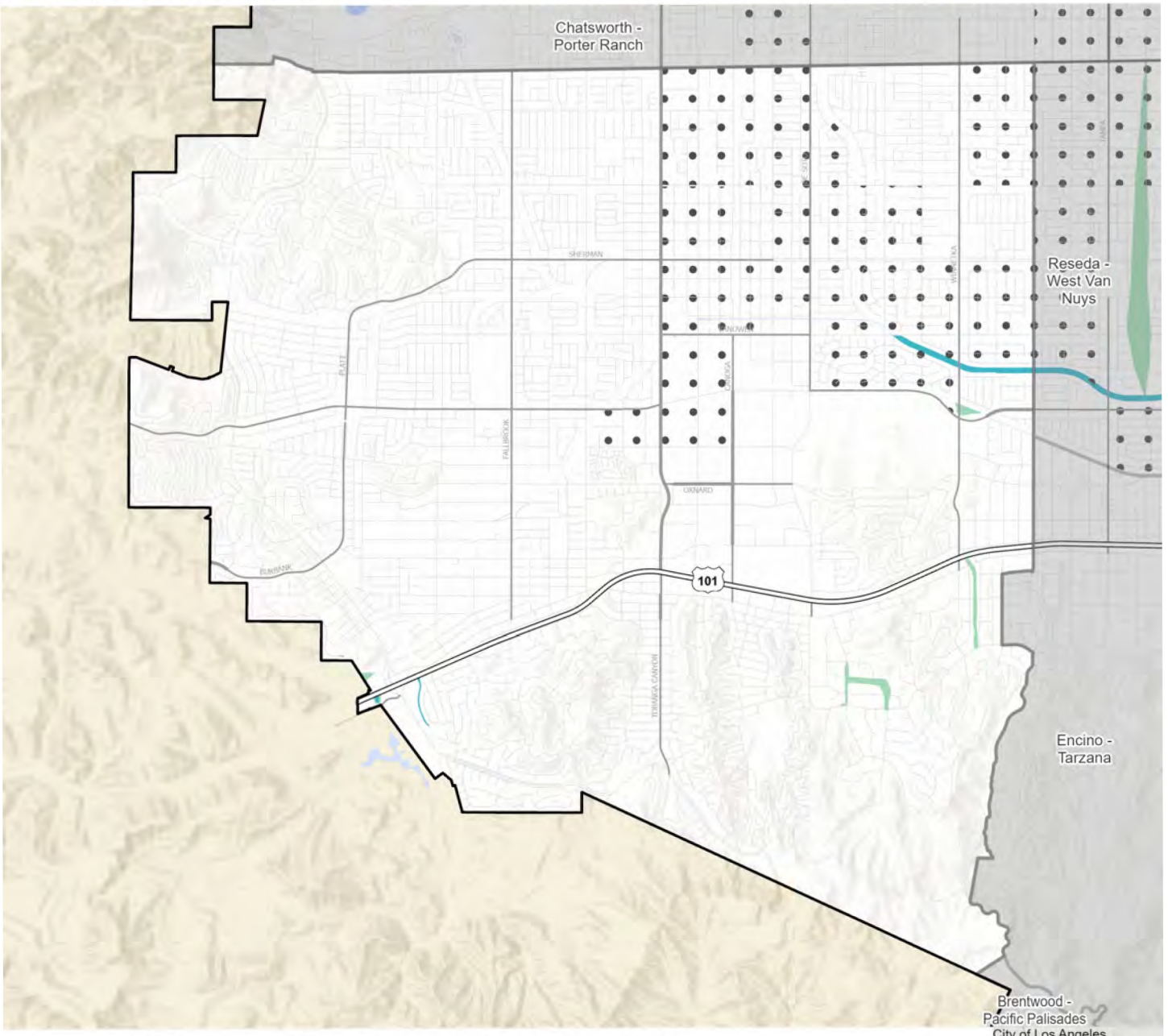
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.33 0.65 1.3
Miles

N

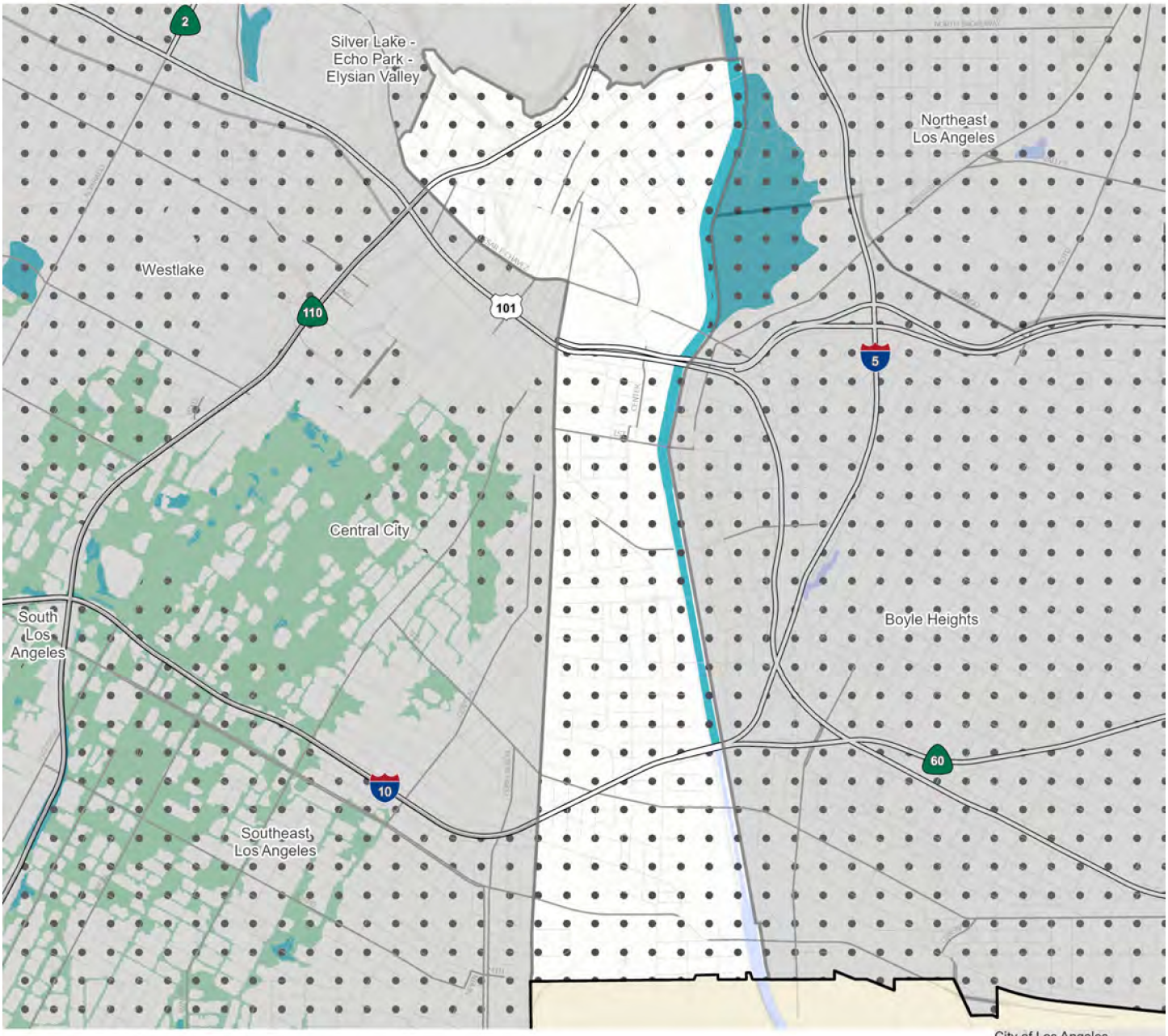
City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Central City North

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

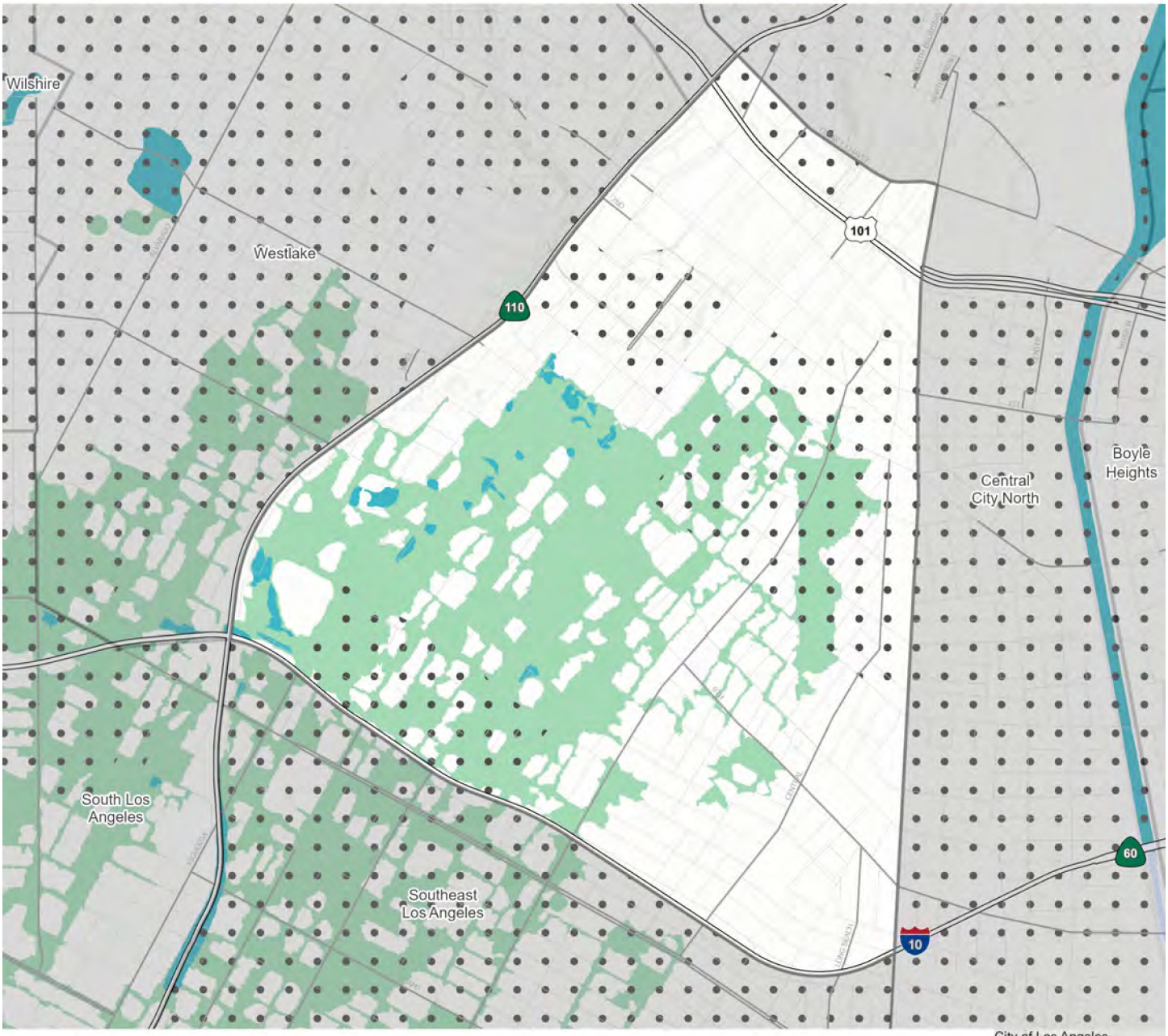
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Central City

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

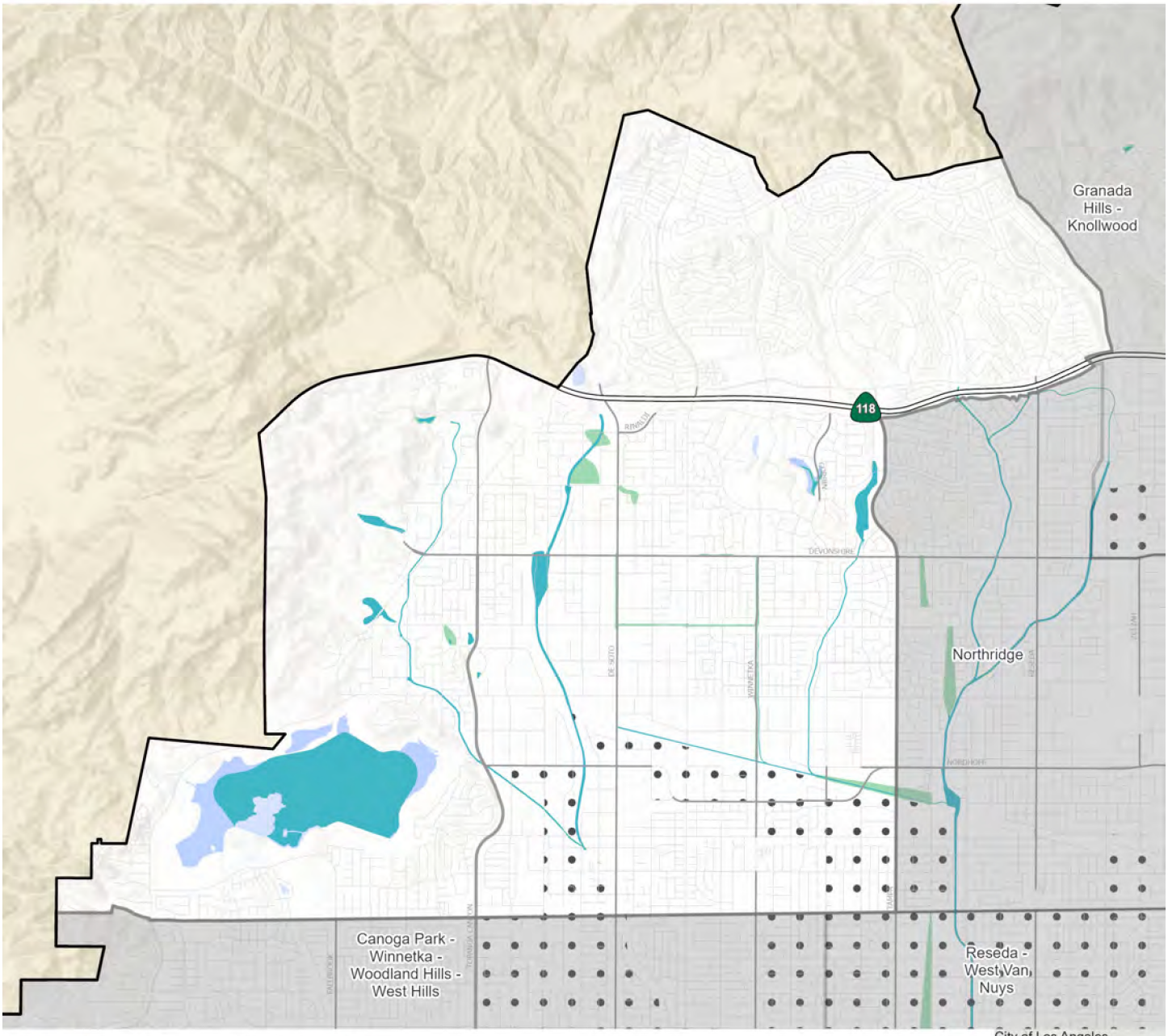
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.13 0.25 0.5
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Chatsworth - Porter Ranch

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



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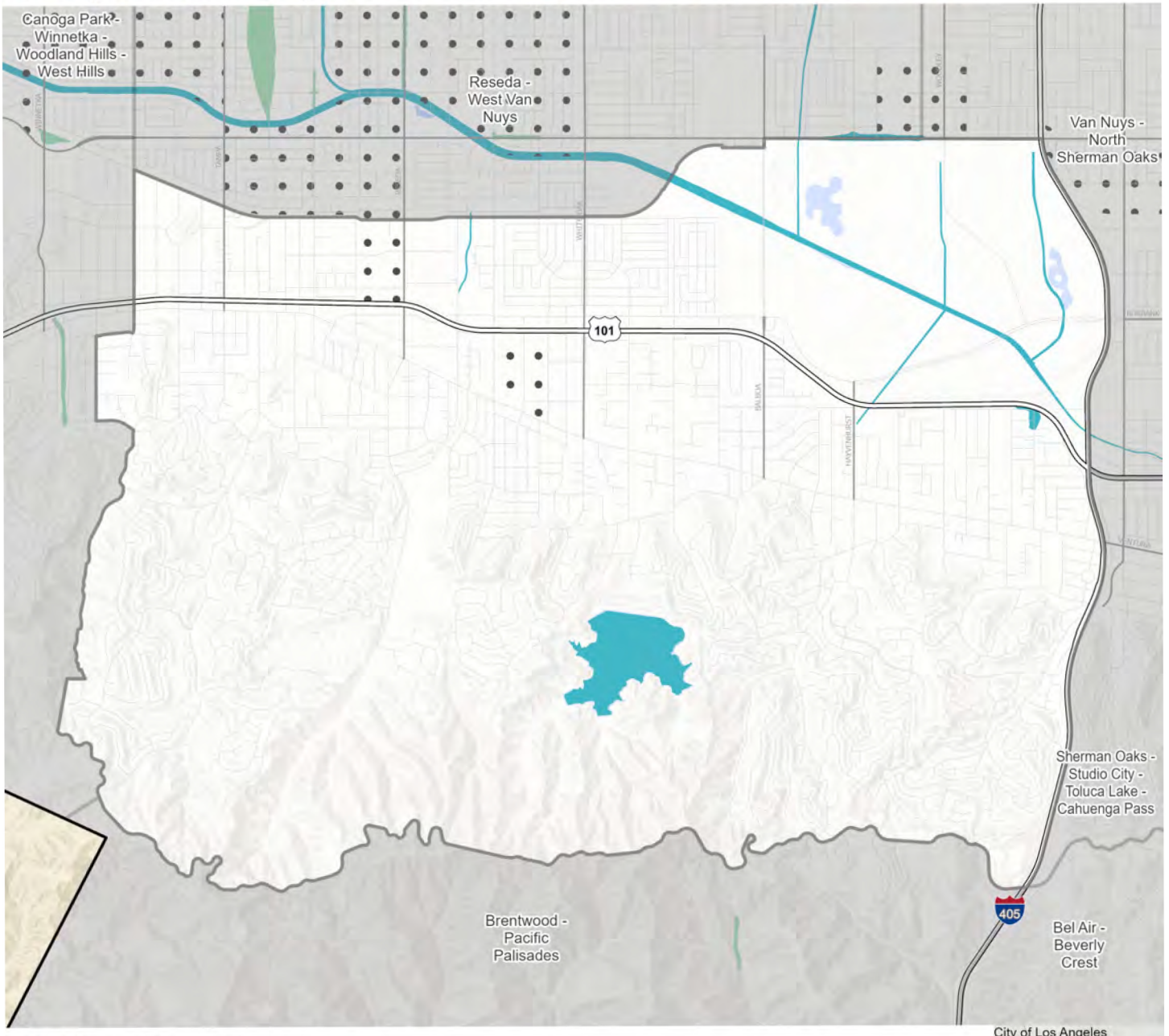
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.3 0.6 1.2
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Encino - Tarzana

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

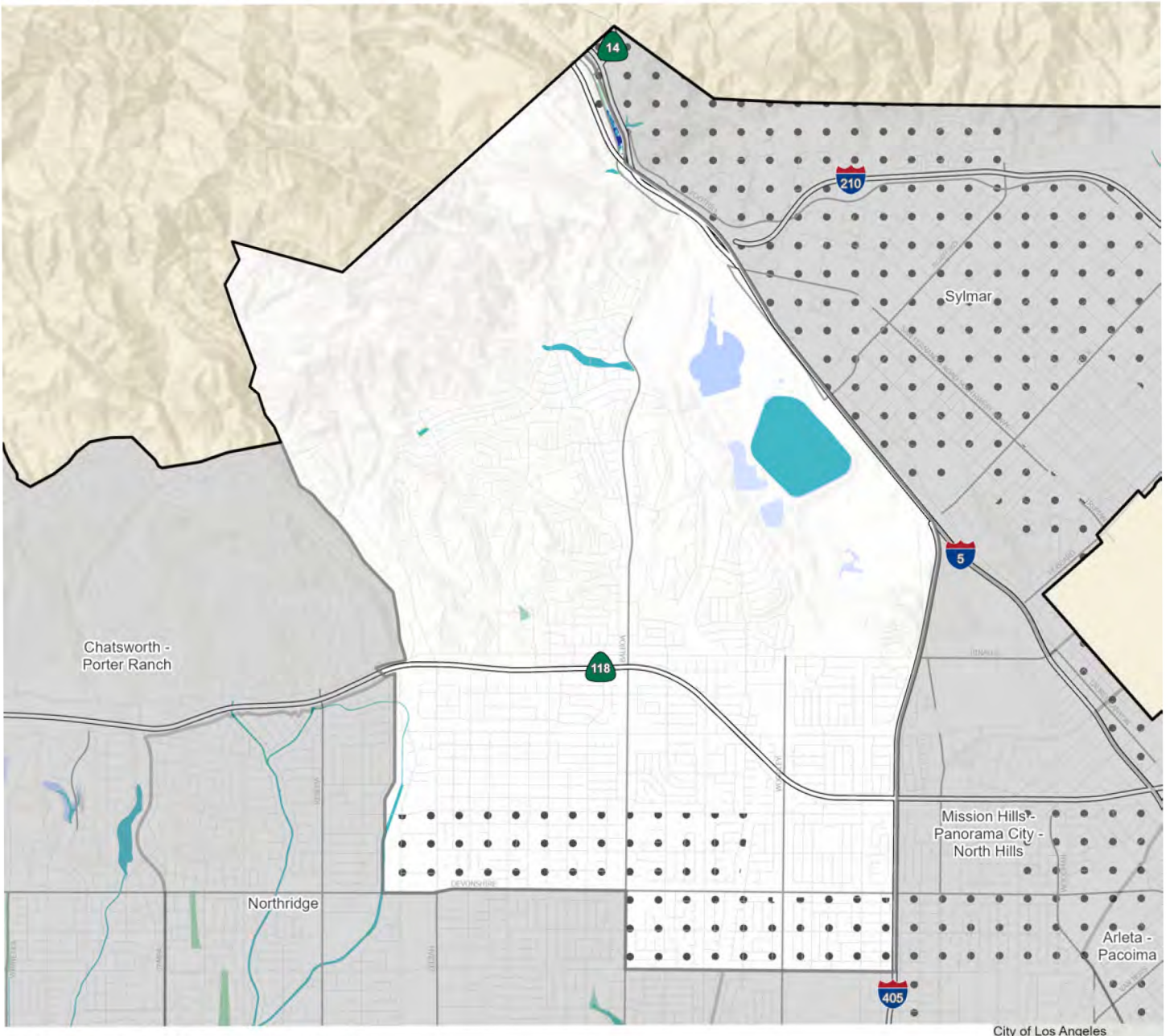
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.23 0.45 0.9
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



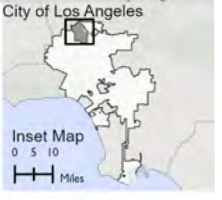
Granada Hills - Knollwood

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

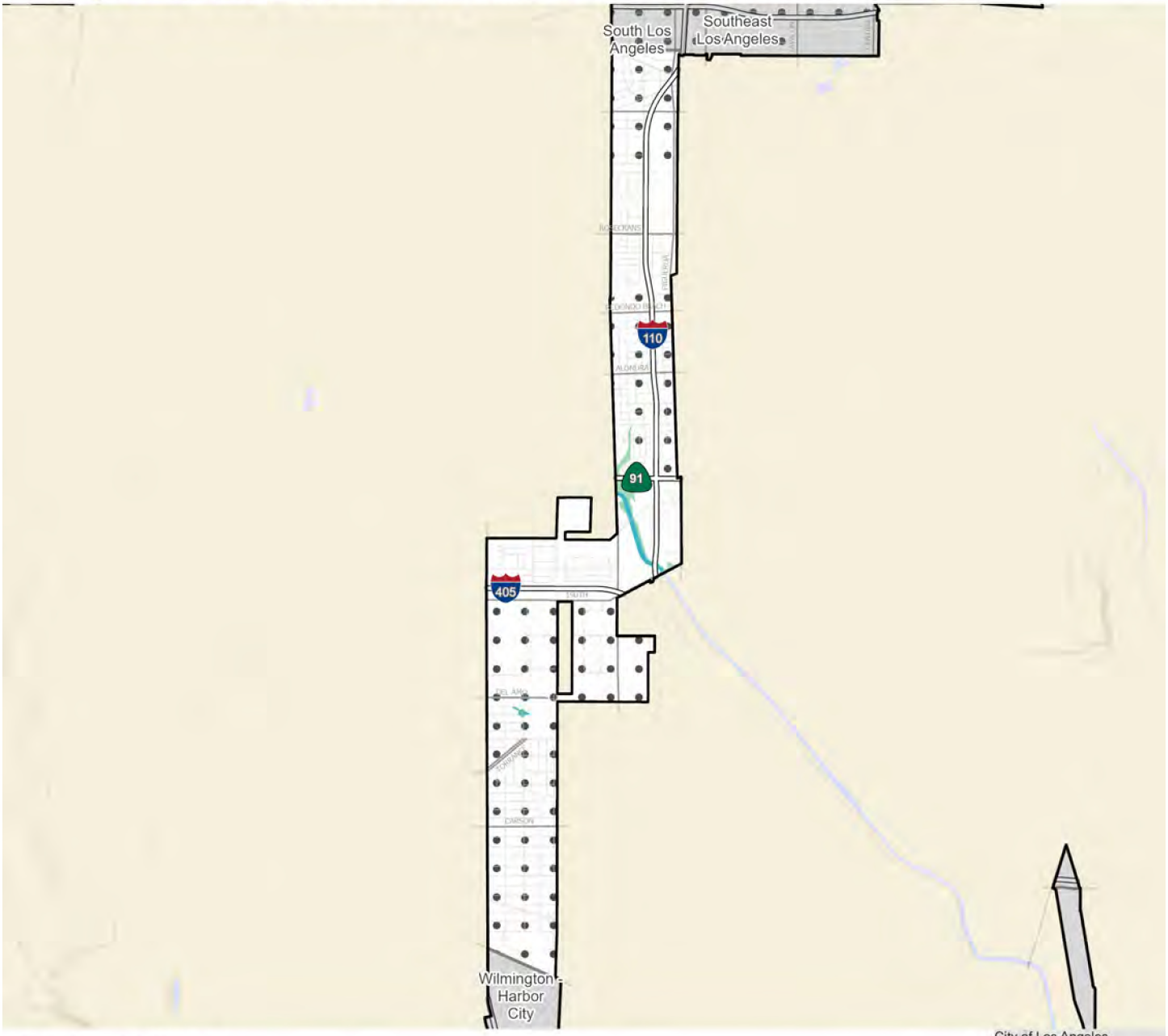
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.28 0.55 1.1
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area





Harbor Gateway

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary

Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

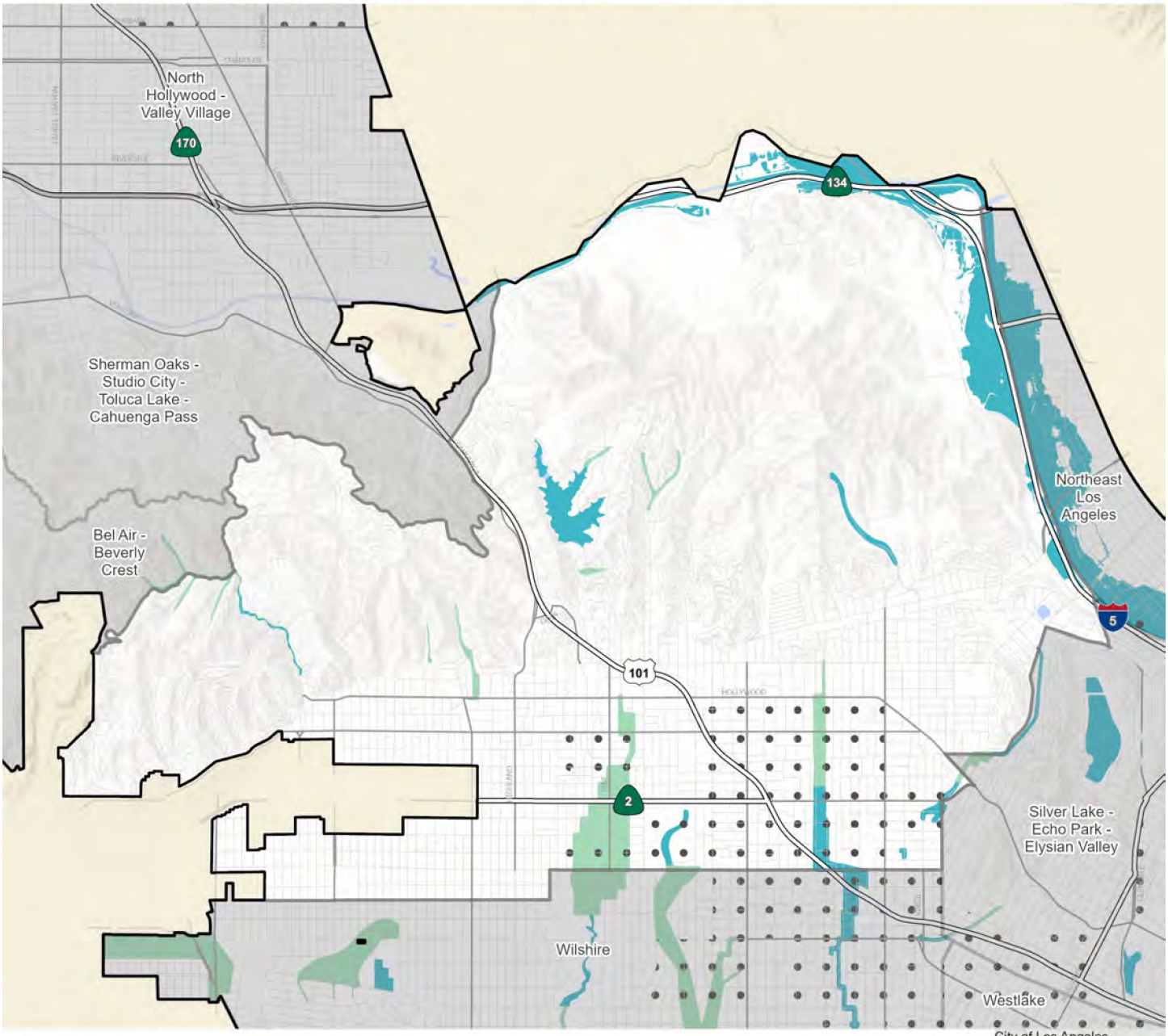
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.33 0.65 1.3
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Hollywood

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary

Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

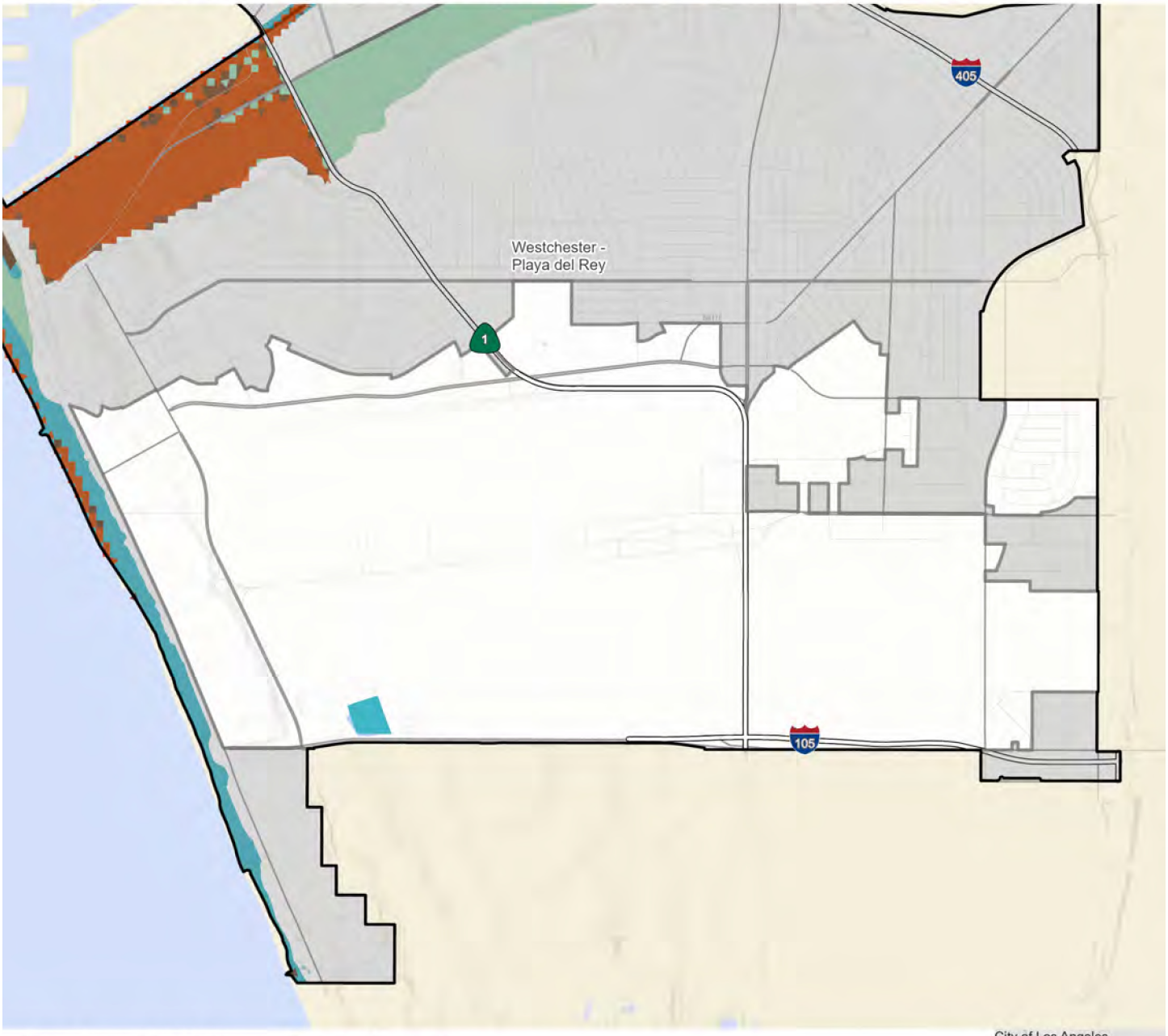
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.3 0.6 1.2
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Los Angeles International Airport

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

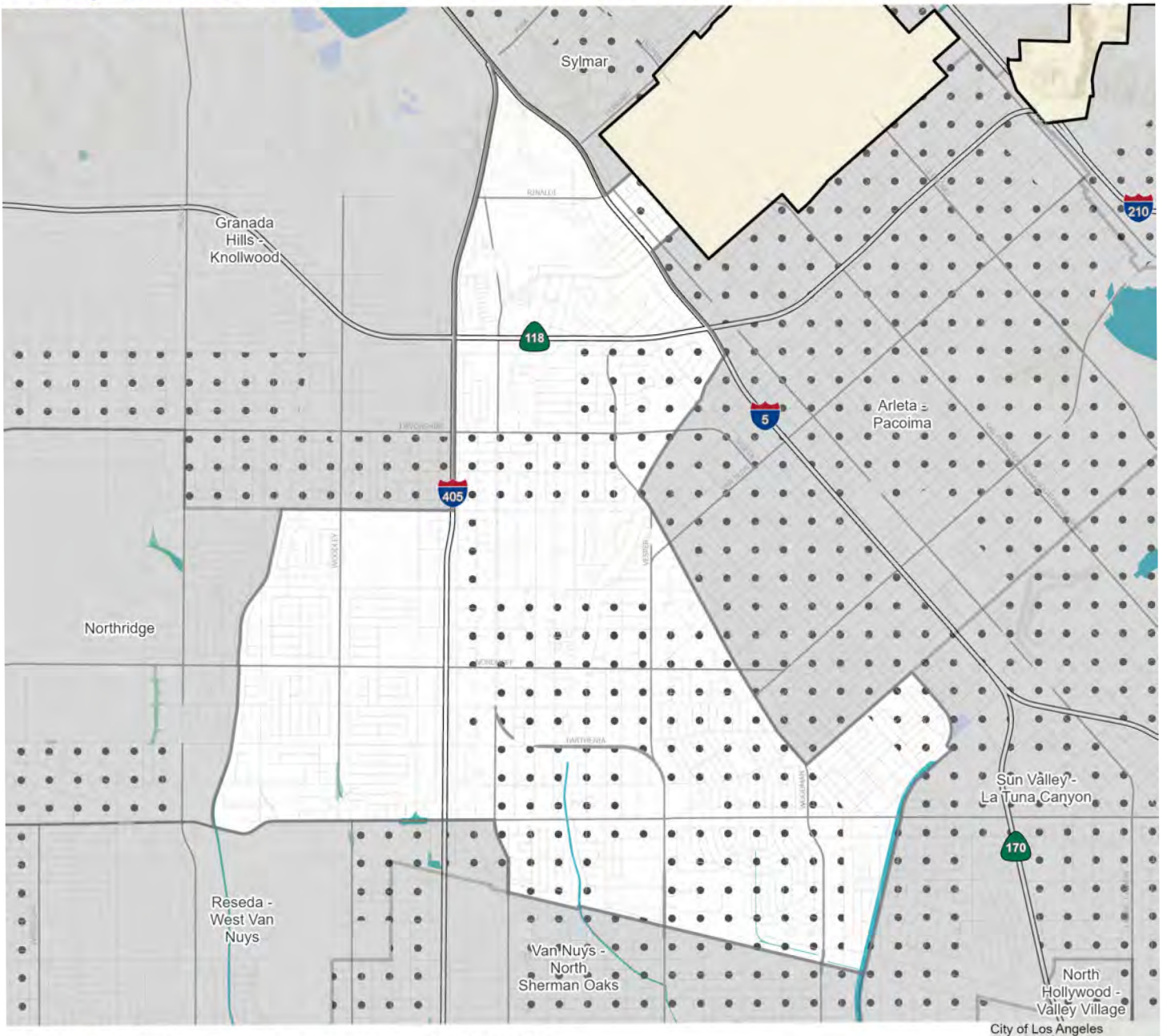
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

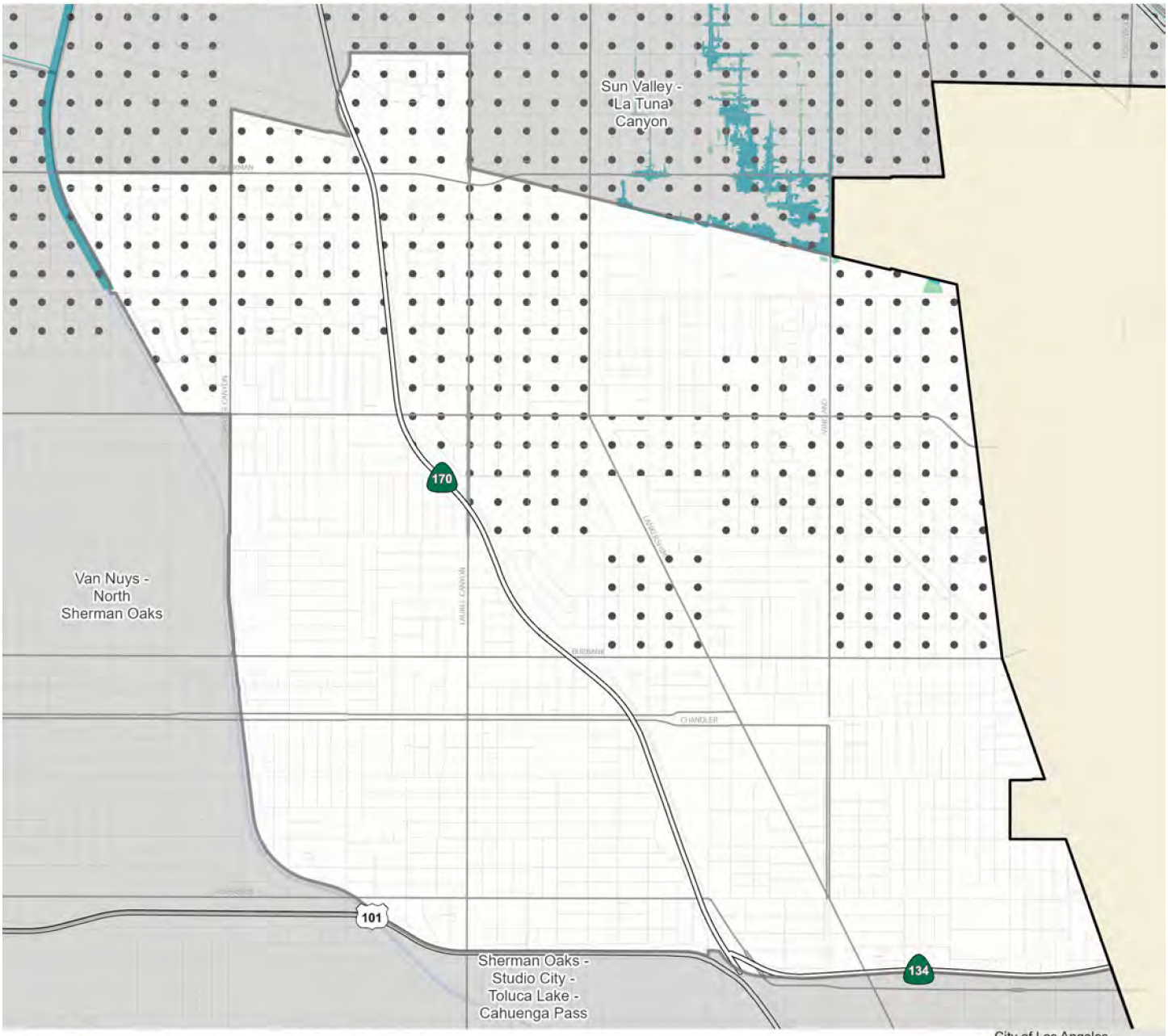
City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



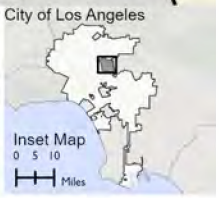
North Hollywood - Valley Village

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



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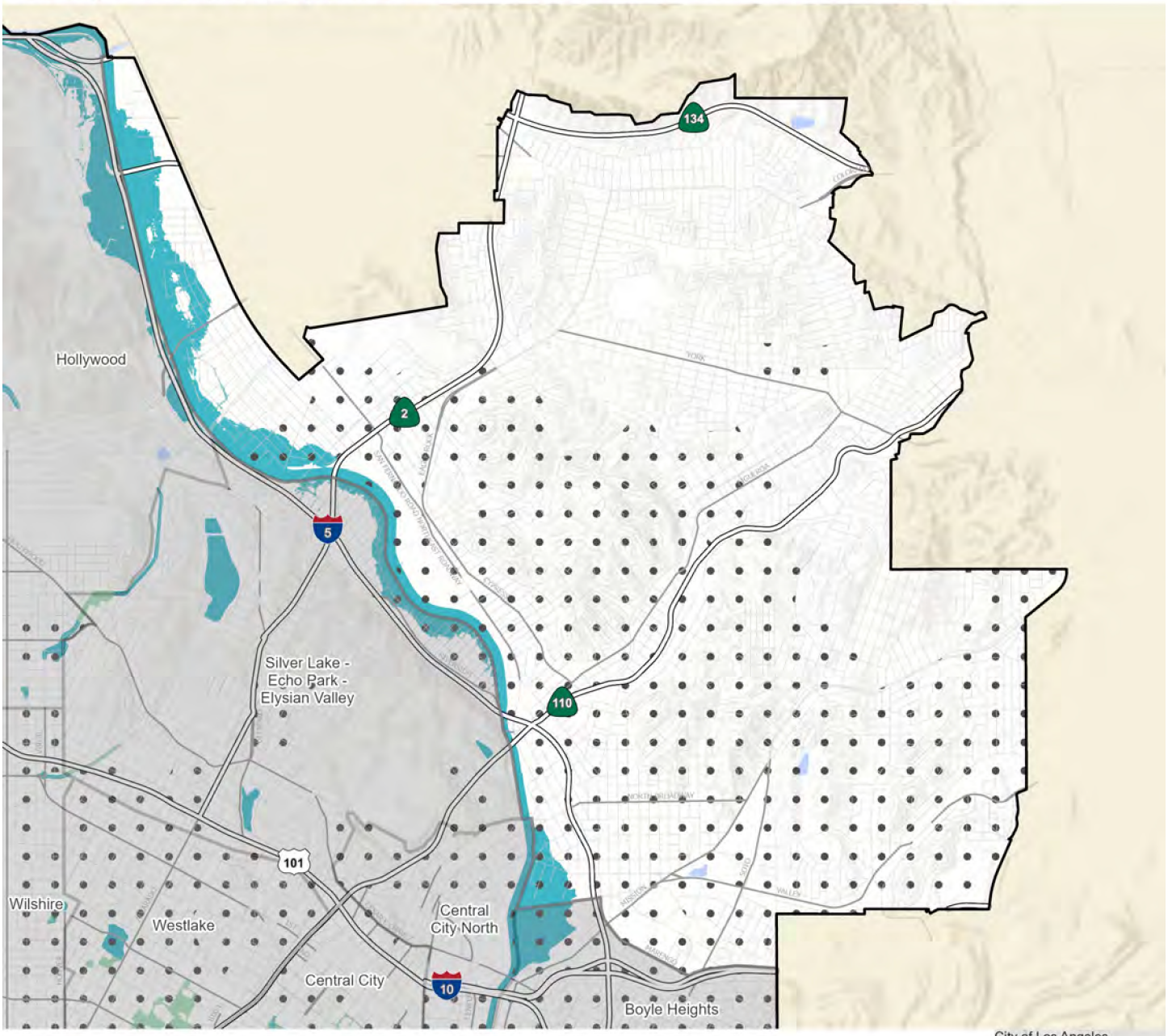
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Northeast Los Angeles

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.3 0.6 1.2
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



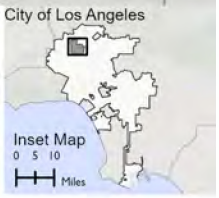
Northridge

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

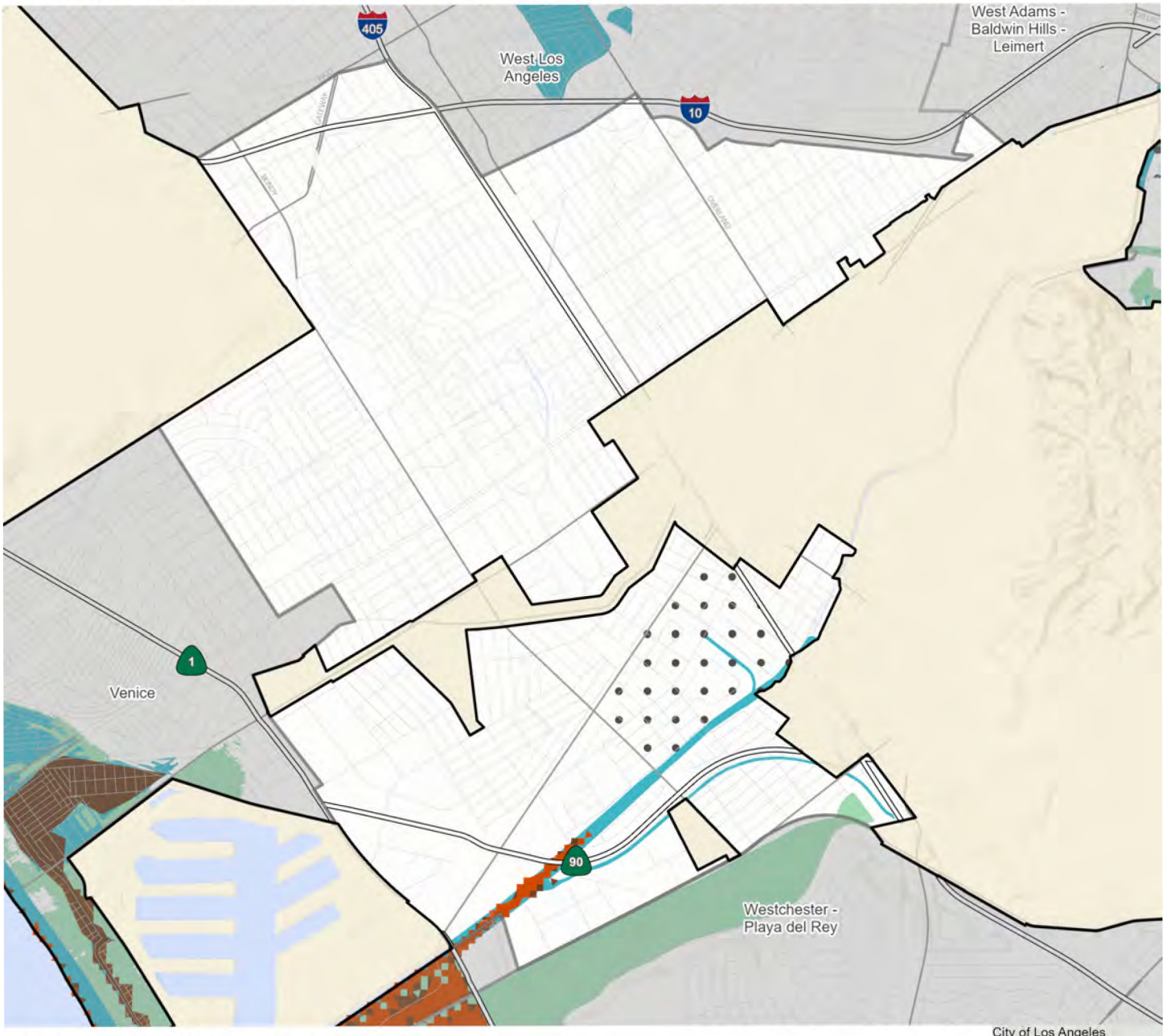
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Palms - Mar Vista - Del Rey

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

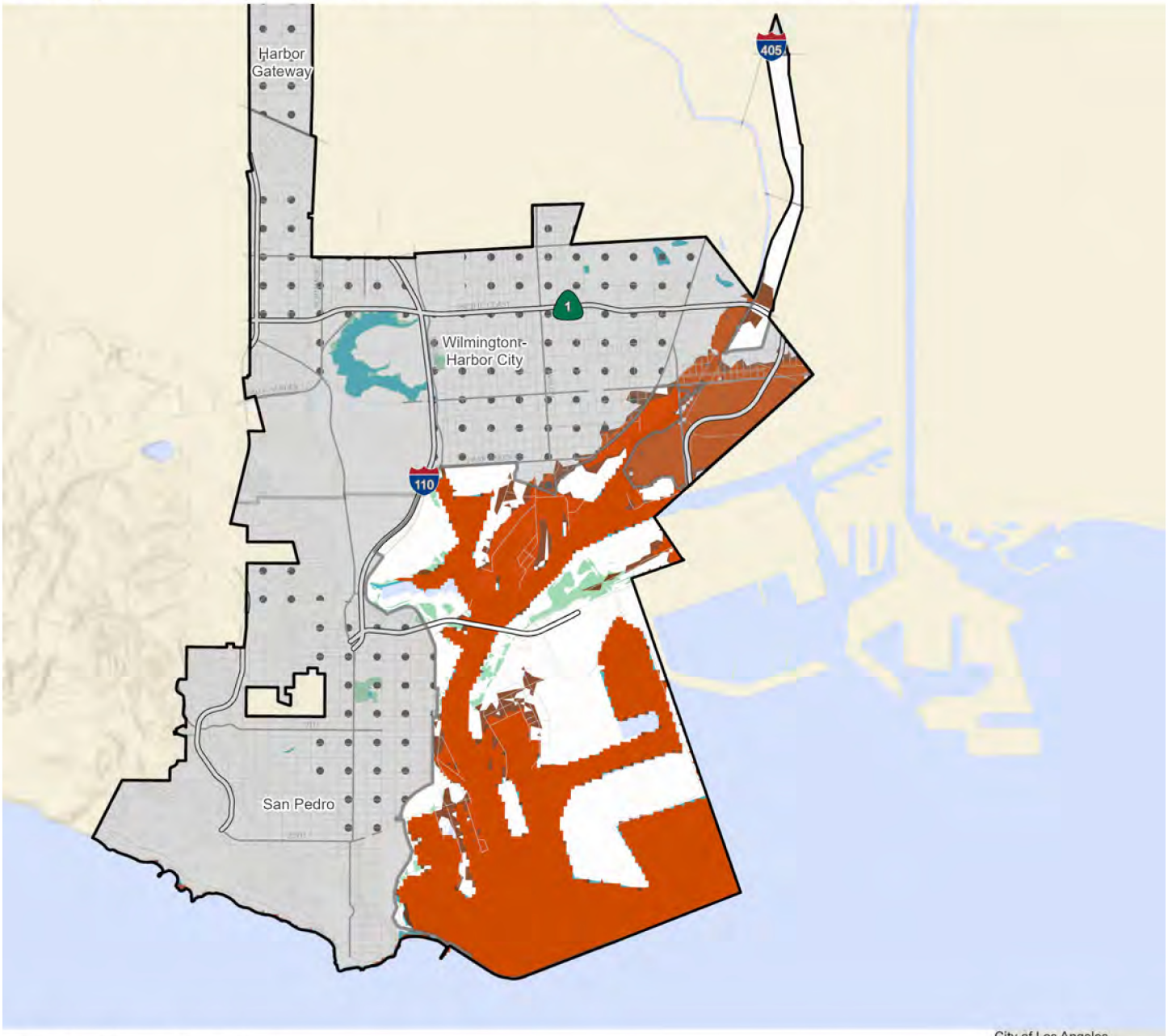
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Port of Los Angeles

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

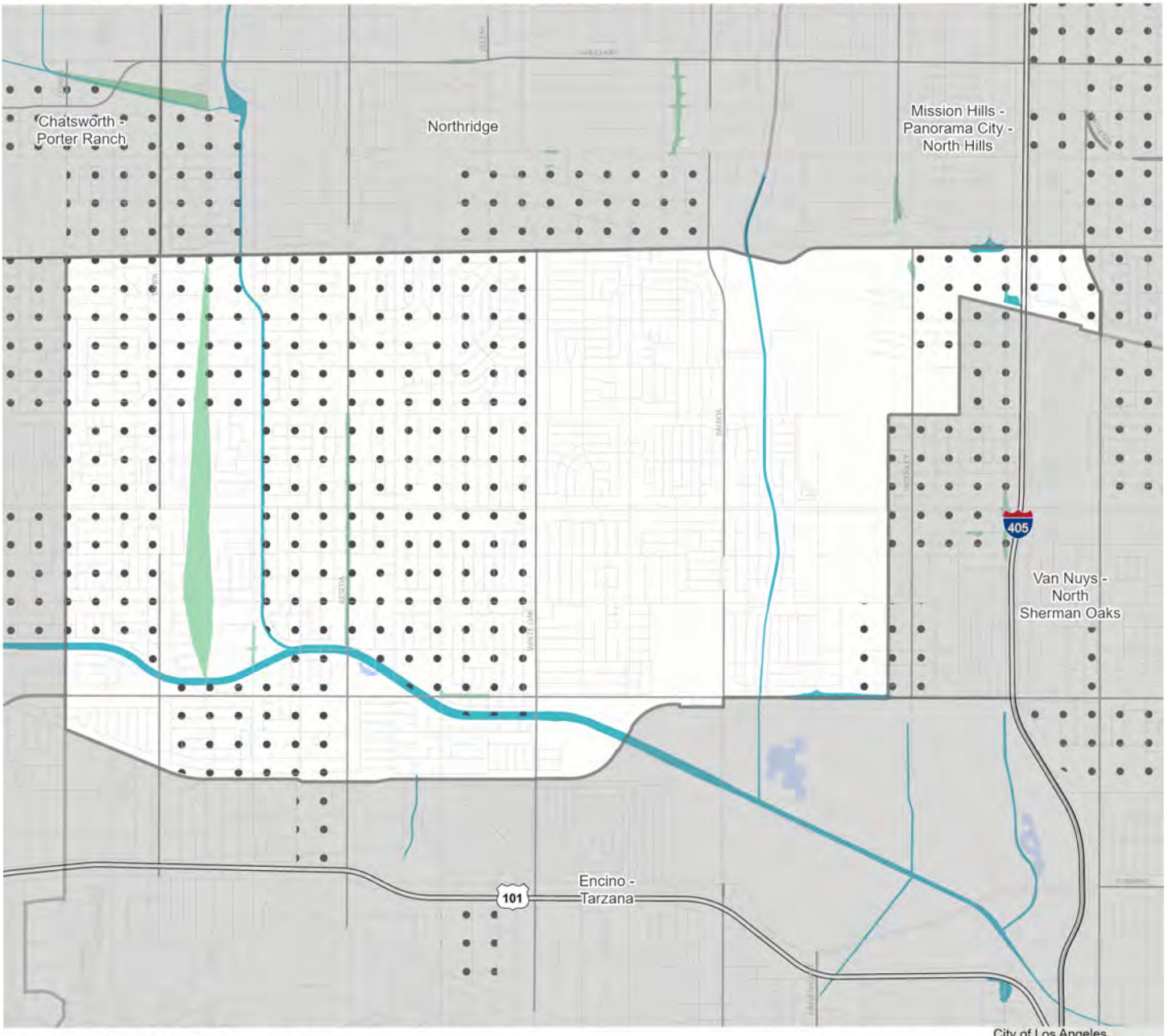
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.38 0.75 1.5
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



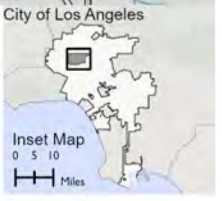
Reseda - West Van Nuys

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

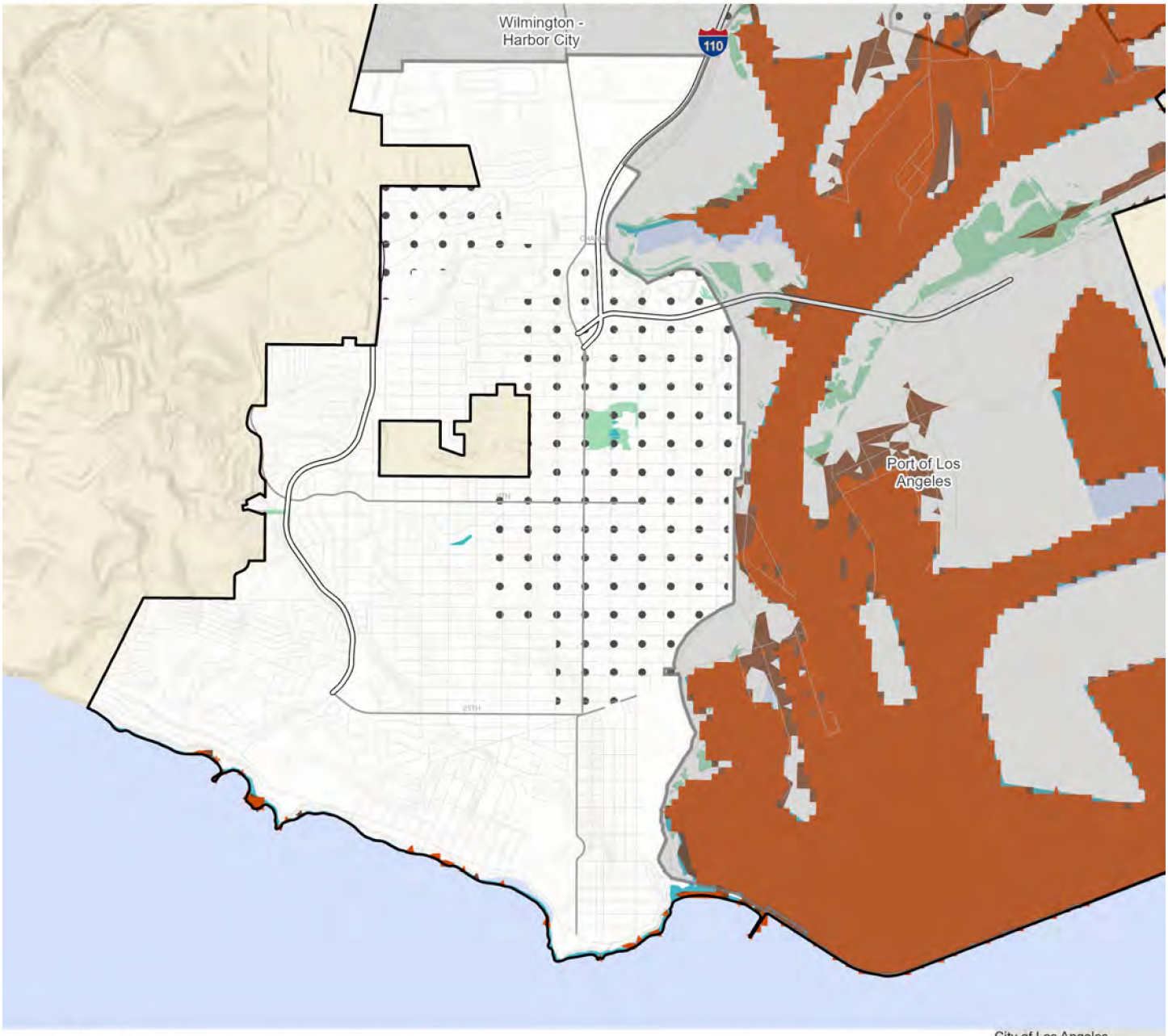
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.2 0.4 0.8
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



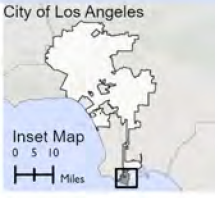
San Pedro

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

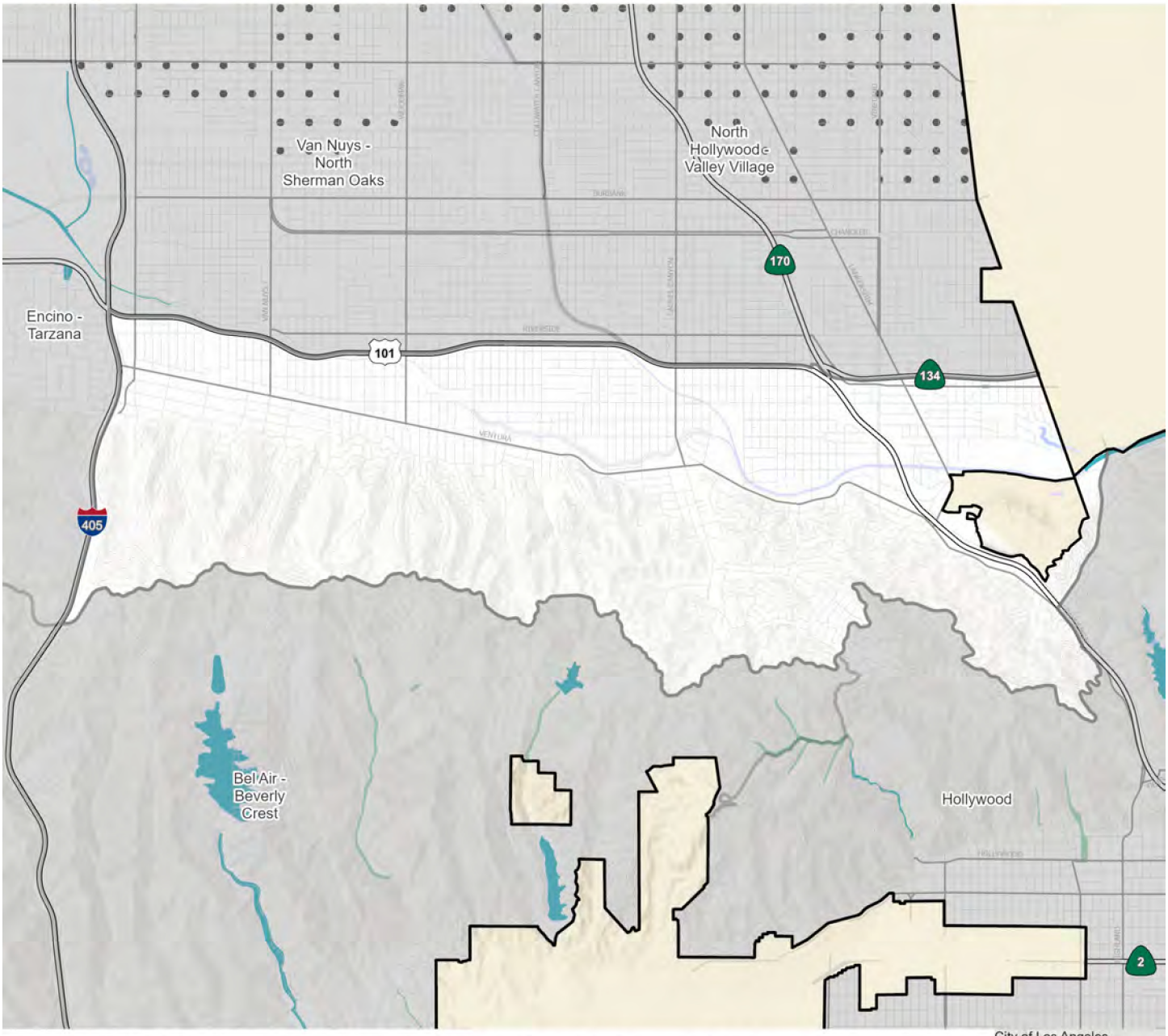
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities
- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

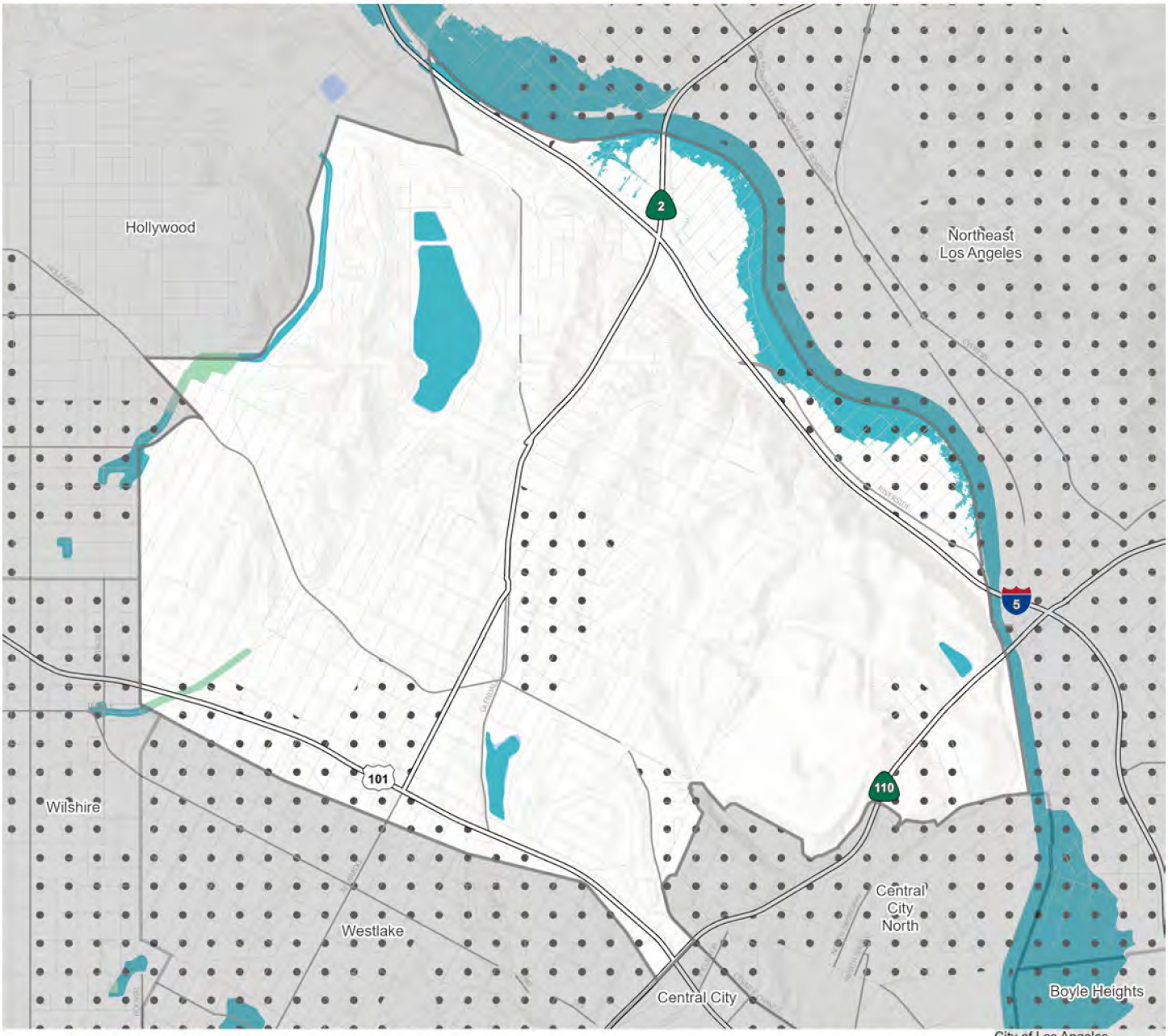
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.3 0.6 1.2
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



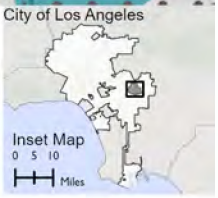
Silver Lake - Echo Park - Elysian Valley

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



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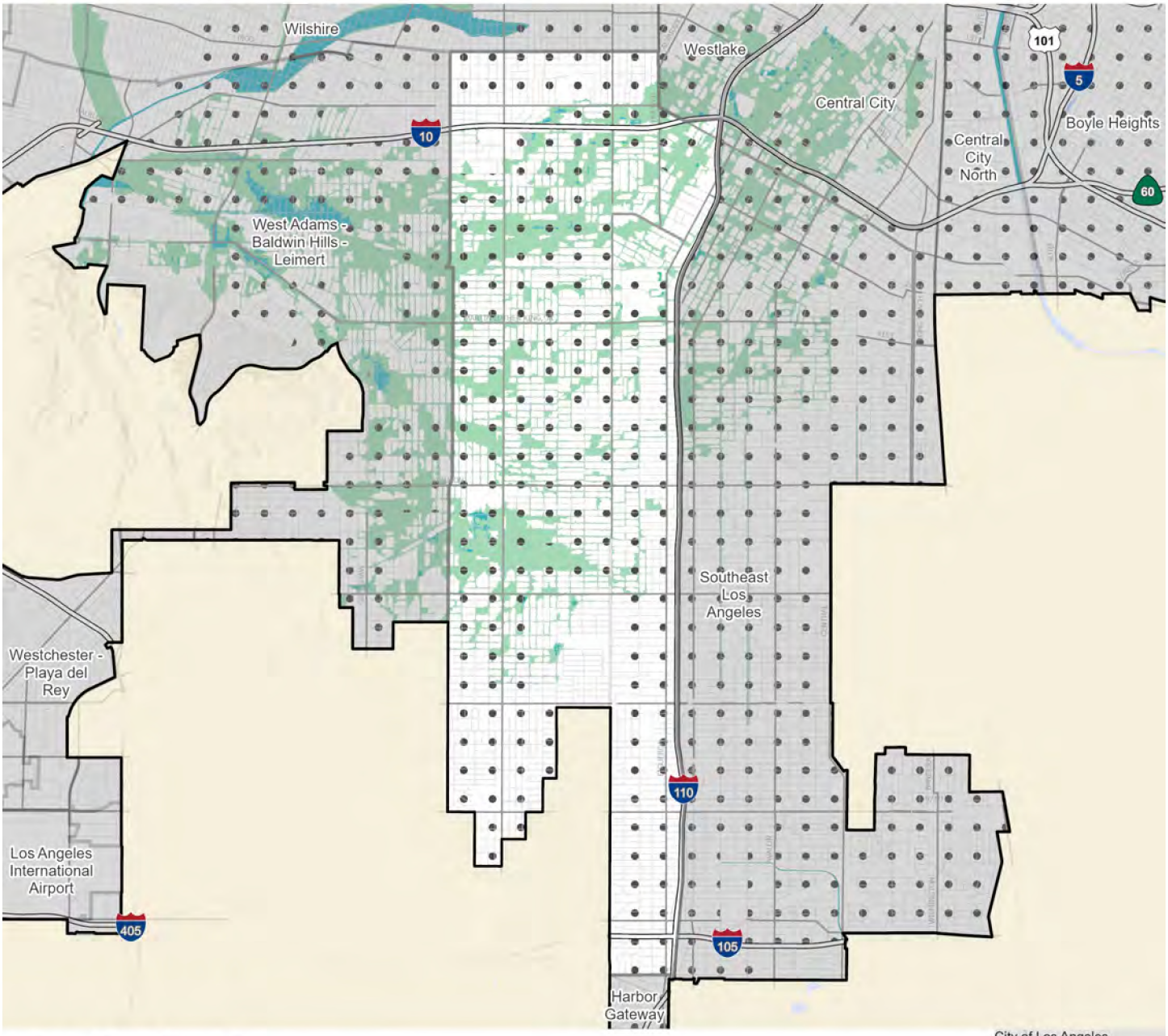
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.15 0.3 0.6
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



South Los Angeles

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



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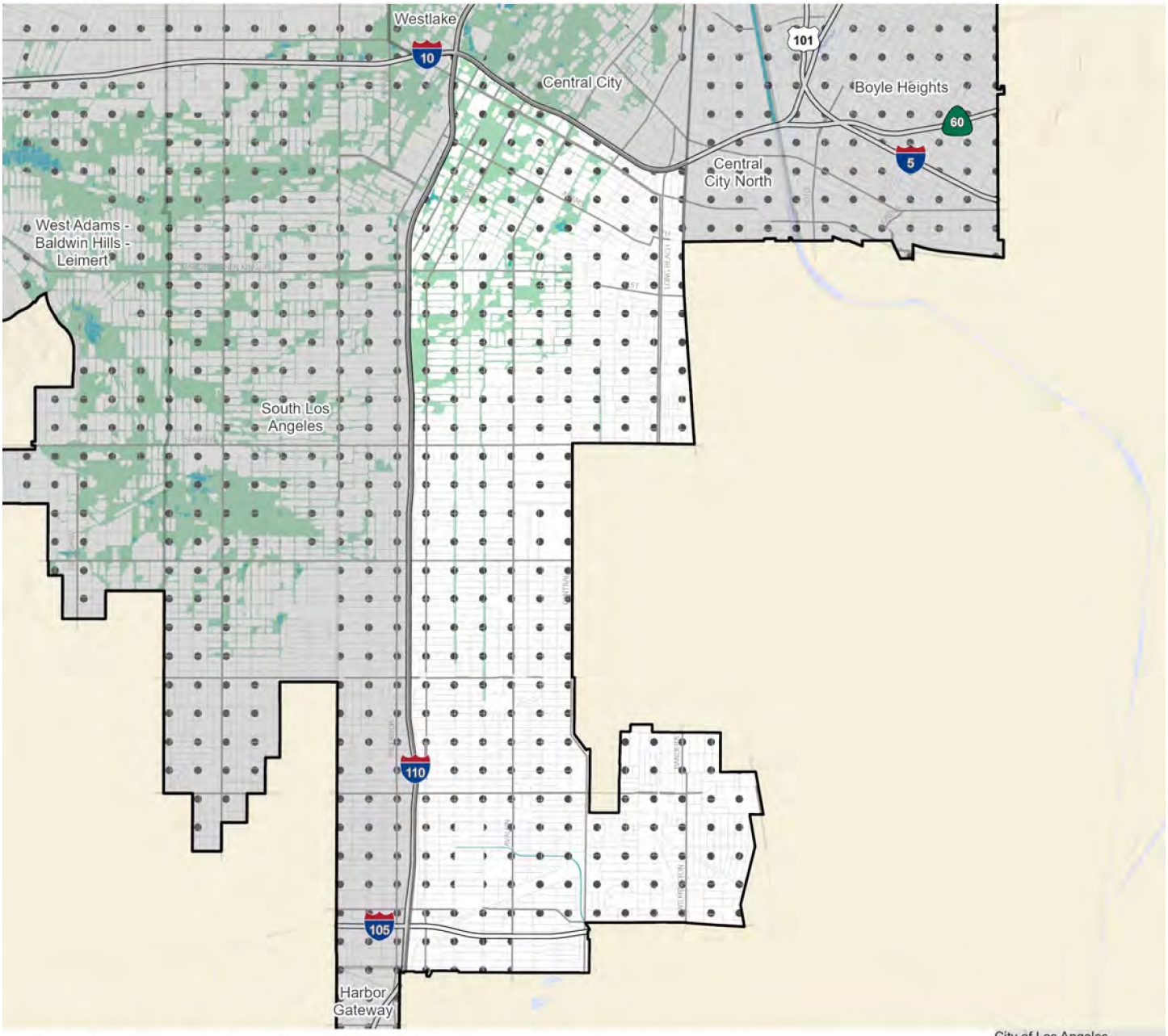
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.38 0.75 1.5
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Southeast Los Angeles

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

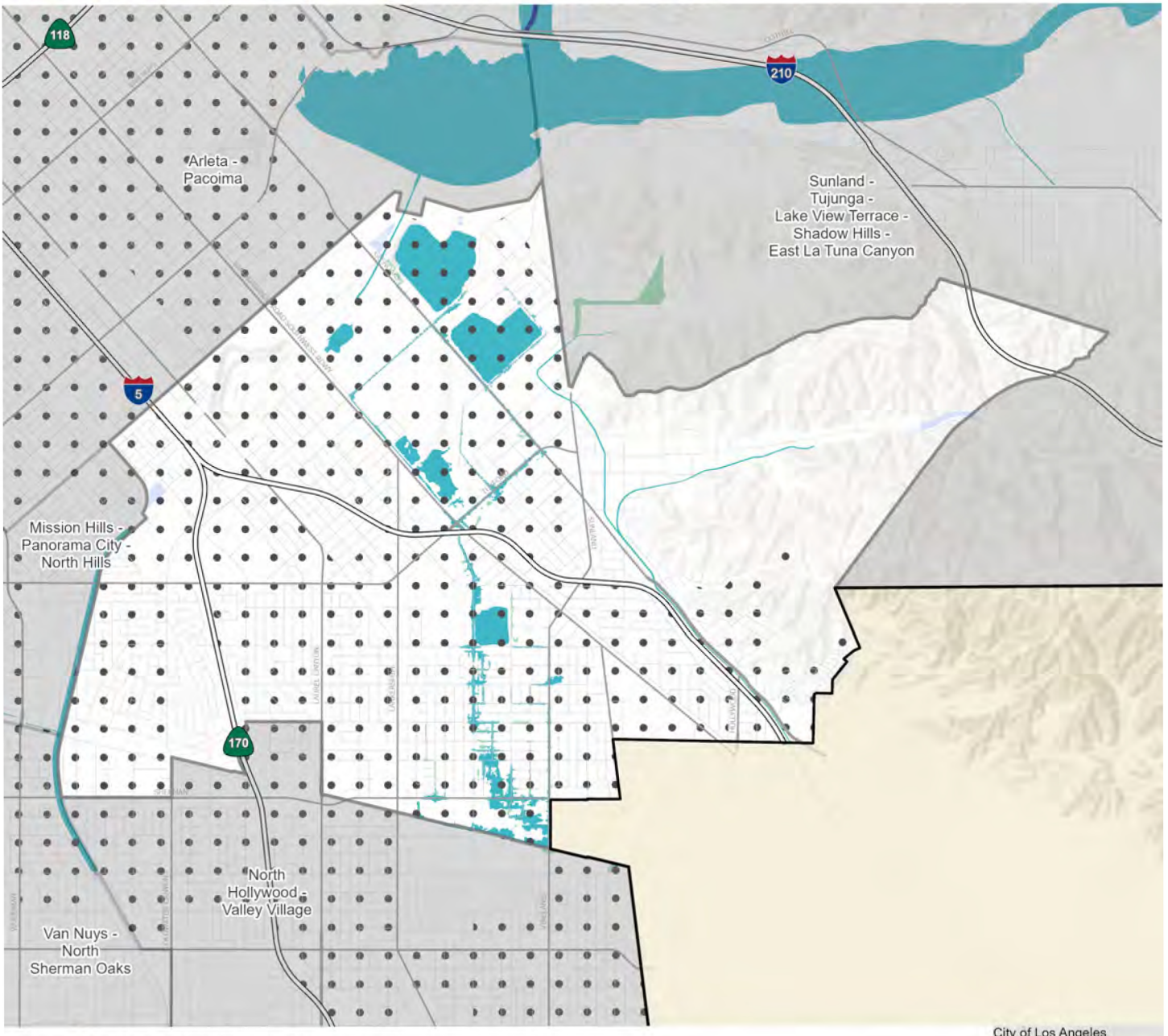
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.35 0.7 1.4
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Sun Valley - La Tuna Canyon

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



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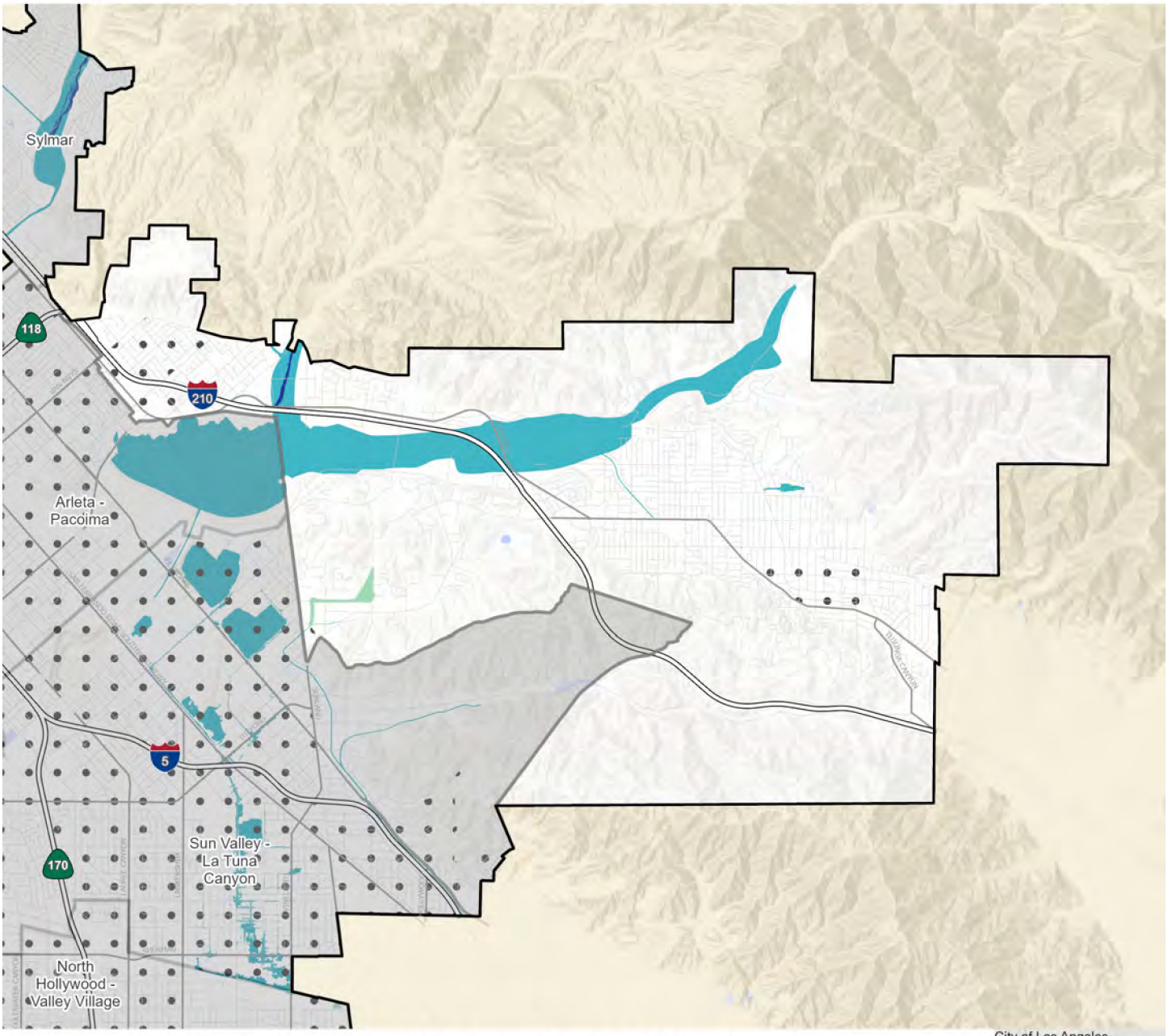
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.28 0.55 1.1
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Sunland - Tujunga - Lake View Terrace - Shadow Hills - East La Tuna Canyon

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities
- Community Plan Area
- City Boundary



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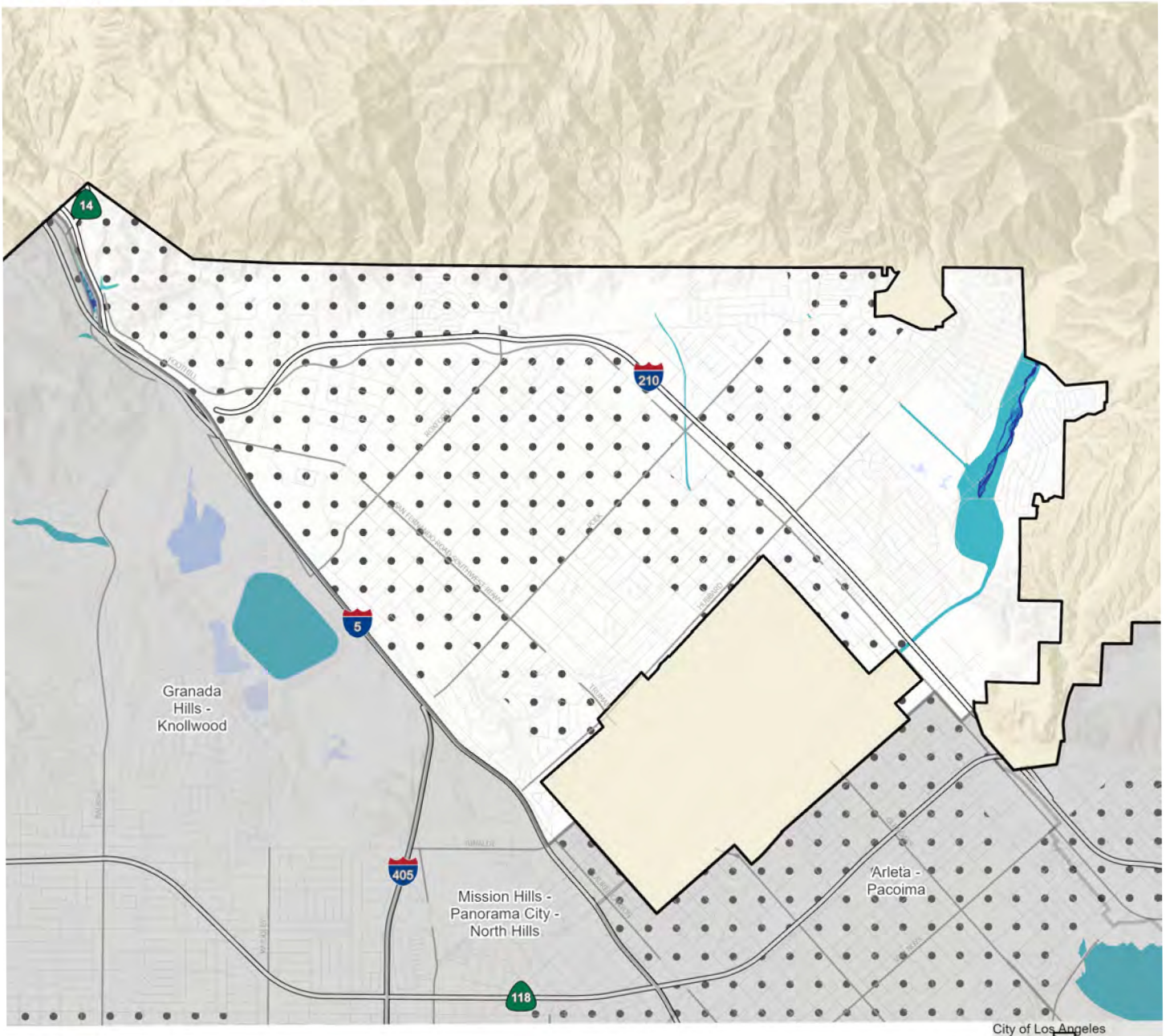
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.38 0.75 1.5
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



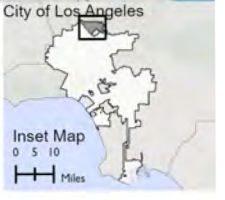
Sylmar

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



Note: Community Planning Areas that display no hazard data, indicates there was no available data from the source.

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.25 0.5 1
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Van Nuys - North Sherman Oaks

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Venice

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



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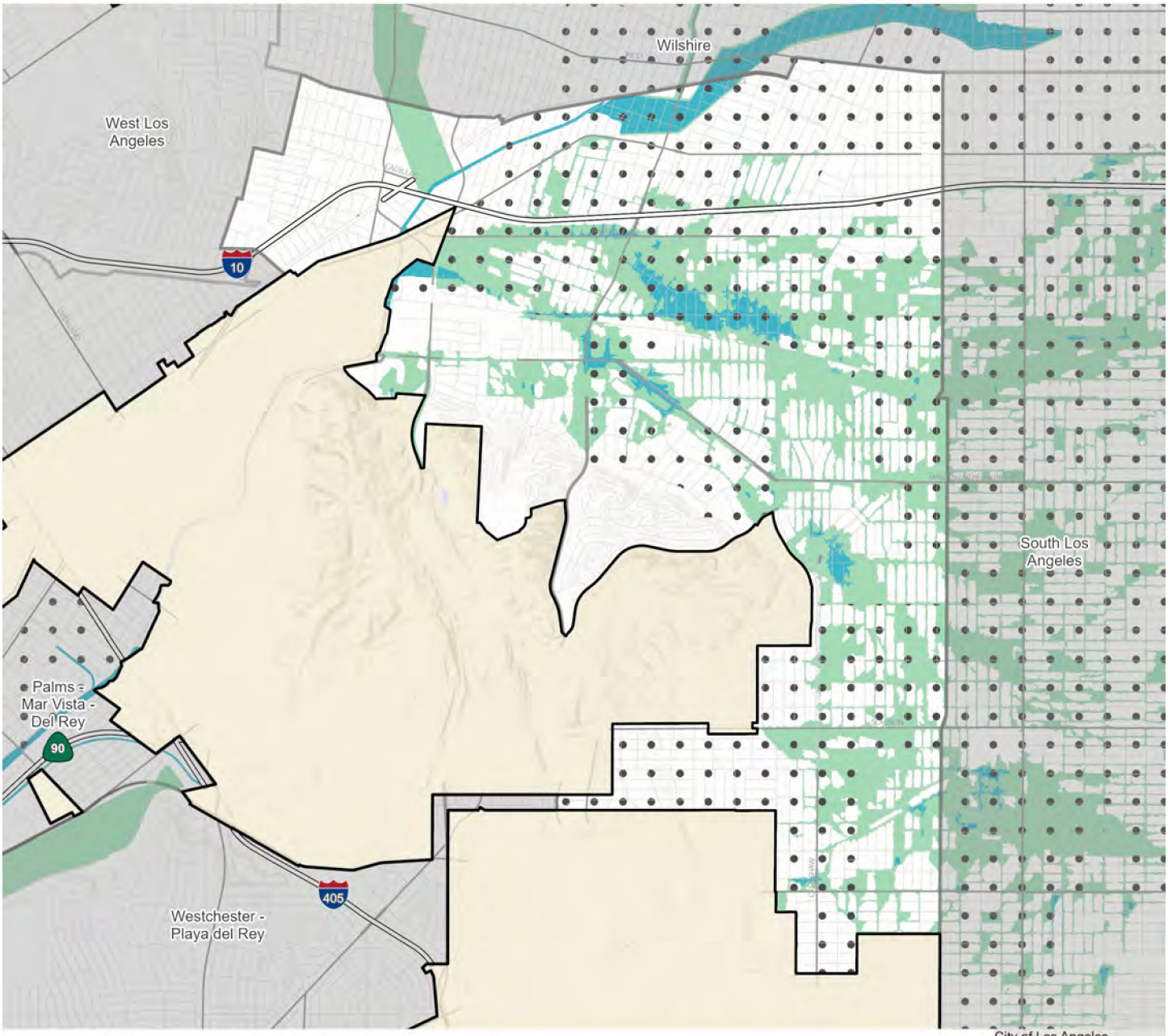
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.15 0.3 0.6
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



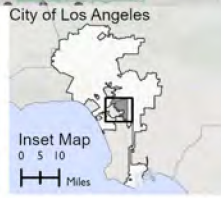
West Adams - Baldwin Hills - Leimert

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



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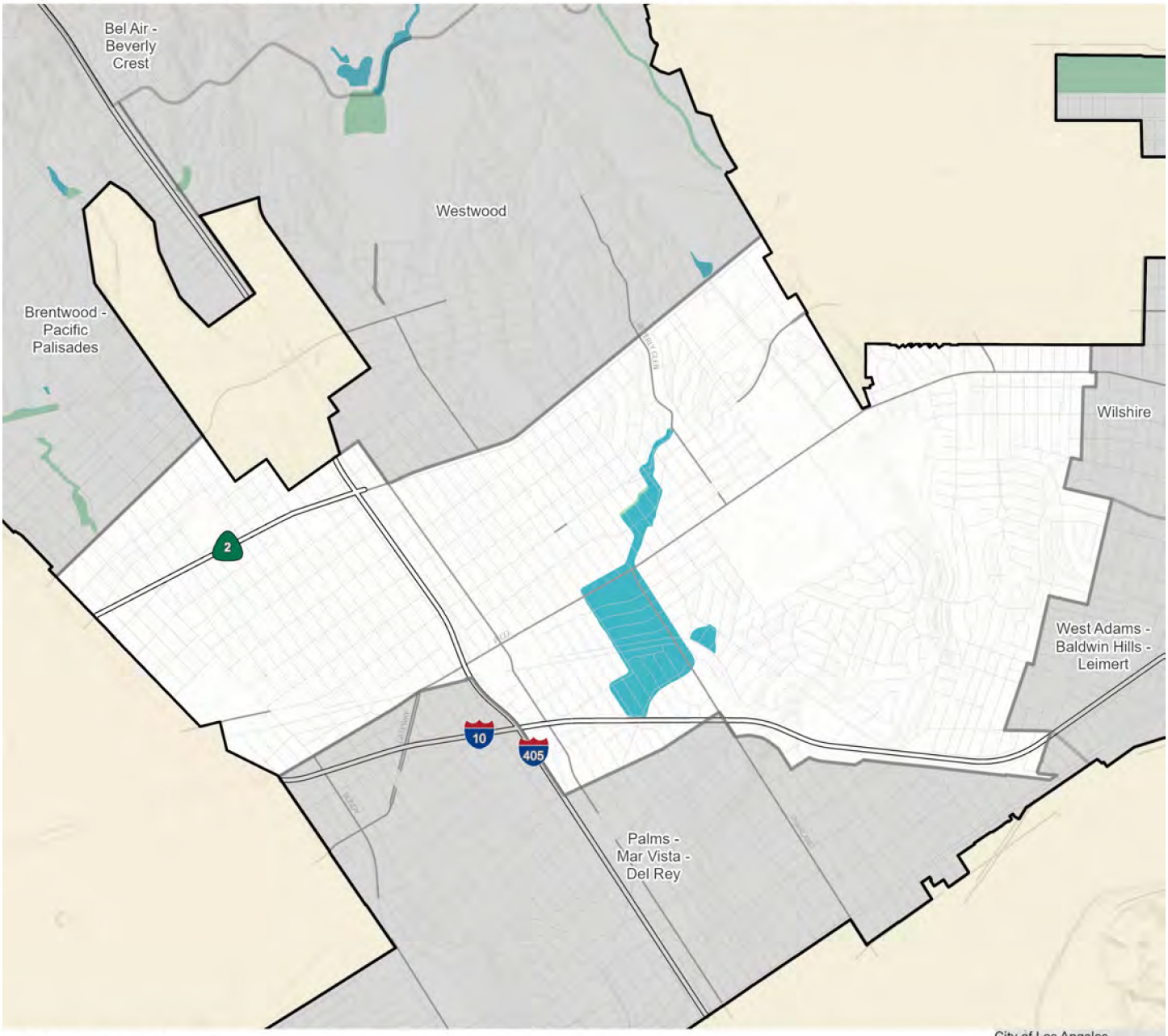
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.25 0.5 1
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



West Los Angeles

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



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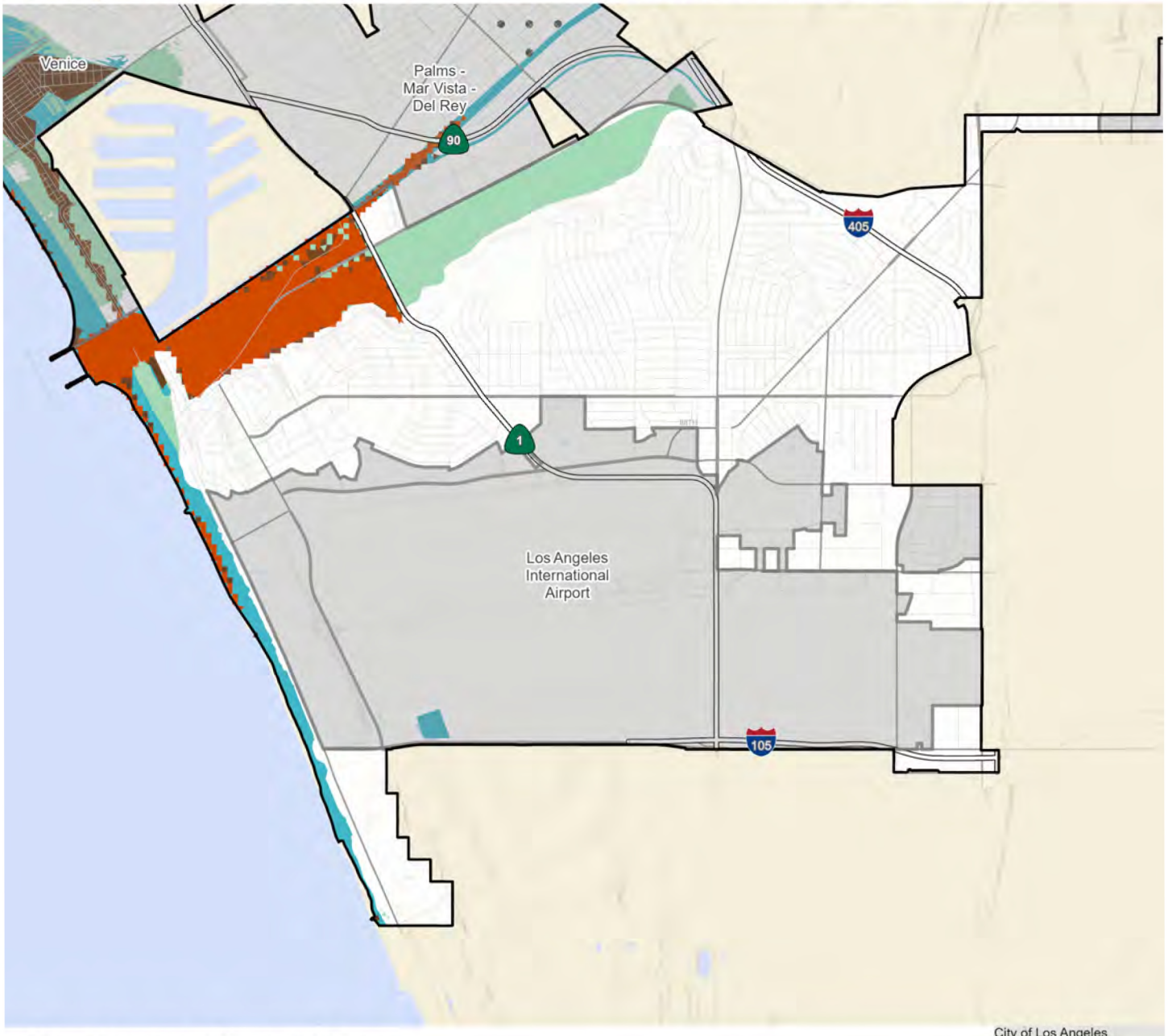
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.17 0.35 0.7
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Westchester - Playa del Rey

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



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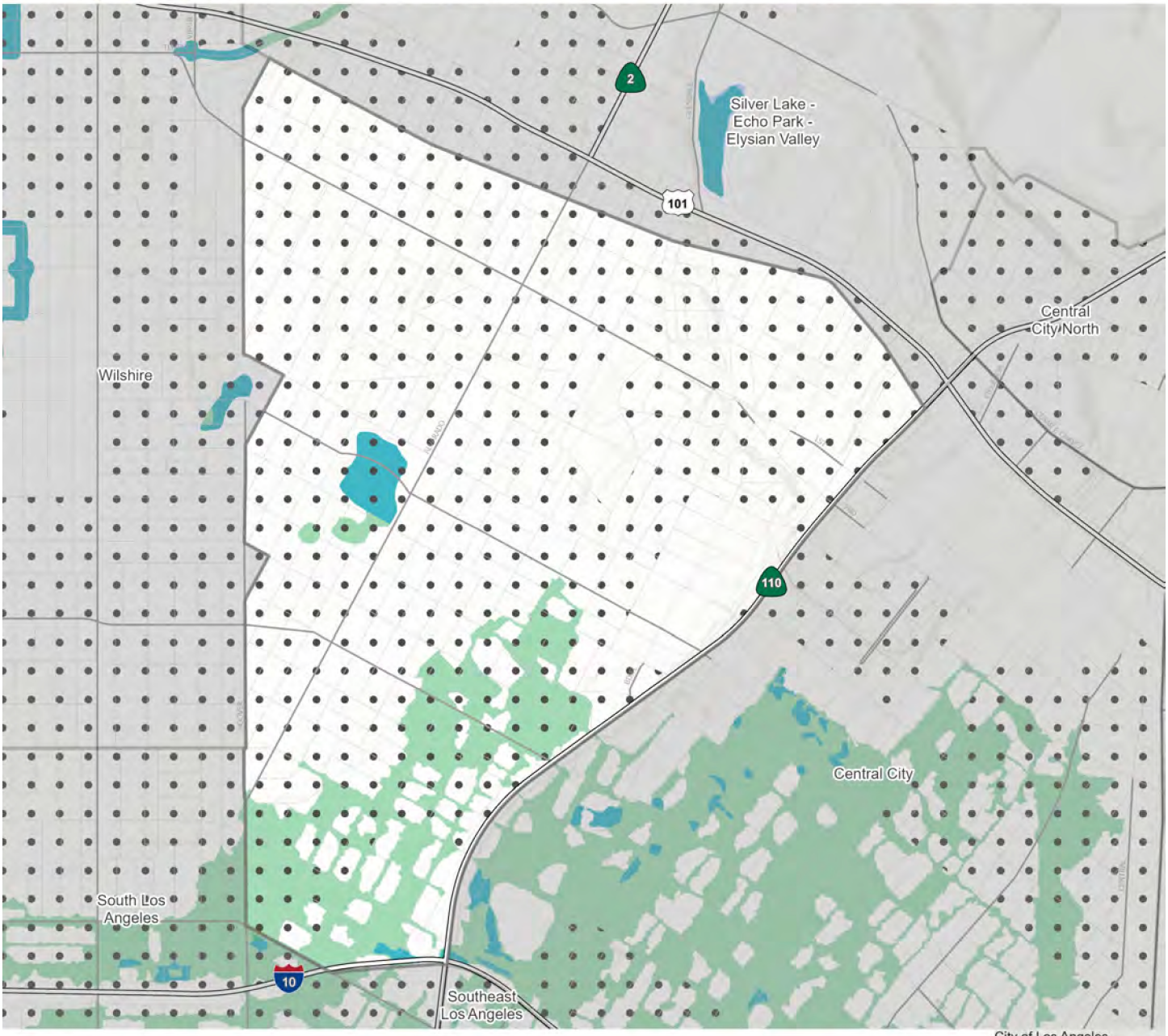
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.23 0.45 0.9
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



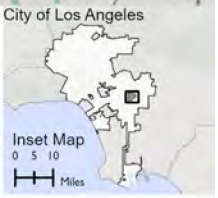
Westlake

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



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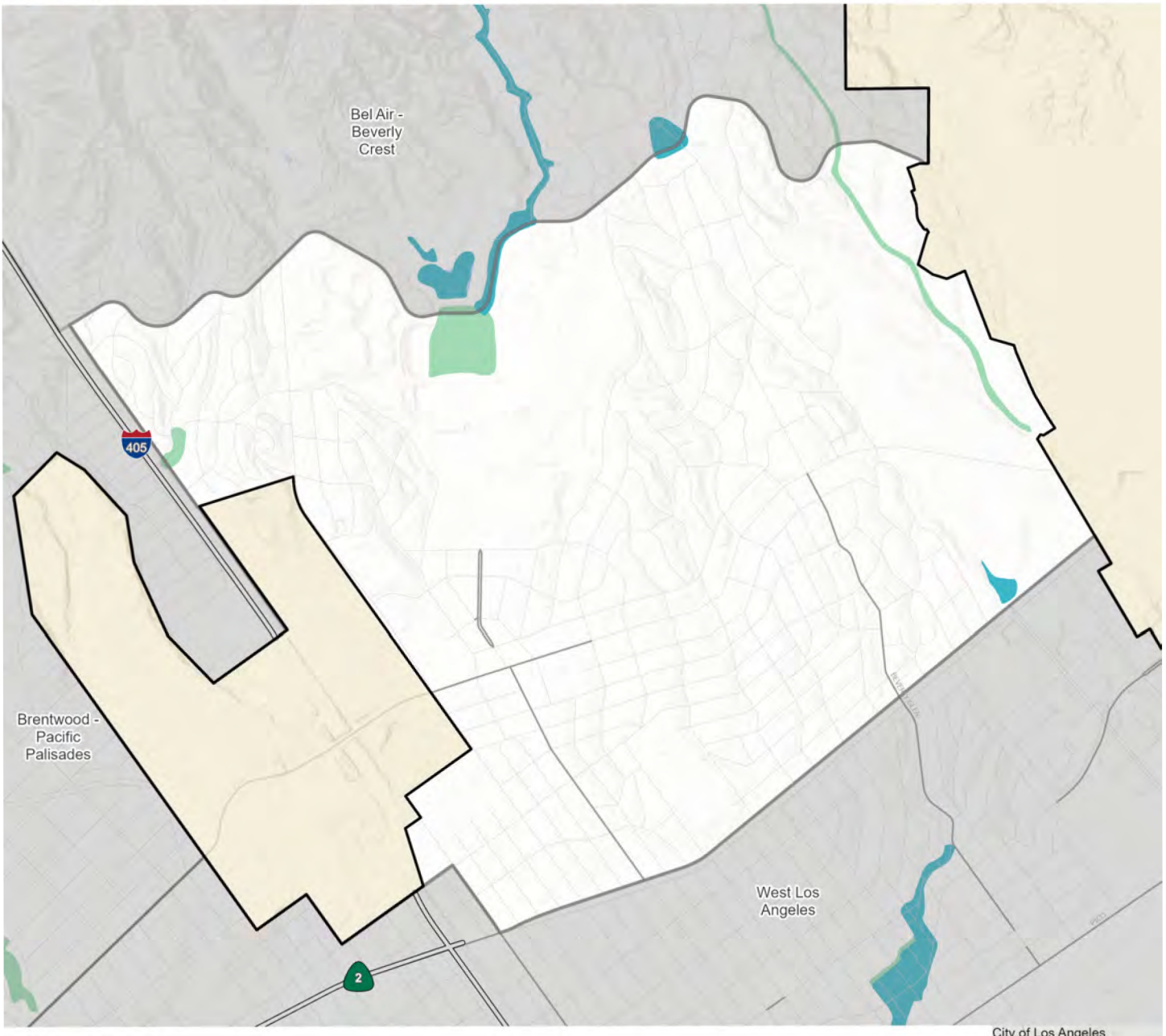
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.1 0.2 0.4
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Westwood

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



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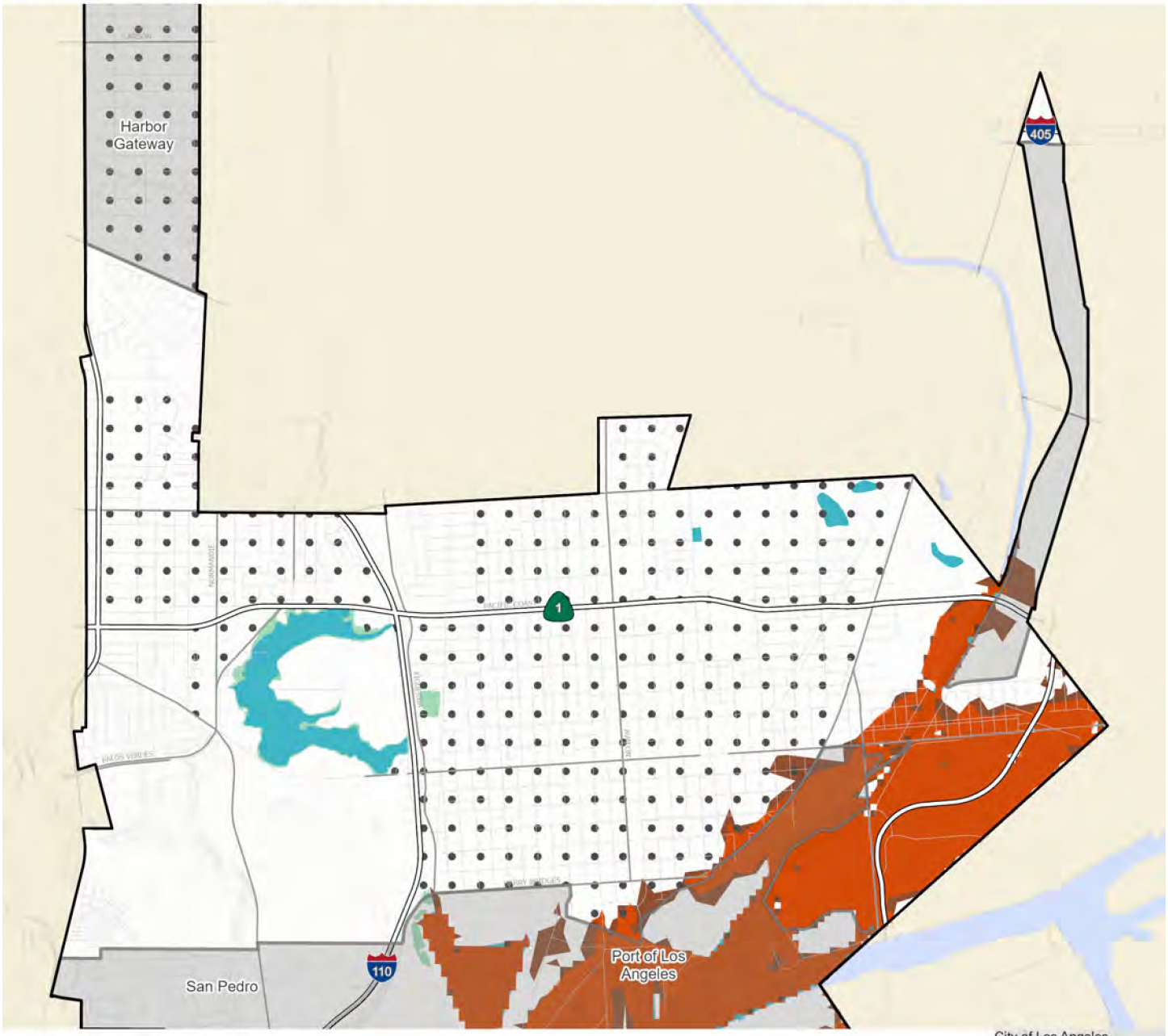
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.1 0.2 0.4
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



Wilmington - Harbor City

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



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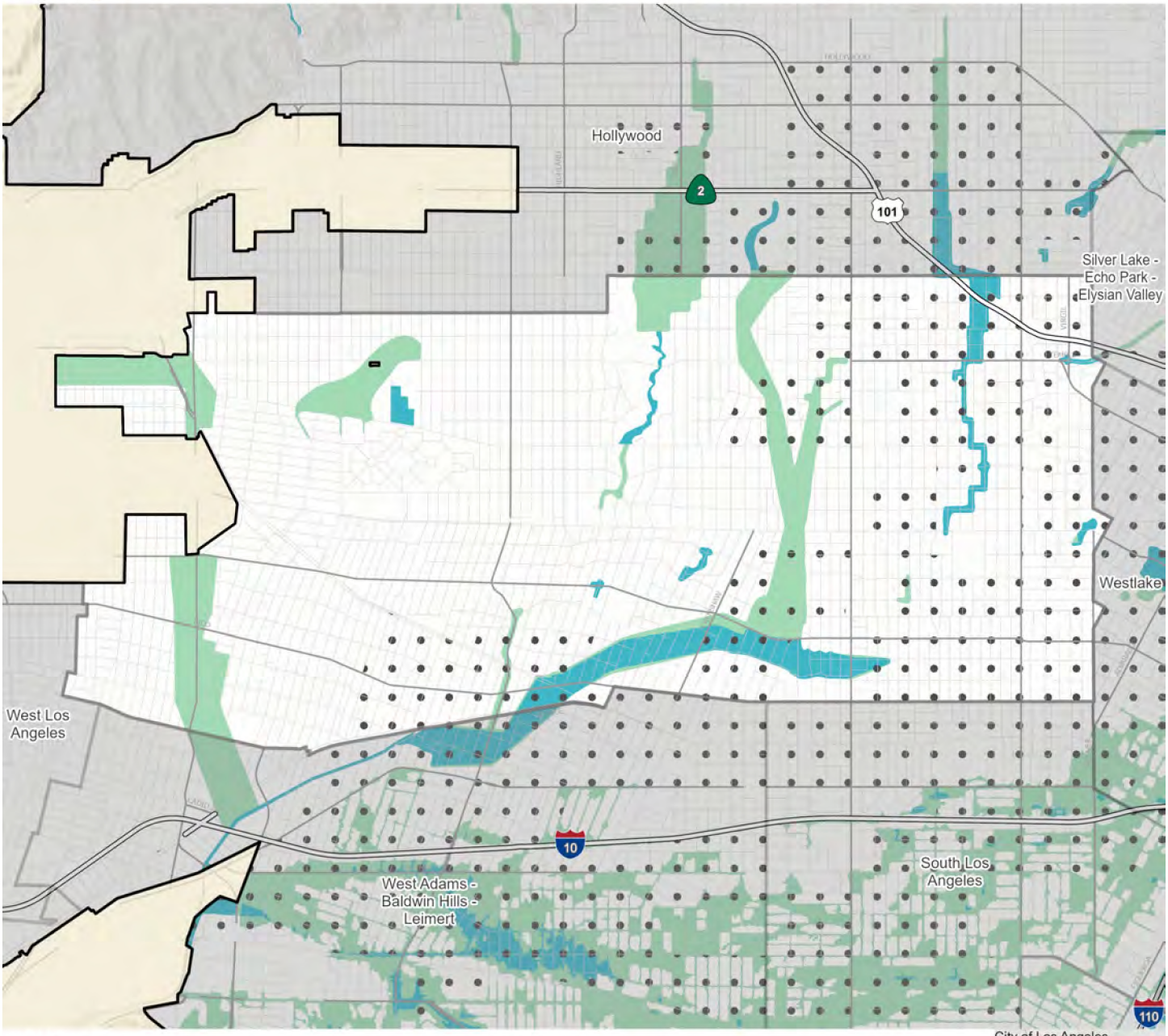
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

0 0.2 0.4 0.8
Miles

N

City of Los Angeles

Socially Vulnerable Population in Flood and Sea Level Rise Hazard Area



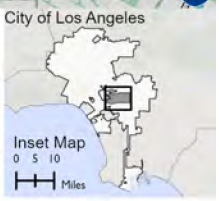
Wilshire

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood

Community Health and Equity Index

- Socially Vulnerable Communities

- Community Plan Area
- City Boundary



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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; Cal-Adapt 2024; City of LA Dept. of City Planning 2021

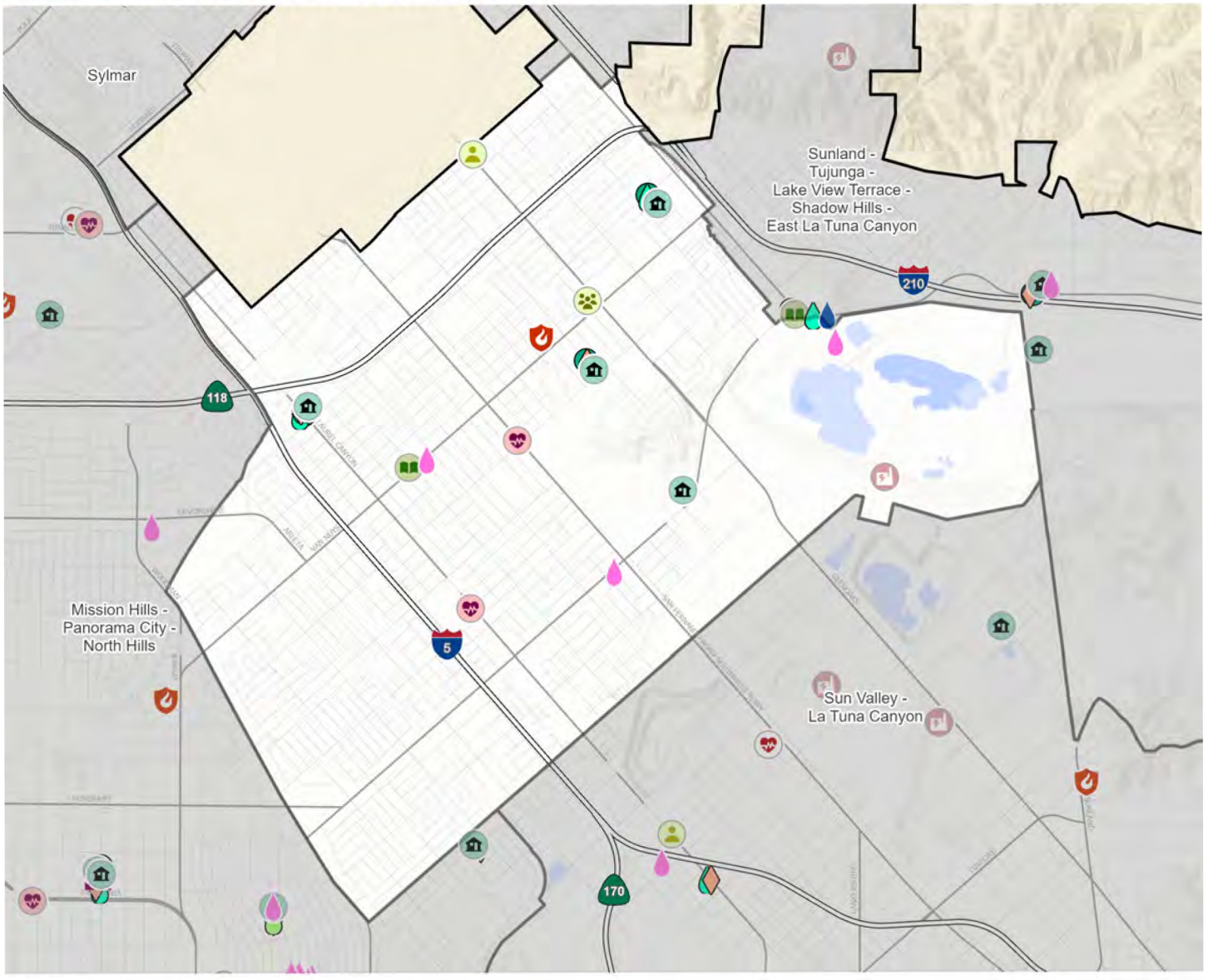
0 0.25 0.5 1
Miles

N

Resilience Assets for Extreme Heat

City of Los Angeles

Resilience Assets for Extreme Heat



Arleta - Pacoima

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

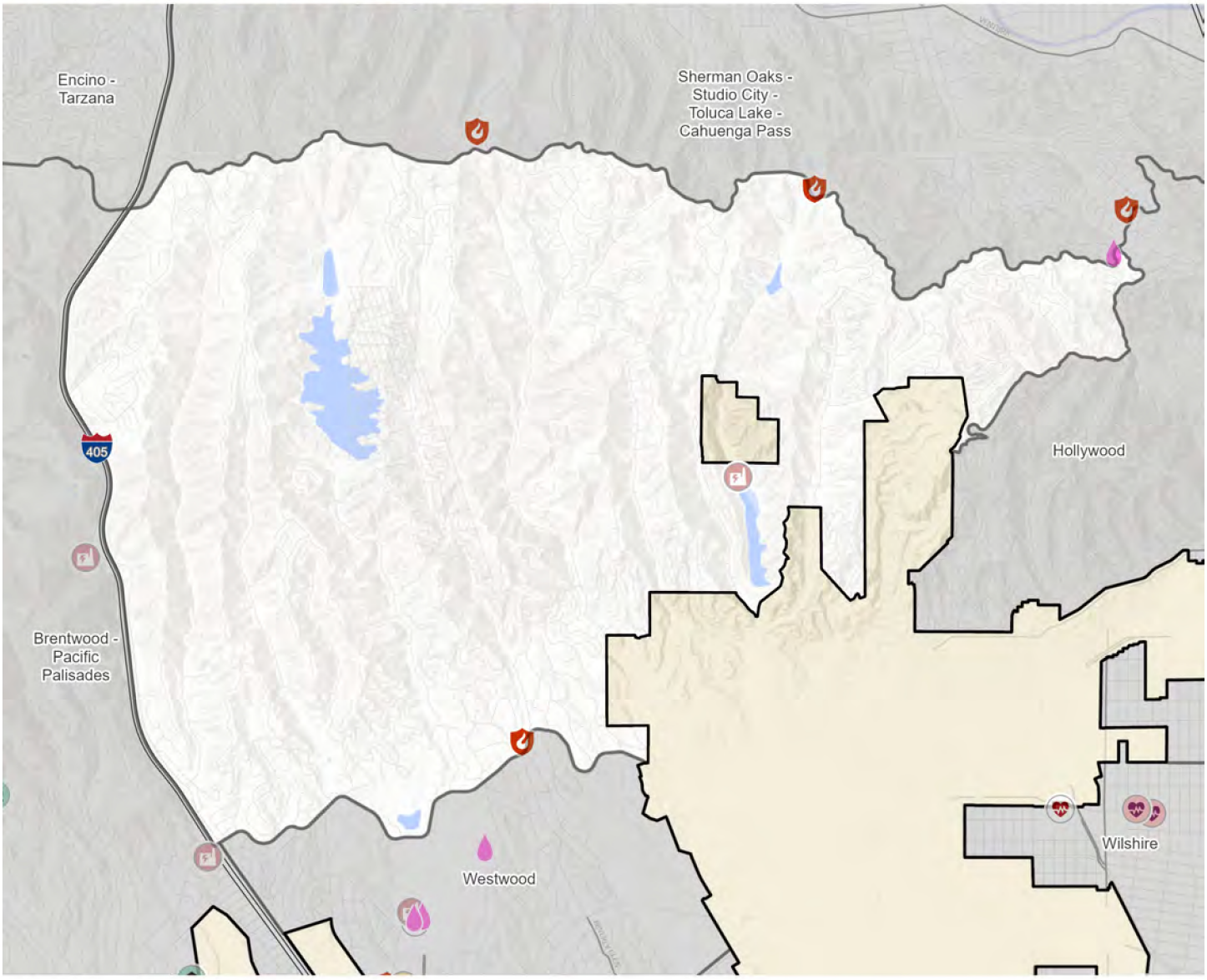
0 0.23 0.45 0.9
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Bel Air - Beverly Crest

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

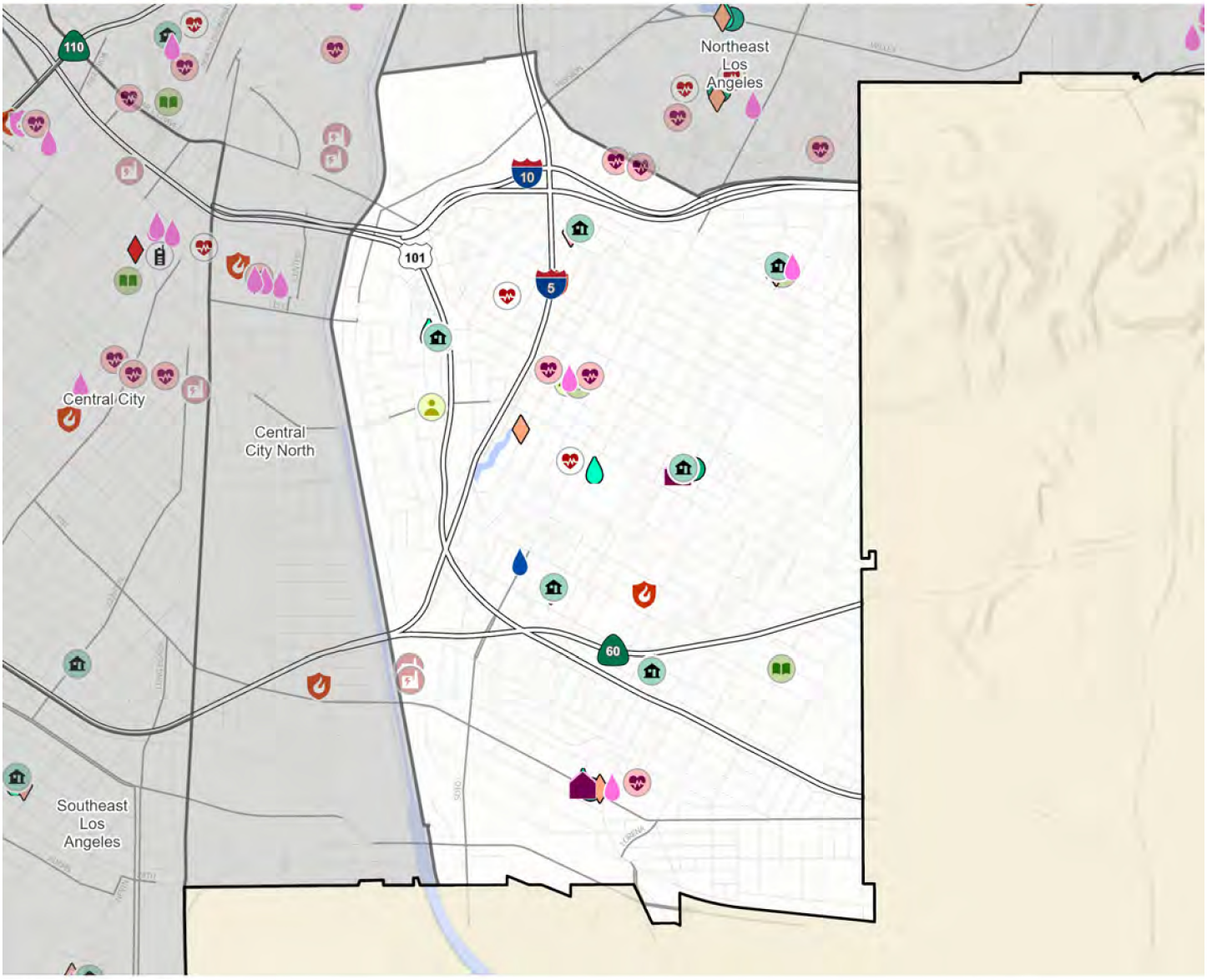
0 0.25 0.5 1 Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Boyle Heights

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.17 0.35 0.7
Miles

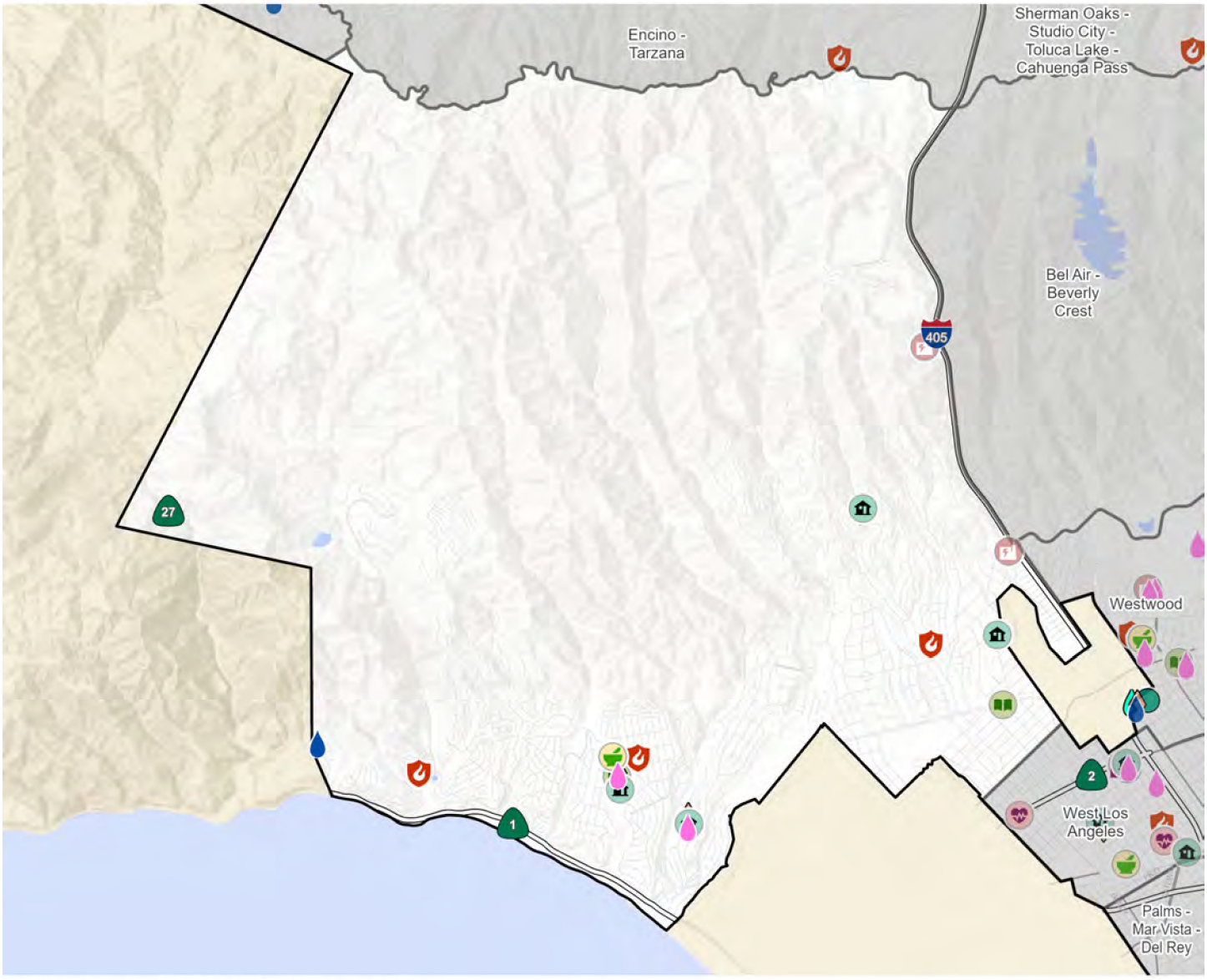
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Brentwood - Pacific Palisades

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

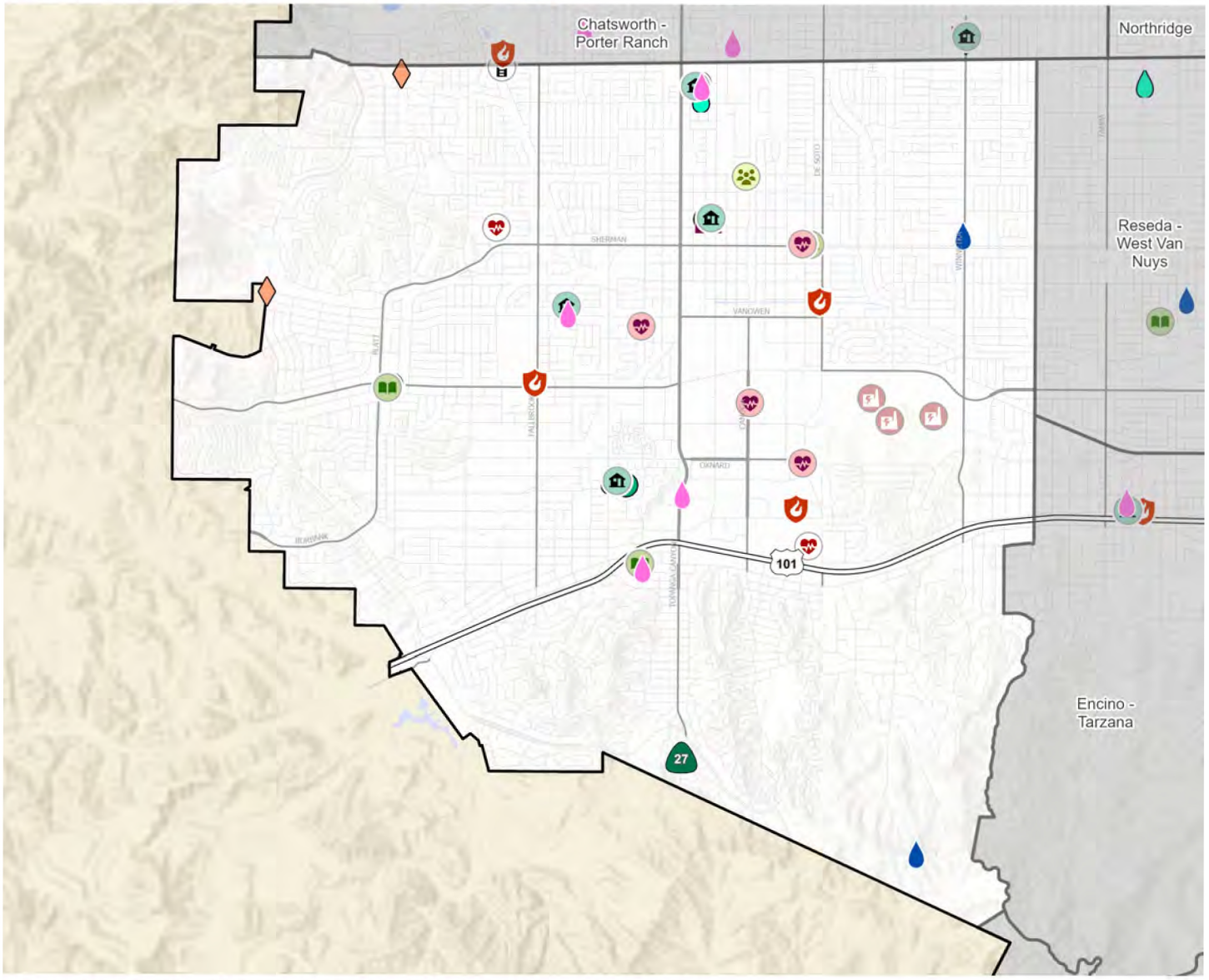
0 0.35 0.7 1.4
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Canoga Park - Winnetka - Woodland Hills - West Hills

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

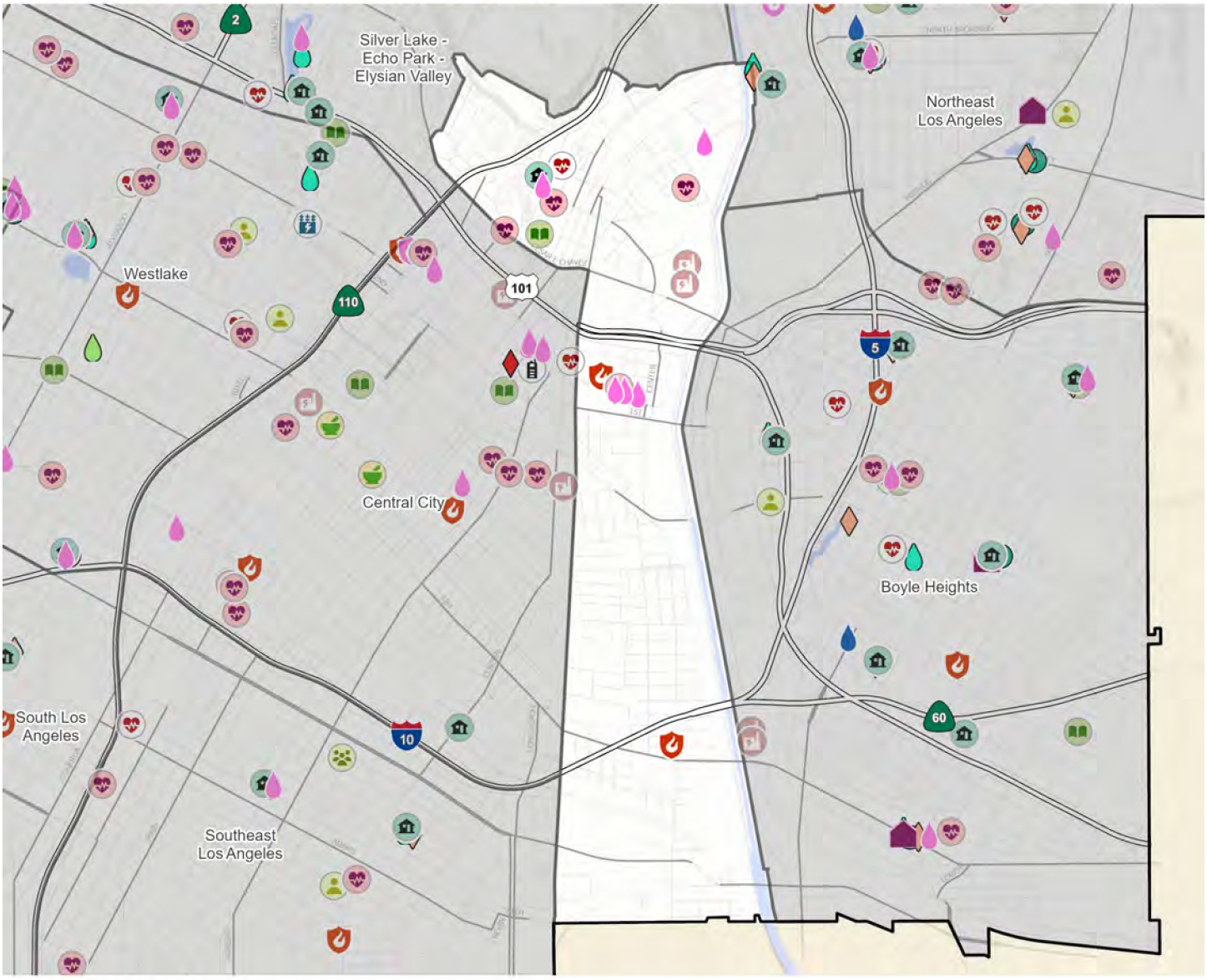
0 0.3 0.6 1.2
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Central City North

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

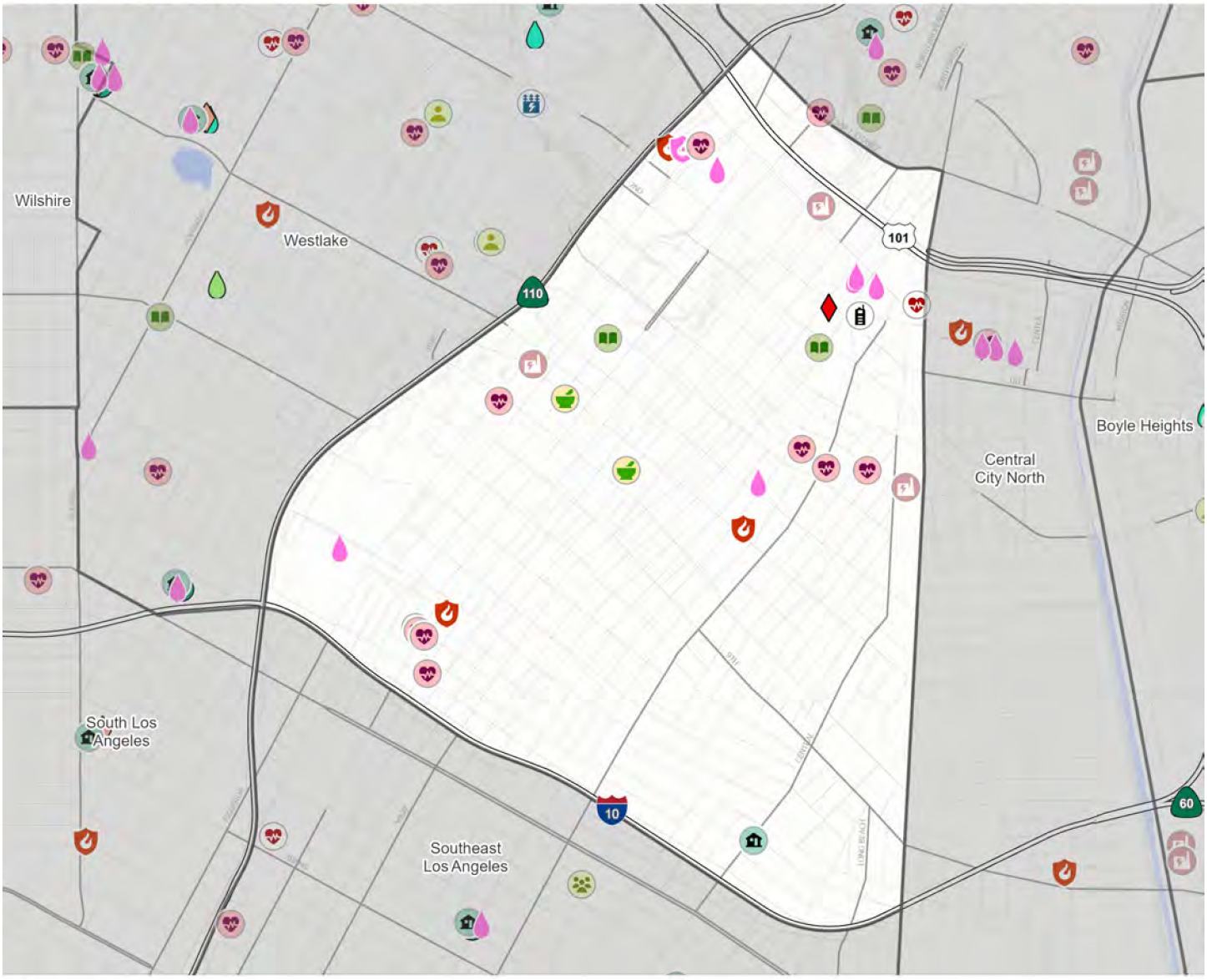
0 0.17 0.35 0.7
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Central City

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.13 0.25 0.5
Miles

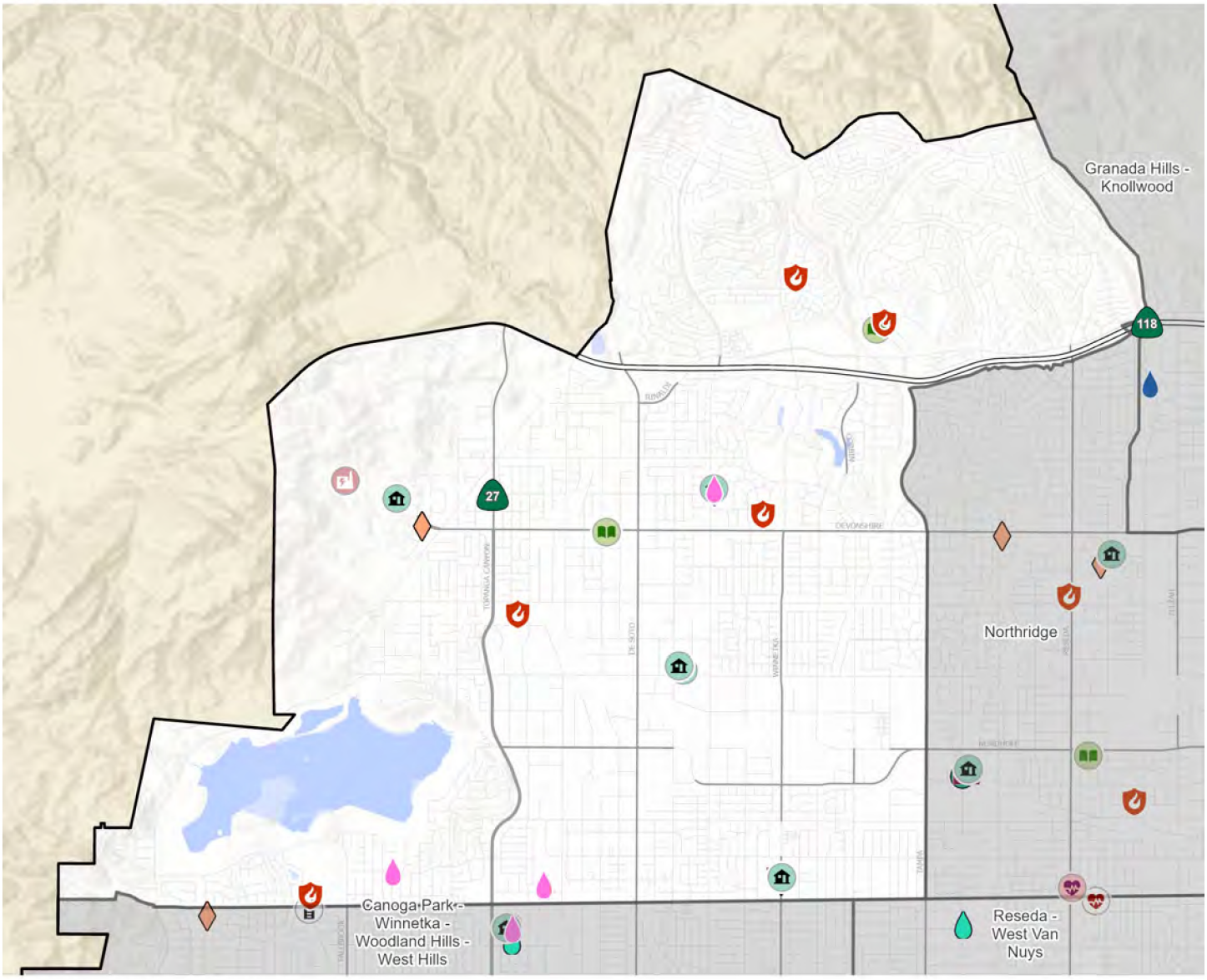
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Chatsworth - Porter Ranch

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

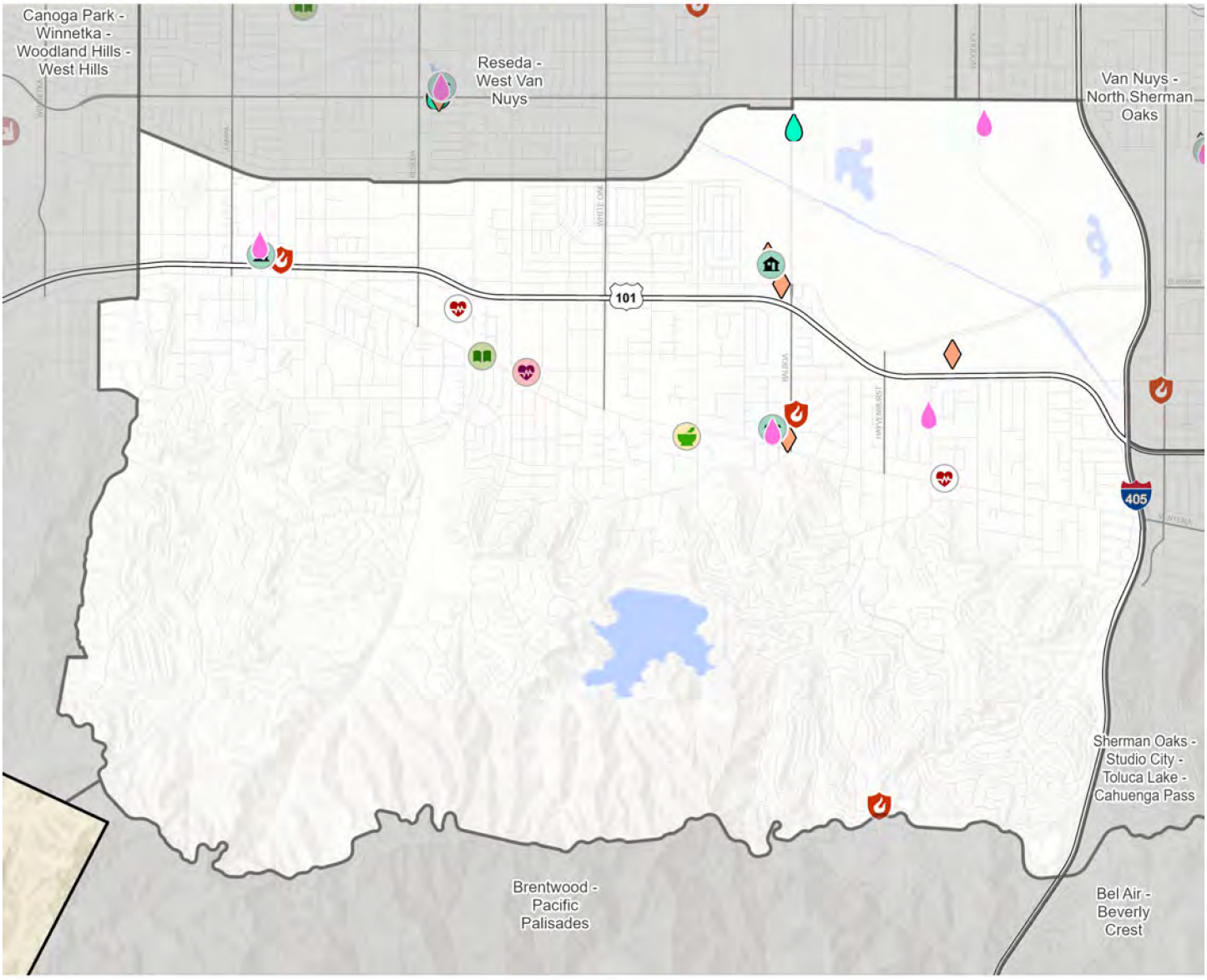
0 0.3 0.6 1.2
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Encino - Tarzana

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.23 0.45 0.9
Miles

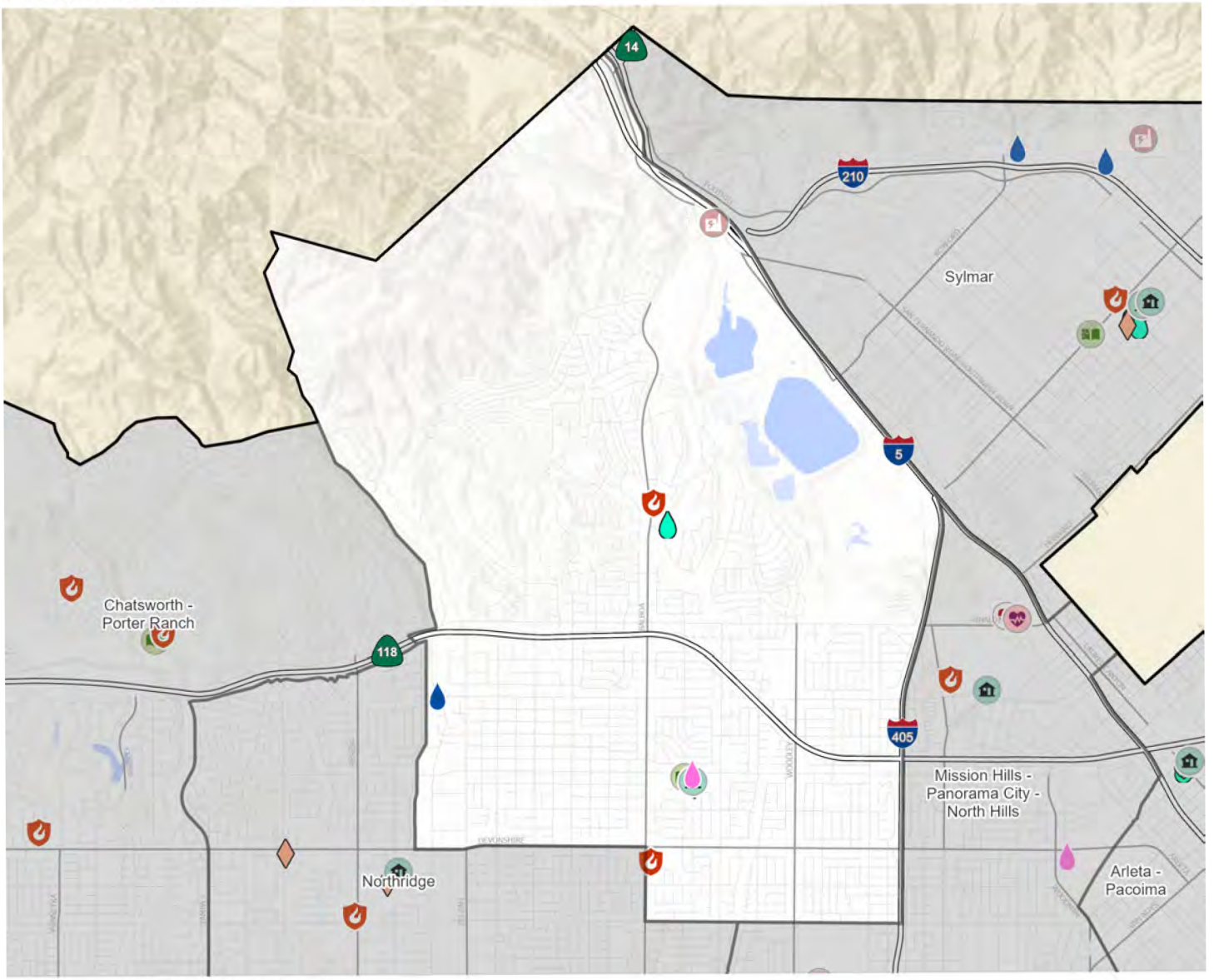
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Granada Hills - Knollwood

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

0 0.28 0.55 1.1
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Harbor Gateway

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.38 0.75 1.5
Miles

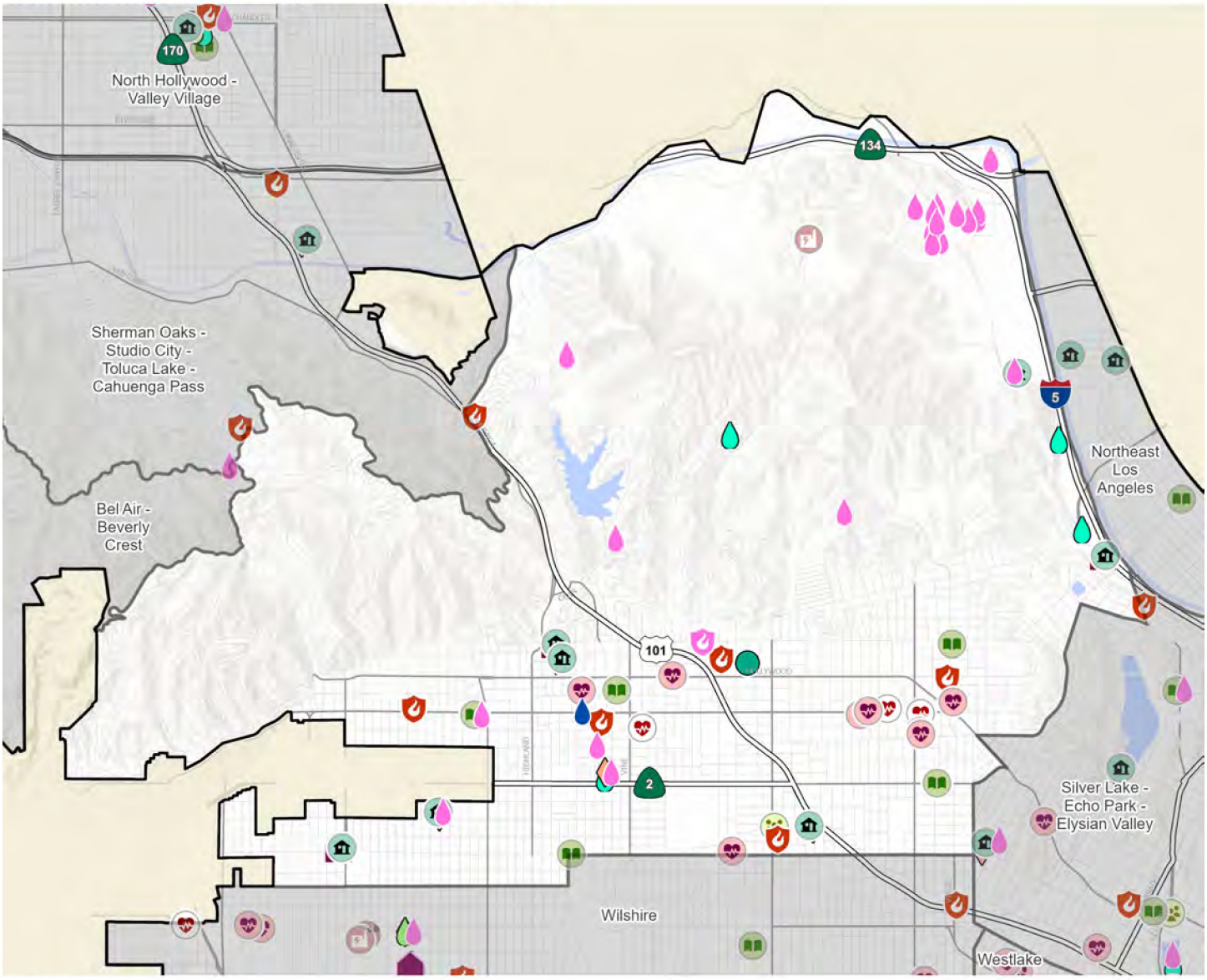
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Hollywood

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.3 0.6 1.2 Miles

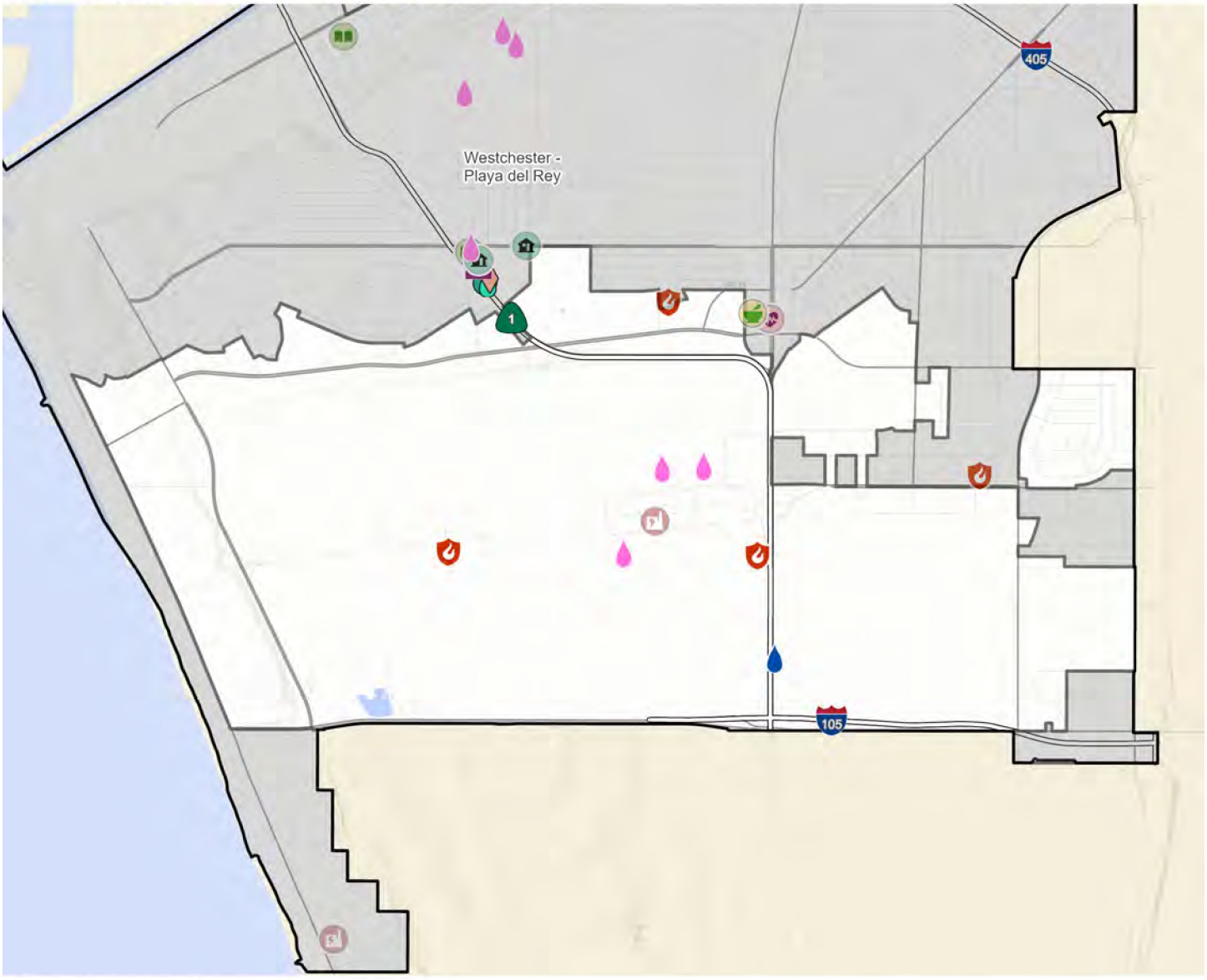
N



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Los Angeles International Airport

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

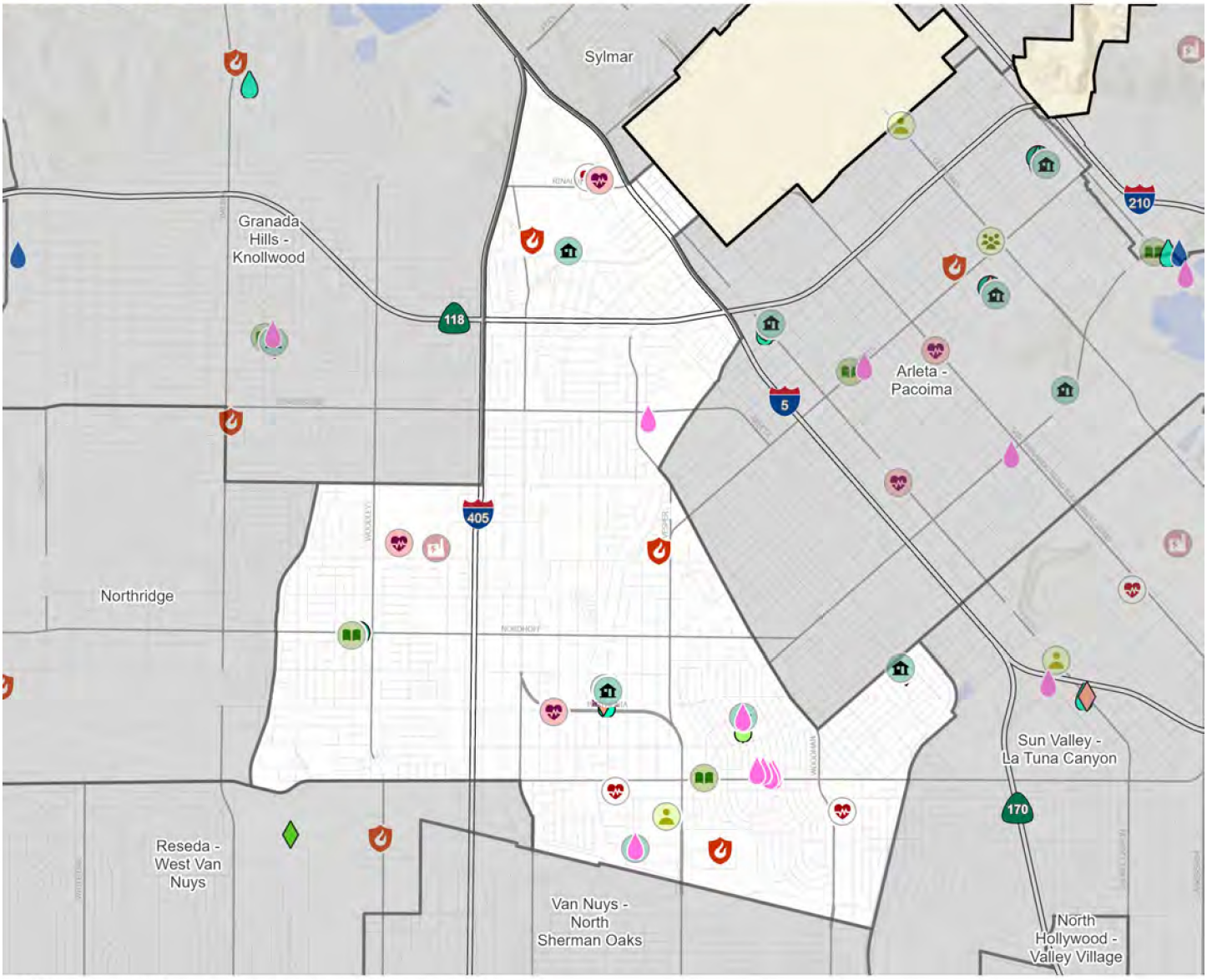
0 0.17 0.35 0.7
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Mission Hills - Panorama City - North Hills

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

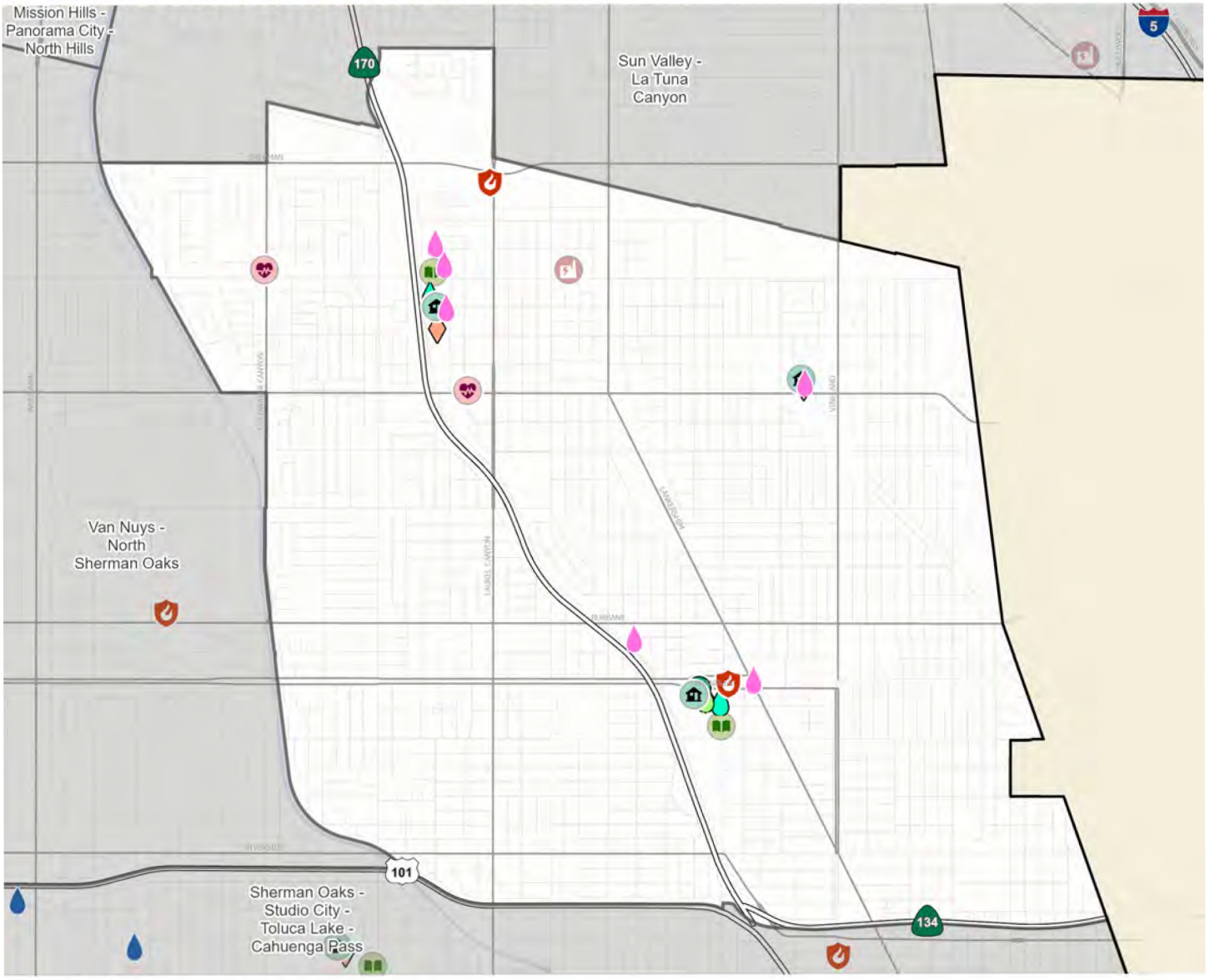
0 0.28 0.55 1.1
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



North Hollywood - Valley Village

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.17 0.35 0.7
Miles

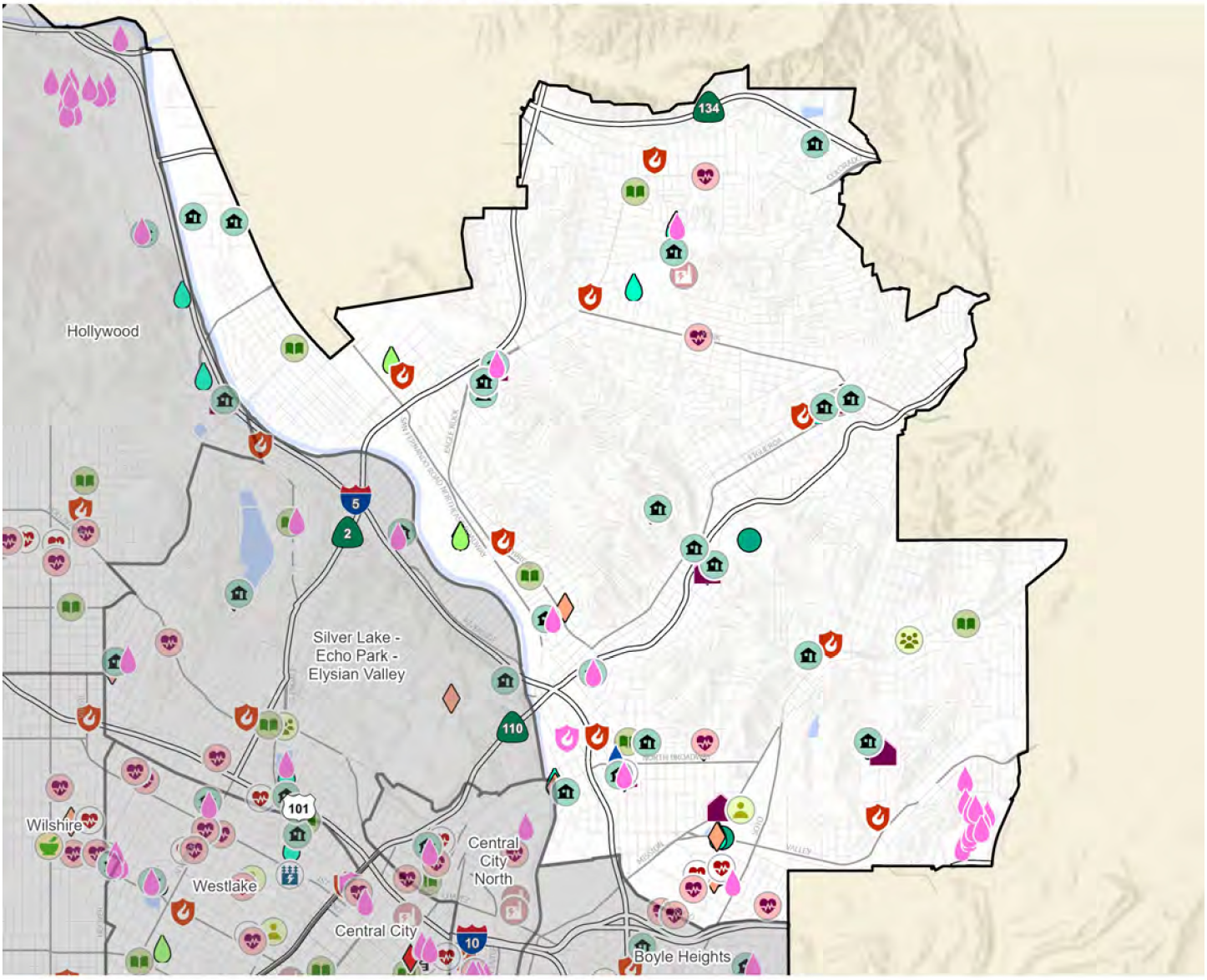
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Northeast Los Angeles

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.33 0.65 1.3
Miles

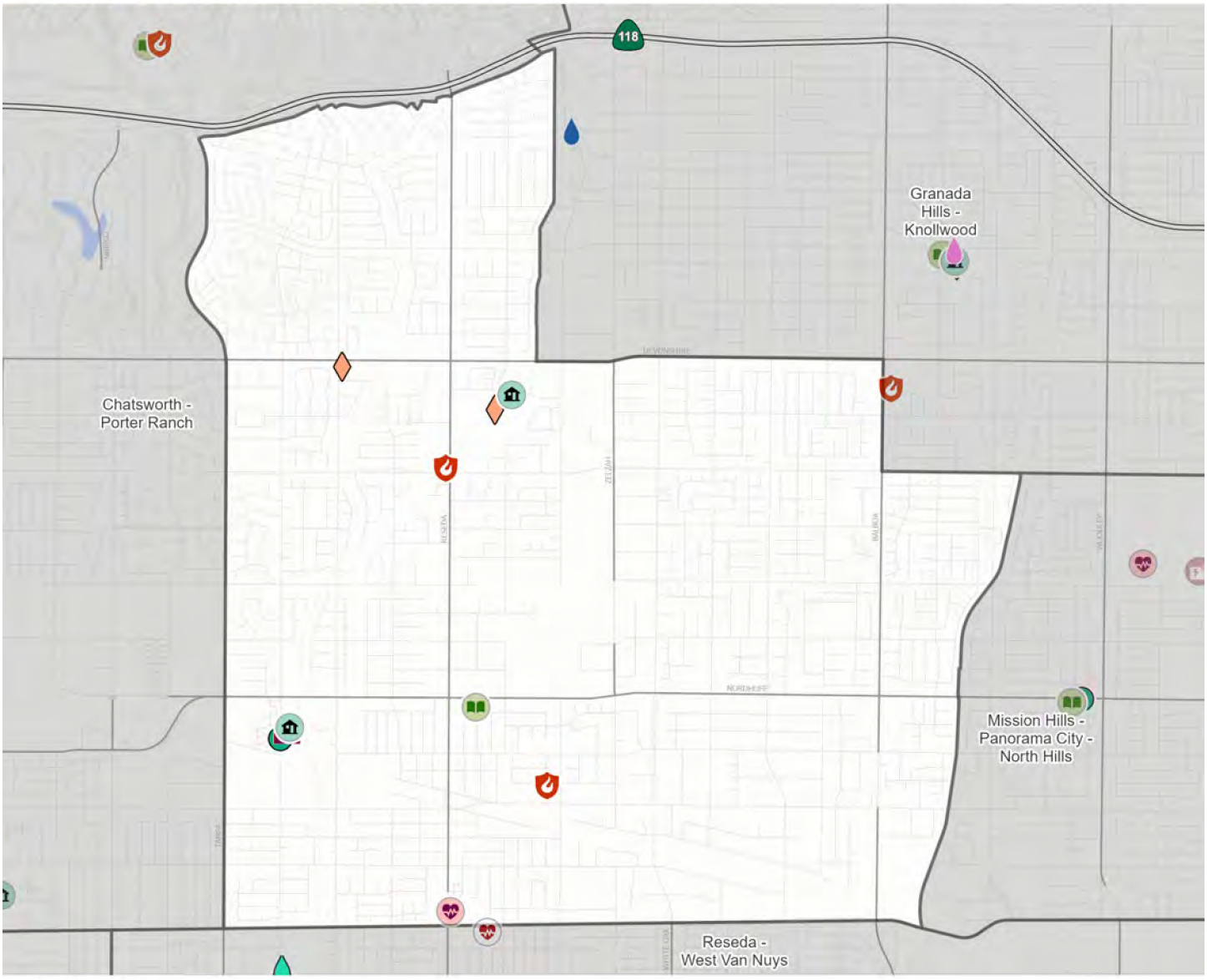
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Northridge

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

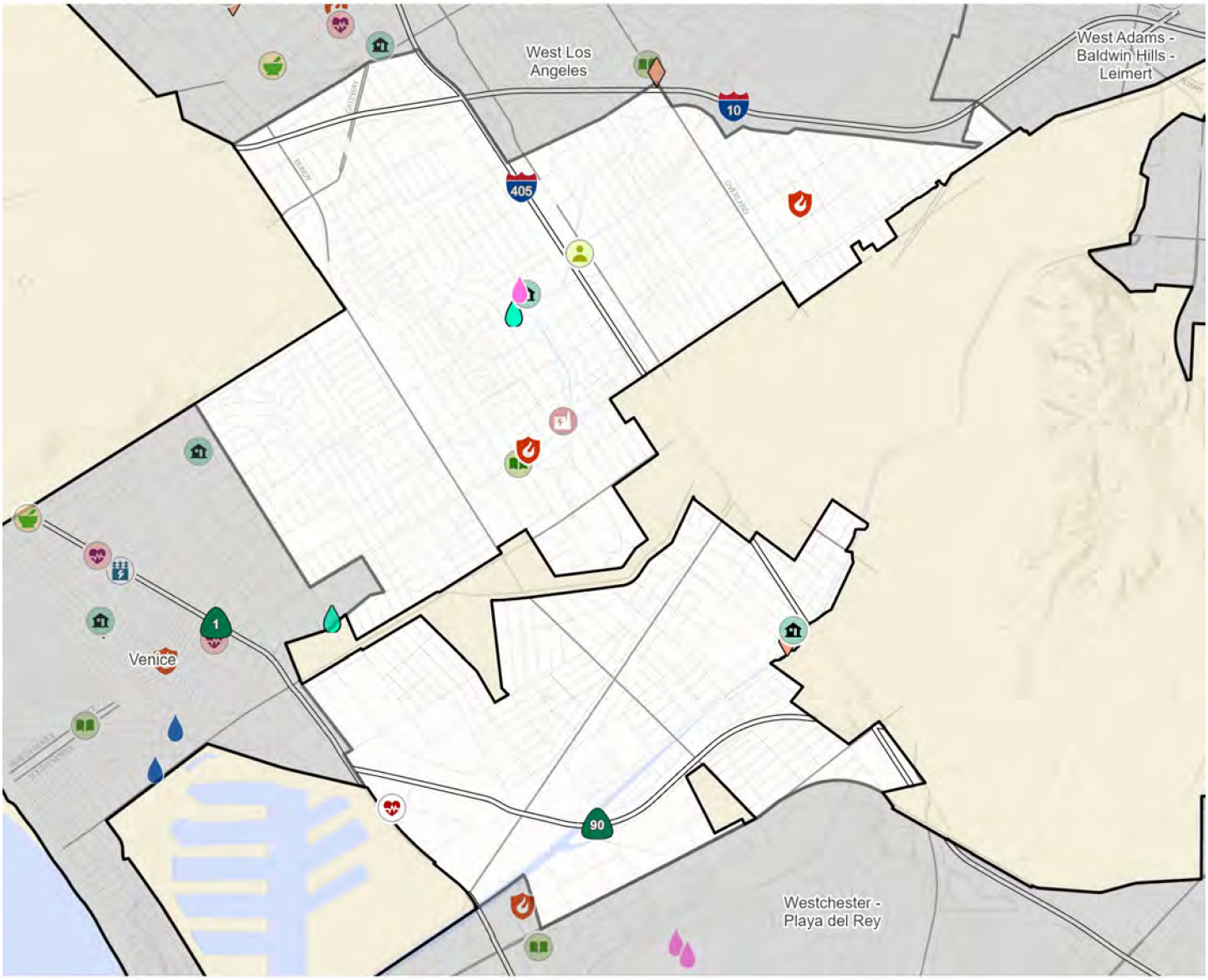
0 0.17 0.35 0.7
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Palms - Mar Vista - Del Rey

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.2 0.4 0.8
Miles

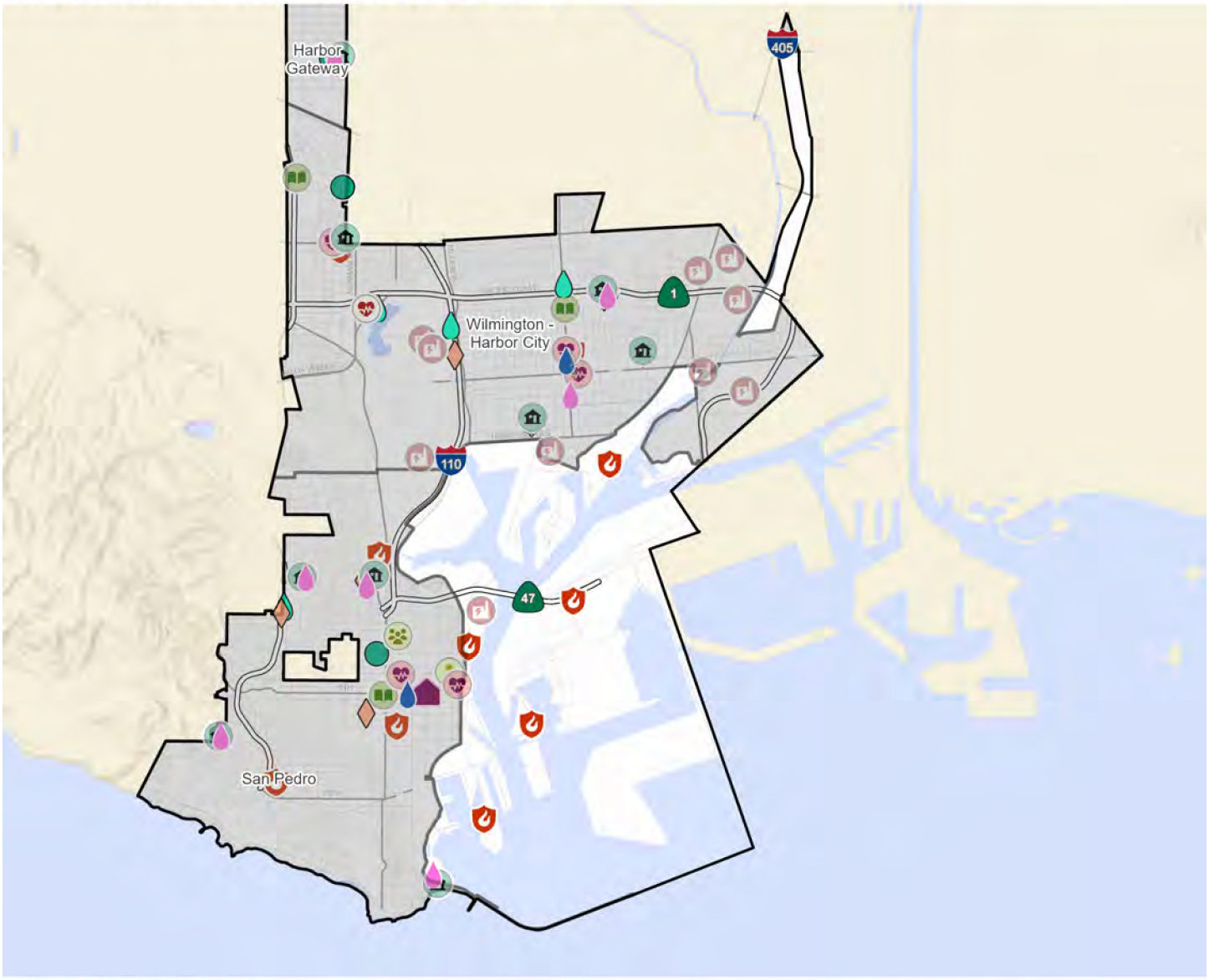
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Port of Los Angeles

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.4 0.8 1.6
Miles

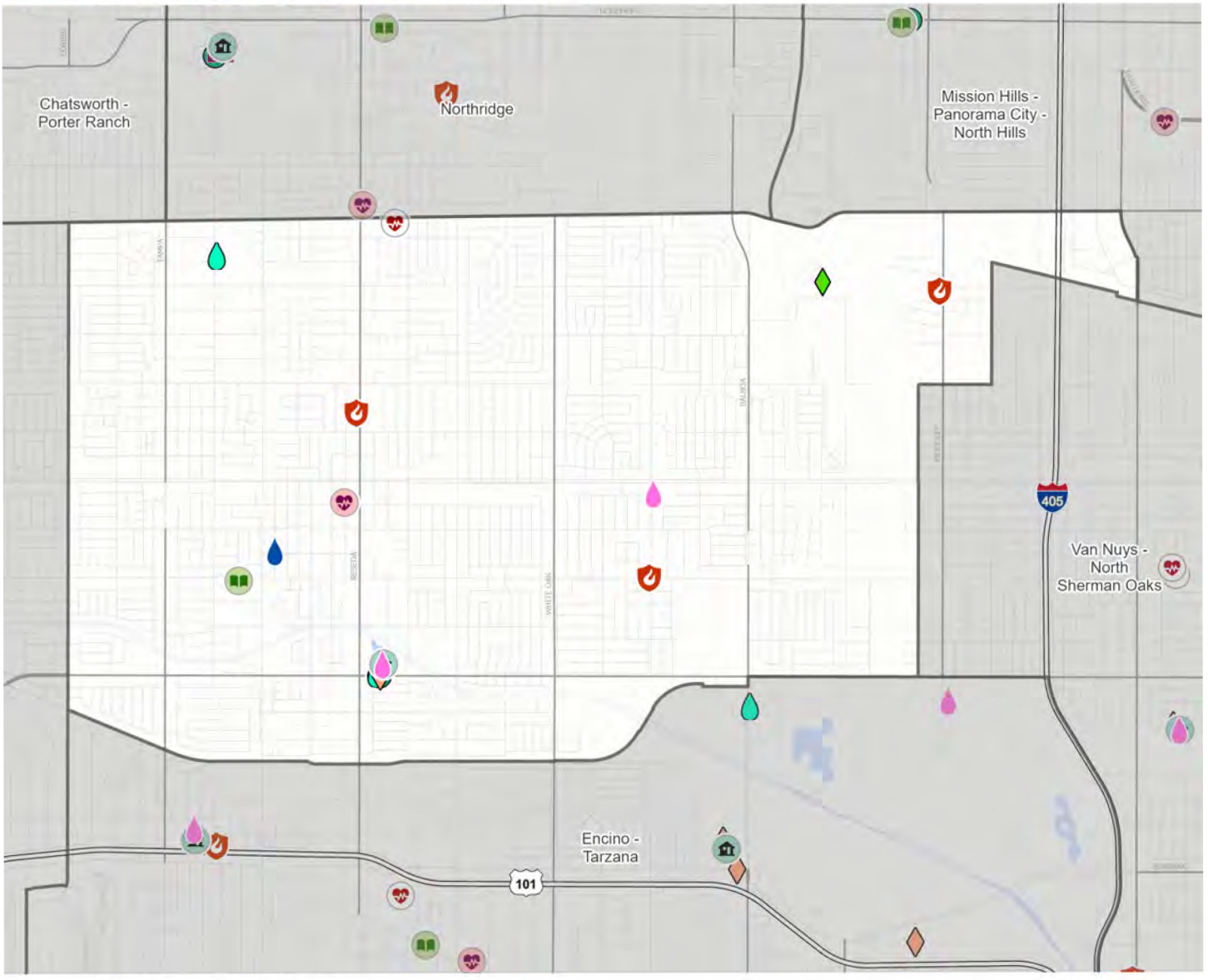
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Reseda - West Van Nuys

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

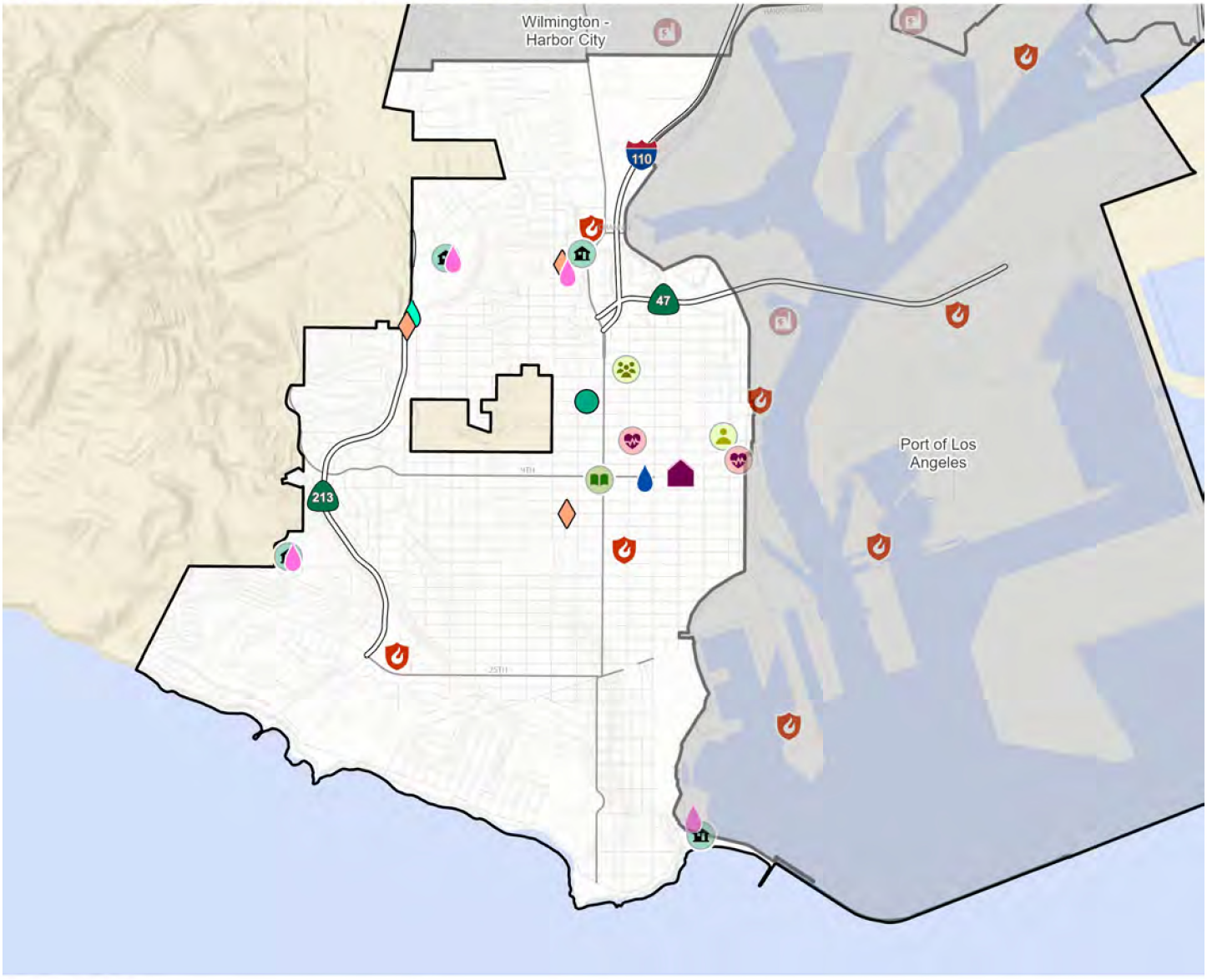
0 0.2 0.4 0.8
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



San Pedro

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

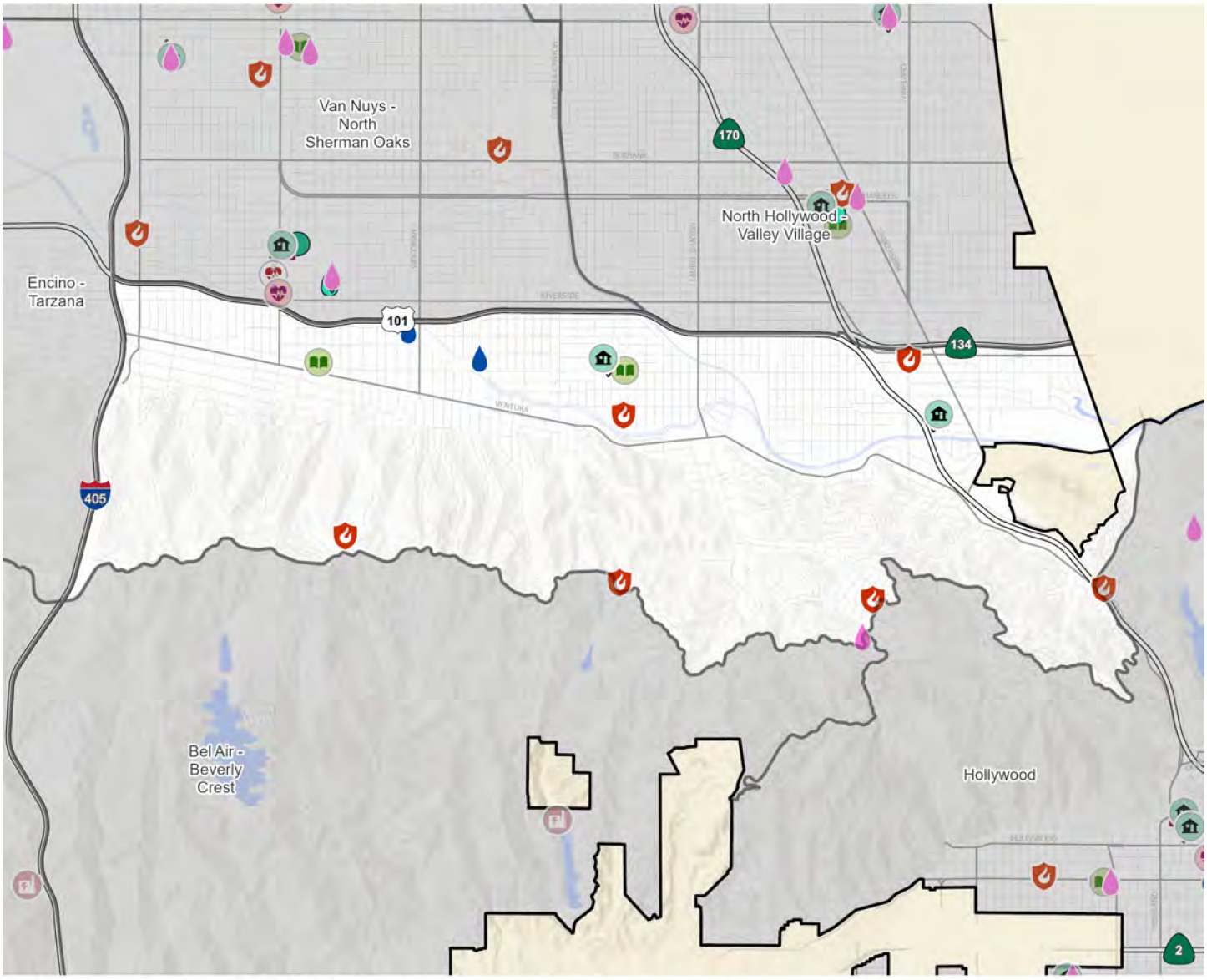
0 0.2 0.4 0.8
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

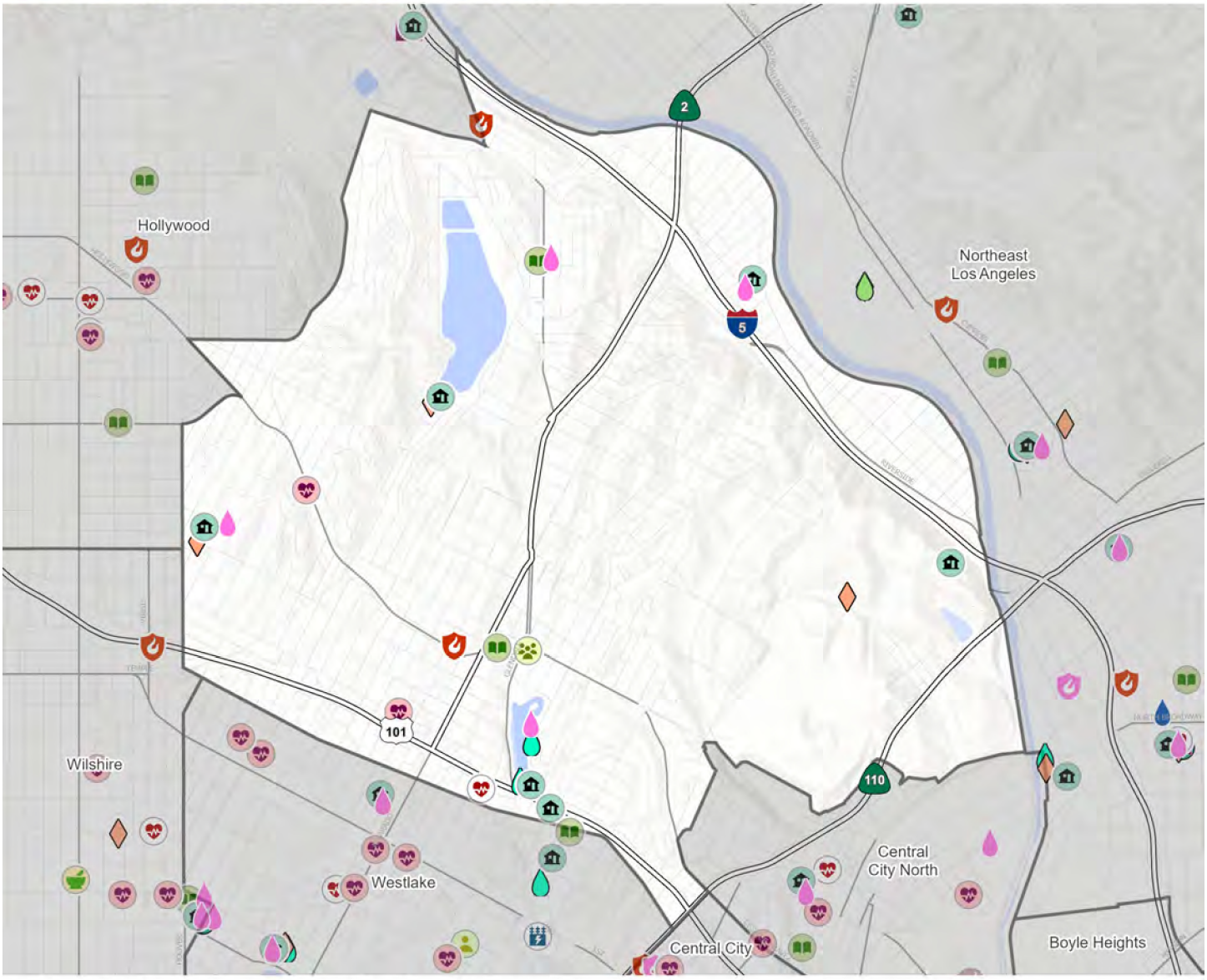
0 0.3 0.6 1.2
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Silver Lake - Echo Park - Elysian Valley

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.17 0.35 0.7
Miles

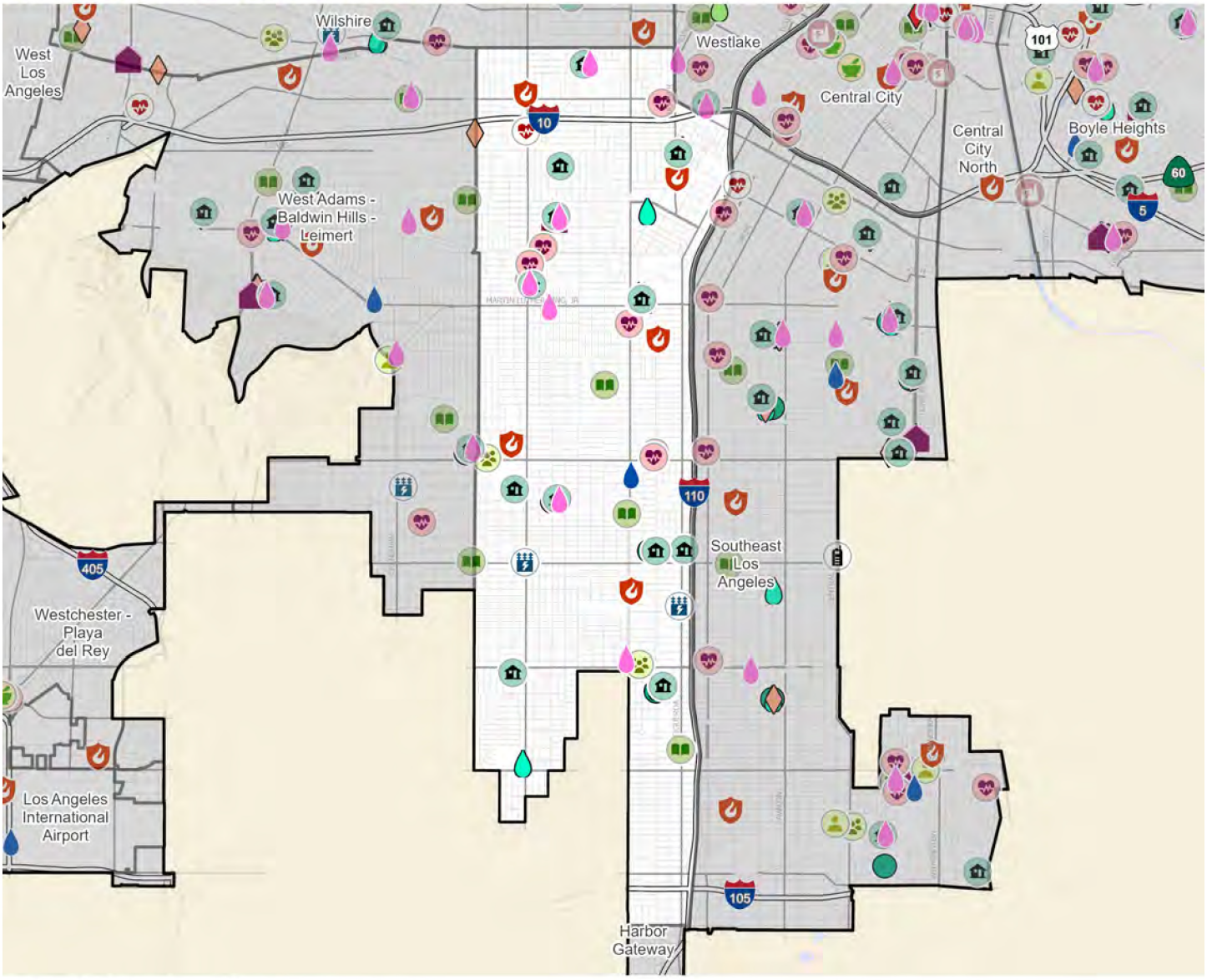
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



South Los Angeles

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.4 0.8 1.6
Miles

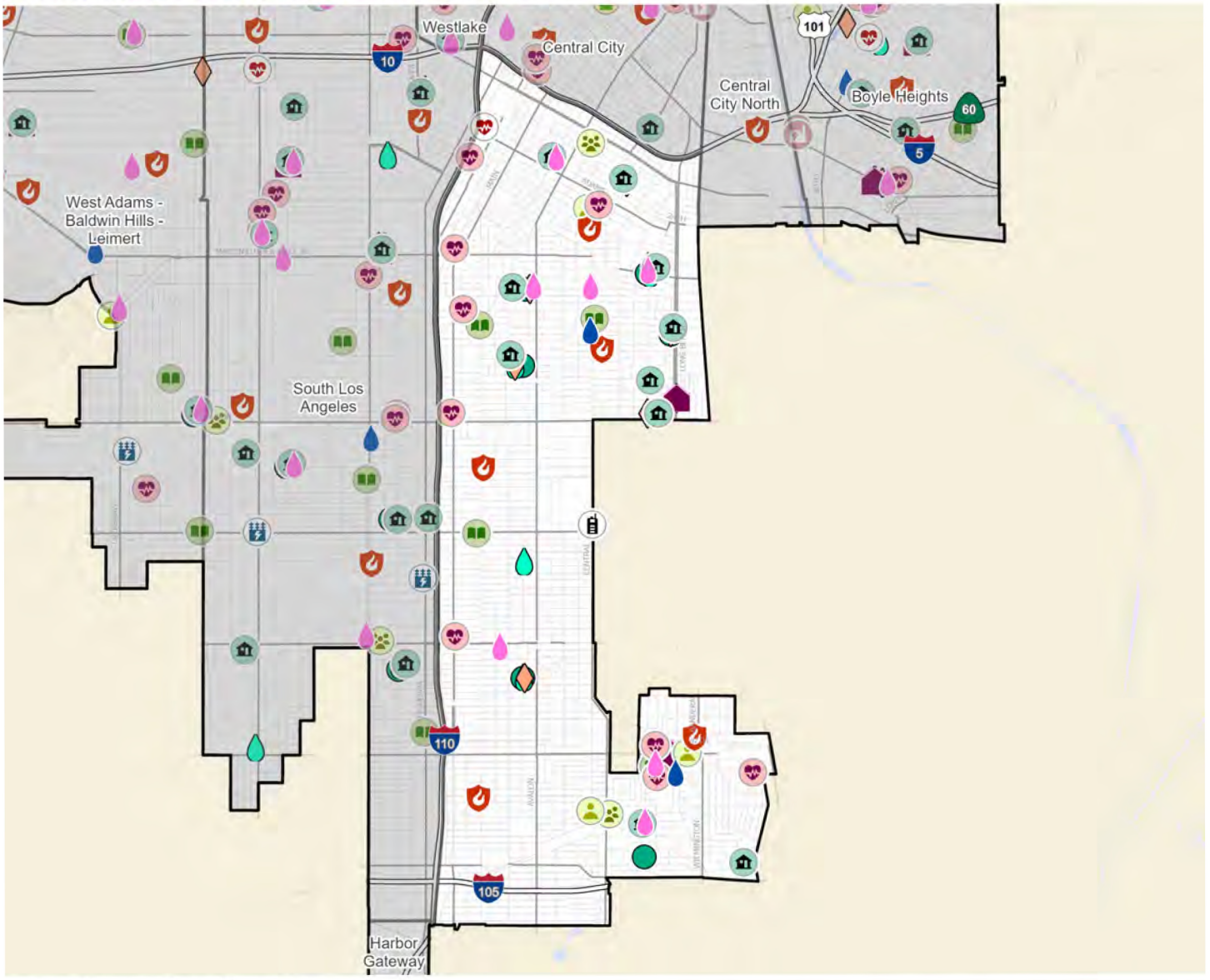
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Southeast Los Angeles

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.38 0.75 1.5
Miles

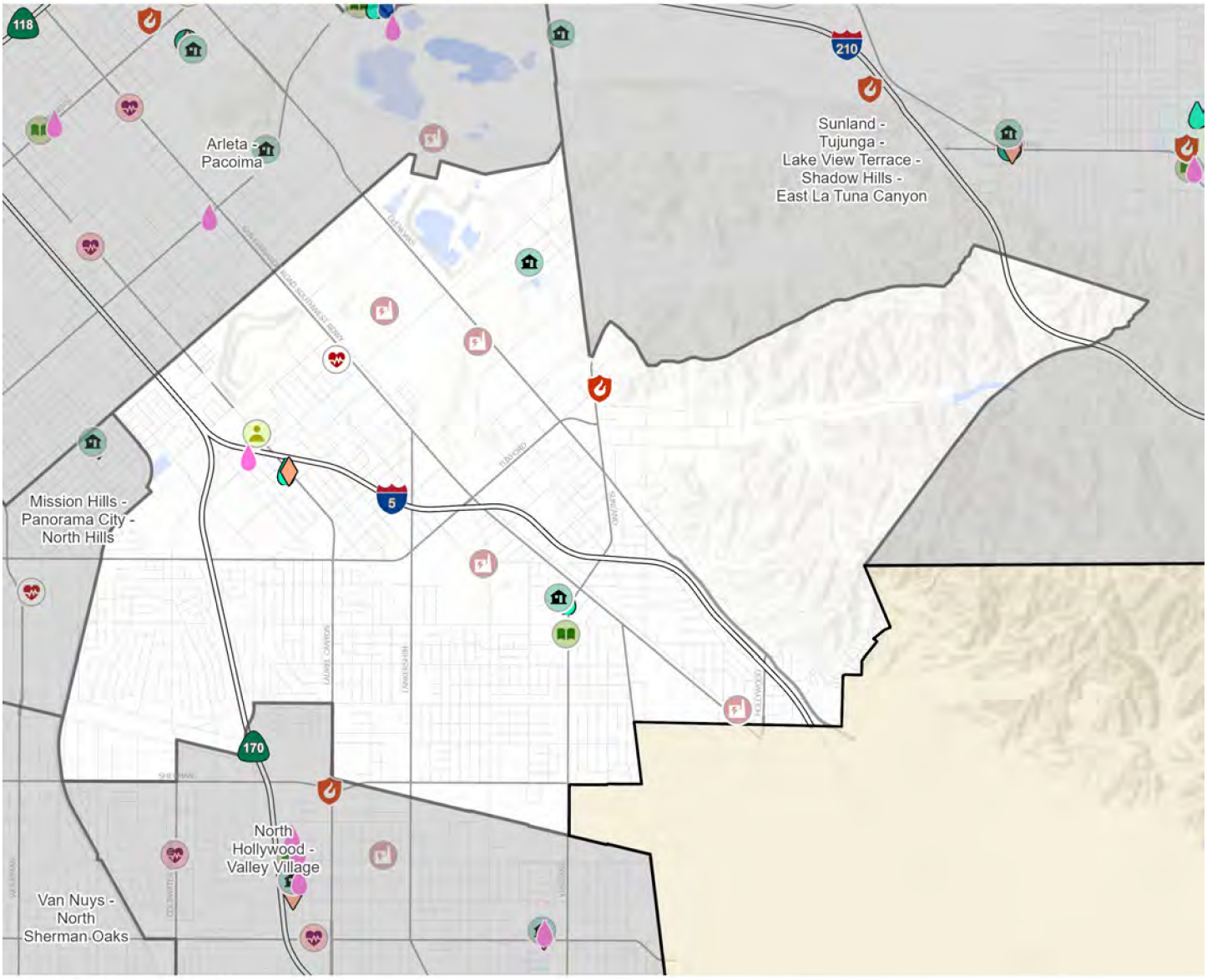
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Sun Valley - La Tuna Canyon

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.28 0.55 1.1
Miles

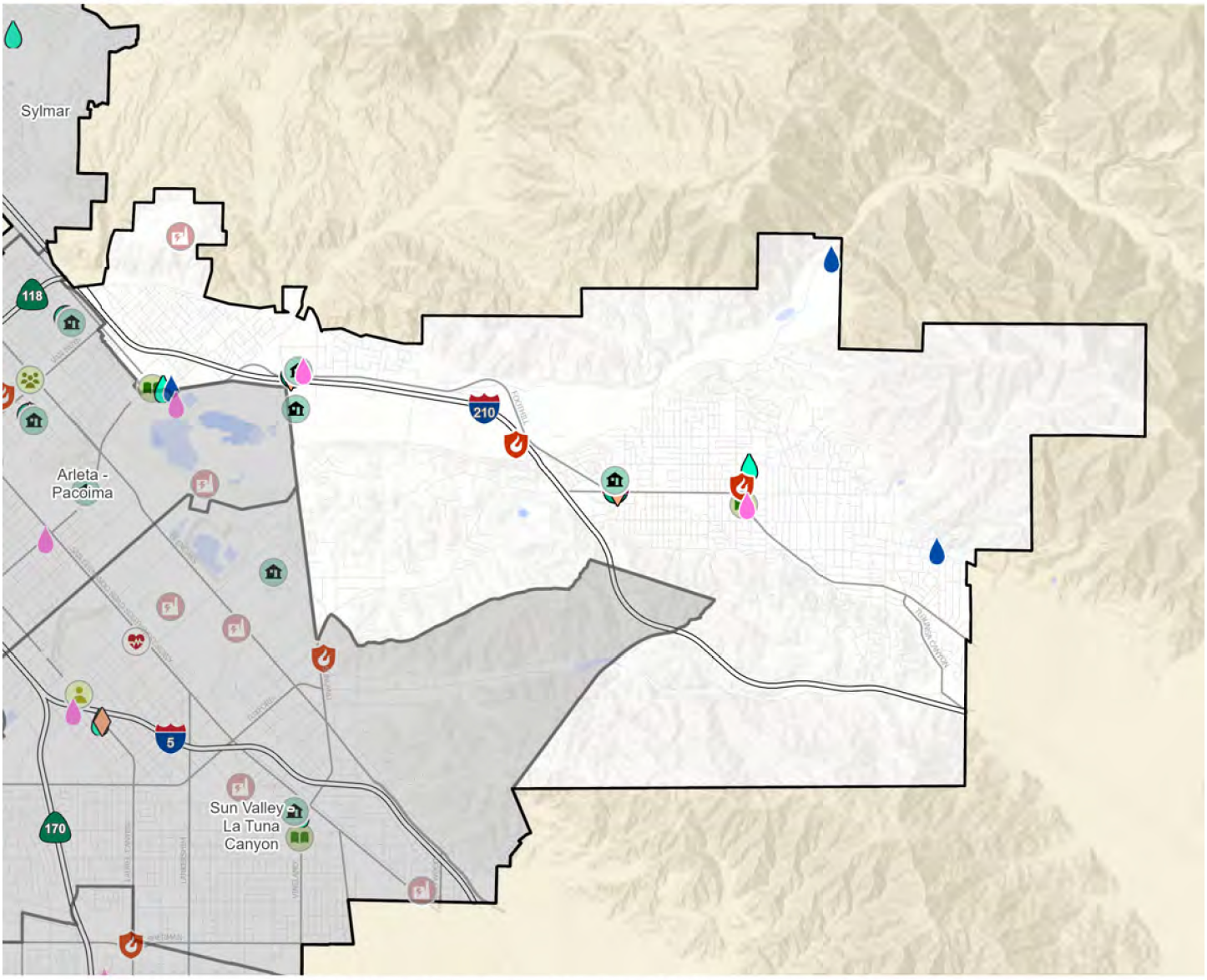
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Sunland - Tujunga - Lake View Terrace - Shadow Hills - East La Tuna Canyon

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

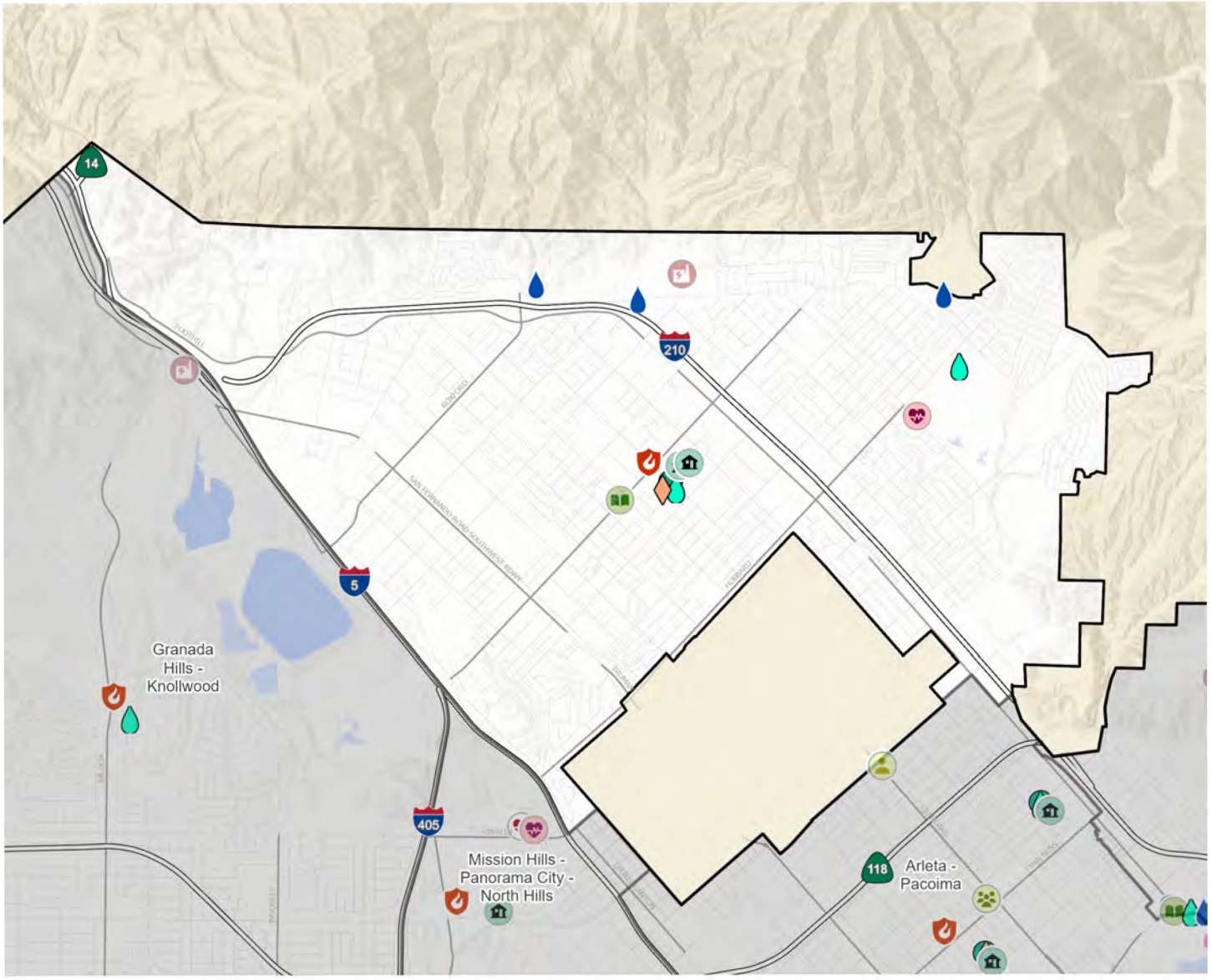
0 0.38 0.75 1.5
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Sylmar

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.25 0.5 1 Miles

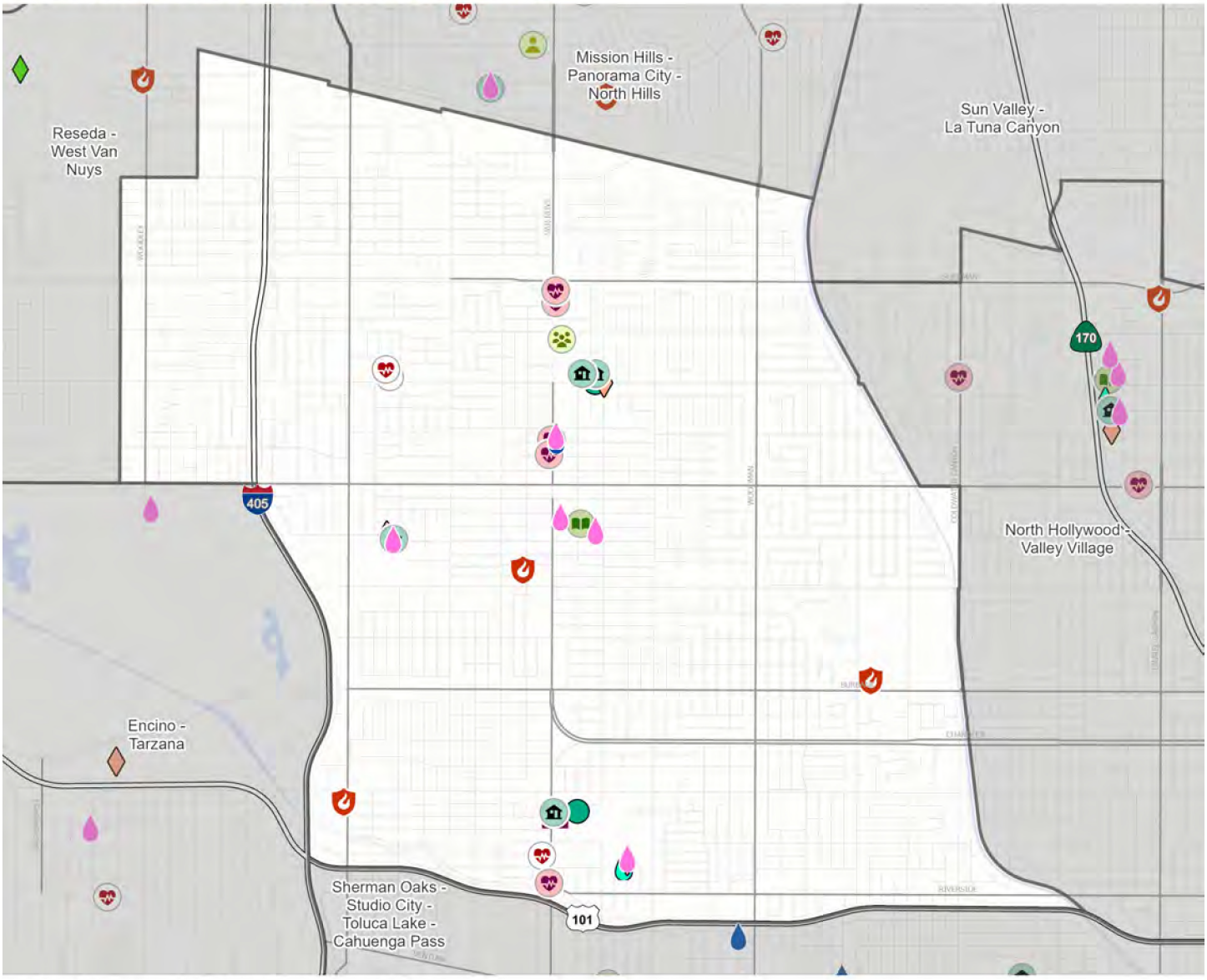
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Van Nuys - North Sherman Oaks

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

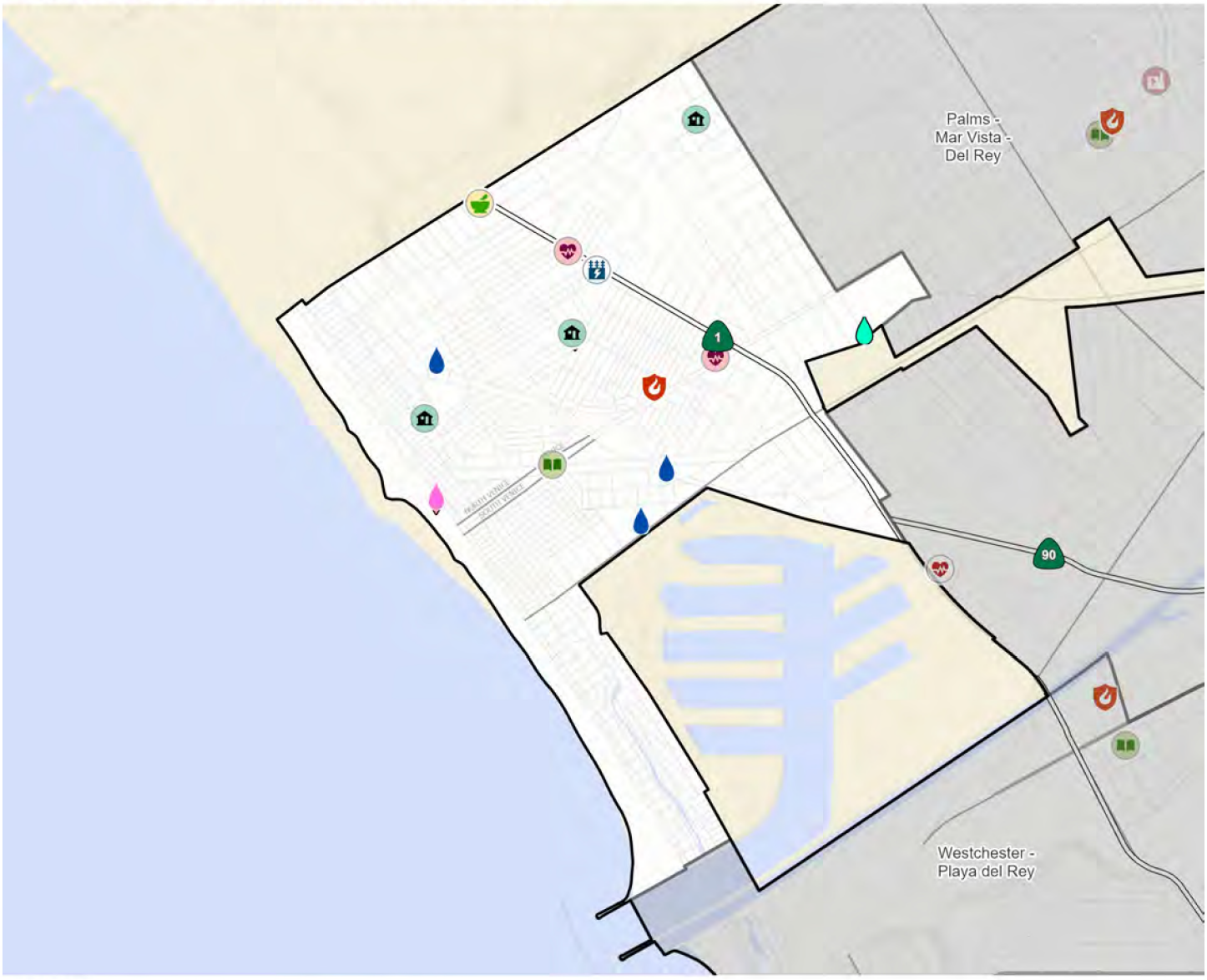
0 0.2 0.4 0.8
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Venice

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

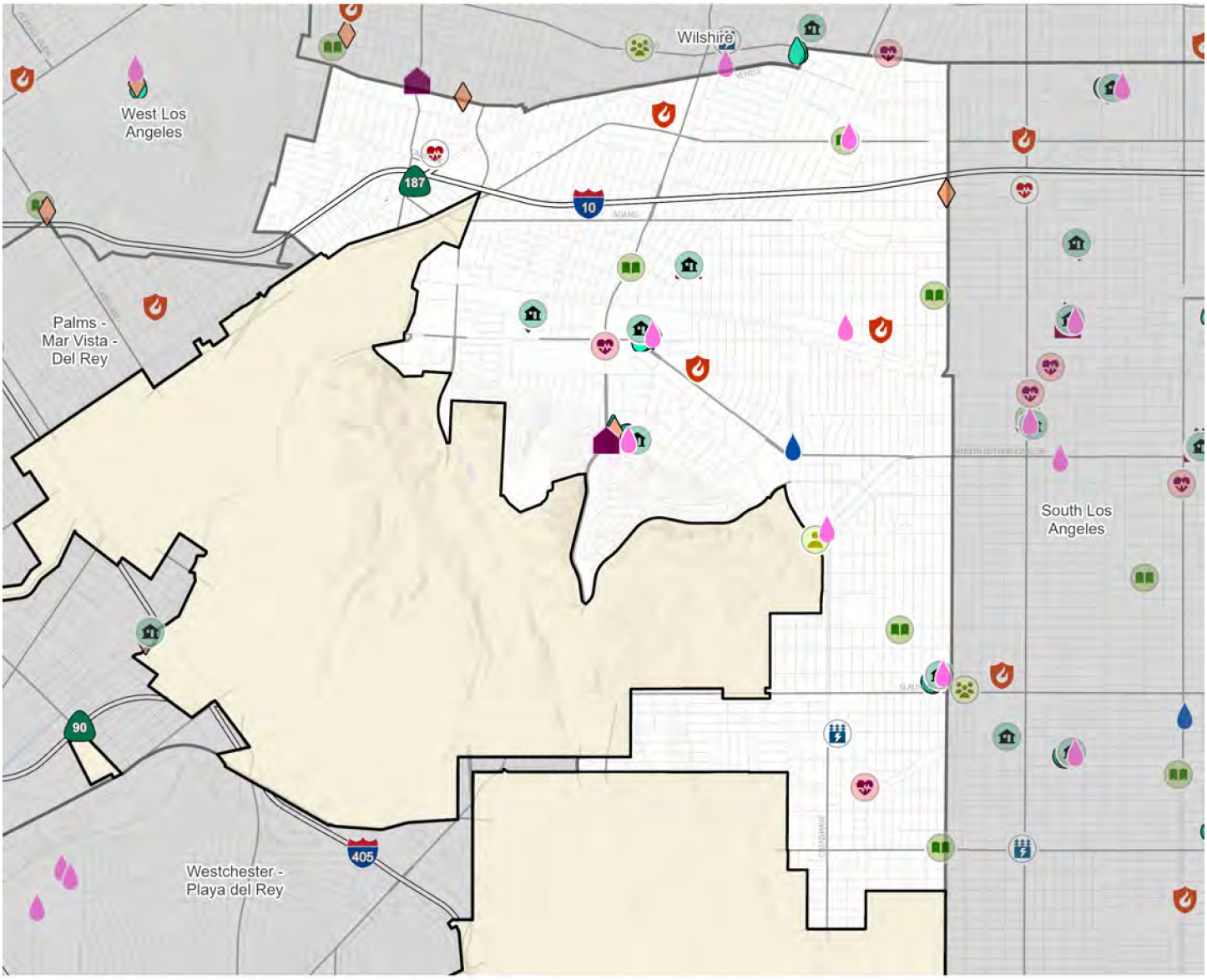
0 0.15 0.3 0.6
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



West Adams - Baldwin Hills - Leimert

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

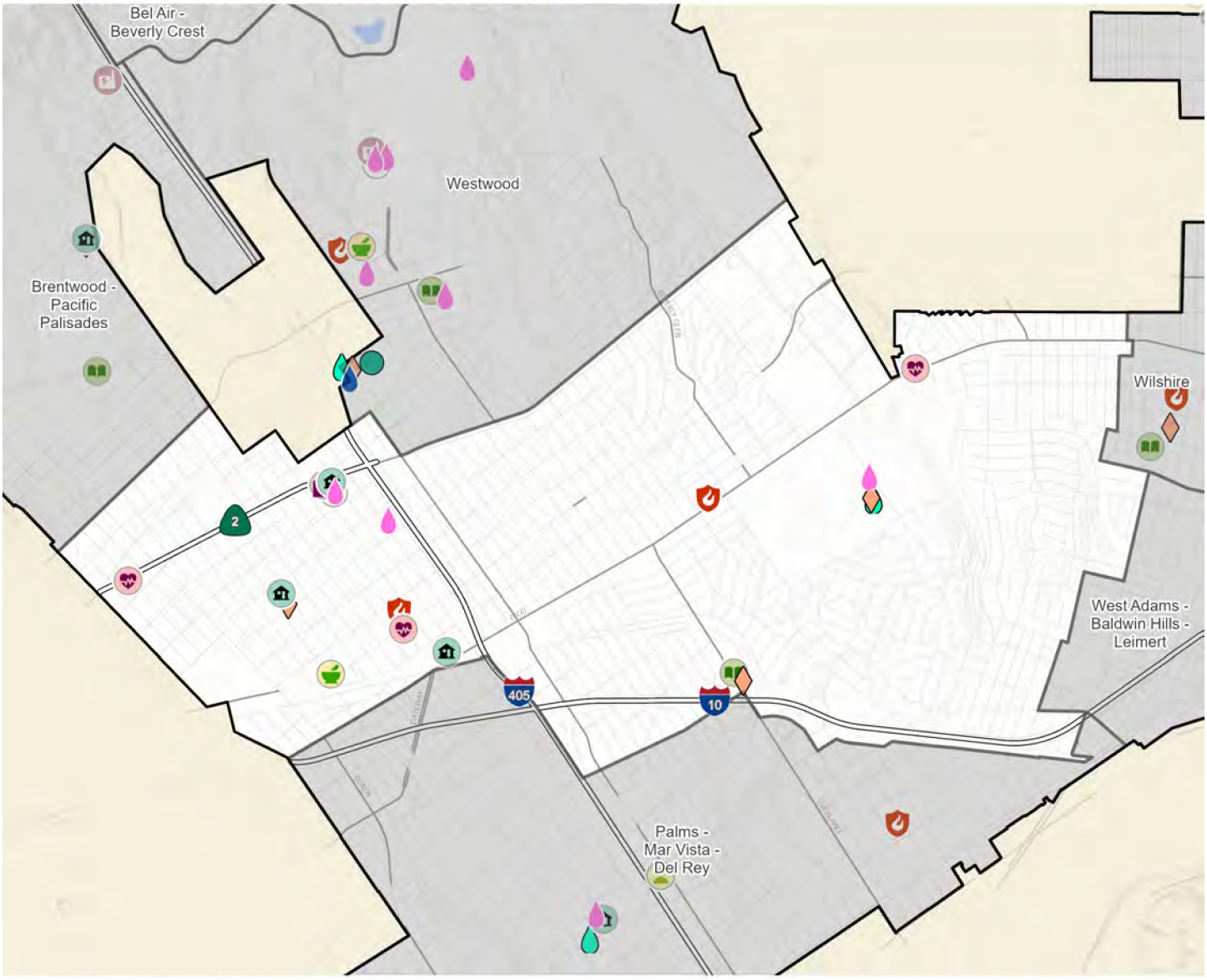
0 0.28 0.55 1.1
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



West Los Angeles

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

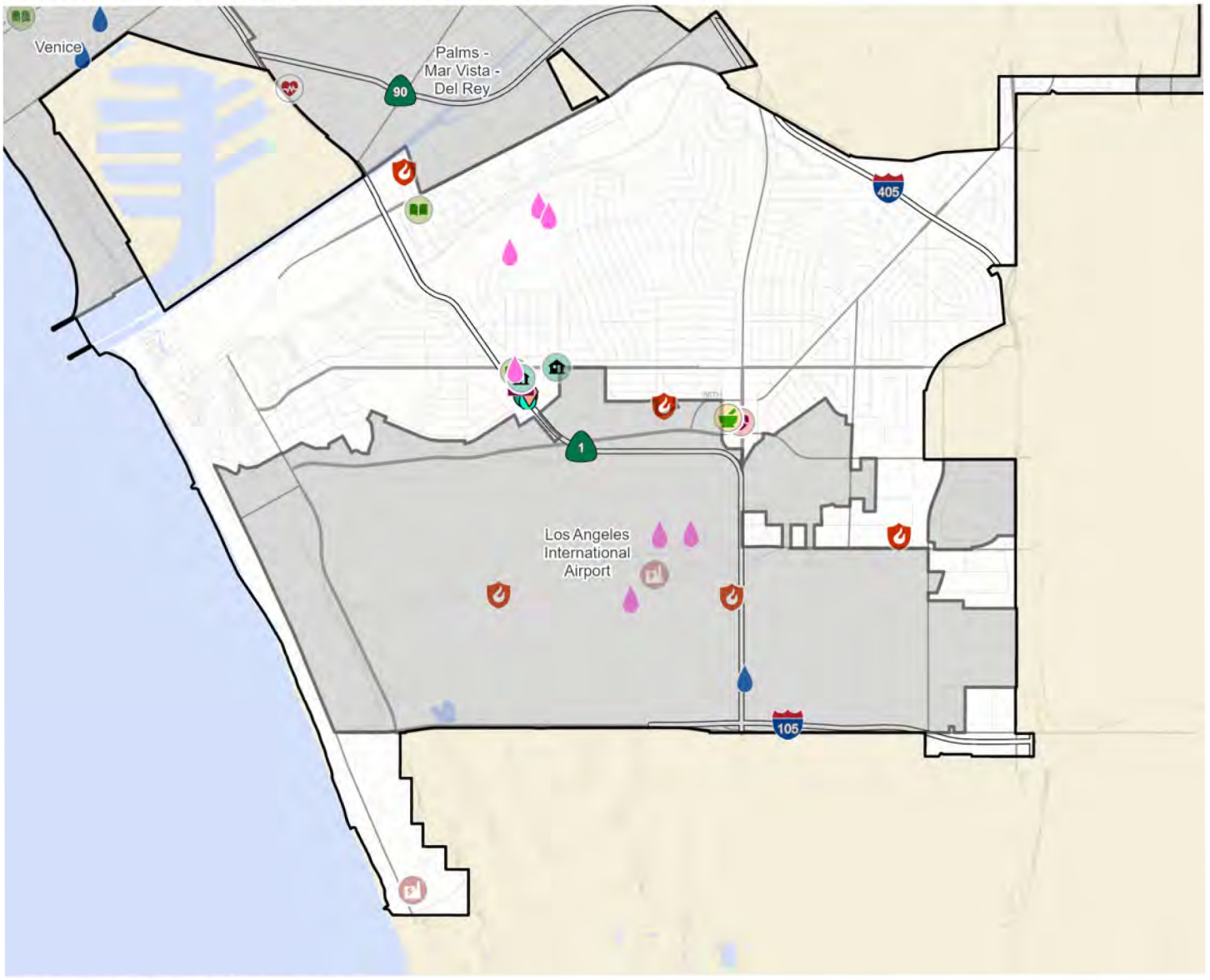
0 0.17 0.35 0.7
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Westchester - Playa del Rey

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

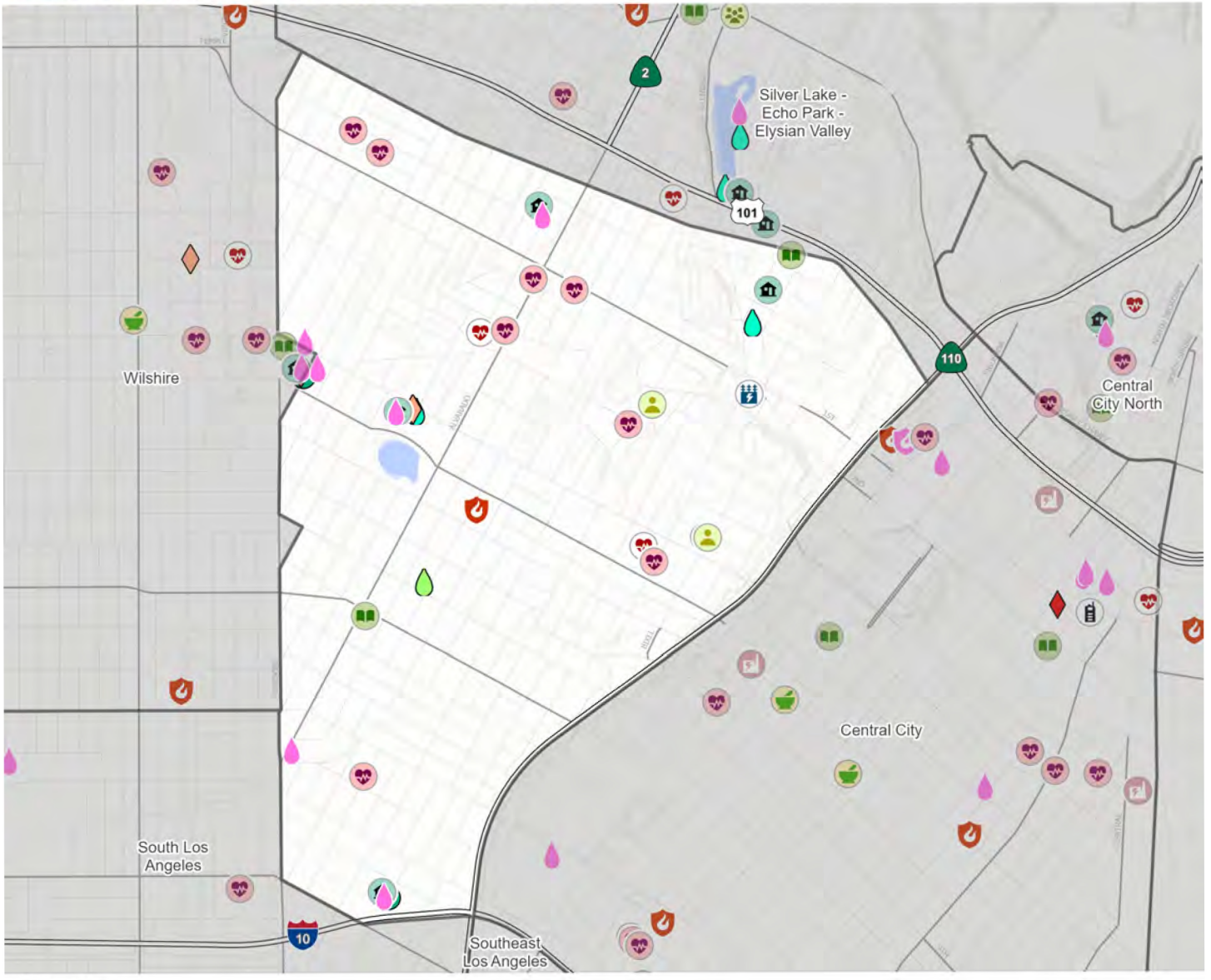
0 0.23 0.45 0.9
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Westlake

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.13 0.25 0.5
Miles

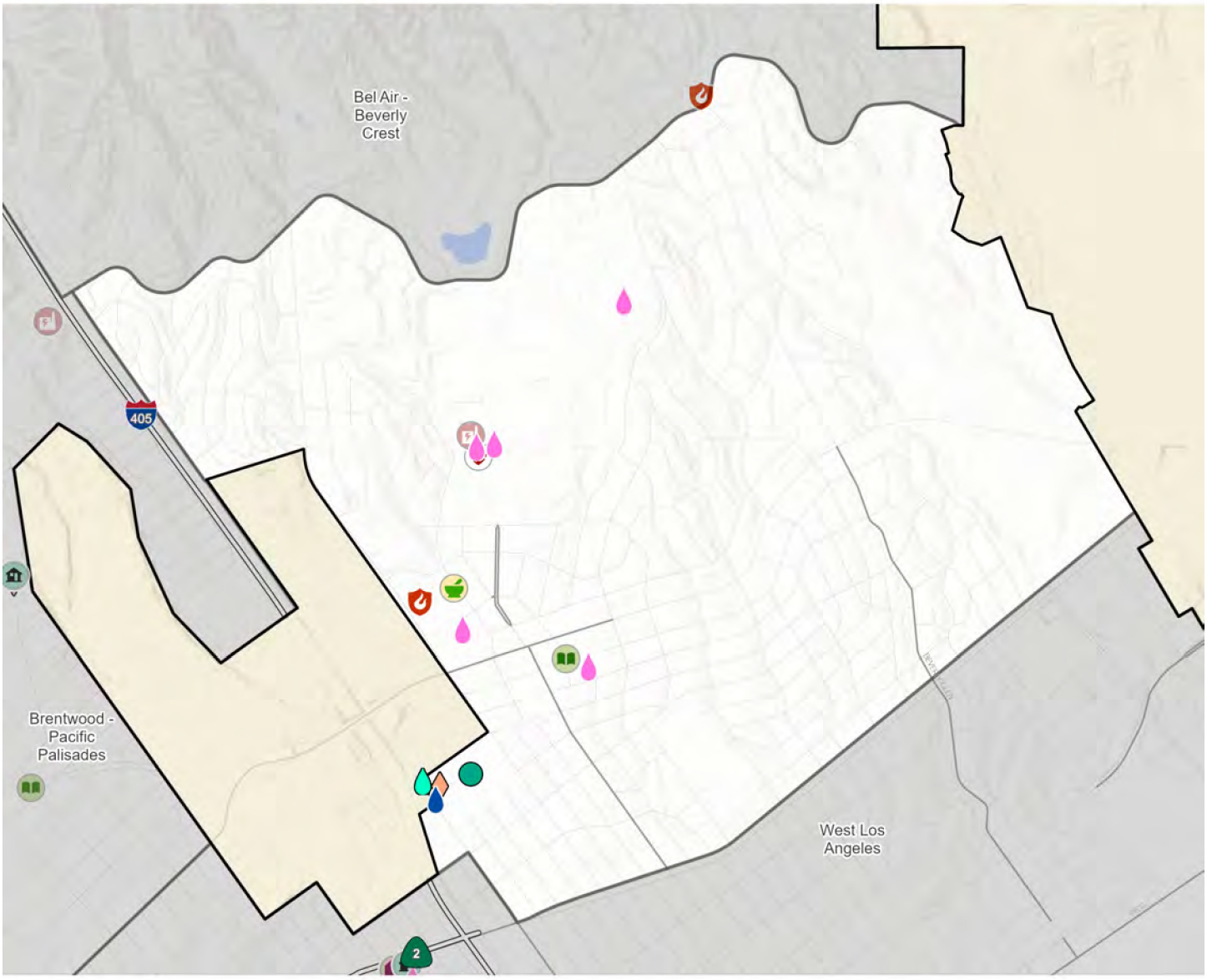
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Westwood

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

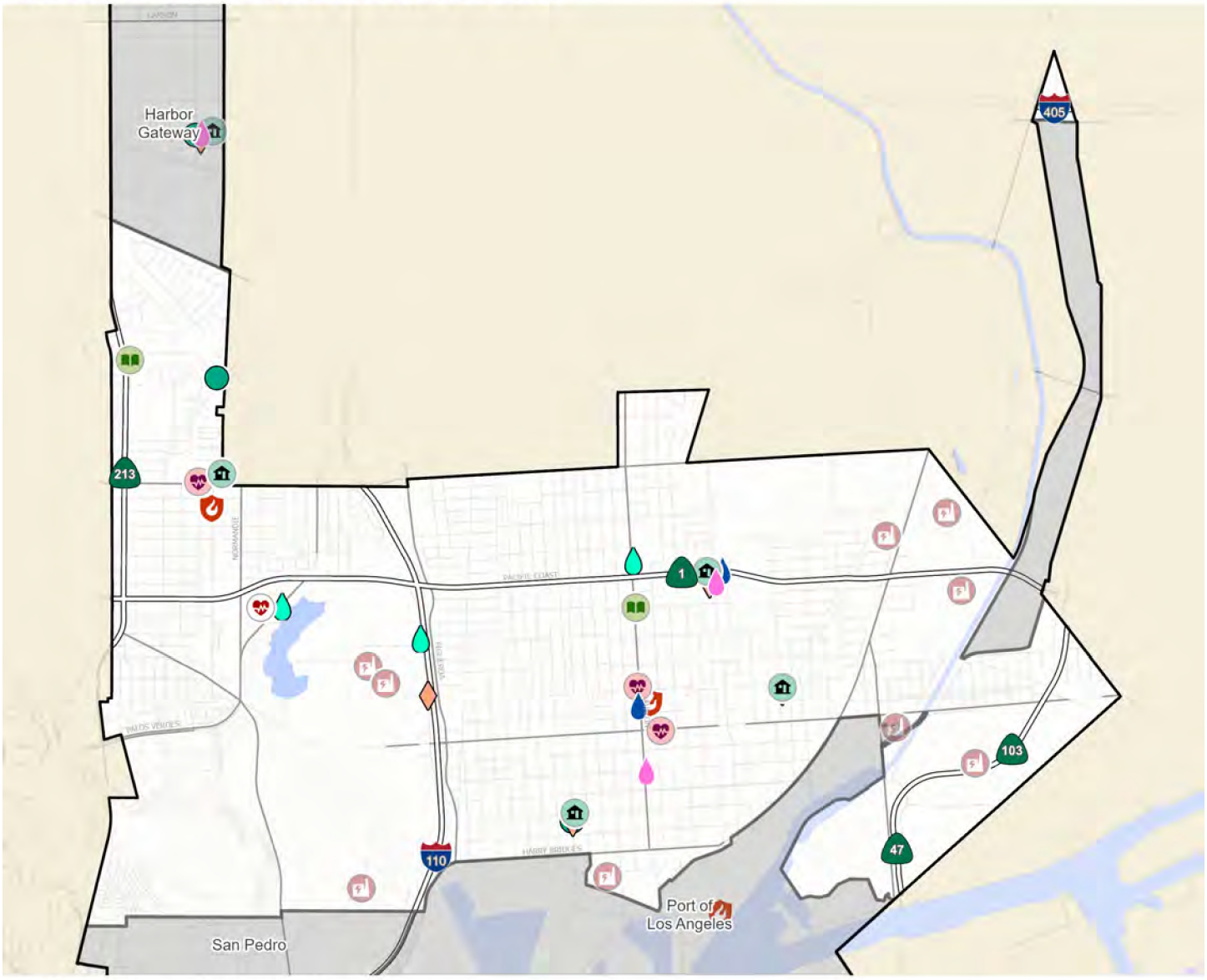
0 0.1 0.2 0.4
Miles

N



City of Los Angeles

Resilience Assets for Extreme Heat



Wilmington - Harbor City

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.2 0.4 0.8
Miles

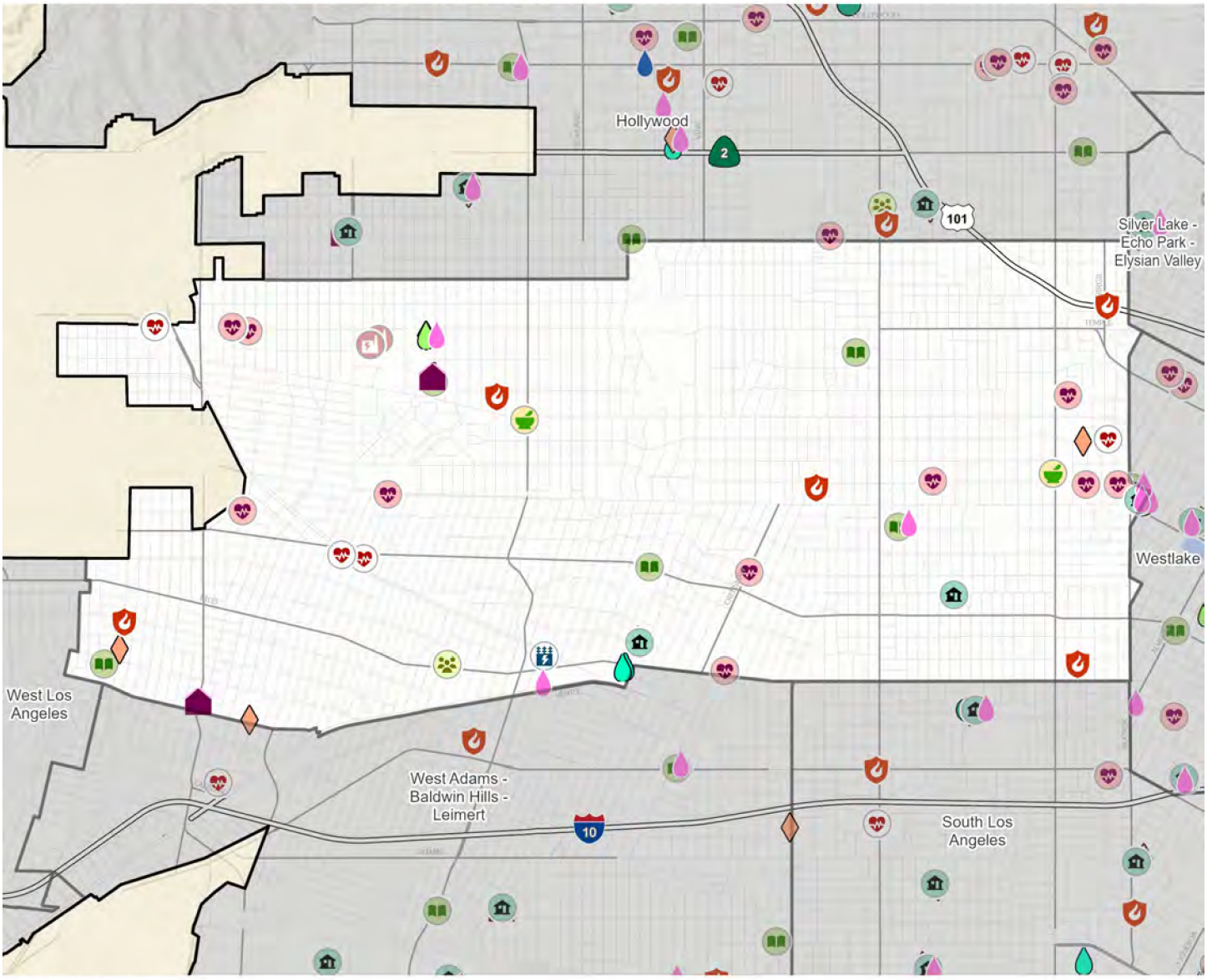
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

City of Los Angeles

Resilience Assets for Extreme Heat



Wilshire

- 911 and Dispatch
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Electric Substation
- Emergency Operations Center
- Fire Service
- Fire Station
- Fire Support
- Hospitals and Medical Centers
- Medical Care
- Pharmacy
- Potable Water Facilities
- Power Plant
- Search and Rescue
- Shelter
- Cool Spot: Hydration Stations
- Community Plan Area
- City Boundary

0 0.25 0.5 1 Miles

N



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

Resilience Assets by Type with Hazards

Resilience Assets Legend

- 911 and Dispatch
- AM Radio Tower
- Agriculture & Food Facility
- Airport
- Bank
- Behavioral Health Facility
- Bus Station
- Cellular Tower
- Communication Tower
- Cool Spot: Cooling Center
- Cool Spot: Family Source Center
- Cool Spot: Library
- Cool Spot: Pool
- Cool Spot: Rec Center
- Cool Spot: Senior Center
- Cool Spot: Splash Pad
- Cool Spot: Youth Source Center
- Correctional Facility
- County Fueling Station
- Dam
- Electric Substation
- Emergency Operations Center
- FM Radio Tower
- Facilities
- Ferry Terminal
- Fire Service
- Fire Station
- Fire Support
- Food Assistance Services
- Government Service
- Hazmat
- Heliport
- Highway Bridge
- Highway or Roadway or Motor Vehicle
- Hospitals and Medical Centers
- Human Services Facility
- Jail Facility
- Law Enforcement or Security
- Light Rail Bridge
- Long-Term Care Facility
- Maritime
- Medical Care
- Metro Station
- NTSC TV
- Natural Gas Processing Plant
- Oil & Gas Facility
- Oil & Gas Well
- Other
- Pharmacy
- Police Station
- Potable Water Facilities
- Power Plant
- Primary Education Facility
- Private & Charter School Facility
- Public Works
- Railway Bridge
- Red Cross Office
- School Administrative Office
- Search and Rescue
- Secondary Education Facility
- Shelter
- Toxic Release Inventory Facilities
- Wastewater Management
- Cool Spot: Hydration Stations

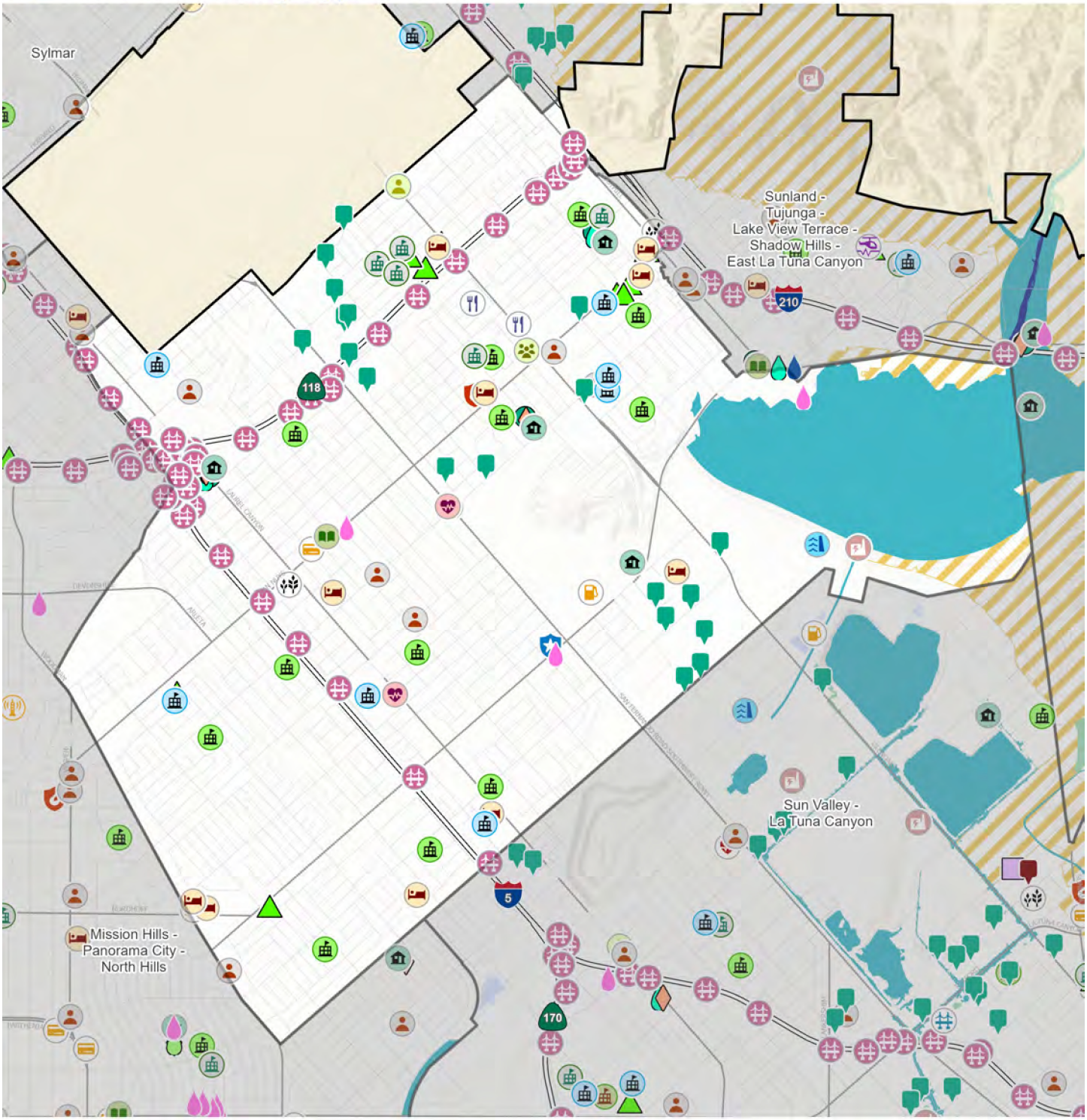
Hazards

- 1.0 Meter Sea Level Rise
- 1.4 Meter Sea Level Rise
- 10-Percent Annual Chance Flood
- 2-Percent Annual Chance Flood
- 1-Percent Annual Chance Flood
- 0.2-Percent Annual Chance Flood
- Fire Severity Zone
- Community Plan Area
- City Boundary

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; City of LA 2024; CEMO 2024

City of Los Angeles

Resilience Assets by Type with Hazards



Arleta - Pacoima



0 0.17 0.35 0.7
Miles

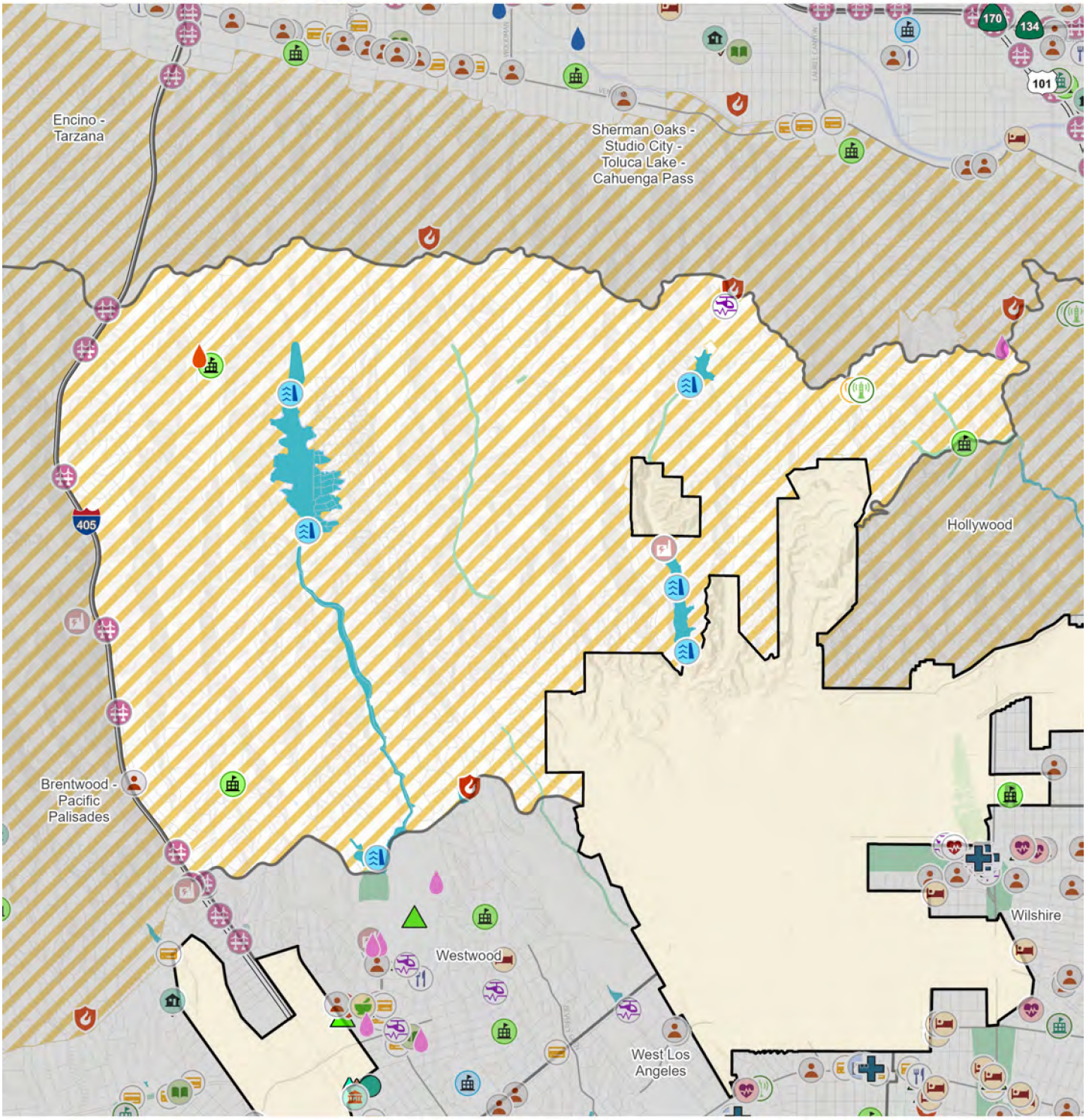
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Bel Air - Beverly Crest



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

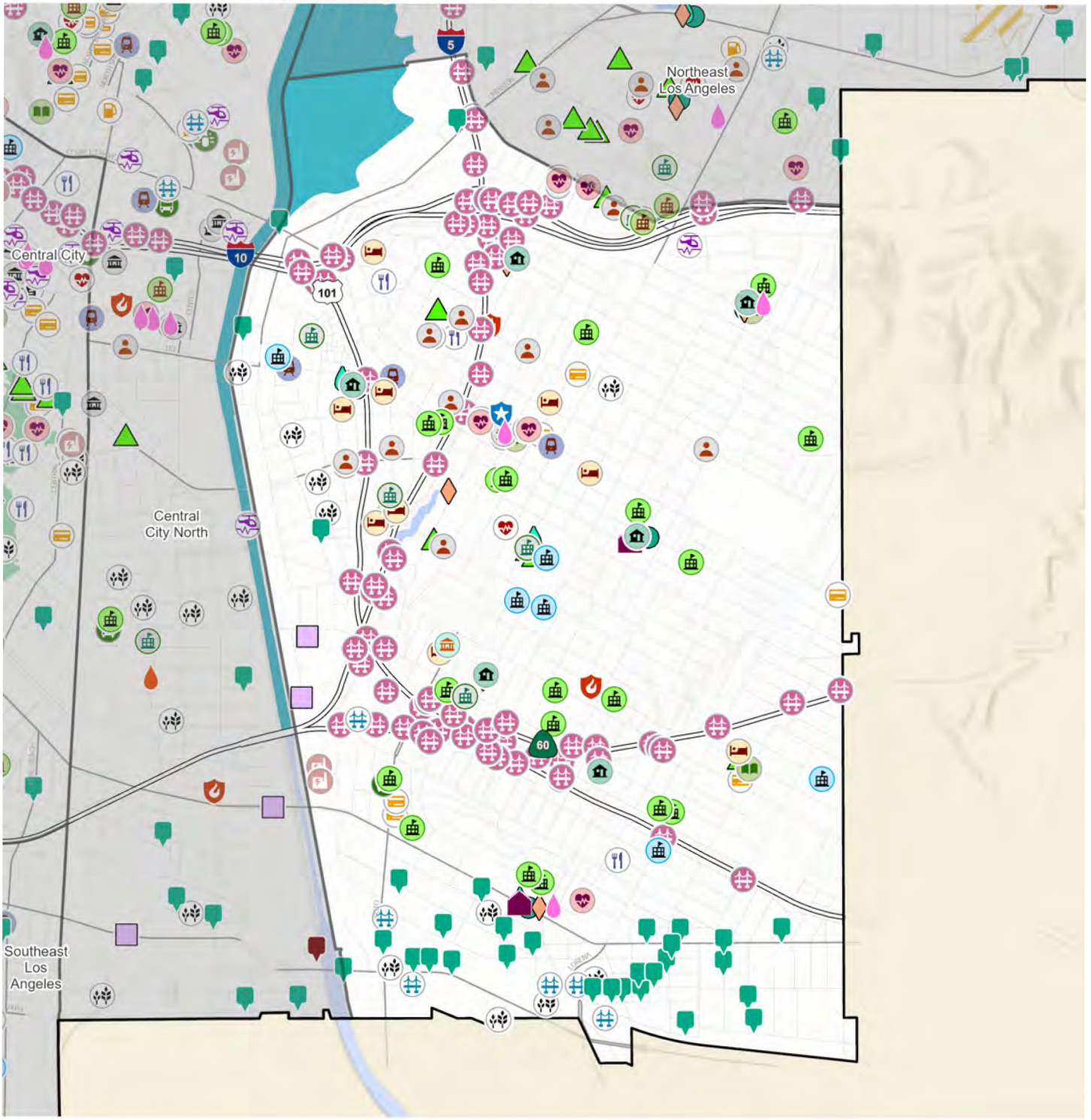
0 0.25 0.5 1
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Boyle Heights



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

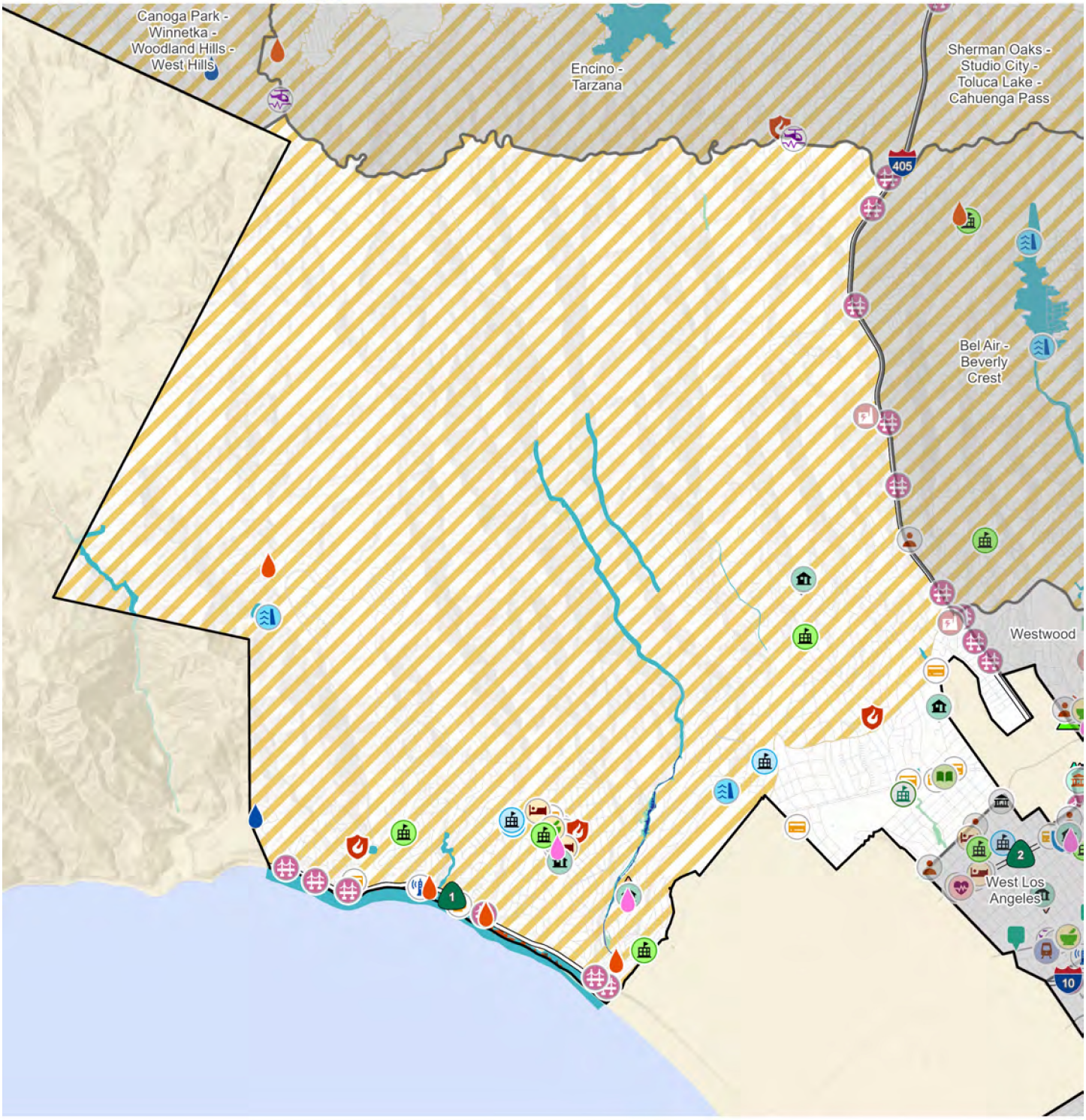
0 0.13 0.25 0.5
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Brentwood - Pacific Palisades



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

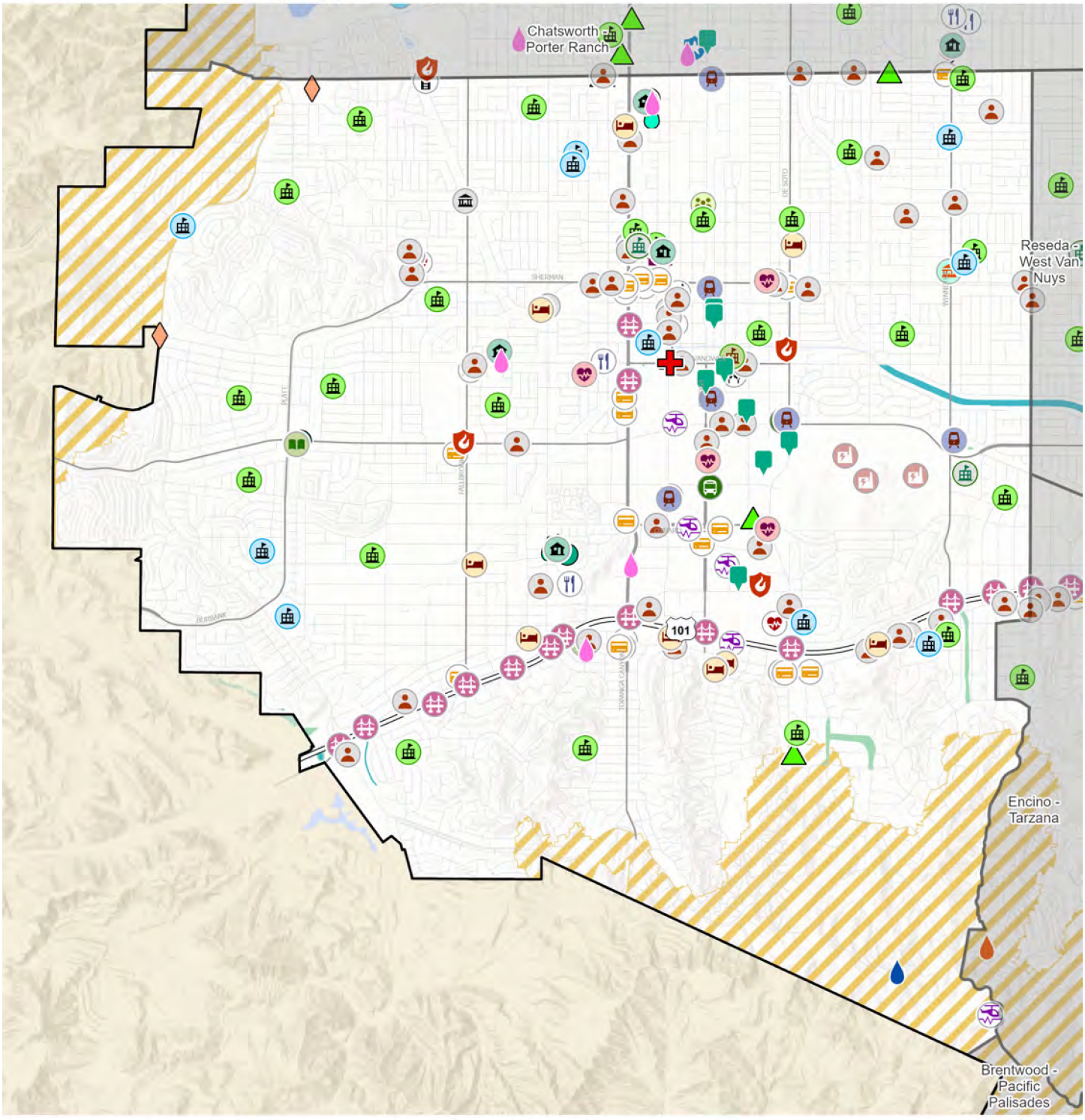
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Miles

N

Map legend on Page 358

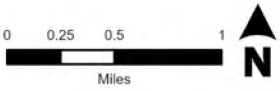
City of Los Angeles

Resilience Assets by Type with Hazards



Canoga Park - Winnetka - Woodland Hills - West Hills



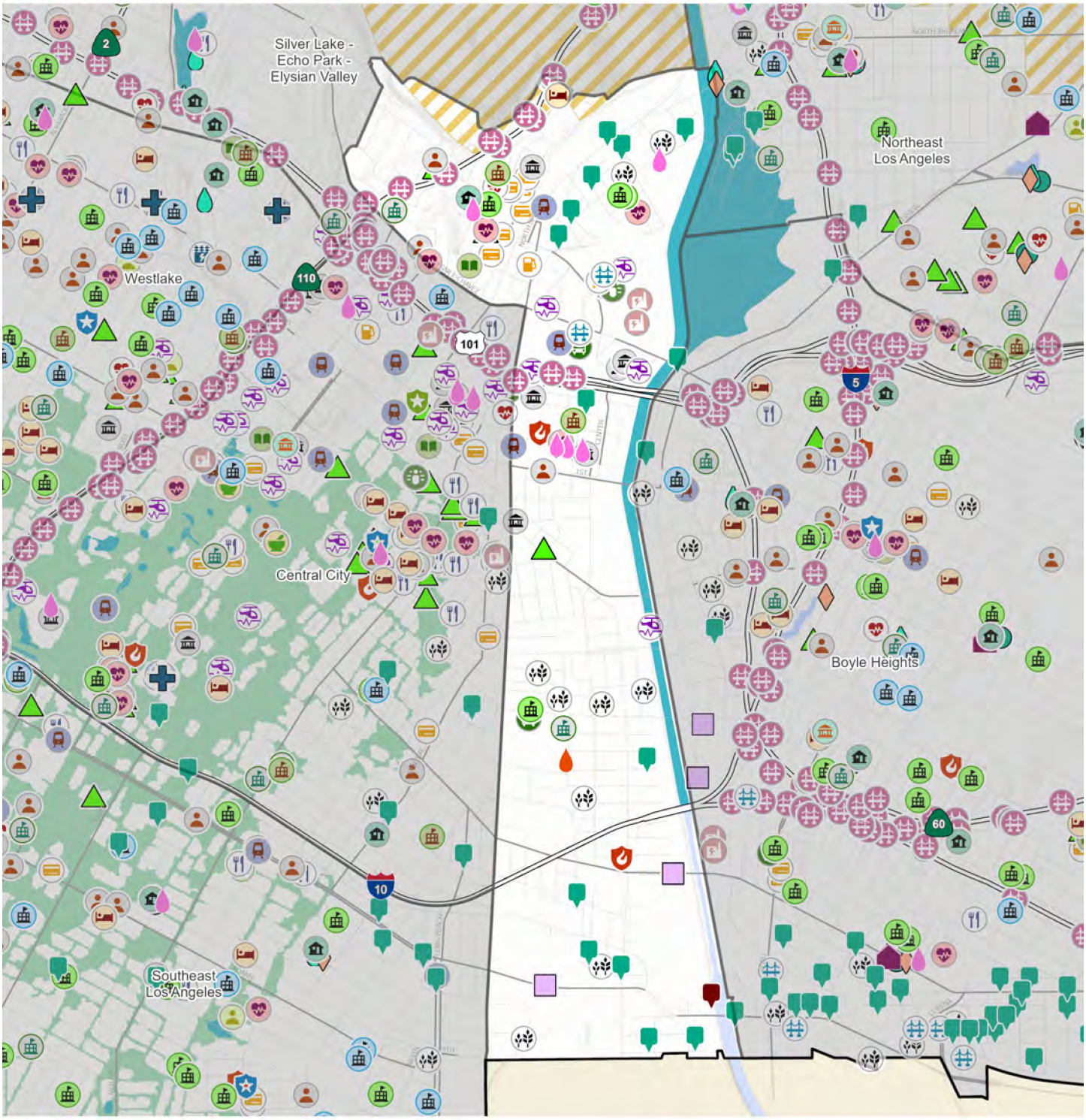


Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Central City North



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

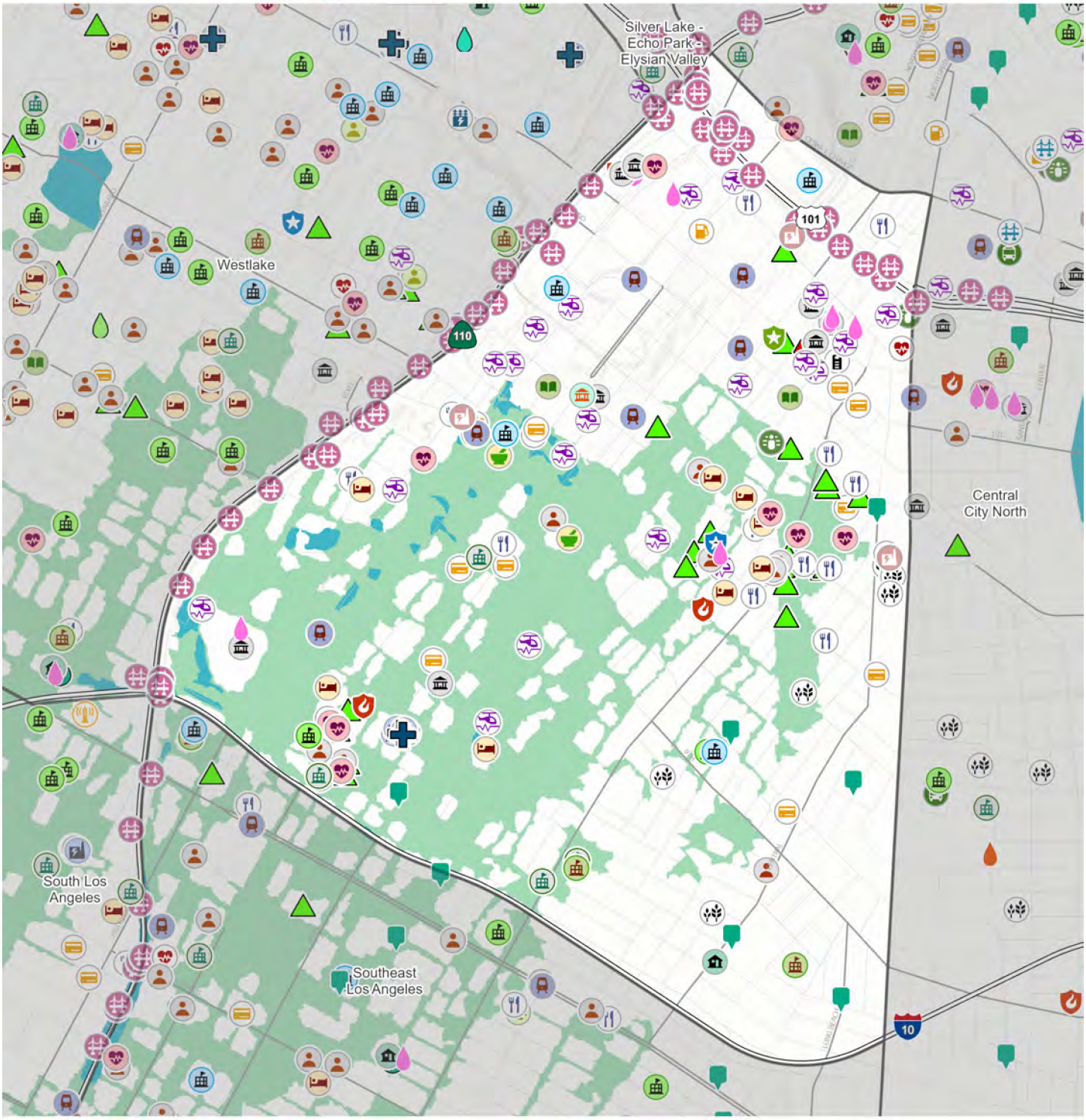
0 0.15 0.3 0.6
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Central City



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

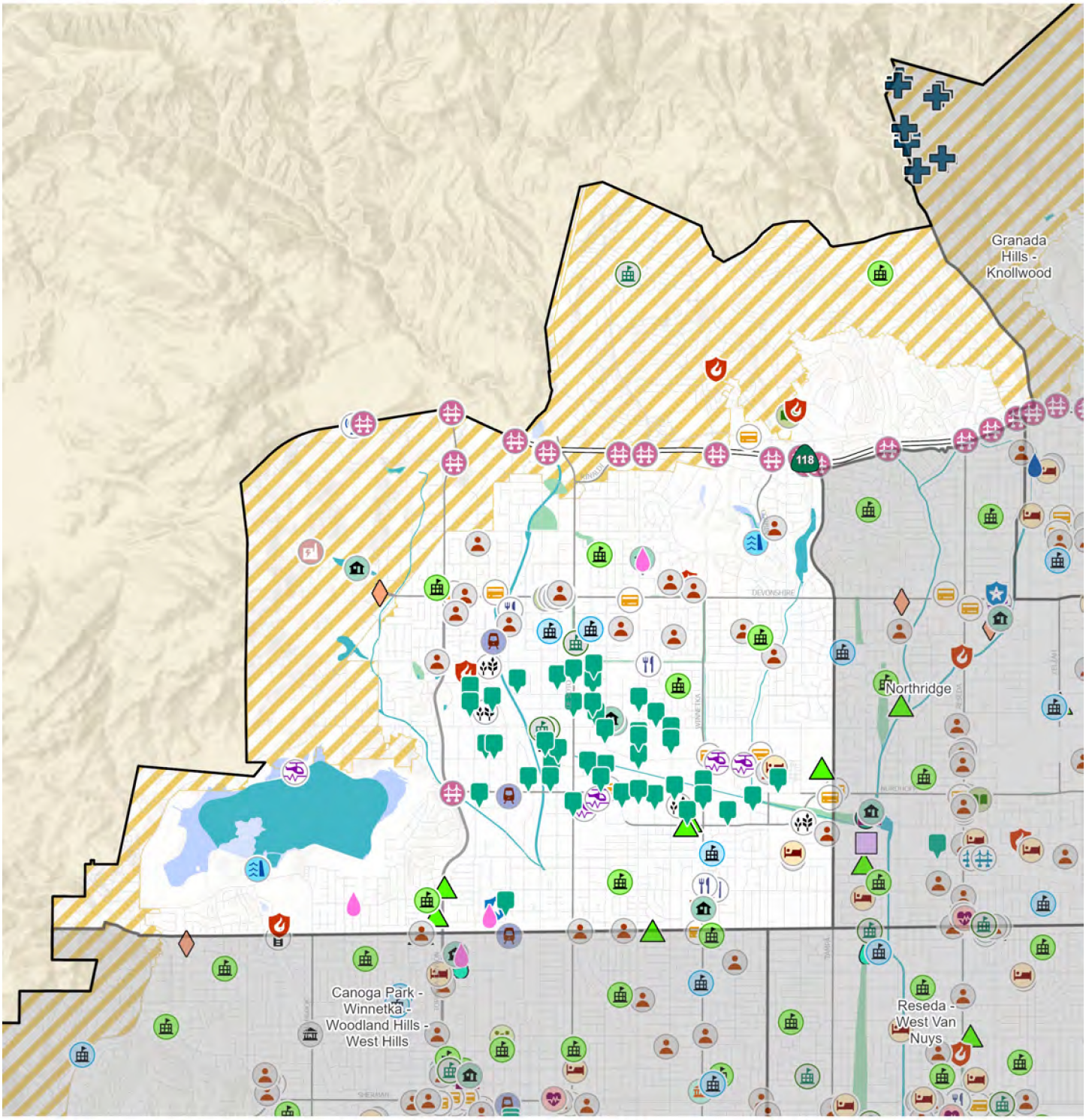
0 0.1 0.2 0.4
Miles

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Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Chatsworth - Porter Ranch



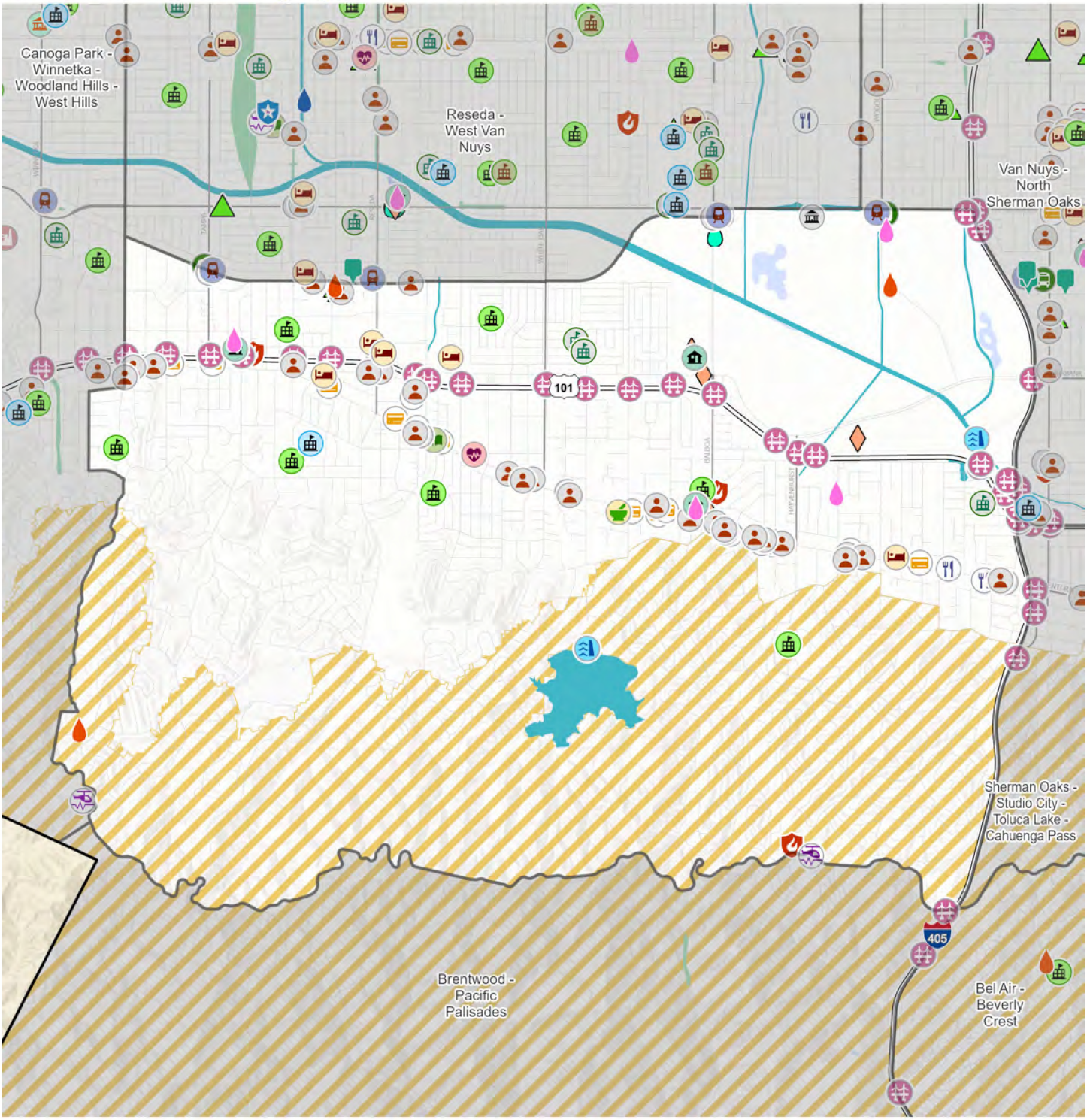
Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

0 0.3 0.6 1.2
Miles
N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Encino - Tarzana



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

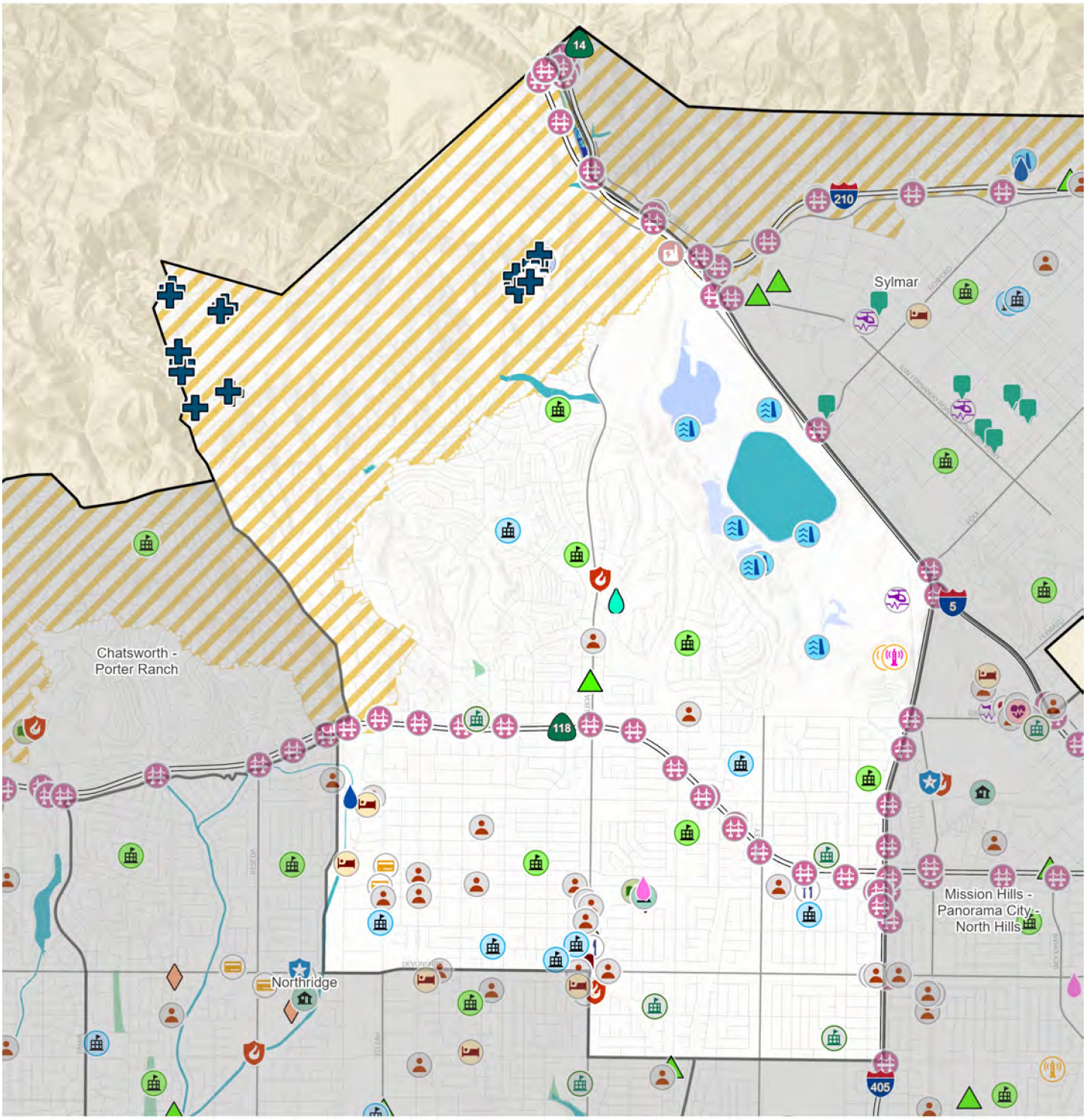
0 0.23 0.45 0.9
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Granada Hills - Knollwood



0 0.23 0.45 0.9
Miles

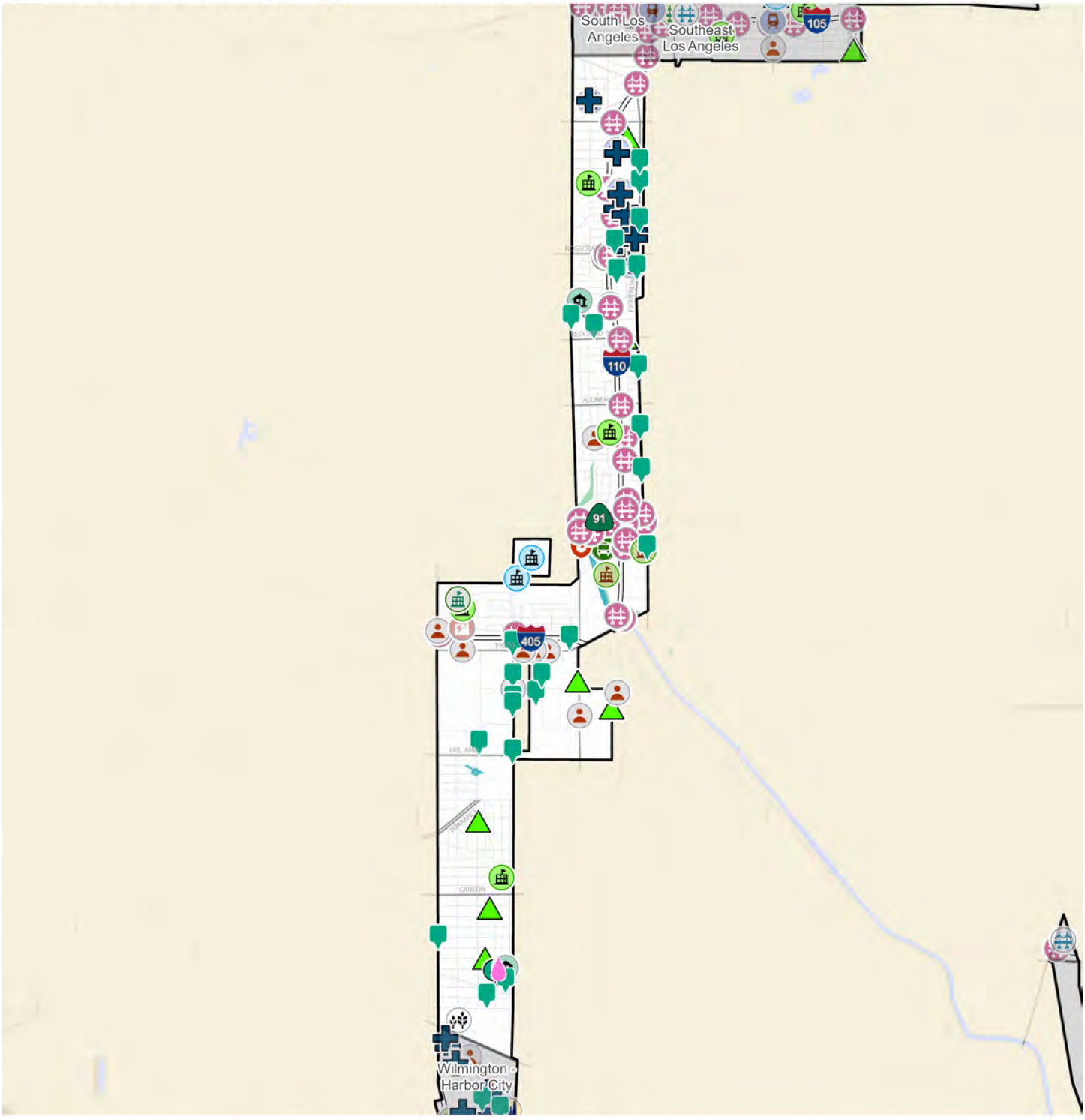
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Harbor Gateway



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

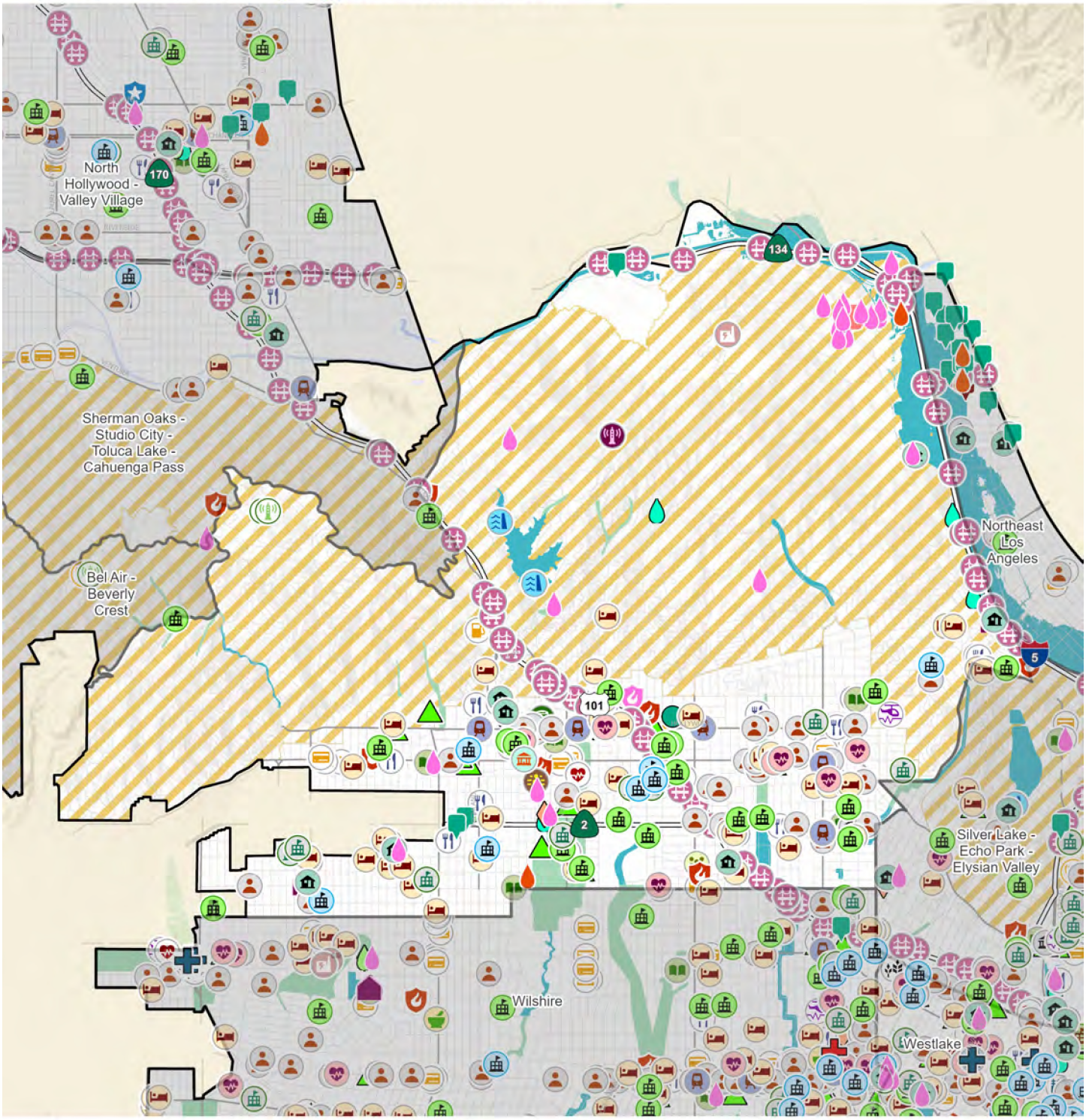
0 0.28 0.55 1.1
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Hollywood



0 0.3 0.6 1.2
Miles

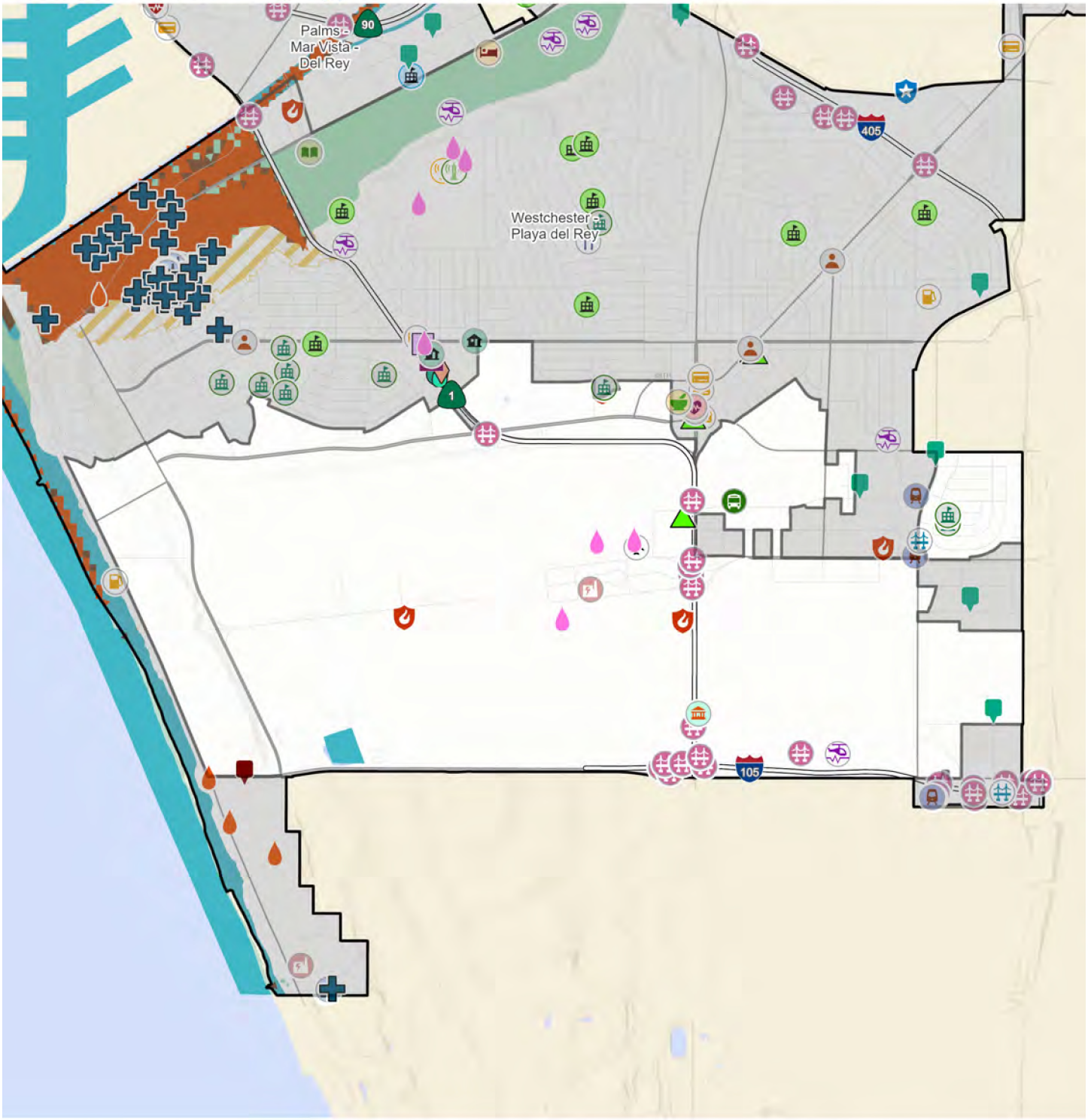
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Los Angeles International Airport



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

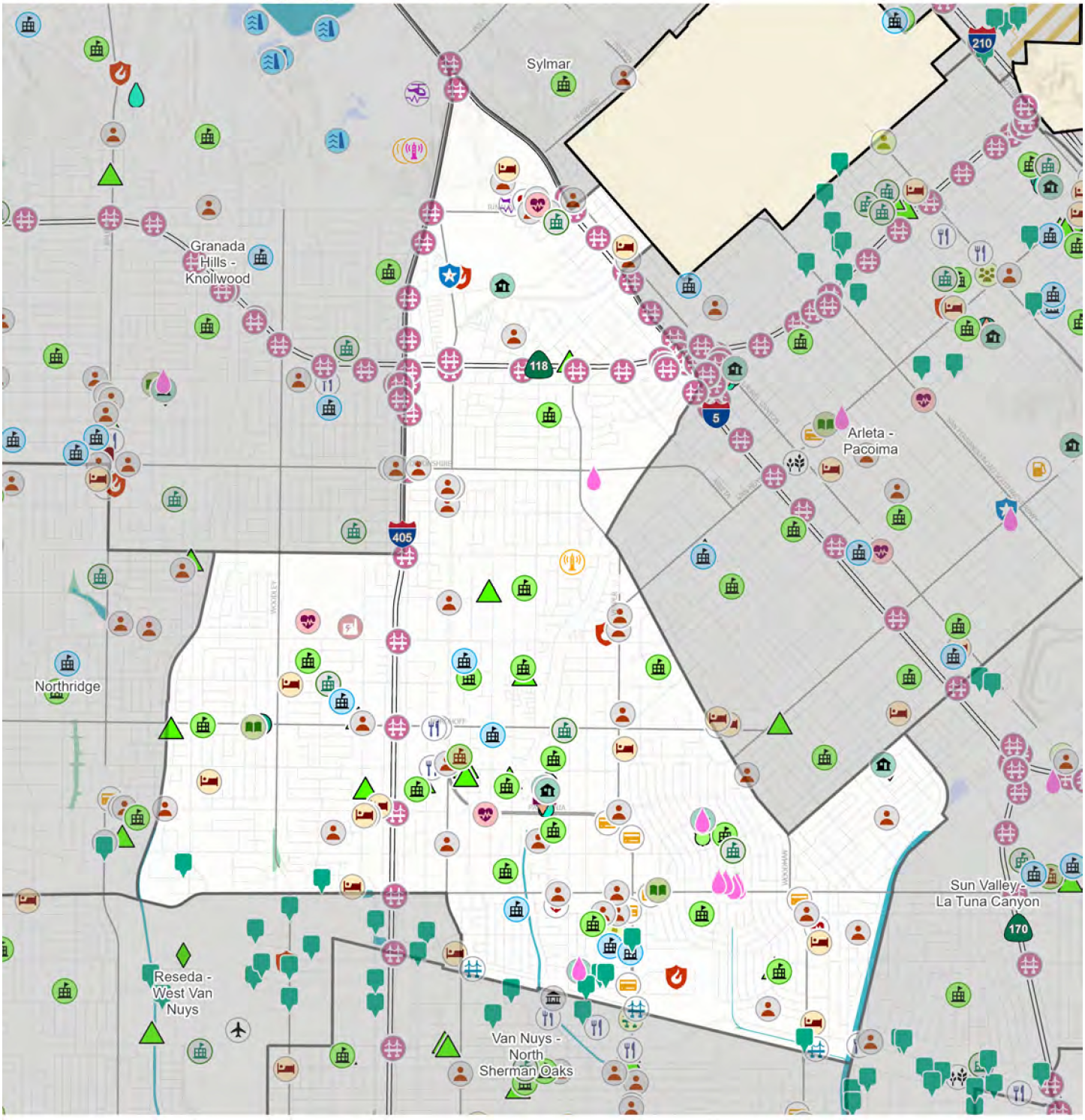
0 0.17 0.35 0.7
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Mission Hills - Panorama City - North Hills



0 0.23 0.45 0.9
Miles

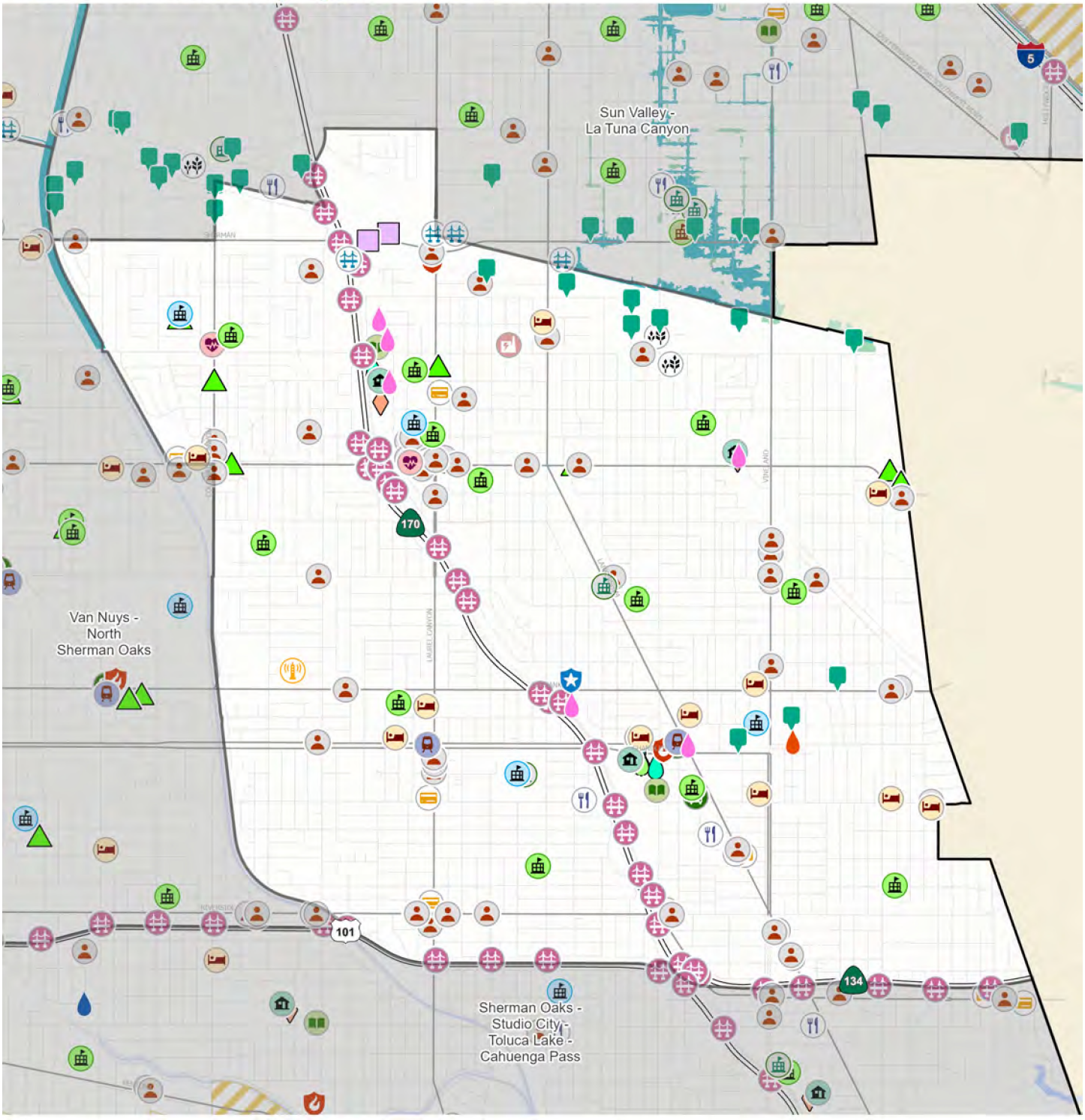
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



North Hollywood - Valley Village



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

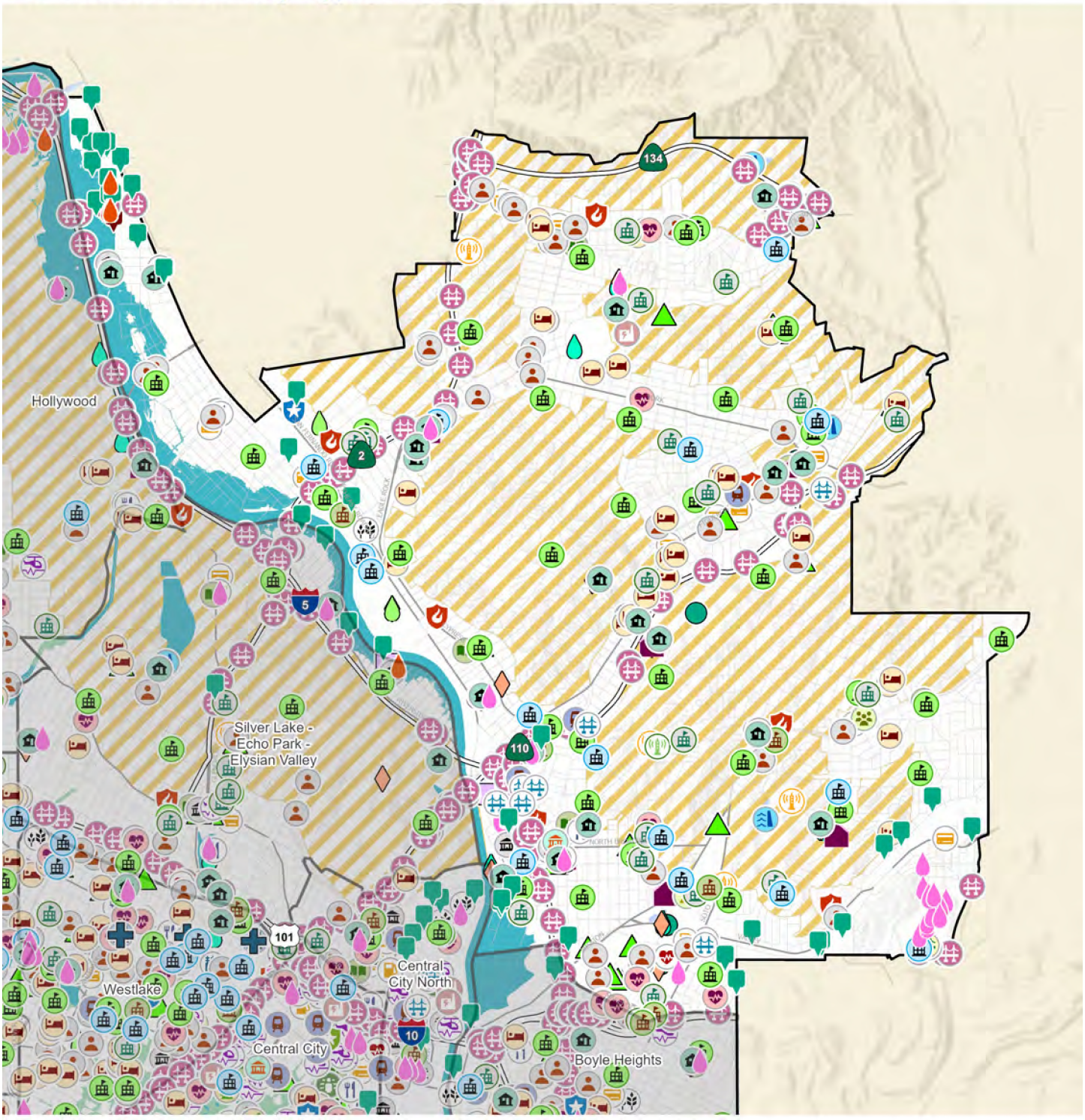
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Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Northeast Los Angeles



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

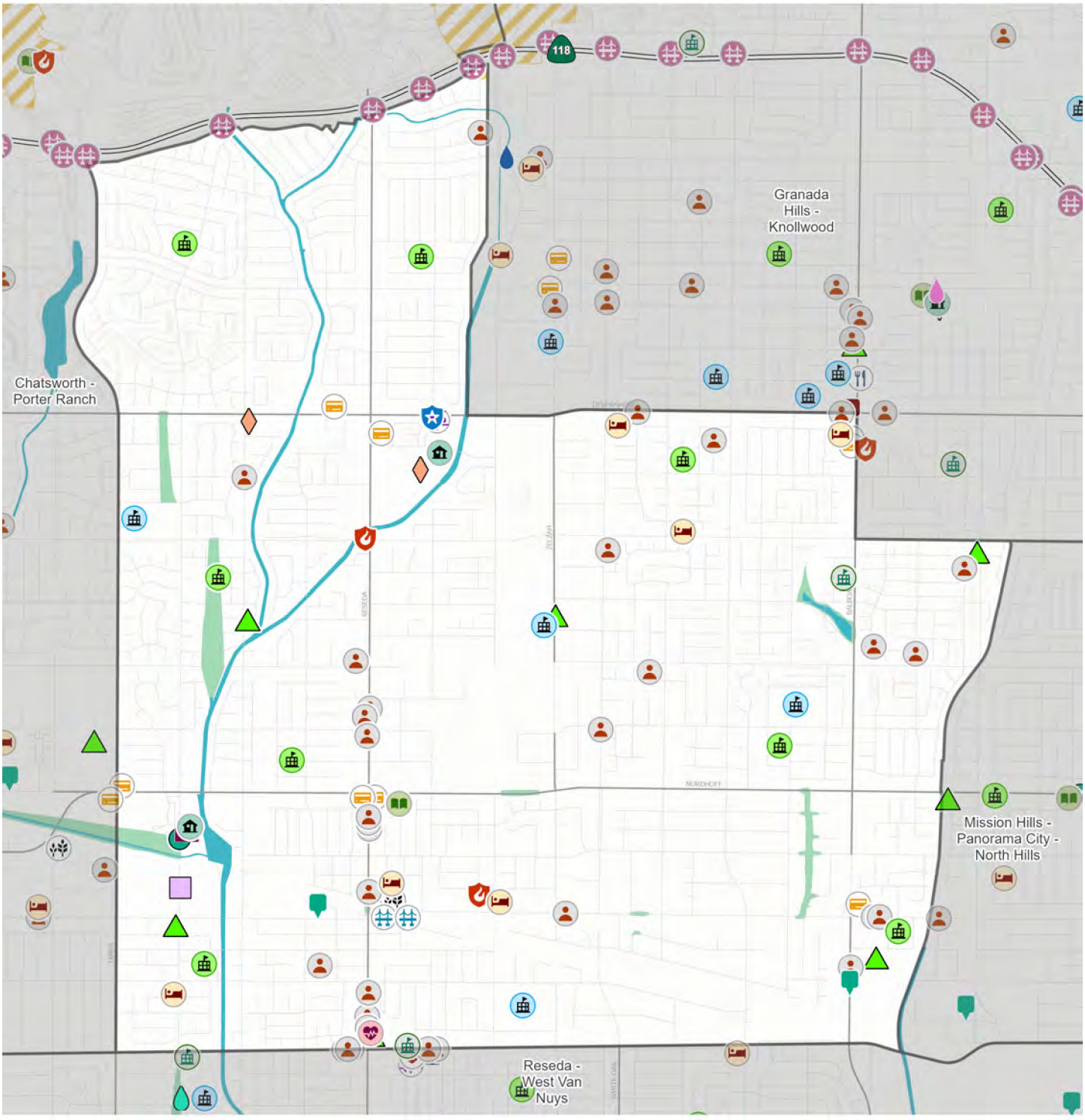
0 0.28 0.55 1.1
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Northridge



0 0.15 0.3 0.6
Miles

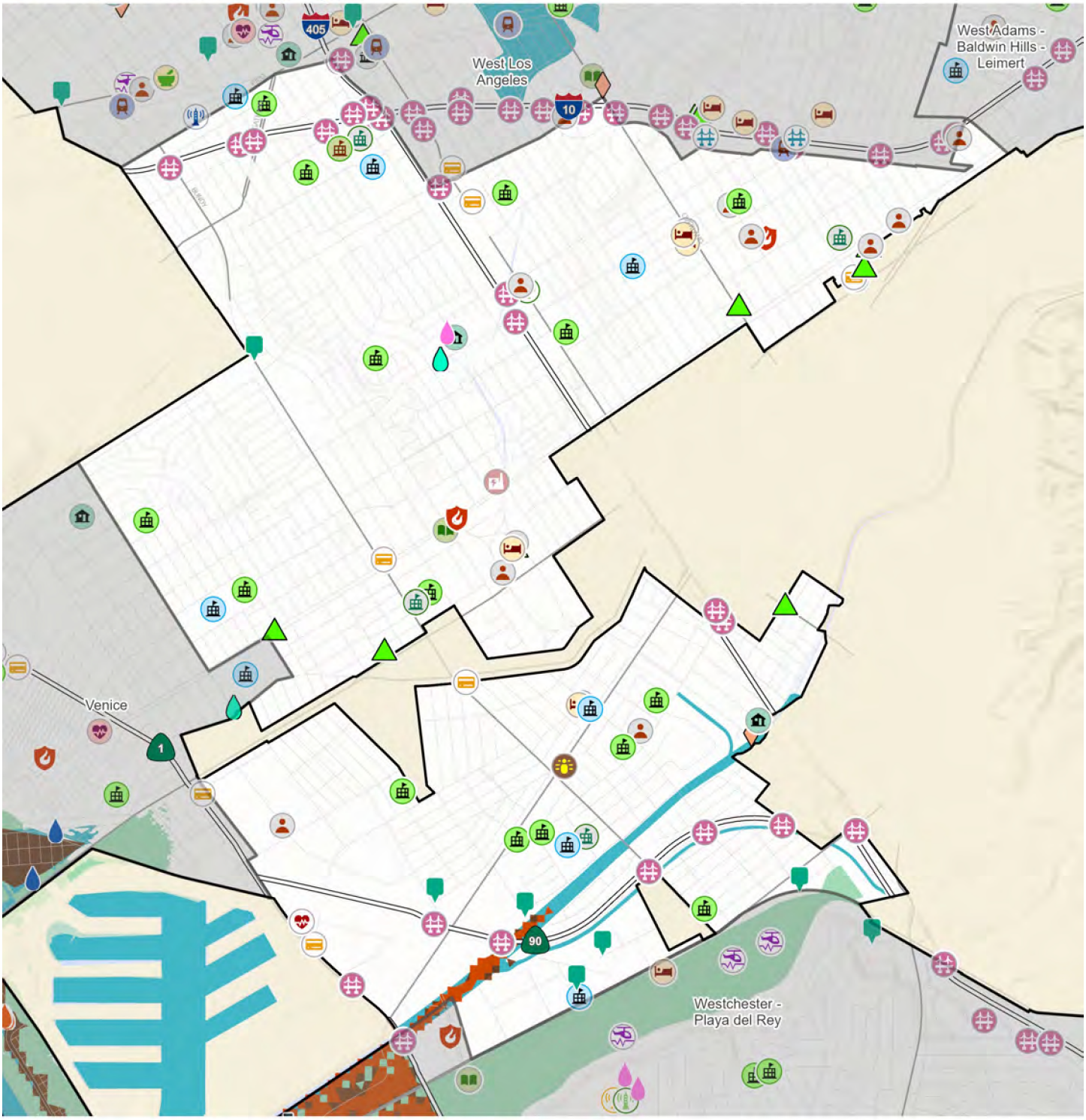
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Palms - Mar Vista - Del Rey



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

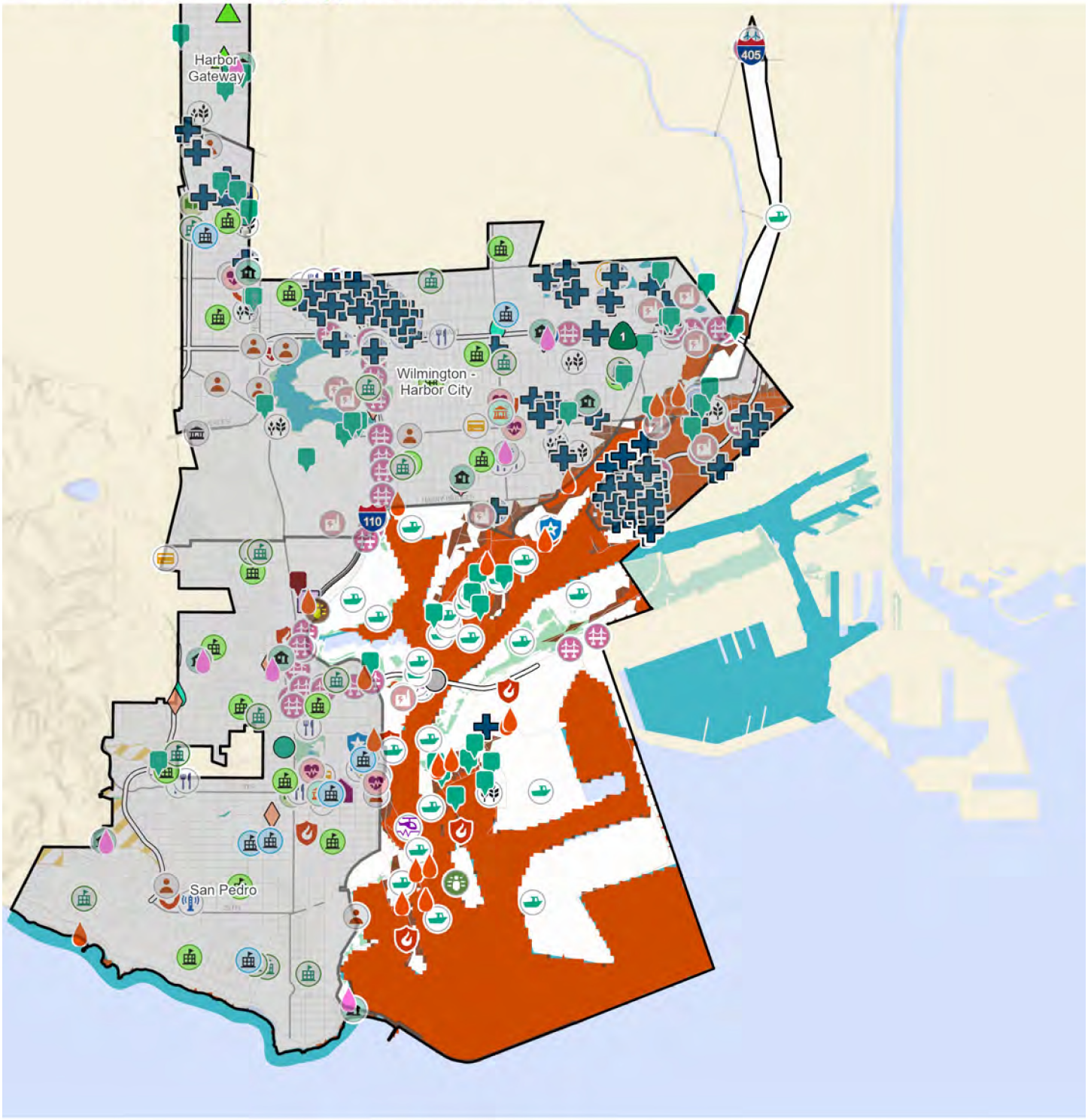
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Miles

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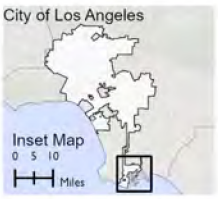
Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Port of Los Angeles



0 0.33 0.65 1.3
Miles

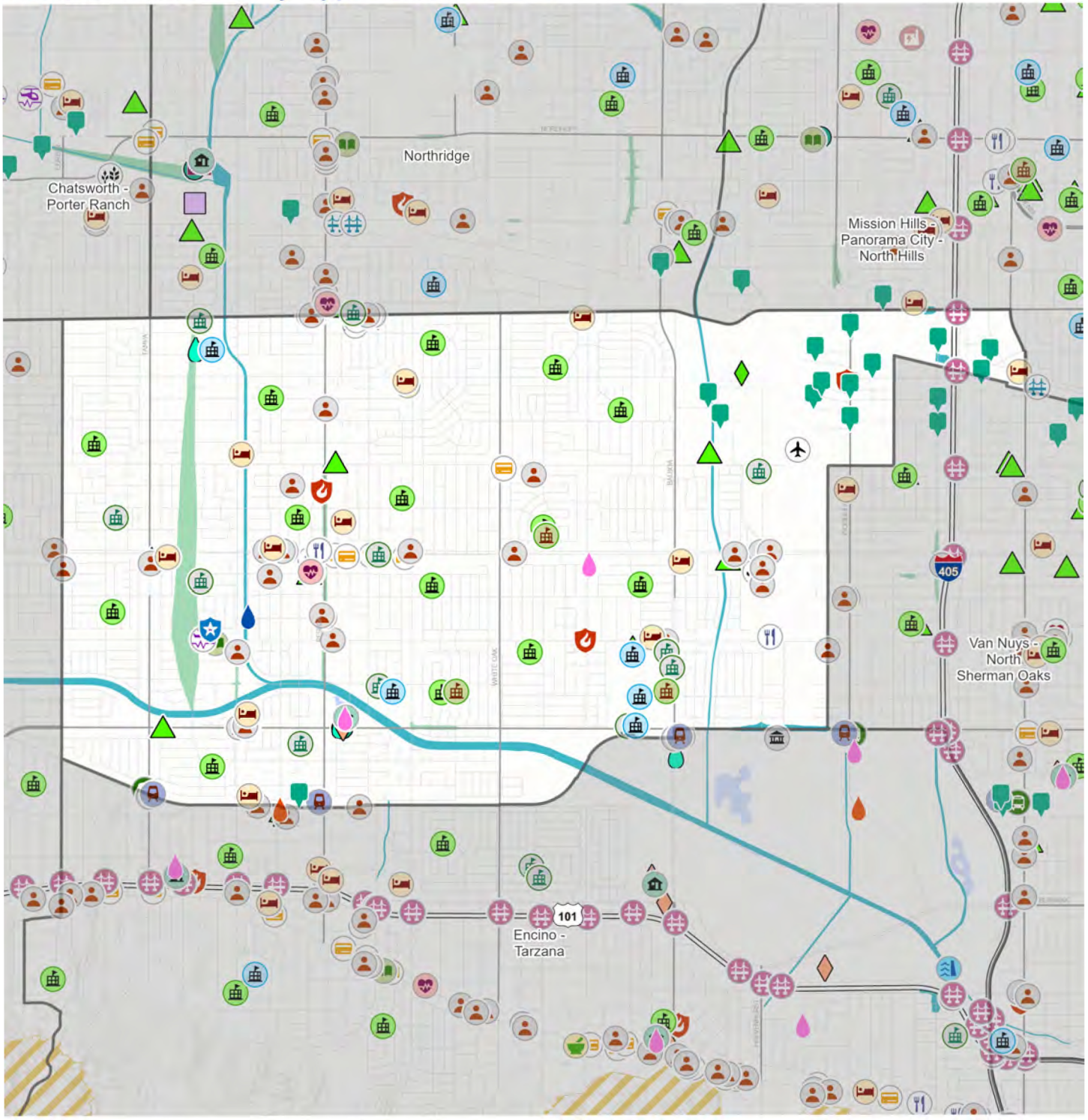
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Reseda - West Van Nuys



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

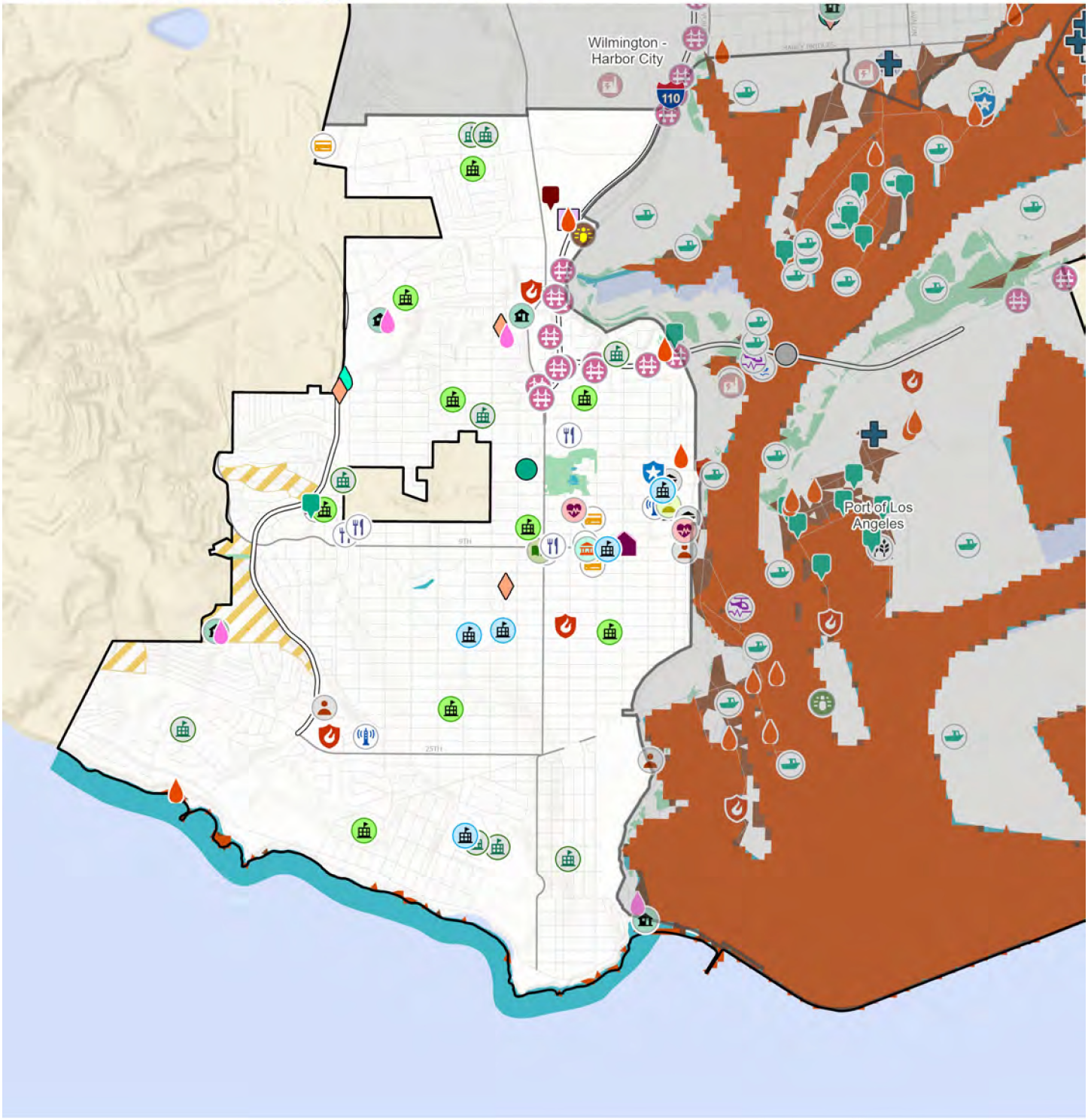
0 0.2 0.4 0.8
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



San Pedro



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

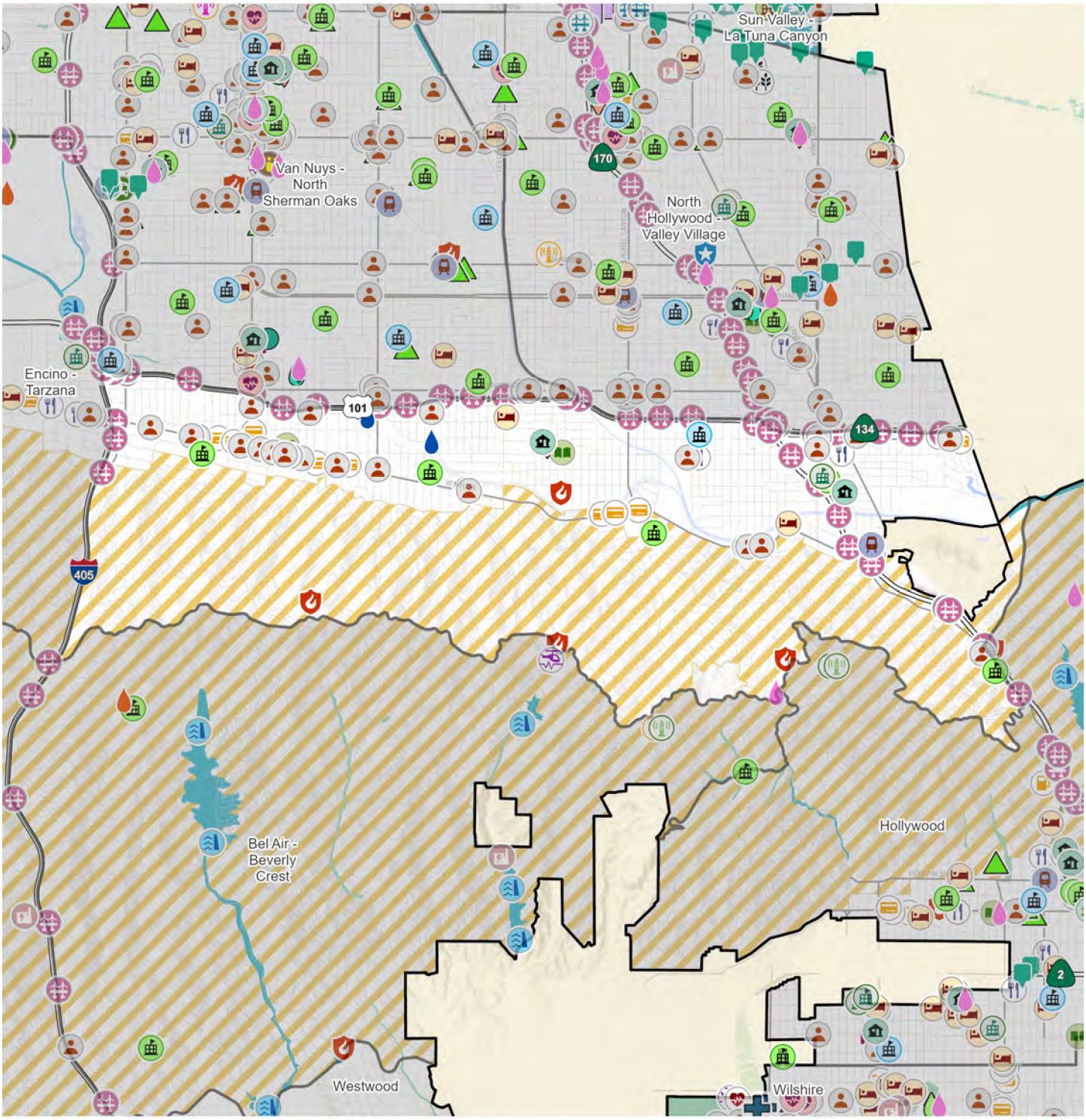
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Miles

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Map legend on Page 358

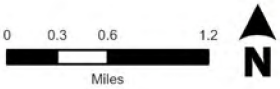
City of Los Angeles

Resilience Assets by Type with Hazards



Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass



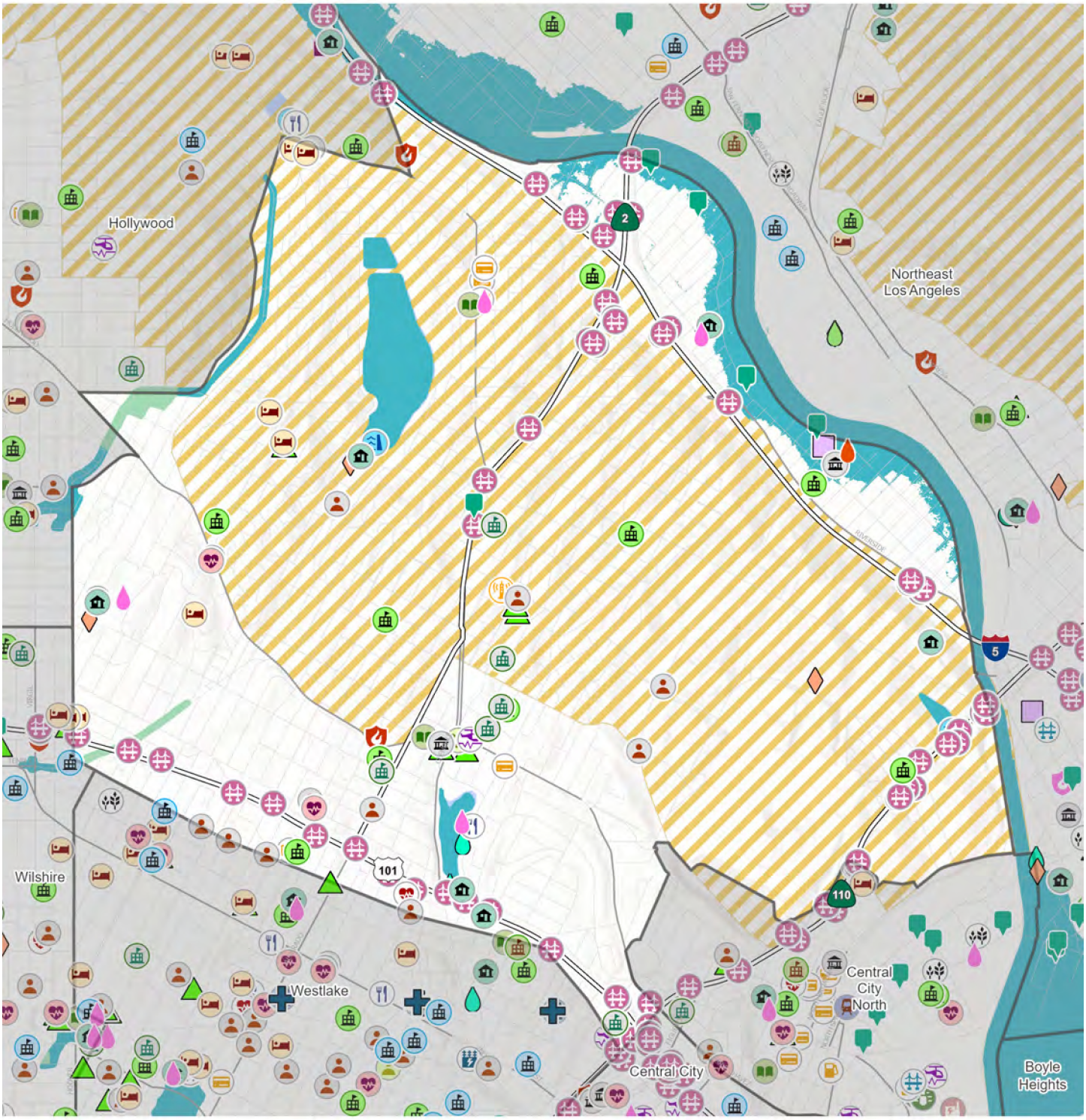


Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Silver Lake - Echo Park - Elysian Valley



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

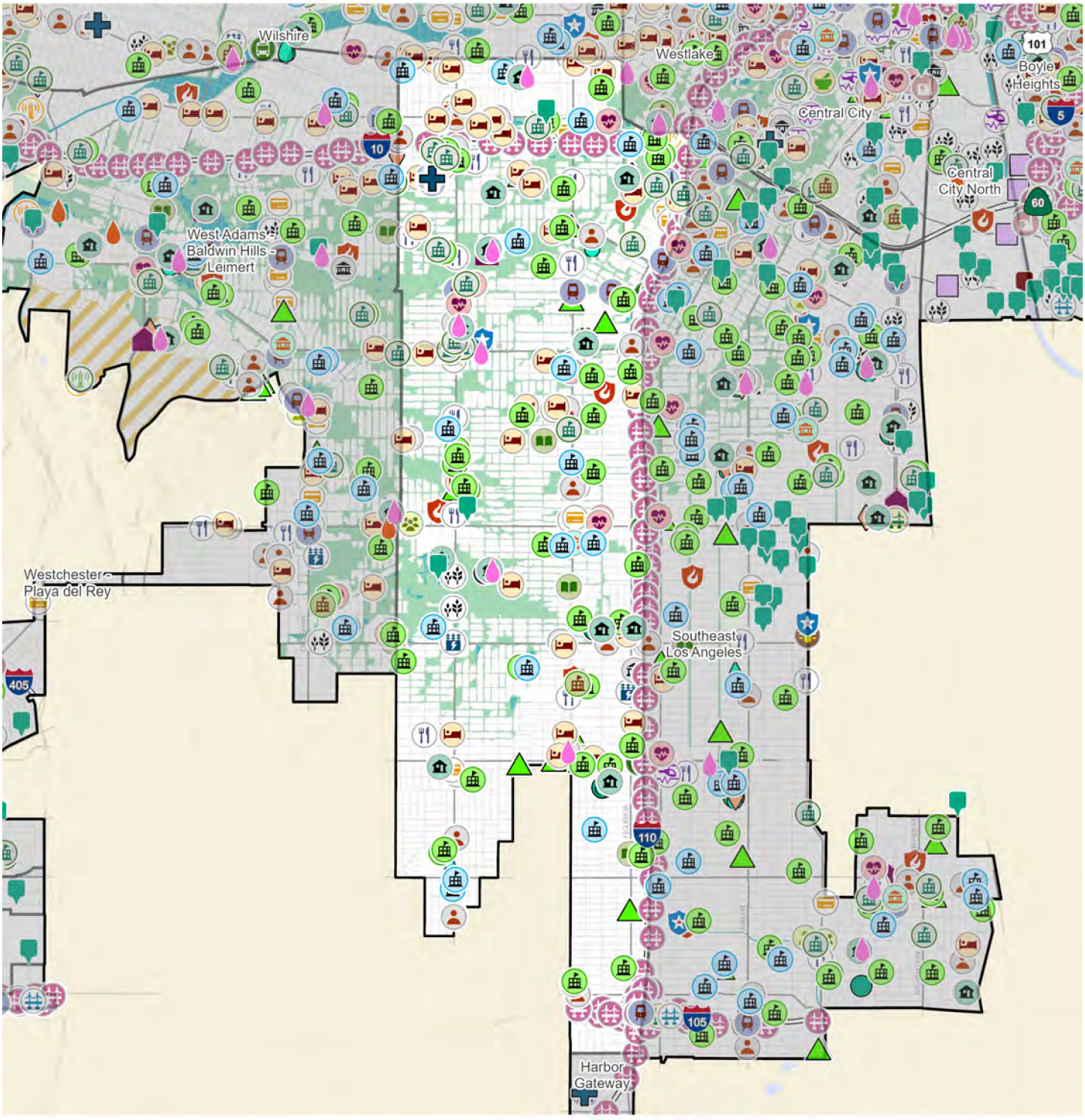
0 0.13 0.25 0.5
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



South Los Angeles



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

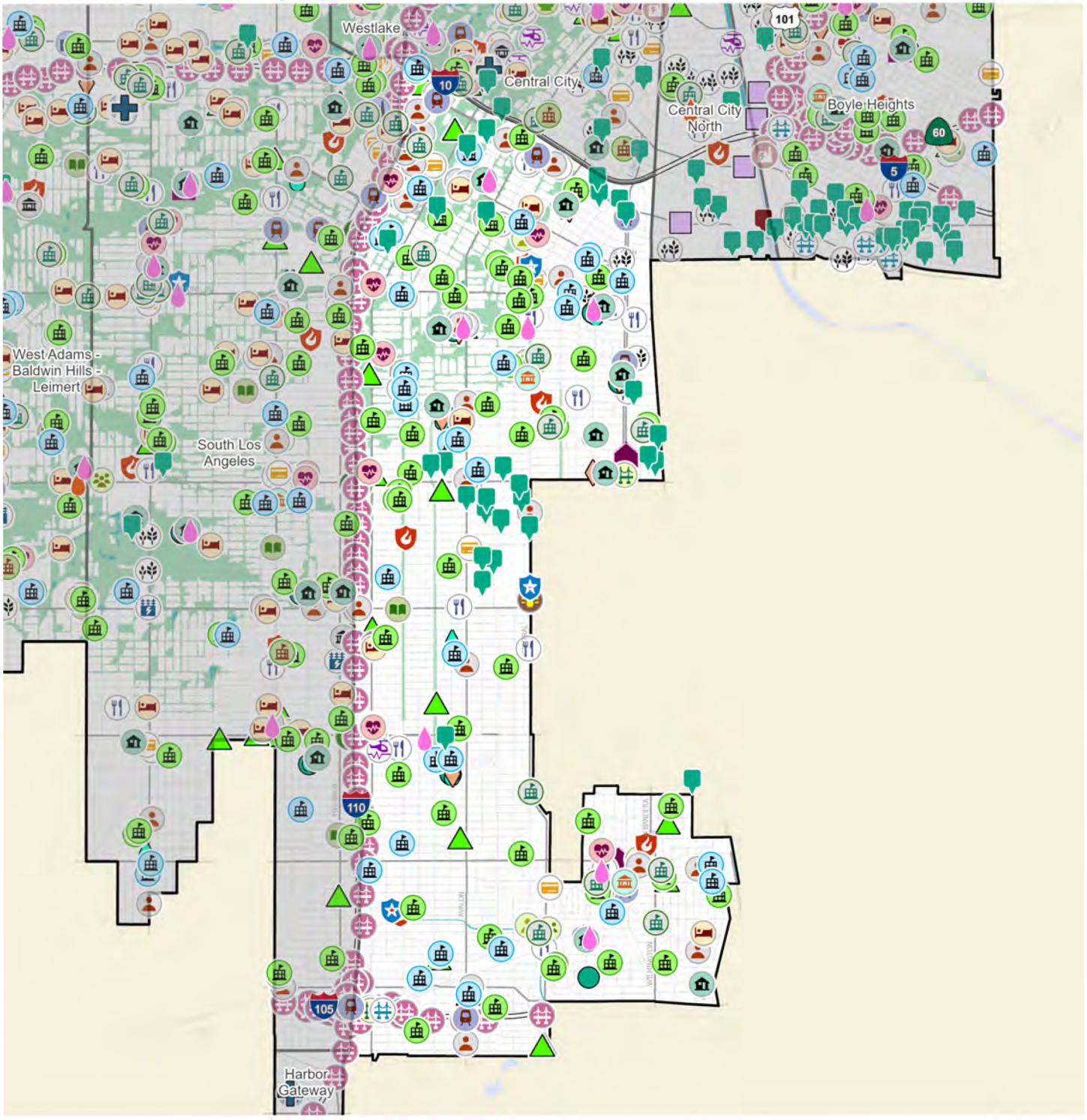
0 0.33 0.65 1.3
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Southeast Los Angeles



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

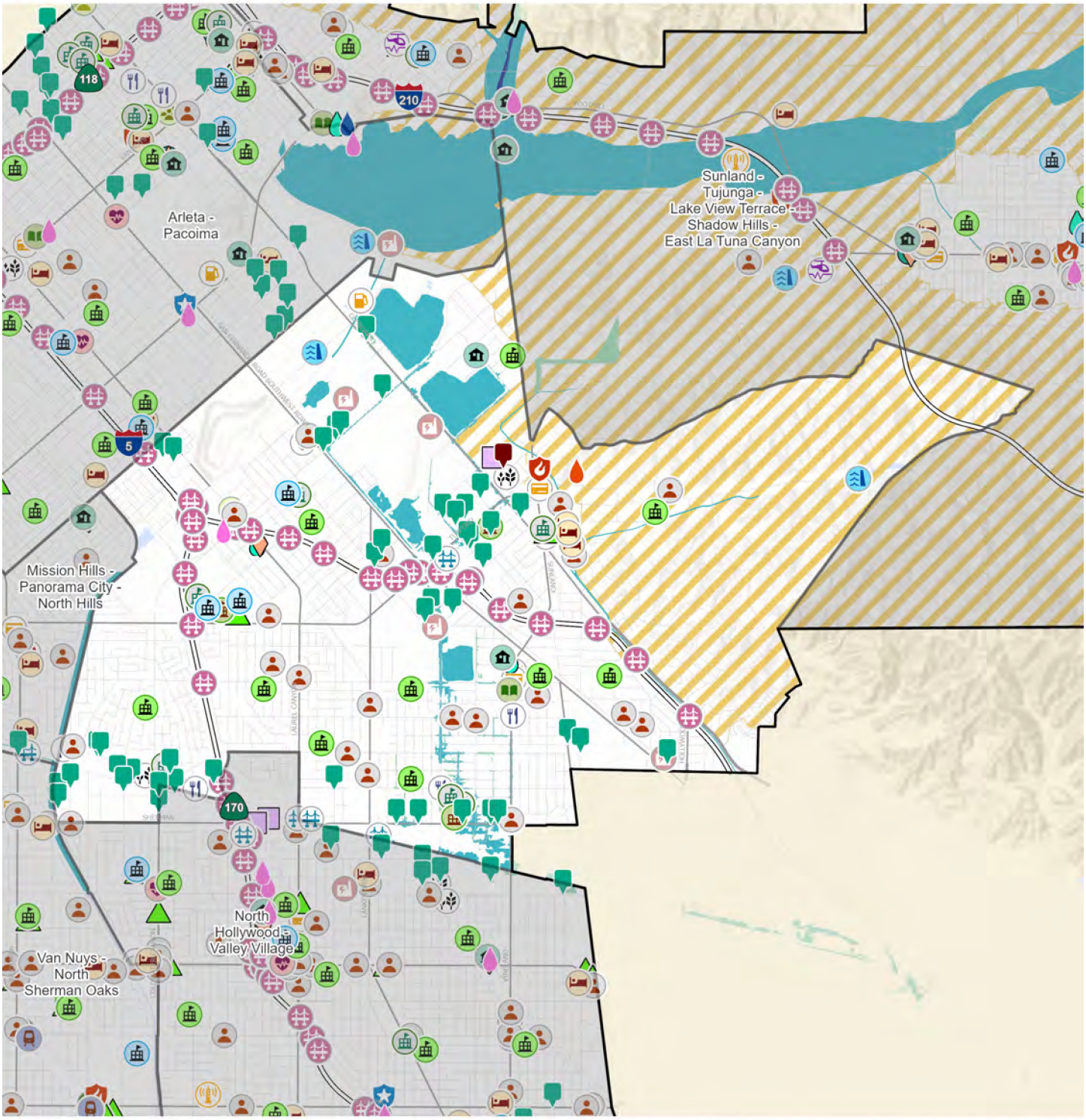
0 0.3 0.6 1.2
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Sun Valley - La Tuna Canyon



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

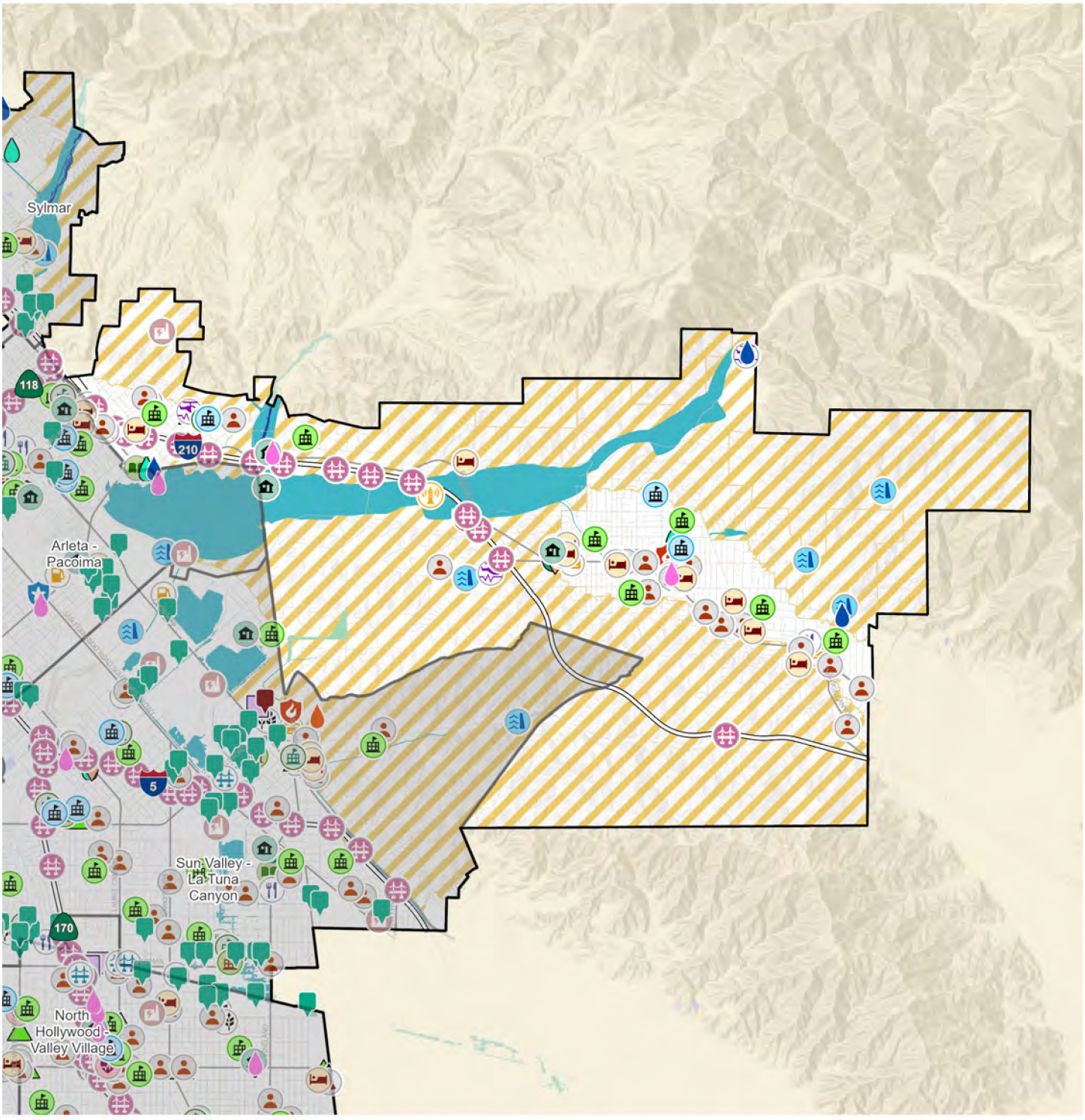
0 0.28 0.55 1.1
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Sunland - Tujunga - Lake View Terrace - Shadow Hills - East La Tuna Canyon



0 0.38 0.75 1.5
Miles

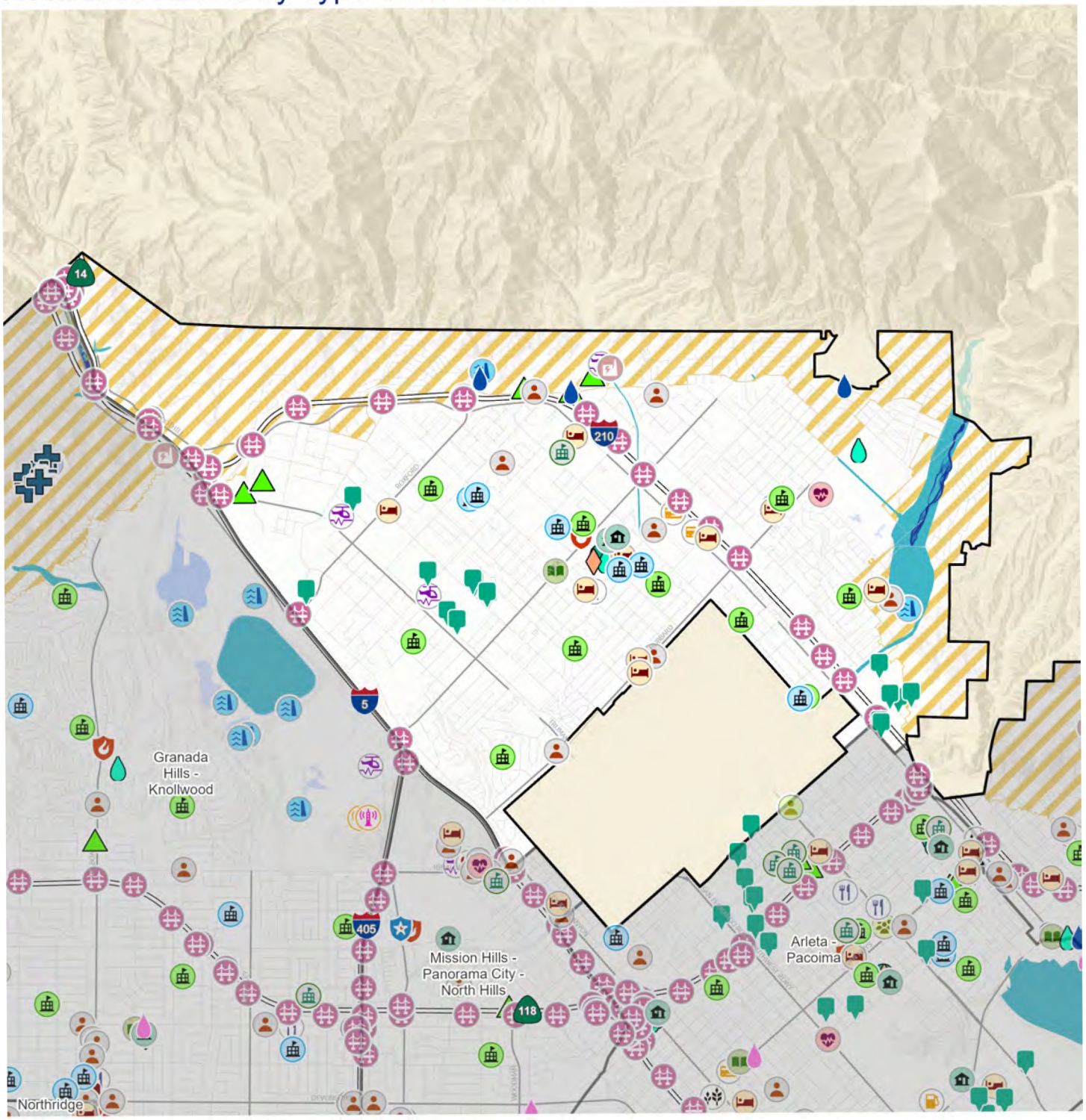
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

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City of Los Angeles

Resilience Assets by Type with Hazards



Sylmar



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

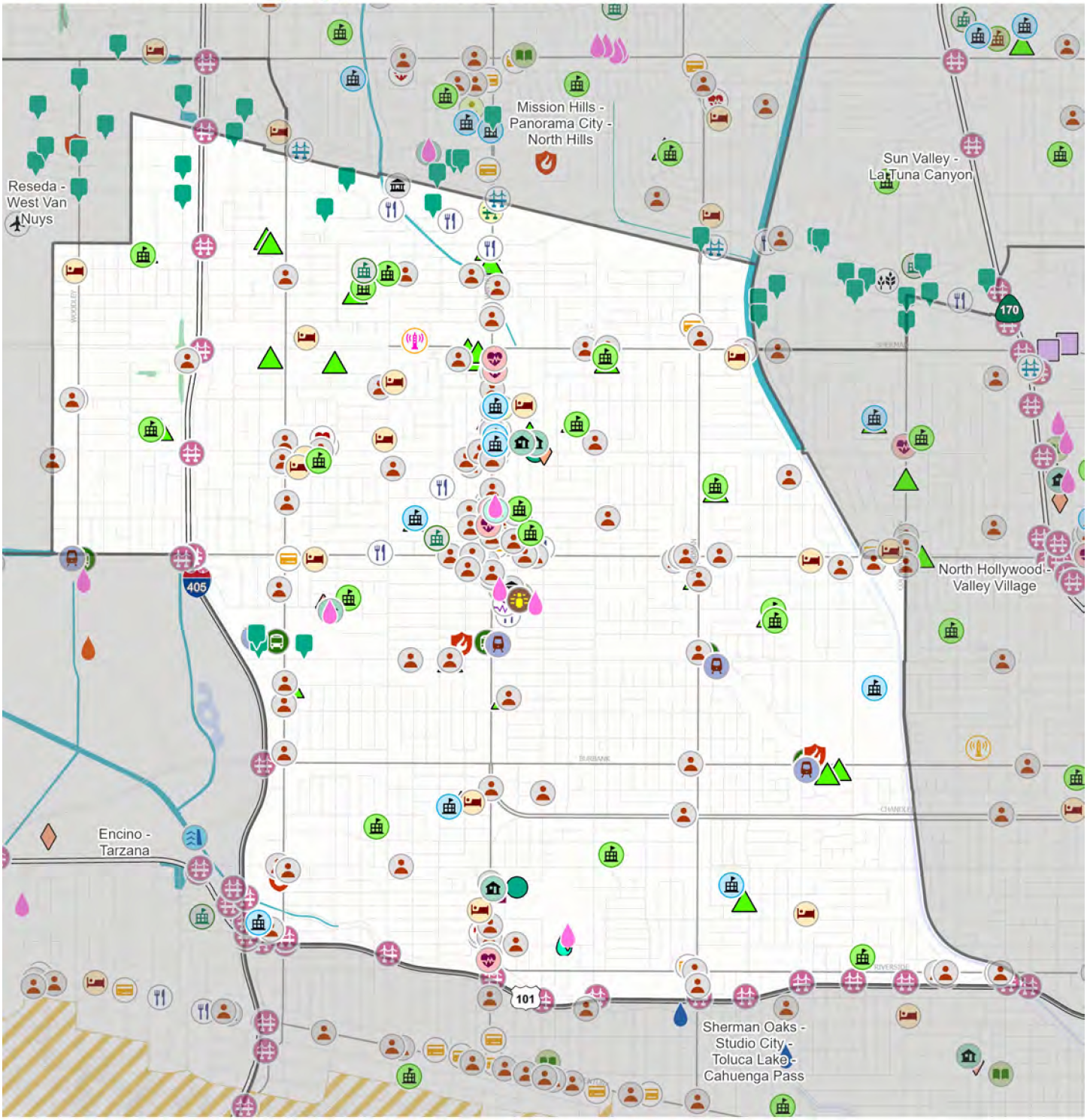
0 0.25 0.5 1
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Van Nuys - North Sherman Oaks



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

0 0.17 0.35 0.7
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Venice



0 0.13 0.25 0.5
Miles

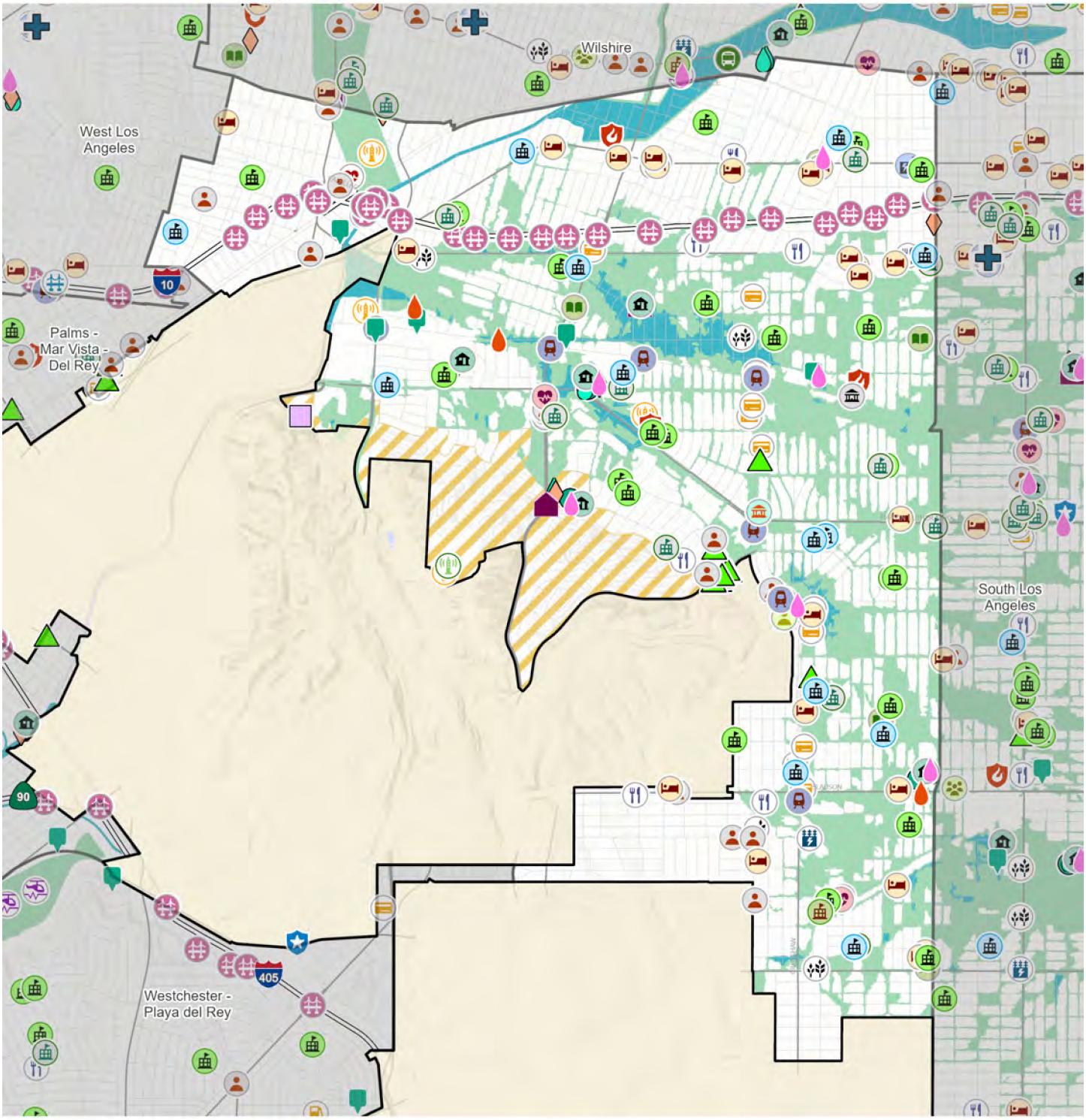
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



West Adams - Baldwin Hills - Leimert



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

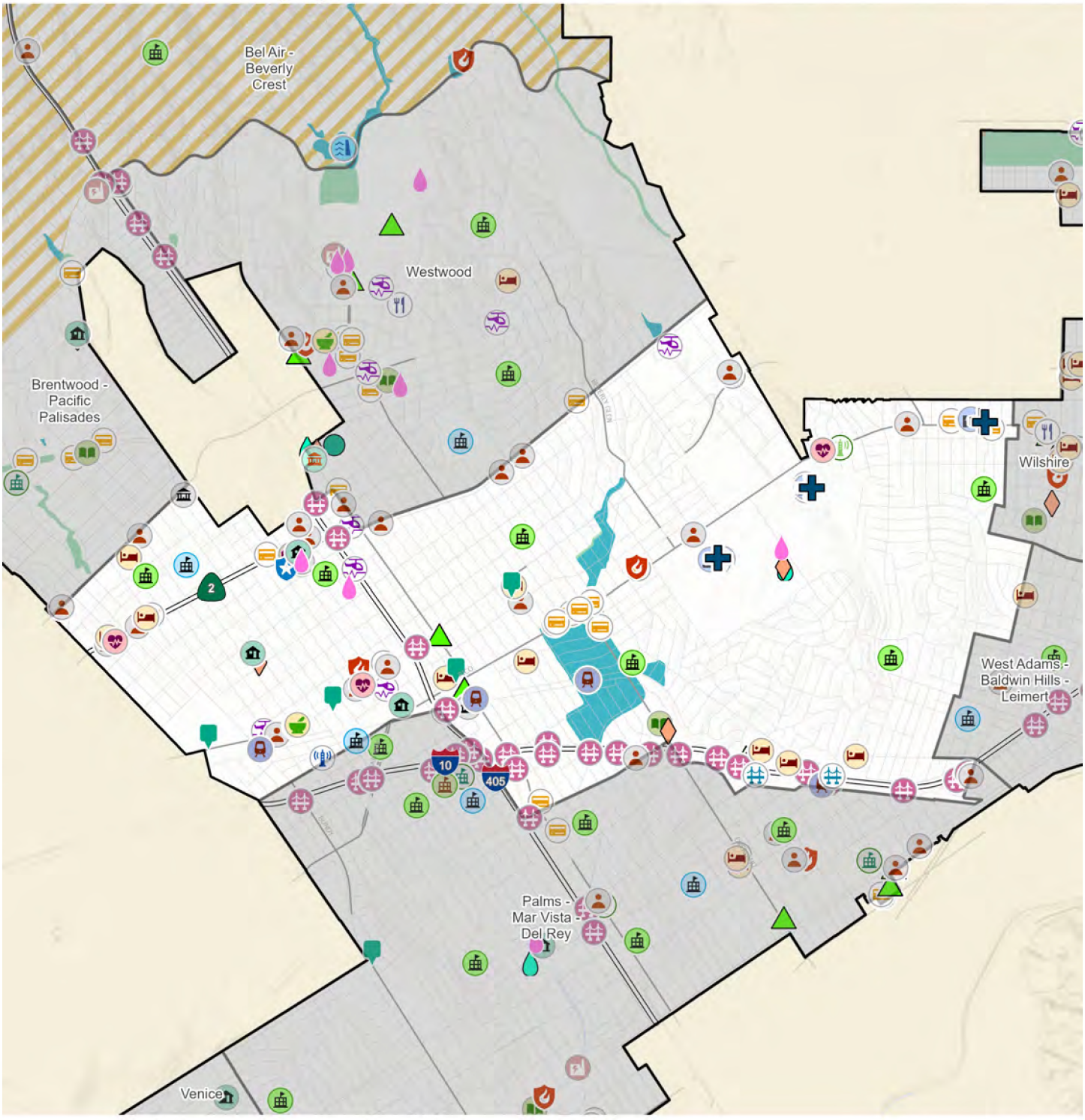
0 0.2 0.4 0.8
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



West Los Angeles



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

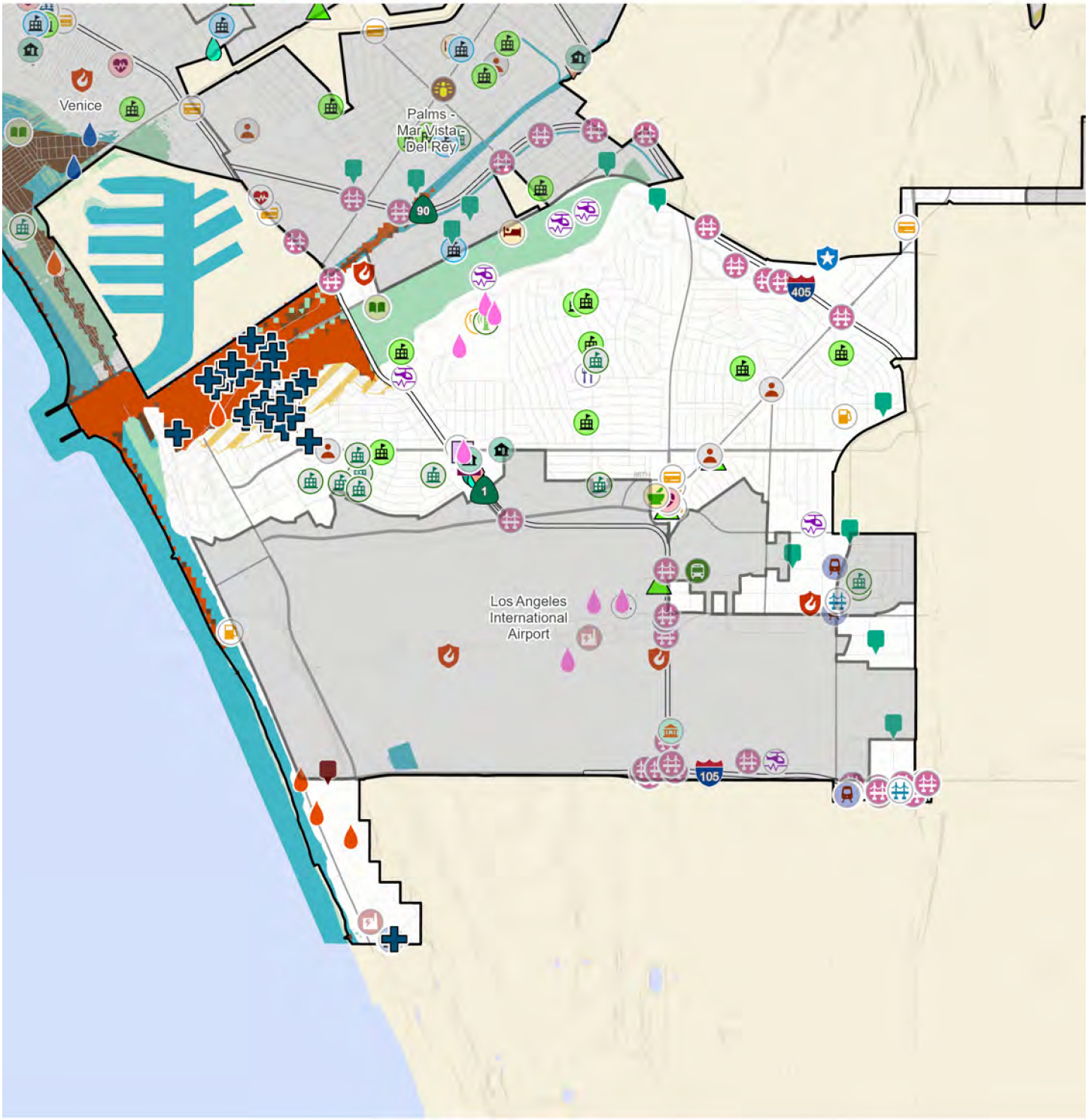
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Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Westchester - Playa del Rey



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Miles

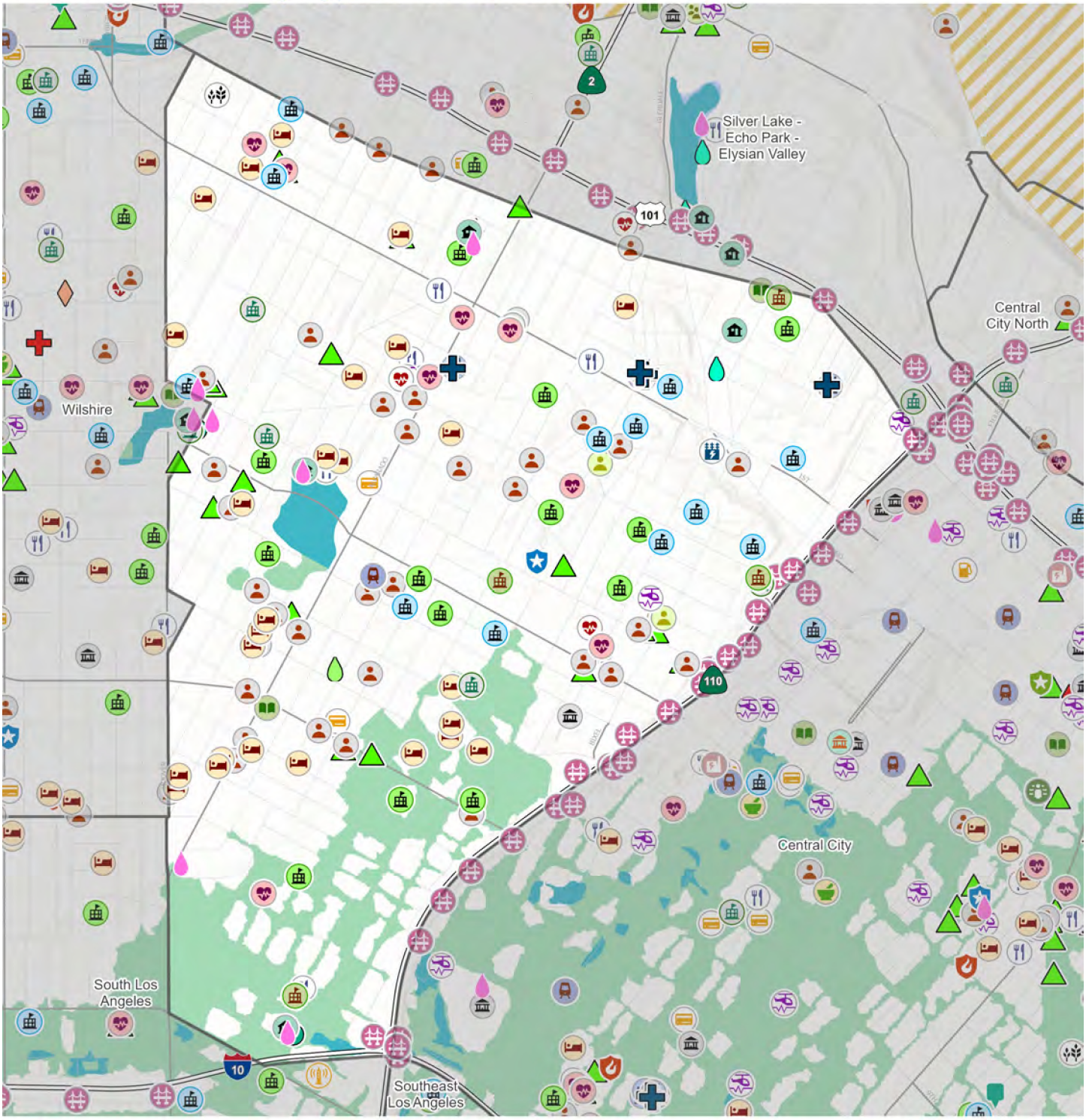
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Westlake



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

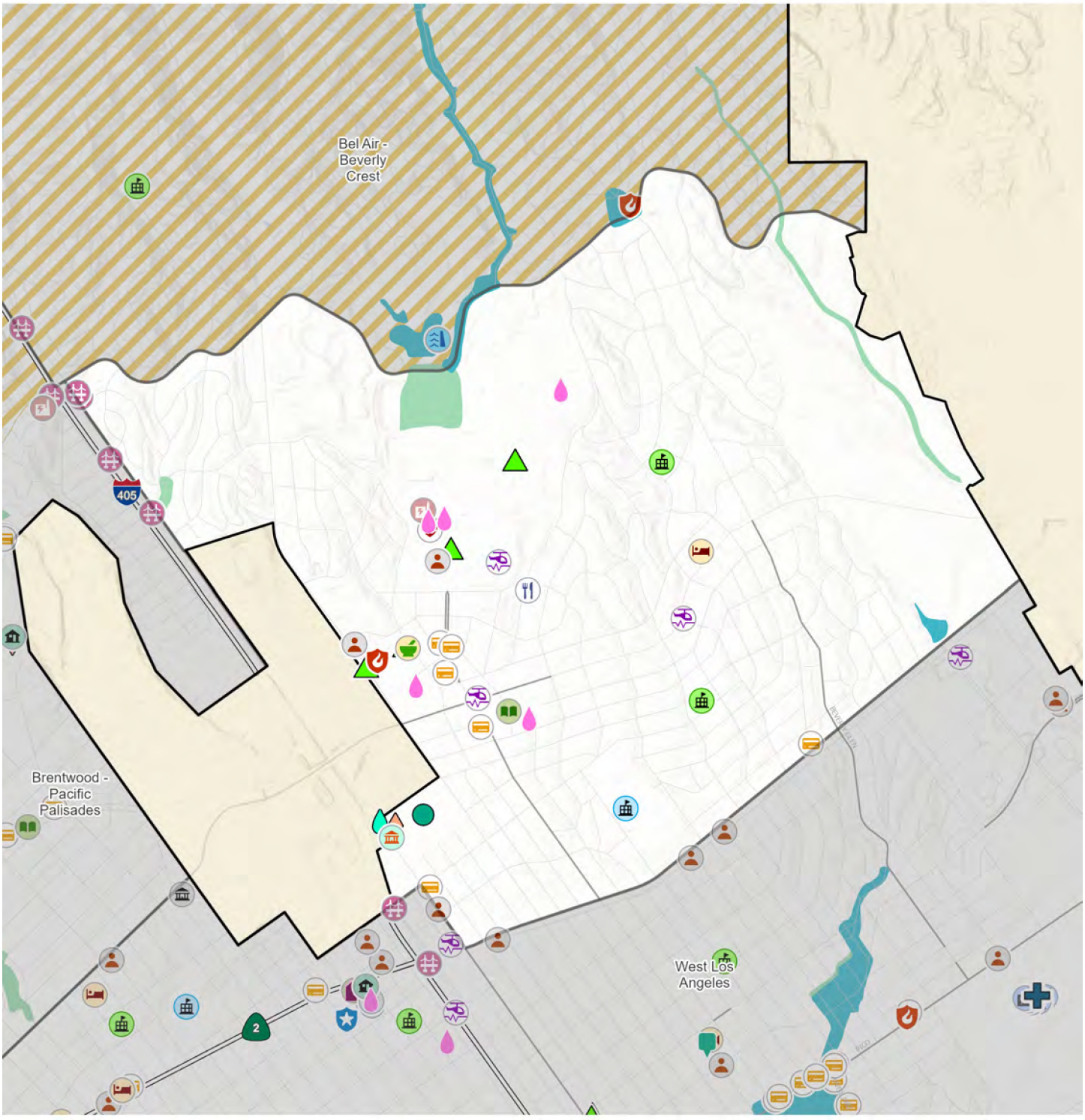
0 0.1 0.2 0.4
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Westwood



0 0.1 0.2 0.4
Miles

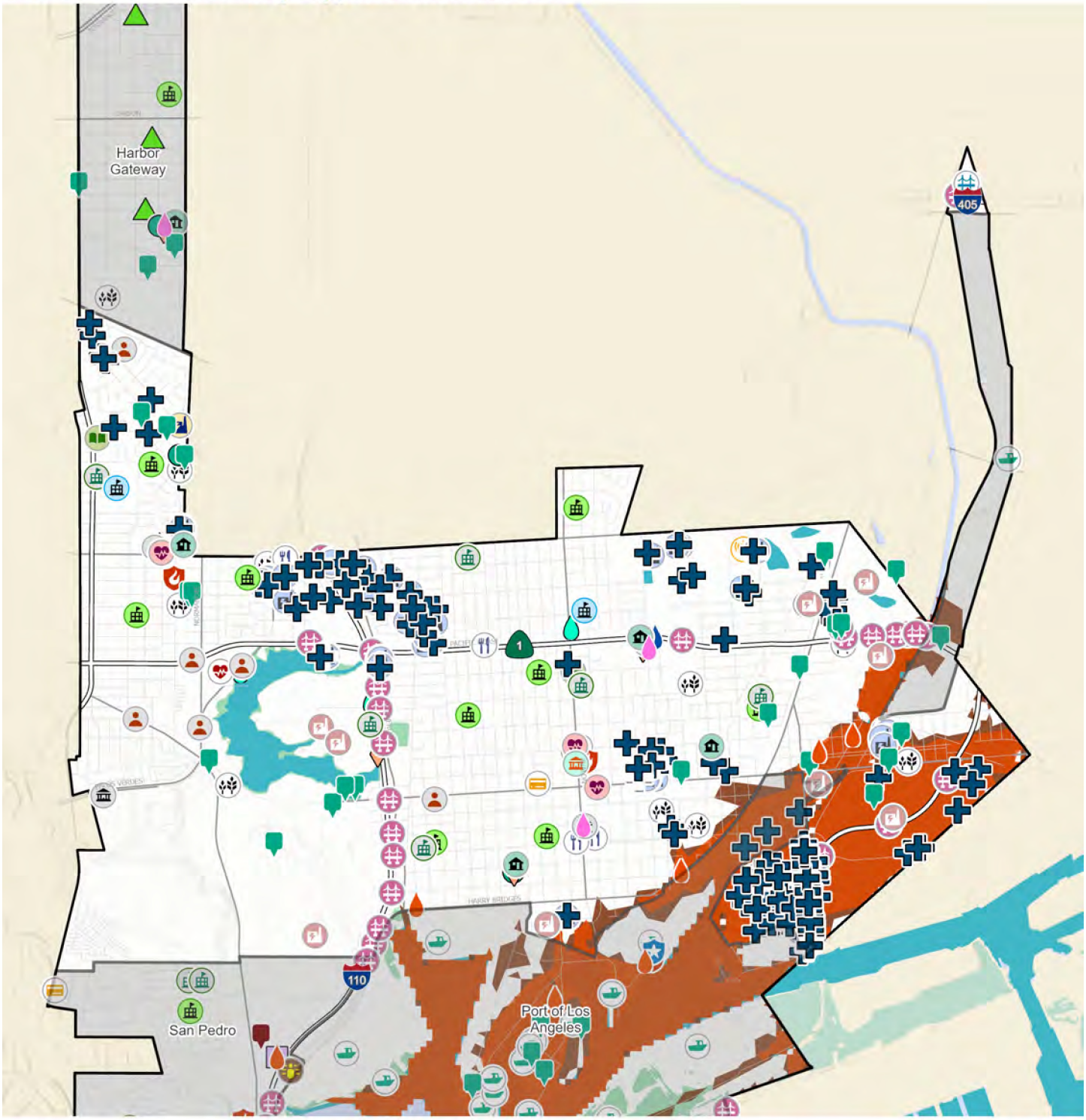
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Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Wilmington - Harbor City



Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

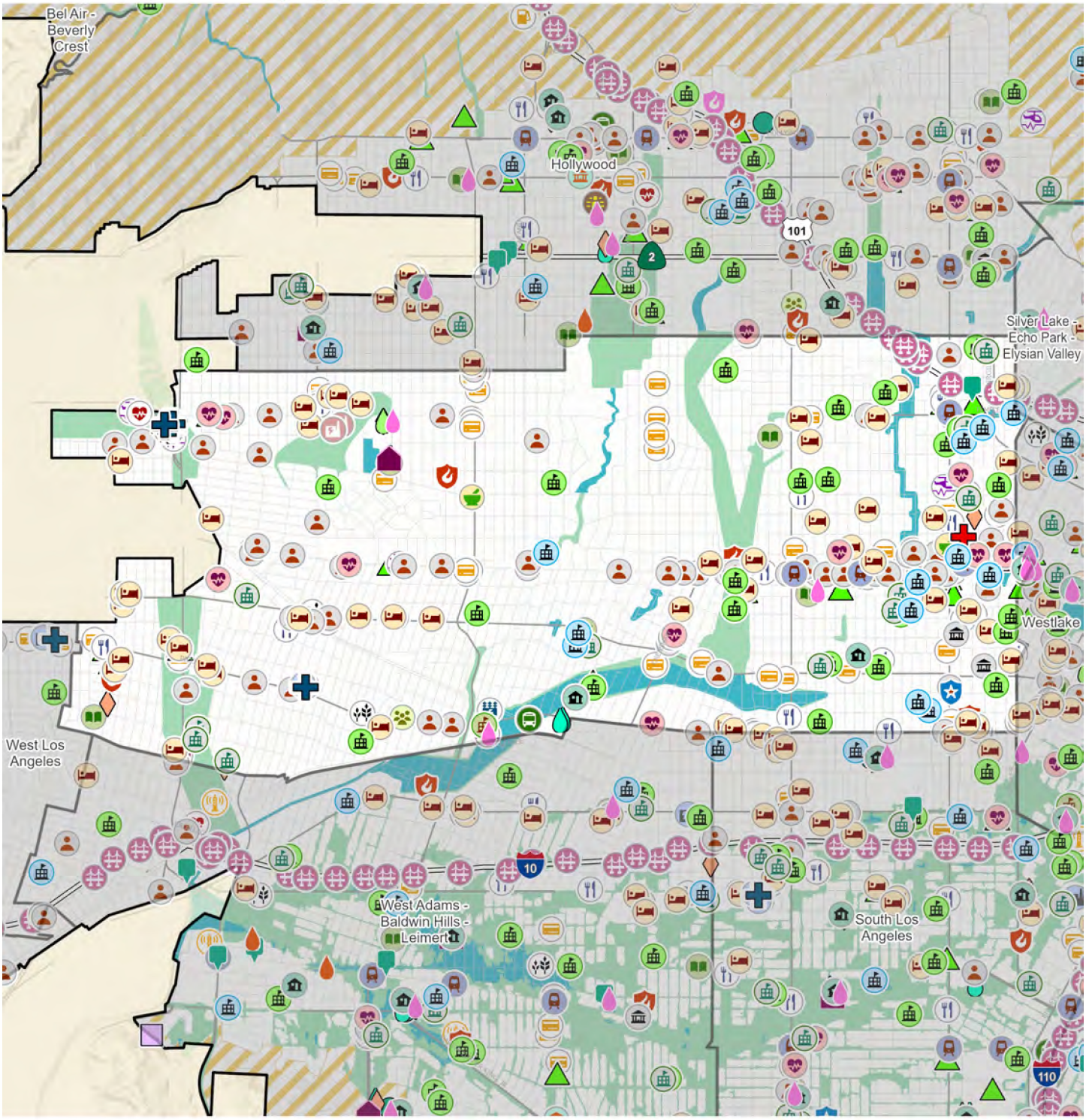
0 0.2 0.4 0.8
Miles

N

Map legend on Page 358

City of Los Angeles

Resilience Assets by Type with Hazards



Wilshire



0 0.25 0.5 1
Miles

N

Sources: Tetra Tech; City of LA 2024 LHMP; ESRI; FEMA 2023; City of LA 2020 FMP; City of LA 2024; CEMO 2024; Cal-Adapt 2024; Cal-Fire 2024

Map legend on Page 358

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SBCC
THRIVE
LA
MONEY
DEPT.
LOS ANGELES, CA.
LOS ANGELES

Appendix F.
Community Engagement Tools


Dronfield Av
11100
RICO TEPACHE
DE
PIÑA

Appendix 1. Glossary



10-year flood: A 10-year annual chance of flood means that these are flood events that have a **10 percent chance of occurring in a single year**. This type of storm would be an above average storm such as a heavy summer thunderstorm, which could be approximately an inch or more of rain in one hour *that results in flooding*. This is the highest potential chance of flood and a lower intensity event than the other flood types.

> ***Inundación de 10 años**: Una probabilidad anual de inundación de 10 años significa que se trata de eventos de inundación que tienen un **10 por ciento de probabilidad de ocurrir en un solo año**. Este tipo de tormenta sería una tormenta superior al promedio, como una fuerte tormenta de verano, que podría generar aproximadamente una pulgada o más de lluvia en una hora y que provoca inundaciones. Esta es la probabilidad potencial más alta de inundación y un evento de menor intensidad que los otros tipos de inundaciones.*

50-year flood: A 50-year annual chance of flood means that these are flood events that have a **two percent chance of occurring in a single year**. An example of this type of event would be a flood caused by above average precipitation from a large storm such as a tropical storm or a similar type of storm that rains heavily over several days, which could be approximately two inches or more of rain in one hour *that results in flooding*. This is the second highest potential chance of flood and a higher intensity event than a 10-year event.

> ***Inundación de 50 años**: Una probabilidad anual de inundación de 50 años significa que se trata de inundaciones que tienen un **dos por ciento de probabilidad de ocurrir en un solo año**. Un ejemplo de este tipo de evento sería una inundación causada por precipitaciones superiores al promedio de una gran tormenta, como una tormenta tropical o un tipo similar de tormenta que llueve intensamente durante varios días, lo que podría generar aproximadamente dos pulgadas o más de lluvia en una hora y que resulta en inundaciones. Esta es la segunda probabilidad potencial más alta de inundación y un evento de mayor intensidad que un evento de 10 años.*

100-year flood: A 100-year annual chance of flood means that these are flood events that have a **one percent chance of occurring in a single year**. An example of this type of event would be a flood caused by high rates of precipitation from a larger storm such as a tropical storm or a similar type of storm that rains heavily over several days, which could be approximately two inches or more of rain in one hour *that results in flooding*. This has a lower potential chance of flood than a 50-year flood and would be more intense than a 50-year flood.

> ***Inundación de 100 años**: Una probabilidad anual de inundación de 100 años significa que se trata de inundaciones que tienen un **uno por ciento de probabilidad de ocurrir en un solo año**. Un ejemplo de este tipo de evento sería una inundación causada por altas tasas de precipitación de una tormenta más grande, como una tormenta tropical o un tipo similar de tormenta que llueve intensamente durante varios días, lo que podría generar aproximadamente dos pulgadas o más de lluvia en una hora y que resulta en inundaciones. Esto tiene una probabilidad potencial de inundación menor que una inundación de 50 años y sería más intensa que una inundación de 50 años.*

500-year flood: A 500-year annual chance of flood means that these are flood events that have a **0.2 percent chance of occurring in a single year**, which could be approximately three inches or more of rain in one hour *that results in flooding*. For example, Hurricane Hillary dropped four inches of rain in an hour and was nearly a 500-year storm in 2023. This is the lowest potential chance of flood and a higher intensity event than the other flood events.

> ***Inundación de 500 años**: Una probabilidad anual de inundación de 100 años significa que se trata de inundaciones que tienen un **0.2 por ciento de probabilidad de ocurrir en un solo año**. Por ejemplo, el huracán Hillary dejó caer cuatro pulgadas de lluvia en una hora y en 2023 fue una tormenta que duró casi 500 años. Esta es la probabilidad potencial más baja de inundación y un evento de mayor intensidad que los otros eventos de inundación.*

Adaptive Capacity: The ability of a system or population to manage and recover from exposure to climate change, including climate variability and extremes, to moderate potential damages, to take advantage of opportunities, or to cope with the consequences. In this context, Adaptive Capacity is a population's type of and access to resources that can aid or offset them to recover from a climate event or hazard. For example, a low-income renter in the Valley would have several challenges to install an air conditioning system. This would be categorized as having very low Adaptive Capacity due to the high exposure to heat for a prolonged period of time and limited resources, access and allowance to install an air conditioning system.

> ***Capacidad de adaptación**: La capacidad de un sistema o población para gestionar y recuperarse de la exposición al cambio climático, incluida la variabilidad climática y los extremos, para moderar daños potenciales, aprovechar oportunidades o hacer frente a las consecuencias. En este contexto, la capacidad adaptativa es el tipo de acceso de la población a recursos que pueden ayudarla o compensarla a recuperarse de un evento o peligro climático. Por ejemplo, un inquilino de bajos ingresos en el Valle tendría varios desafíos para instalar un sistema de aire acondicionado. Esto se clasificaría como de muy baja capacidad adaptativa debido a la alta exposición al calor durante un período*

prolongado de tiempo y recursos, acceso y asignación limitados para instalar un sistema de aire acondicionado.

At-risk communities: In the context of the CVA, vulnerable and historically disadvantaged communities that are overburdened by climate change hazards.

***Comunidades en riesgo**: En el contexto del CVA, comunidades vulnerables e históricamente desfavorecidas que están sobrecargadas por los peligros del cambio climático.*

Built environment: The physical, human-made conditions where people live and work, including homes, buildings, streets, and open spaces.

***Ambiente construido**: Las condiciones físicas creadas por humanos donde las personas viven y trabajan, incluidos hogares, edificios, calles y espacios abiertos.*

Climate equity: Recognizing and addressing the unequal burdens made worse by climate change, while ensuring all people share the benefits of climate protection efforts.

***Equidad climática**: Reconocer y abordar las cargas desiguales que empeoran con el cambio climático, garantizando al mismo tiempo que todas las personas compartan los beneficios de los esfuerzos de protección del clima.*

Climate Hazard Assessment: Technical analysis of projected climate hazards facing the City of Los Angeles, to be integrated with the Social Vulnerability Assessment to compose the final Climate Vulnerability Assessment.

***Evaluación de peligros climáticos**: Análisis técnico de los peligros climáticos proyectados que enfrenta la ciudad de Los Ángeles, que se integrará con la evaluación de vulnerabilidad social para componer la evaluación de vulnerabilidad climática final.*

Climate Impact: An effect that results from changing climate conditions. Climate impacts include things such as flooding, drought, heat waves, wildfires, and landslides.

***Impacto climático:** Efecto que resulta del cambio de las condiciones climáticas. Los impactos climáticos incluyen cosas como inundaciones, sequías, olas de calor, incendios forestales y deslizamientos de tierra.*

Climate Resilience: The ability of communities to prepare for and respond to climate hazards.

***Resiliencia climática**: La capacidad de las comunidades para prepararse y responder a los peligros climáticos.*

Climate Vulnerability Assessment: The integration of a social vulnerability and technical analysis to examine the differential impact of climate hazards on specific communities, as well as provide recommendations for where the City should prioritize climate hazard mitigation investments.

***Evaluación de vulnerabilidad climática**: La integración de una vulnerabilidad social y un análisis técnico para examinar el impacto diferencial de los peligros climáticos en*

comunidades específicas, así como poder hacer recomendaciones sobre dónde la Ciudad debería priorizar las inversiones en mitigación de los peligros climáticos.

Combined Very High and High Hazard Dam Inundation Area: Areas with a high or very high risk of inundation from the failure or improper operation of a dam that can cause loss of human life.

***Área combinada de inundación de presas de riesgo muy alto y alto**: Áreas con un riesgo alto o muy alto de inundación debido a la falla o operación inadecuada de una presa que puede causar pérdida de vidas humanas.*

Community Health and Equity Index: This measurement of community health and equity is included within the City's Health Atlas. This index examines the spatial relationship between vulnerable populations and standardizes demographic, socio-economic, health conditions, land use, transportation, food environment, crime and pollution burden variables and then averages them together to yield a score between 0-100 with lower values indicating better community health.

***Índice de equidad y salud comunitaria**: Esta manera de medir la salud y la equidad de la comunidad se incluye en el atlas de salud de la ciudad. Este índice examina la relación espacial entre poblaciones vulnerables y estandariza variables demográficas, socioeconómicas, condiciones de salud, uso del suelo, transporte, entorno alimentario, delincuencia y carga de contaminación y luego las promedia para obtener una puntuación entre 0 y 100, donde los valores más bɑjos indican mɛjor salud comunitaria.*

Cooling Center: A cooling center is a free, indoor air-conditioned location where you can keep cool when there are extreme heat weather conditions. During extended periods of excessive heat, LA City will open dedicated cooling centers. These dedicated spaces will typically be located at City Recreation and Parks and LA City Public Library facilities.

***Centro de enfriamiento**: Un centro de enfriamiento es un lugar interior gratuito con aire acondicionado donde puede mantenerse fresco cuando hay condiciones climáticas de calor extremo. Durante períodos prolongados de calor excesivo, la ciudad de Los Ángeles abrirá centros de enfriamiento exclusivos. Estos espacios dedicados generalmente estarán ubicados en las instalaciones de Parques y Recreación de la Ciudad y en las instalaciones de la Biblioteca Pública de la Ciudad de Los Ángeles.*

Drought: Period of abnormally dry weather and little precipitation that causes water shortages and/or affects everyday life. For the CVA, all areas in the City are exposed to drought.

***Sequía**: Período de clima anormalmente seco y escasas precipitaciones que provoca escasez de agua y/o afecta la vida cotidiana. Para el CVA, todas las zonas de la Ciudad están expuestas a la sequía.*

Environmental Justice: The fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies. The principle

of environmental justice prioritizes equitable protection from environmental and health hazards, while giving people fair and equal access to the planning and decision-making process.

> ***Justicia ambiental**: El trato justo y la participación significativa de personas de todas las razas, culturas, ingresos y orígenes nacionales, con respecto al desarrollo, adopción, implementación y cumplimiento de leyes, reglamentos y políticas ambientales. El principio de justicia ambiental garantiza una protección igualitaria y equitativa contra los peligros ambientales y de salud, al tiempo que brinda a las personas un acceso justo y equitativo al proceso de planeación y toma de decisiones.*

ER Visits - Daily Excess of ER Visits: The number of daily recorded emergency room visits attributed, according to UCLA study analysis, to exposures to excessive natural heat or effects of heat and light reflected in symptoms such as electrolyte imbalance, cardiovascular disease, respiratory illness as some examples. The data geographically represents the total number of visits in a given population due to extreme heat.

> ***Visitas a la Sala de Emergencias - Exceso diario de visitas a emergencias**: El número de visitas diarias registradas a la sala de emergencias atribuidas, según el análisis del estudio de UCLA, a exposiciones a un calor natural excesivo o a los efectos del calor y la luz reflєjados en síntomas como desequilibrio electrolítico, enfermedades cardiovasculares y respiratorias, como algunos єjemplos. Los datos representan geográficamente el número total de visitas en una población determinada debido al calor extremo.*

ER Visits - Rate of Daily Excess Emergency Room (ER) Visits: A measure of how often the frequency with which an extreme heat event occurs and causes excess Emergency Room (ER) visits in a defined population.

> ***Visitas a la Sala de Emergencias - Tasa de visitas diarias excesivas a la sala de emergencias (ER)**: Una medida de la frecuencia con la que ocurre un evento de calor extremo y provoca un exceso de visitas a la sala de emergencias (ER) en una población definida.*

Exposure to Hazards: Likelihood an area, asset, or population will physically intersect with a hazard event, such as a flood or drought. The CVA focuses on how climate-related factors are expected to change the extent and intensity of hazard events and what is exposed.

> ***Exposición a peligros**: Probabilidad de que un área, activo o población se cruce físicamente con un evento peligroso, como una inundación o una sequía. El CVA se centra en cómo se espera que los factores relacionados con el clima cambien el alcance y la intensidad de los eventos peligrosos y lo que está expuesto.*

Extreme heat: An extended period, at least 2-3 days, of temperatures and humidity levels that exceed seasonal averages. For the CVA, extreme heat is heat above a threshold of 95.2 degrees Fahrenheit, or 35.1 degrees Celsius, which is the 98th percentile of the 30-year average.

***Calor extremo**: Un período prolongado, al menos de 2 a 3 días, de temperaturas y niveles de humedad que exceden los promedios estacionales. Para el CVA, el calor extremo es el calor por encima de un umbral de 95.2 grados Fahrenheit, o 35.1 grados Celsius, que es el percentil 98 del promedio de 30 años.*

Extreme precipitation: Heavy rainfall in a short period that threatens flooding, especially in urban areas. For the CVA, this is defined as any two-day period where precipitation exceeds 1.38 inches, which is the 95th percentile of the 30-year average.

***Precipitaciones extremas**: Lluvias intensas en un período corto que amenazan con inundaciones, especialmente en áreas urbanas. Para el CVA, esto se define como cualquier período de dos días en el que la precipitación supera las 1.38 pulgadas, que es el percentil 95 del promedio de 30 años.*

Flooding: Temporary overflow of excess water from bodies of water onto dry land from rainfall.

***Inundaciones**: Desbordamiento temporal del exceso de agua de cuerpos de agua hacia tierra firme debido a las lluvias.*

Heating Center (Warming Center): A dedicated space to provide temporary relief from extreme winter weather, including extreme cold. Warming centers are generally not overnight shelters, but may extend beyond the facility's normal operating hours.

***Centro de calentamiento**: Un espacio dedicado para brindar alivio temporal del clima invernal extremo, incluido el frío extremo. Los centros de calentamiento generalmente no son refugios para pasar la noche, pero pueden extenderse más allá del horario normal de funcionamiento de las instalaciones.*

Hydration Station: Public, free drinking water stations made available through the LA Department of Water and Power (LADWP) for the health of residents and visitors. Hydration stations are in mostly public areas throughout all 15 City Council districts and are available for drinking and filling water bottles.

***Estación de hidratación**: Estaciones de agua potable públicas y gratuitas disponibles a través del Departamento de Agua y Energía de Los Ángeles (LADWP por sus siglas en inglés) para la salud de residentes y visitantes. Las estaciones de hidratación se encuentran principalmente en áreas públicas en los 15 distritos concejales y están disponibles para beber y llenar botellas de agua.*

Infrastructure: The public and quasi-public facilities required in order to serve the development and operational needs of a community, such as roads, water and sewer systems.

***Infraestructura:** Los servicios o proyectos públicos como calles y líneas de drenaje requeridos para el desarrollo y función de la comunidad.*

Lived experience: An individual's experiences, choices, and options, and how those factors influence their opinions and knowledge.

***Experiencia vivida**: Las experiencias, elecciones y opciones de un individuo, y cómo esos factores influyen en sus opiniones y conocimientos.*

Local Hazard Mitigation Plan (LHMP): A Plan that identifies and assesses the most urgent hazards facing the City and develops mitigation strategies to reduce community vulnerability to those hazards. In Los Angeles, this plan is led by the Emergency Management Department (EMD).

> ***Plan local de mitigación de peligros (LHMP)**: El Plan cual identifica y evalúa los peligros más urgentes que enfrenta la Ciudad y desarrolla estrategias de mitigación para reducir la vulnerabilidad de la comunidad a esos peligros. Este plan está llevado a cabo por el departamento del manejo de emergencias (EMD).*

Mitigation strategies: Recommendations to reduce and manage the impact of potential risks from climate hazards.

> ***Estrategias de mitigación**: Recomendaciones para reducir y gestionar el impacto de los riesgos potenciales de los peligros climáticos.*

Public health: Organized community efforts aimed at the prevention of disease and the promotion of health through the mitigation of climate impacts, such as heat-related illnesses prevention and addressing climate-related diseases.

> ***Salud pública**: Esfuerzos comunitarios organizados destinados a la prevención de enfermedades y la promoción de la salud mediante la mitigación de los impactos climáticos, como la prevención de enfermedades relacionadas con el calor y el tratamiento de enfermedades relacionadas con el clima.*

Resilience: The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self organization, and the capacity to adapt to stress and change.

> ***Resiliencia**: La capacidad de un sistema social o ecológico para absorber perturbaciones mientras conservando la misma estructura básica y formas de funcionamiento, la capacidad de organización, y la capacidad de adaptarse al estrés y al cambio.*

Risk: The likelihood of an event happening, and the consequence should that event take place.

> ***Riesgo**: La probabilidad de que ocurra un evento y las consecuencias en caso de que ese evento ocurra.*

Sea Level Rise: The increase in the ocean's surface height relative to the height of nearby land. Coastal low-lying areas are exposed to Sea Level Rise, but Sea Level Rise also raises water levels in tidal water bodies, increasing risk of inland flooding.

> ***Aumento del nivel del mar**: El aumento de la altura de la superficie del océano en relación con la altura de la tierra cercana. Las zonas costeras bajas están expuestas al aumento del nivel del mar, pero el aumento del nivel del mar también eleva los niveles de agua en las masas de agua de las mareas, lo que aumenta el riesgo de inundaciones en tierra interior.*

Sea Level Rise 25 cm with 100-year Storm: This is the potential for coastal flooding if the sea level were to rise by 25 centimeters during a 100-year storm. This is a Federal Emergency Management Agency (FEMA) model based on climate change projections.

> ***Aumento del nivel del mar de 25 cm con una tormenta de 100 años**: Este es el potencial de inundaciones costeras si el nivel del mar se aumenta 25 centímetros durante una tormenta de 100 años. Este es un modelo de la Agencia Federal para el Manєjo de Emergencias (FEMA) basado en proyecciones de cambio climático.*

Sea Level Rise 200 cm with 100-year Storm: This is the potential for coastal flooding if the sea level were to rise by 200 centimeters during a 100-year storm. This is a Federal Emergency Management Agency (FEMA) model based on climate change projections.

> ***Aumento del nivel del mar de 200 cm con una tormenta de 100 años**: Este es el potencial de inundaciones costeras si el nivel del mar se aumenta 200 centímetros durante una tormenta de 100 años. Este es un modelo de la Agencia Federal para el Manєjo de Emergencias (FEMA) basado en proyecciones de cambio climático.*

Sensitivity: Refers to the degree to which an area, asset, or population is expected to experience adverse impacts because of climate hazards. This is affected by structural or environmental attributes, like when buildings were built, or social factors, like access to health care.

> ***Sensibilidad**: Se refiere al grado en que se espera un área, activo o población es más susceptible y se espera que sea afectada por impactos adversos debido a los peligros climáticos. Esto se ve afectado por atributos estructurales o ambientales, como cuándo se construyeron los edificios, o factores sociales, como el acceso a la atención médica.*

Social vulnerability: A measure of how social disparities impact how communities experience hazards like climate change.

> ***Vulnerabilidad social**: Una medida de cómo las disparidades sociales impactan la forma en que las comunidades se verán afectadas por amenazas como el cambio climático.*

Social Vulnerability Assessment: Assessment that meaningfully engages the most burdened communities to improve our understanding of the risks posed by climate change hazards.

> ***Evaluación de vulnerabilidad social**: Evaluación que involucra significativamente a las comunidades más agobiadas para mєjorar nuestra comprensión de los riesgos que plantean los peligros del cambio climático.*

Urban Heat Index: This is a measurement of surface temperatures and air temperatures within two meters, or six feet, of the ground where most people would experience heat. It accounts for temperature differences between urban and rural areas, and scientifically assigns a score based on atmospheric modeling at the census tract level in and around most urban areas throughout the state. For example, areas with a lot of paved surfaces or asphalt and little wind blowing will also likely have higher urban heat index values than areas with vegetation and more wind.

***Índice de calor urbano**: Es una medida de las temperaturas de la superficie y la temperatura del aire dentro de dos metros o seis pies del suelo donde la mayoría de las personas sienten calor. Tiene en cuenta las diferencias de temperatura entre áreas urbanas y rurales, y asigna científicamente una puntuación basada en modelos atmosféricos a nivel de tramo censal en y alrededor de la mayoría de las áreas urbanas en todo el estado. Por ejemplo, las áreas con muchas superficies pavimentadas o asfalto y poco viento probablemente también tendrán valores de índice de calor urbano más altos que las áreas con vegetación y más viento.*

Vulnerability: Describes the extent an area, asset, or population is likely to be harmed by a climate hazard. This is a function of exposure, sensitivity and adaptive capacity.

***Vulnerabilidad:** Describe la medida en que es probable que un área, activo o población se verá afectada o perjudicada por un riesgo climático. Esta es una función de la exposición, la sensibilidad y la capacidad de adaptación.*

Wildfire: Uncontrolled fire occurring on natural, undeveloped land that requires extinguishing. Wildfires become a hazard when they threaten people, buildings, and assets, and wildfire smoke presents serious public health risks.

***Incendio forestal**: Incendio incontrolado que ocurre en terrenos no urbanizados o desarrollados con estructuras y que requiere extinción. Los incendios forestales se convierten en un peligro cuando amenazan a personas, edificios y bienes, y el humo de los incendios forestales presenta graves riesgos para la salud pública.*

Wildfire Severity Zones: These fire hazard zones are based on increasing fire hazard in three levels of medium, high and very high. Zones are developed by the California Department of Forestry and Fire Protection (CalFIRE) using a model that includes many factors such as fire history, vegetation, flame length, blowing embers, terrain, weather and the likelihood of buildings igniting.

***Zonas de gravedad de incendios forestales**: Estas zonas de riesgo de incendio se basan en un riesgo de incendio creciente en tres niveles: medio, alto y muy alto. El Departamento de Protección Forestal y Contra Incendios de California (CalFIRE) desarrolla las zonas utilizando un modelo que incluye muchos factores como la historia de incendios, la vegetación, la longitud de las llamas, las brasas, el terreno, el clima y la probabilidad de que los edificios se incendien.*

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Appendix 2. Community Engagement Input Summary

Climate Vulnerability Assessment

Input Summary I *Resumen de Comentarios*



The following is a comprehensive summary of the input heard from community members on each climate hazard. For every comment, there is a notation of the CBO(s) and communities who expressed it in our previous meetings.
El siguiente es un resumen completo de los aportes escuchados de los miembros de la comunidad sobre cada peligro climático. Para cada comentario, hay una anotación de las organizaciones y las comunidades que lo expresaron en nuestras reuniones anteriores.

This summary is meant to be reviewed to confirm that the input shared is accurate and complete. This summary can also help inform and guide discussion about potential mitigation strategies and how they can help alleviate the experiences of climate hazards being included in the City's Climate Vulnerability Assessment.
Este resumen debe revisarse para confirmar que los comentarios compartidos sean precisos y completos. Este resumen también puede ayudar a informar y guiar la discusión sobre posibles estrategias de mitigación y cómo pueden ayudar a aliviar las experiencias de peligros climáticos que se incluyen en la Evaluación de Vulnerabilidad Climática de la Ciudad.

If you find that something is missing or inaccurately described, please share that with us today so that it can be corrected.
Si descubre que falta algo o que se describe de forma inexacta, compártelo con nosotros hoy para que podamos corregirlo.

Extreme Heat

- Single most pressing concern was air quality, which "informs the need for climate resilience strategies that address air pollution through multiple avenues such as extreme heat interactions." (FTBMI* Tribal Climate Resiliency Plan)
- *La preocupación más apremiante era la calidad del aire, que "informa la necesidad de estrategias de resiliencia climática que aborden la contaminación del aire a través de múltiples vías, como las interacciones con el calor extremo". (Plan tribal de resiliencia climática de los FTBMI*)*

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***Promesa BH - Promesa Boyle Heights*

- Tribal members generally disagreed that their neighborhood had services/programs to assist people during a heatwave. (FTBMI Tribal Climate Resiliency Plan)
- *Los miembros tribales generalmente no estaban de acuerdo con que su vecindario tuviera servicios/programas para ayudar a las personas durante una ola de calor. (Plan tribal de resiliencia climática de los FTBMI*)*
- More shade is needed at bus stops. (Rising Communities, Promesa BH**, Pacoima Beautiful, SBCC, SCOPE)
- *Se necesita más sombra en las paradas de autobús. (Rising Communities, Promesa BH, Pacoima Beautiful, SBCC, SCOPE)*
- More apartment units or homes should have built-in AC units. (Rising Communities, Promesa BH, Pacoima Beautiful, SBCC, SCOPE)
- *Más unidades de apartamentos o casas deberían tener unidades de aire acondicionado integradas. (Rising Communities, Promesa BH, Pacoima Beautiful, SBCC, SCOPE)*
- When turning on the AC during the summer, residents have an increased financial strain due the electricity bills being high. (Rising Communities, Promesa BH, Pacoima Beautiful, SBCC, SCOPE)
- *Al prender el aire acondicionado durante el verano, los residentes tienen una mayor presión financiera debido a las elevadas facturas de electricidad. (Rising Communities, Promesa BH, Pacoima Beautiful, SBCC, SCOPE)*
- The heat impacts school attendance due to the lack of green spaces and indoor recess activities; kids play outside and can overheat, there also aren't enough AC units. (Promesa BH, SBCC)
- *El calor impacta la asistencia escolar por la falta de espacios verdes y actividades de recreo bajo techo; los niños juegan afuera y pueden sobrecalentarse, tampoco hay suficientes unidades de aire acondicionado. (Promesa BH, SBCC)*
- Majority of survey respondents did not believe there was enough tree coverage in their neighborhoods to provide adequate shade. (all)
- *La mayoría de los encuestados no creían que hubiera suficiente cobertura de árboles en sus vecindarios para proporcionar una sombra adecuada. (todos)*
- The trees are very important. They provide the oxygen for us to breathe and stay cool. (Rising Communities, Promesa BH, Pacoima Beautiful)
- *Los árboles son muy importantes. Nos proporcionan el oxígeno para respirar y mantenernos frescos. (Rising Communities, Promesa BH, Pacoima Beautiful)*
- Community is observing a general trend against green space and towards pavement/removing landscaping, especially in new development like affordable housing projects. We need open and green spaces instead of concrete everywhere, including schools, apartment complexes, and public spaces. At the very least, there should be groundcover/pavement that offsets or deflects heat. (Promesa BH, Pacoima Beautiful, SBCC)
- *La comunidad está observando una tendencia general contra los espacios verdes y hacia el pavimento/eliminación de jardines, específicamente en el nuevo desarrollo como en proyectos de viviendas de bajos recursos. Necesitamos espacios abiertos y verdes en lugar de concreto en todas partes, incluidas escuelas, complejos de apartamentos y espacios públicos. Como mínimo, debe haber una cubierta vegetal o pavimento que compense o desvíe el calor. (Promesa BH, Pacoima Beautiful, SBCC)*

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- Tree layer on mapping tool exaggerates the amount of trees that actually exist. (Promesa BH)
- *La capa de árbol en la herramienta de mapeo exagera la cantidad de árboles que realmente existen. (Promesa BH)*
- There aren't cool spaces/centers to spend time with family. There is little shade in existing public spaces. (Promesa BH, Pacoima Beautiful)
- *No hay espacios/centros de enfriamiento para pasar tiempo en familia. Hay poca sombra en los espacios públicos existentes. (Promesa BH, Pacoima Beautiful)*

Drought

- Drinking water availability was a primary concern for FTBMI* community members, with secondary concerns related to the availability of water for fighting wildfires or agriculture needs. (FTBMI Tribal Climate Resiliency Plan)
- *La disponibilidad de agua potable era una preocupación principal para los miembros de la comunidad FTBMI*, con preocupaciones secundarias relacionadas con la disponibilidad de agua para combatir incendios forestales o necesidades agrícolas. (Plan tribal de resiliencia climática de los FTBMI)*
- FTBMI community members expressed substantial concern for the anticipated impact drought will have on tribal practices. (FTBMI Tribal Climate Resiliency Plan)
- *Los miembros de la comunidad FTBMI expresaron gran preocupación por el impacto previsto que la sequía tendrá en las prácticas tribales. (Plan tribal de resiliencia climática de los FTBMI)*
- There is a lot of stress and worries with affording basic needs like water. In the summer, there are water limitations. We need more hydration stations. Food prices also go up during a drought. (Promesa BH, SBCC, SCOPE, Pacoima Beautiful, Rising Communities)
- *Hay mucho estrés y preocupaciones cuando estamos pensando en cómo pagar para las necesidades básicas como el agua. En verano es cuando hay limitaciones de agua. Necesitamos más estaciones de hidratación. Los precios de los alimentos también aumentan durante una sequía. (Promesa BH, SBCC, SCOPE, Pacoima Beautiful, Rising Communities)*
- There are significant water rate changes during a drought and landlords change water pressures, but these impacts are not being felt by wealthier communities and businesses who don't conserve water/take responsibility. (Promesa BH, SBCC, SCOPE, Rising Communities)
- *Hay cambios significativos en los precios del agua durante una sequía y los propietarios cambian la presión del agua, pero estos impactos no los sienten las comunidades y empresas más ricas que no conservan el agua ni asumen responsabilidad. (Promesa BH, SBCC, SCOPE, Rising Communities)*
- People buy and cook with bottled water because water quality does not always seem safe. (Promesa BH)
- *La gente compra y cocina con agua embotellada porque la calidad del agua no siempre parece segura. (Promesa BH)*
- During droughts, people can't use water to cool down when it is very hot. There are no splash pads and there are restrictions on other water sources. (SBCC)

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- *Durante las sequías, la gente no puede usar agua para refrescarse cuando hace mucho calor. No hay plataformas para chapotear y existen restricciones sobre otras fuentes de agua. (SBCC)*

Increased Precipitation and Flooding

- Heavy precipitation is overwhelming stormwater systems in specific streets and locations across multiple neighborhoods. (SBCC, Rising Communities)
- *Las fuertes precipitaciones están abrumando los sistemas de aguas pluviales en calles y ubicaciones específicas en varios vecindarios. (SBCC, Rising Communities)*
- Community members want additional maintenance and clean-up performed to reduce stormwater drain clogs that occur during heavy precipitation events. (SBCC, Rising Communities, Promesa BH)
- *Los miembros de la comunidad quieren que se realice mantenimiento y limpieza adicionales para reducir las obstrucciones en los drenajes de aguas pluviales que ocurren durante eventos de fuertes precipitaciones. (SBCC, Rising Communities, Promesa BH)*
- Community covered by cement, so there are no places where water could go and be captured; we should have trees with root systems that can absorb high volumes of rain and that don't raise the sidewalks. (Promesa BH)
- *Comunidad cubierta de cemento, por lo que no hay lugares por donde pueda ser captada el agua; deberíamos tener árboles con sistemas de raíces que puedan absorber grandes volúmenes de lluvia y que no levanten las aceras. (Promesa BH)*
- Water accumulation leads to an increase in mosquitoes. (Promesa BH, SBCC)
- *La acumulación de agua provoca un aumento de los mosquitos. (Promesa BH)*
- Increased precipitation damages infrastructure like house walls, causes mold. (SBCC)
- *El aumento de las precipitaciones daña la infraestructura, como las paredes de las casas, y provoca moho. (SBCC)*
- Communities experience flooding in specific spots across neighborhoods. (Rising Communities, SBCC, Promesa BH)
- *Las comunidades experimentan inundaciones en puntos específicos de los vecindarios. (Rising Communities, SBCC, Promesa BH)*
- Flooding can lead to potholes and road damage. (Rising Communities, SBCC, Promesa BH)
- *Las inundaciones pueden provocar baches y daños en las carreteras. (Rising Communities, SBCC, Promesa BH)*
- Residents think that flood notifications are important. (Rising Communities, SBCC, Promesa BH)
- *Los residentes piensan que las notificaciones de inundaciones son importantes. (Rising Communities, SBCC, Promesa BH)*
- Flooding causes traffic congestion and makes accidents more likely. There is also flooding in schools which impacts students' education. (Promesa BH)
- *Las inundaciones provocan congestión del tráfico y aumentan la probabilidad de accidentes. También hay inundaciones en las escuelas que afectan la educación de los estudiantes. (Promesa BH)*
- Sidewalks get flooded and back up storm drains so it is impossible to use the sidewalks. Trash buildup contributes to flooding by blocking the storm drains. (Promesa BH, SBCC)

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- *Las aceras se inundan y obstruyen los desagües pluviales, por lo que es imposible utilizarlas. La acumulación de basura contribuye a las inundaciones al bloquear los desagües pluviales. (Promesa BH, SBCC)*
- Need more permeable surfaces instead of paving with asphalt. (Promesa BH)
- *Se necesitan superficies más permeables en lugar de pavimentar con asfalto. (Promesa BH)*

Public Health

- Single most pressing concern was air quality, which "informs the need for climate resilience strategies that address air pollution through multiple avenues such as extreme heat interactions." (FTBMI* Tribal Climate Resiliency Plan)
- *La preocupación más urgente fue la calidad del aire, que "informa la necesidad de estrategias de resiliencia climática que aborden la contaminación del aire a través de múltiples vías, como las interacciones con el calor extremo". (FTBMI* Plan Tribal de Resiliencia Climática)*
- Heat makes air quality and walking places a terrible and unhealthy experience. (SBCC, Rising Communities)
- *El calor hace que la calidad del aire y los lugares para caminar sean una experiencia terrible y poco saludable. (SBCC, comunidades en ascenso)*
- Heat creates and exacerbates existing illnesses and causes nosebleeds, headaches, and rashes. (Promesa BH, SBCC)
- *El calor crea y exacerba enfermedades existentes y provoca hemorragias nasales, dolores de cabeza y erupciones cutáneas. (Promesa BH, SBCC)*
- Air contamination and smoke exposure cause respiratory issues, allergies, and illnesses like bronchitis. (Promesa BH, SBCC)
- *La contaminación del aire y la exposición al humo causan problemas respiratorios, alergias y enfermedades como bronquitis. (Promesa BH, SBCC)*

Sea Level Rise

- Even though the sea level rise may not occur where they live, it could still have negative impacts. (SBCC)
- *Aunque el aumento del nivel del mar puede no ocurrir donde viven, aún podría tener impactos negativos. (SBCC)*
- Sea level rise could take away the beaches where they go to play and cool off. (SBCC)
- *El aumento del nivel del mar podría impactar las playas donde van a jugar y refrescarse. (SBCC)*
- Sea level rise will flood coastal neighborhoods and push people inland to create a worse affordable housing shortage and higher prices. (SBCC)
- *El aumento del nivel del mar inundará las vecindades costeras y empujará a la gente hacia el interior, generando una peor escasez de viviendas asequibles y precios más altos. (SBCC)*

**FTBMI - Fernandeño Tataviam Band of Mission Indians*
***Promesa BH - Promesa Boyle Heights*

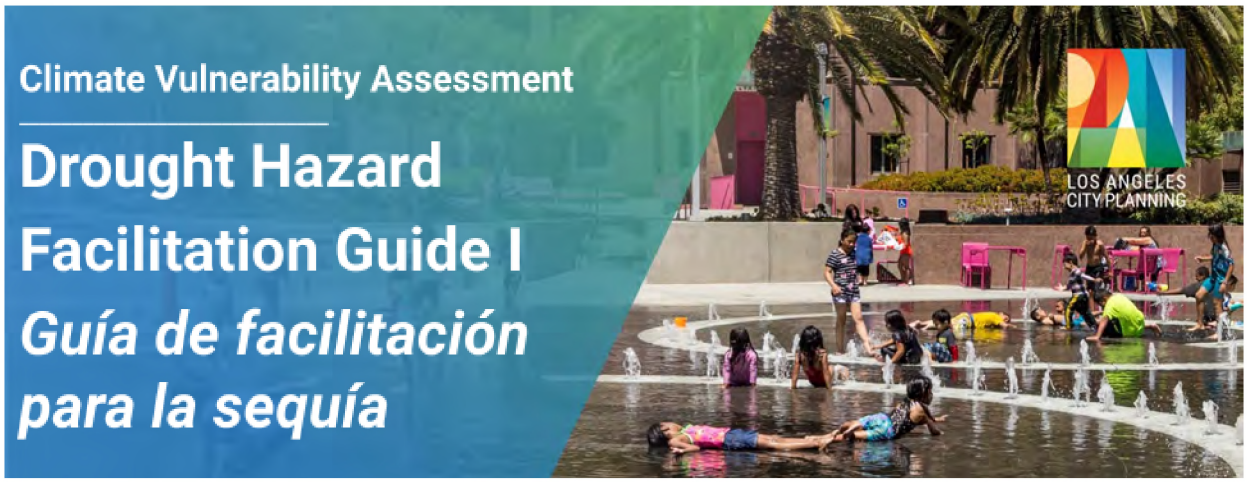
Wildfire

- FTBMI* community members were significantly concerned with the impact wildfires were believed to have on tribal practices, and expressed the need to protect the cultural and ecologic heritage rooted in wildfire-risk land. (FTBMI Tribal Climate Resiliency Plan)
- *Los miembros de la comunidad FTBMI* estaban muy preocupados por el impacto que se cree que los incendios forestales tienen en las prácticas tribales, y expresaron la necesidad de proteger el patrimonio cultural y ecologico arraigado en las tierras con riesgo de incendios forestales. (FTBMI Plan Tribal de Resiliencia Climática)*
- Address fire risk from homeless individuals that are cooking or staying warm. (SBCC)
- *Abordar el riesgo de incendio de personas sin hogar que cocinan o se mantienen calientes. (SBCC)*
- Wildfires cause air pollution, which contributes to negative health effects. (SBCC)
- *Los incendios forestales causan contaminación del aire, lo que contribuye a efectos negativos para la salud. (SBCC)*

**FTBMI - Fernandeño Tataviam Band of Mission Indians*
***Promesa BH - Promesa Boyle Heights*


OTA

Appendix 3.
CBO Facilitation Guides



Goal & Purpose of Community Conversation
Objetivo y propósito de la conversación comunitaria

To understand how members of the community experience drought in their daily lives. The maps can be used as a starting point for discussing drought issues as people experience them in the community. These conversations will be used to add context to the current hazard data we have. If using the CVA data map or mapping tool we provided, you may want to turn on the following layers to help share drought- related impacts and resources:

Comprender cómo los miembros de la comunidad observan y sienten la sequía en su vida diaria. Los mapas se pueden utilizar como punto de partida para discutir los problemas de la sequía a medida que las personas los observan en la comunidad. Estas conversaciones se utilizarán para agregar contexto a los datos de peligros actuales que tenemos. Si utiliza el mapa de datos CVA o la herramienta de mapeo que proporcionamos, puede activar las siguientes capas para ayudar a compartir los impactos y recursos relacionados con la sequía:

- Community Health and Equity Index | Community Health and Equity Index | *Índice de Salud y Equidad Comunitaria*
- Number of Extreme Heat Days | *Número de días de calor extremo*
- Recreation and Parks Facilities | *Instalaciones de Recreación y Parques*
- Tree Sites - Recreation and Parks | *Sitios de Árboles - Recreación y Parques*
- Tree Sites - Street Services | *Sitios de Árboles - Servicios de las calles*
- Urban Heat Index | *Índice de calor urbano*

Definition | *Definición*:

Drought is defined as a period of abnormally dry weather and little precipitation that causes water shortages and/or affects everyday life. For the CVA, all areas in the City are exposed to drought.

***La sequía** se define como un período de clima anormalmente seco y escasas precipitaciones que provoca escasez de agua y/o afecta la vida cotidiana. Para el CVA, todas las zonas de la Ciudad están expuestas a la sequía.*

Related Terms | *Términos relacionados:*

Community Health and Equity Index: This measurement of community health and equity is included within the City's Health Atlas. This index examines the spatial relationship between vulnerable populations and standardizes demographic, socio-economic, health conditions, land use, transportation, food environment, crime and pollution burden variables and then averages them together to yield a score between 0-100 with lower values indicating better community health.

> ***Índice de Salud y Equidad de la Comunidad:*** *Esta medida de la salud y la equidad de la comunidad está incluida en el Atlas de Salud de la Ciudad. Este índice examina la relación espacial entre poblaciones vulnerables y estandariza variables demográficas, socioeconómicas, condiciones de salud, uso del suelo, transporte, entorno alimentario, delincuencia y carga de contaminación y luego las promedia para obtener una puntuación entre 0 y 100, donde los valores más bajos indican mejor salud comunitaria.*

Extreme heat: An extended period, at least 2-3 days, of temperatures and humidity levels that exceed seasonal averages. For the CVA, extreme heat is heat above a threshold of 95.2 degrees Fahrenheit, or 35.1 degrees Celsius, which is the 98th percentile of the 30-year average.

> ***Calor extremo:*** *Un período prolongado, al menos de 2 a 3 días, de temperaturas y niveles de humedad que exceden los promedios estacionales. Para el CVA, el calor extremo es el calor por encima de un umbral de 95.2 grados Fahrenheit, o 35.1 grados Celsius, que es el percentil 98 del promedio de 30 años.*

Hydration Station: Public, free drinking water stations made available through the LA Department of Water and Power (LADWP) for the health of residents and visitors. Hydration stations are in mostly public areas throughout all 15 City Council districts and are available for drinking and filling water bottles.

> ***Estación de hidratación:*** *Estaciones de agua potable públicas y gratuitas disponibles a través del Departamento de Agua y Energía de Los Ángeles (LADWP por sus siglas en inglés) para la salud de residentes y visitantes. Las estaciones de hidratación se encuentran principalmente en áreas públicas en los 15 distritos concejales y están disponibles para beber y llenar botellas de agua.*

Mitigation strategies: Recommendations to reduce and manage the impact of potential risks from climate hazards.

> ***Estrategias de mitigación:*** *Recomendaciones para reducir y gestionar el impacto de los riesgos potenciales de los peligros climáticos.*

Sensitivity: Refers to the degree to which an area, asset, or population is more susceptible to and expected to experience adverse impacts because of hazards. This is affected by structural or environmental attributes, like when buildings were built, or social factors, like access to health care.

> ***Sensibilidad****: Se refiere al grado en que un área, activo o población es más susceptible y se espera que sea afectada por impactos adversos debido a los peligros climáticos.*

Esto se ve afectado por atributos estructurales o ambientales, como cuándo se construyeron los edificios, o factores sociales, como el acceso a la atención médica.

Urban Heat Index: This is a measurement of surface temperatures and air temperatures within two meters, or six feet, of the ground where most people would experience heat. It accounts for temperature differences between urban and rural areas, and scientifically assigns a score based on atmospheric modeling at the census tract level in and around most urban areas throughout the state. For example, areas with a lot of paved surfaces or asphalt and little wind blowing will also likely have higher urban heat index values than areas with vegetation and more wind.

Índice de calor urbano: *Una medida de las temperaturas de la superficie y la temperatura del aire dentro de dos metros o seis pies del suelo donde la mayoría de las personas sienten calor. Tiene en cuenta las diferencias de temperatura entre áreas urbanas y rurales, y asigna científicamente una puntuación basada en modelos atmosféricos a nivel de tramo censal en y alrededor de la mayoría de las áreas urbanas en todo el estado. Por ejemplo, las áreas con muchas superficies pavimentadas o asfalto y poco viento probablemente también tendrán valores de índice de calor urbano más altos que las áreas con vegetación y más viento.*

Vulnerability: Describes the extent an area, asset, or population is likely to be harmed by a climate hazard. This is a function of exposure, sensitivity and adaptive capacity.

Vulnerabilidad: *Describe la medida en que es probable que un área, activo o población se verá afectada por un riesgo climático. Esta es una función de la exposición, la sensibilidad y la capacidad de adaptación.*

Data Context | *Contexto de los datos*:

- Drought was not mapped because it is a regional hazard and all areas of the City had some form of high drought risk without significant changes between neighborhoods. Drought is based on moisture measurements in soil on a regional level and water supply availability. The City supplies water to the entire City. One neighborhood cannot be in a drought versus another because drought is regional. DPW has reservoirs in many locations and draws from other regions so a drought in the Colorado River basin can put the City on water restrictions even if there has been average rainfall locally. Drought can be deceptive because even in a drought, moisture content in the soil could be higher if people are still watering lawns and plants so drought is measured regionally.
    - *La sequía no es algo que se puede demostrar en un mapa porque es un peligro regional y todas las áreas de la ciudad tienen algún tipo de alto riesgo de sequía sin cambios significativos entre los vecindarios. La sequía se basa en las mediciones de humedad del suelo a nivel regional y la disponibilidad de suministro de agua. La Ciudad suministra agua a toda la ciudad. DPW tiene embalses en muchos lugares y se abastece de otras regiones, por lo que una sequía en la cuenca del río Colorado puede imponer restricciones de agua a la ciudad incluso si ha habido precipitaciones promedio a nivel local. La sequía puede ser engañosa porque incluso en una sequía, el contenido de humedad en el suelo podría ser mayor si la gente todavía riega el césped y las plantas, por lo que la sequía se mide regionalmente.*

- The National Oceanic Atmospheric Administration (NOAA) operates the National Drought Mitigation Center (NDMC) to assess and measure drought on an ongoing basis.
    - *La Administración Nacional Oceánica y Atmosférica (NOAA, por sus siglas en ingles) opera el Centro Nacional de Mitigación de Sequías (NDMC, por sus siglas en ingles) para evaluar y medir la sequía de forma continua.*
- Ongoing drought monitoring examines patterns weekly, monthly, and long-term. Drought risk is based upon long-term historical data combined with current measurements of soil moisture, streamflow, and precipitation.
    - *El monitoreo continuo de la sequía examina los patrones semanal, mensual y a largo plazo. El riesgo de sequía se basa en datos históricos a largo plazo combinados con mediciones actuales de humedad del suelo, caudales y precipitaciones.*
- Therefore, historical drought data indicates that all neighborhoods across LA face high risks of drought with severe multi-year droughts every 9 years on average over the last 35 years.
    - *Por lo tanto, los datos históricos de sequía indican que todos los vecindarios de Los Ángeles enfrentan altos riesgos de sequía con sequías severas de varios años cada 9 años en promedio durante los últimos 35 años.*
- Extreme heat usually leads to drought and wildfire so it can be useful to think about the connections between these three hazard maps during this conversation.
    - *El calor extremo suele provocar sequías e incendios forestales, por lo que puede resultar útil pensar en las conexiones entre estos tres mapas de peligros durante esta conversación.*
- The City of Los Angeles as a whole has a history of severe droughts and has experienced extreme droughts (includes widespread water shortages or restrictions) or exceptional droughts (includes shortage of water in reservoirs, streams, and wells creating water emergencies) more than once since 2000.
    - *La ciudad de Los Ángeles en su conjunto tiene un historial de sequías severas y ha tenido sequías extremas (incluye escasez o restricciones generalizadas de agua) o sequías excepcionales (incluye escasez de agua en embalses, arroyos y pozos que crean emergencias hídricas) más de una vez desde 2000.*

Questions | *Preguntas:*

The following are questions that you may use to guide conversation regarding extreme heat.

Las siguientes son preguntas que puede usar para guiar la conversación sobre el calor extremo.

1. How does drought affect your daily routine? What kind of changes do you have to make to change your daily routine when there's a drought? What are resources or improvements you would like to see to help manage drought conditions?

   ¿Cómo afecta la sequía a su rutina diaria? ¿Qué tipo de cambios tiene que hacer para cambiar su rutina diaria cuando hay sequía? ¿Cuáles son los recursos o mejoras que le gustaría ver para ayudar a gestionar las condiciones de sequía?

2. When extreme heat occurs at the same time as drought, do those two issues together cause worse impacts? If so, how are the impacts worse?

Cuando el calor extremo ocurre al mismo tiempo que la sequía, ¿esos dos problemas juntos causan efectos peores? Si es así, ¿cómo son peores los impactos?

3. Are there differences in produce available to you? If so, what are those differences? How do you manage these differences?

   ¿Existen diferencias en las frutas y vegetales disponibles para usted? Si es así, ¿cuáles son esas diferencias? ¿Cómo gestionas estas diferencias?

4. Do you notice differences in the quality of water you have at home? If so, what are those differences? What do you do to manage that difference?

   ¿Notas diferencias en la calidad del agua que tienes en casa? Si es así, ¿cuáles son esas diferencias? ¿Qué haces para gestionar esa diferencia?

5. How are you affected by water restrictions that typically occur during drought? What are things you would do differently or what decisions would you make if there was no drought risk?

   ¿Cómo le afectan las restricciones de agua que normalmente ocurren durante la sequía? ¿Qué cosas haría diferente o qué decisiones tomaría si no hubiera riesgo de sequía?

6. Are there public areas that are directly impacted by drought in your experience? If so, please share where and what you see? How severe are the impacts on these places when it occurs?

   ¿Según su experiencia, hay áreas públicas que se ven directamente afectadas por la sequía? Si es así, por favor comparta dónde y qué observa. ¿Qué tan severos son los impactos en estos lugares cuando esto ocurre?

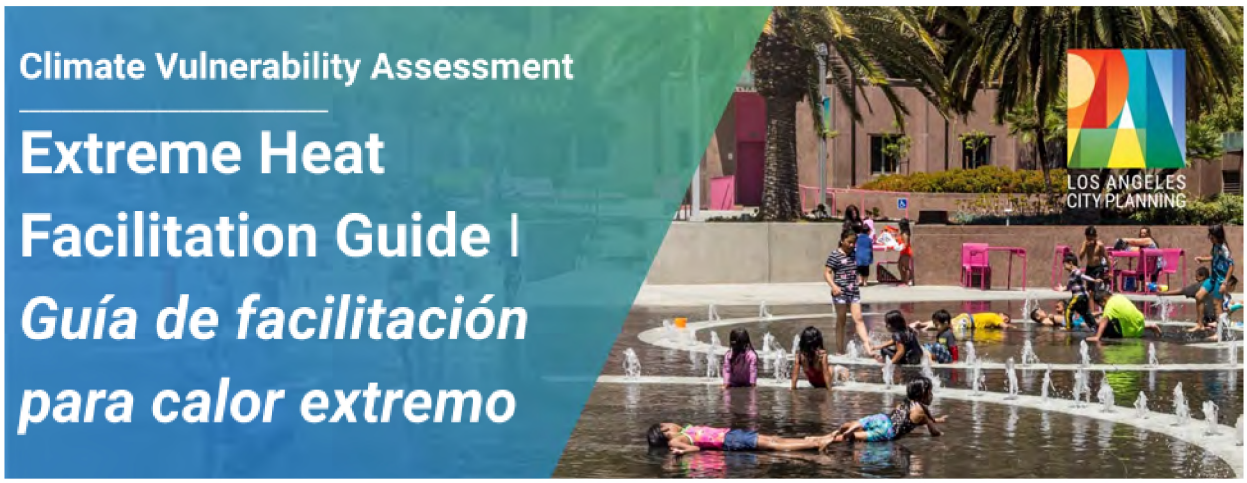
7. What else do you want to share about how drought has impacted you, your family or your neighbors? What impact does drought have on your health?

   ¿Qué más quiere compartir sobre cómo la sequía le ha afectado a usted, a su familia o a sus vecinos? ¿Qué impacto tiene la sequía en su salud?

Note | *Nota:*

Please mark on the maps any geographic specific feedback you received during this discussion.

Por favor, marque en los mapas cualquier comentario geográfico específico que haya recibido durante esta discusión.



Goal & Purpose of Community Conversation
Objetivo y propósito de la conversación comunitaria

To understand how members of the community experience extreme heat in their daily lives. The maps can be used as a starting point for discussing extreme heat issues as people experience them in the community. These conversations will be used to add context to the current hazard data we have. If using the CVA data map or mapping tool we provided, you may want to turn on the following layers to help share heat-related impacts and resources:

Comprender cómo los miembros de la comunidad observan y sienten el calor extremo en su vida diaria. Los mapas se pueden utilizar como punto de partida para discutir los problemas del calor extremo a medida que las personas los observan en la comunidad. Estas conversaciones se utilizarán para agregar contexto a los datos de peligros actuales que tenemos. Si utiliza el mapa de datos CVA o la herramienta de mapeo que proporcionamos, puede activar las siguientes capas para ayudar a compartir los impactos y recursos relacionados con el calor:

- Community Health and Equity Index | *Índice de Salud y Equidad Comunitaria*
- Cooling and Heating Centers | *Centros de enfriamiento y calefacción*
- Daily Excess ER Visits due to Extreme Heat | *Exceso diario de visitas a la sala de emergencias debido al calor extremo*
- Hydration Stations | *Estaciones de hidratación*
- Libraries | *Bibliotecas*
- Number of Extreme Heat Days | *Número de días de calor extremo*
- Pools and Splash Pads | *Piscinas y chapoteaderos*
- Rate of Excess ER Visits due to Extreme Heat | *Tasa de exceso de visitas a la sala de emergencias debido al calor extremo*
- Recreation and Parks Facilities | *Instalaciones de Recreación y Parques*
- Tree Sites - Recreation and Parks | *Sitios de Árboles - Recreación y Parques*
- Tree Sites - Street Services | *Sitios de Árboles - Servicios de las calles*
- Urban Heat Index | *Índice de calor urbano*

Definition | *Definición*:

Extreme heat is defined as an extended period, which is at least 2-3 days of temperatures and humidity levels that exceed seasonal averages. For the CVA, extreme heat is heat above a threshold of 95.2 degrees Fahrenheit, or 35.1 degrees Celsius, which is the 98th percentile of the 30-year average.

> ***El calor extremo*** *se define como un período prolongado, que es de al menos 2-3 días de temperaturas y niveles de humedad que exceden los promedios estacionales. Para el CVA, el calor extremo es el calor por encima de un umbral de 95.2 grados Fahrenheit, o 35.1 grados Celsius, que es el percentil 98 del promedio de 30 años.*

Related Terms | *Términos relacionados:*

Community Health and Equity Index: This measurement of community health and equity is included within the City's Health Atlas. This index examines the spatial relationship between vulnerable populations and standardizes demographic, socio-economic, health conditions, land use, transportation, food environment, crime and pollution burden variables and then averages them together to yield a score between 0-100 with lower values indicating better community health.

> ***Índice de Salud y Equidad de la Comunidad:*** *Esta medida de la salud y la equidad de la comunidad está incluida en el Atlas de Salud de la Ciudad. Este índice examina la relación espacial entre poblaciones vulnerables y estandariza variables demográficas, socioeconómicas, condiciones de salud, uso del suelo, transporte, entorno alimentario, delincuencia y carga de contaminación y luego las promedia para obtener una puntuación entre 0 y 100, donde los valores más bajos indican mejor salud comunitaria.*

Cooling Center: A cooling center is a free, indoor air-conditioned location where you can keep cool when there are extreme heat weather conditions. During extended periods of excessive heat, LA City will open dedicated cooling centers. These dedicated spaces will typically be located at City Recreation and Parks and LA City Public Library facilities.

> ***Centro de enfriamiento:*** *Un centro de enfriamiento es un lugar interior gratuito con aire acondicionado donde puede mantenerse fresco cuando hay condiciones climáticas de calor extremo. Durante períodos prolongados de calor excesivo, la ciudad de Los Ángeles abrirá centros de enfriamiento exclusivos. Estos espacios dedicados generalmente estarán ubicados en las instalaciones de Parques y Recreación de la Ciudad y en las instalaciones de la Biblioteca Pública de la Ciudad de Los Ángeles.*

ER Visits - Daily Excess of ER Visits: The number of daily recorded emergency room visits attributed, according to UCLA study analysis, to exposures to excessive natural heat or effects of heat and light reflected in symptoms such as electrolyte imbalance, cardiovascular disease, respiratory illness as some examples. The data geographically represents the total number of visits in a given population due to extreme heat.

> ***Visitas a la Sala de Emergencias: Exceso diario de visitas a emergencias****: El número de visitas diarias registradas a la sala de emergencias atribuidas, según el análisis del estudio de UCLA, a exposiciones a un calor natural excesivo o a los efectos*

del calor y la luz reflejados en síntomas como desequilibrio electrolítico, enfermedades cardiovasculares y respiratorias, como algunos ejemplos. Los datos representan geográficamente el número total de visitas en una población determinada debido al calor extremo.

ER Visits - Rate of Daily Excess Emergency Room (ER) Visits: A measure of how often the frequency with which an extreme heat event occurs and causes excess Emergency Room (ER) visits in a defined population.

***Visitas a la Sala de Emergencias: Tasa de visitas diarias excesivas a la sala de emergencias (ER)**: Una medida de la frecuencia con la que ocurre un evento de calor extremo y provoca un exceso de visitas a la sala de emergencias (ER) en una población definida.*

Exposure to Hazards: Likelihood an area, asset, or population will physically intersect with a hazard event, such as a flood or drought. The CVA focuses on how climate-related factors are expected to change the extent and intensity of hazard events and what is exposed.

***Exposición a peligros:** Probabilidad de que un área, activo o población se cruce físicamente con un evento peligroso, como una inundación o una sequía. El CVA se centra en cómo se espera que los factores relacionados con el clima cambien el alcance y la intensidad de los eventos peligrosos y lo que está expuesto.*

Hydration Station: Public, free drinking water stations made available through the LA Department of Water and Power (LADWP) for the health of residents and visitors. Hydration stations are in mostly public areas throughout all 15 City Council districts and are available for drinking and filling water bottles.

***Estación de hidratación:** Estaciones de agua potable públicas y gratuitas disponibles a través del Departamento de Agua y Energía de Los Ángeles (LADWP por sus siglas en inglés) para la salud de residentes y visitantes. Las estaciones de hidratación se encuentran principalmente en áreas públicas en los 15 distritos concejales y están disponibles para beber y llenar botellas de agua.*

Mitigation strategies: Recommendations to reduce and manage the impact of potential risks from climate hazards.

***Estrategias de mitigación:** Recomendaciones para reducir y gestionar el impacto de los riesgos potenciales de los peligros climáticos.*

Public health: Organized community efforts aimed at the prevention of disease and the promotion of health through the mitigation of climate impacts, such as heat-related illnesses prevention and addressing climate-related diseases.

***Salud pública**: Esfuerzos comunitarios organizados destinados a la prevención de enfermedades y la promoción de la salud mediante la mitigación de los impactos climáticos, como la prevención de enfermedades relacionadas con el calor y el tratamiento de enfermedades relacionadas con el clima.*

Sensitivity: Refers to the degree to which an area, asset, or population is expected to experience adverse impacts because of climate hazards. This is affected by structural or environmental attributes, like when buildings were built, or social factors, like access to health care.

> ***Sensibilidad:*** *Se refiere al grado en que se espera un área, activo o población es más susceptible y se espera que sea afectada por impactos adversos debido a los peligros climáticos. Esto se ve afectado por atributos estructurales o ambientales, como cuándo se construyeron los edificios, o factores sociales, como el acceso a la atención médica.*

Urban Heat Index: This is a measurement of surface temperatures and air temperatures within two meters, or six feet, of the ground where most people would experience heat. It accounts for temperature differences between urban and rural areas, and scientifically assigns a score based on atmospheric modeling at the census tract level in and around most urban areas throughout the state. For example, areas with a lot of paved surfaces or asphalt and little wind blowing will also likely have higher urban heat index values than areas with vegetation and more wind.

> ***Índice de calor urbano:*** *Es una medida de las temperaturas de la superficie y la temperatura del aire dentro de dos metros o seis pies del suelo donde la mayoría de las personas sienten calor. Tiene en cuenta las diferencias de temperatura entre áreas urbanas y rurales, y asigna científicamente una puntuación basada en modelos atmosféricos a nivel de tramo censal en y alrededor de la mayoría de las áreas urbanas en todo el estado. Por ejemplo, las áreas con muchas superficies pavimentadas o asfalto y poco viento probablemente también tendrán valores de índice de calor urbano más altos que las áreas con vegetación y más viento.*

Vulnerability: Describes the extent an area, asset, or population is likely to be harmed by a climate hazard. This is a function of exposure, sensitivity and adaptive capacity.

> ***Vulnerabilidad:*** *Describe la medida en que es probable que un área, activo o población se verá afectada por un riesgo climático. Esta es una función de la exposición, la sensibilidad y la capacidad de adaptación.*

Data Context | *Contexto de los datos*:

- Extreme heat was not mapped because it is a regional hazard and all areas of the City have some form of high risk without significant changes between neighborhoods. However, everyone experiences heat differently.
    - *El calor extremo no se puede demostrar en un mapa porque es un peligro regional y todas las áreas de la ciudad tienen algún tipo de alto riesgo sin cambios significativos entre vecindarios. Sin embargo, cada persona experimenta el calor de manera diferente.*
- Data related to Extreme Heat days and Emergency Room visits associated with extreme heat events, also known as “high heat days”, can also be a useful starting point for conversations about lived experiences with extreme heat.
    - *Los datos relacionados con los días de calor extremo y las visitas a la sala de emergencias asociados con eventos de calor extremo, también conocidos como "días de calor intenso", también pueden ser un punto de partida útil para las conversaciones sobre las experiencias vividas con el calor extremo.*

- The maps provide locations for hydration stations, cooling centers, and other public facilities that can be used to cope with extreme heat informed by data from various City departments.
    - *Los mapas proporcionan ubicaciones para estaciones de hidratación, centros de enfriamiento y otras instalaciones públicas que se pueden usar para hacer frente al calor extremo con datos de varios departamentos de la Ciudad.*
- No data was available reflecting lived experiences with the most convenient places people go to cope with extreme heat such as private buildings that serve as informal cooling centers, such as the corner store, movie theaters, or shopping malls, or public buses and trains that travel through a community, so this conversation is intended to capture this type of information.
    - No se disponía de datos que reflejaran las experiencias vividas en los lugares más convenientes a los que acuden las personas para hacer frente al calor extremo, como los edificios privados que sirven como centros informales de enfriamiento, como la tienda de la esquina, los cines o los centros comerciales, o los autobuses y trenes públicos que atraviesan una comunidad, por lo que esta conversación pretende captar este tipo de información.
- Trees, in particular, tree canopies, are another heat relief resource. Trees can help lower surface and air temperatures by providing shade and releasing water vapor into the air through their leaves. Trees are most helpful when they are planted in locations around buildings and pavement.
    - Los árboles, en particular las copas de los árboles, son otro recurso para aliviar el calor. Los árboles pueden ayudar a reducir la temperatura de la superficie y del aire proporcionando sombra y liberando vapor de agua al aire a través de sus hojas. Los árboles son más útiles cuando se plantan en lugares alrededor de edificios y aceras.

Questions | *Preguntas:*

The following are questions that you may use to guide conversation regarding extreme heat.

Las siguientes son preguntas que puede usar para guiar la conversación sobre el calor extremo.

1. What are the ways extreme heat affects your daily life? What kind of changes do you have to make to your daily routine when it's very hot? What are resources or improvements you would like to see to help manage the heat?

   ¿Cuáles son las formas en que el calor extremo afecta su vida diaria? ¿Qué tipo de cambios tiene que hacer en su rutina diaria cuando hace mucho calor? ¿Cuáles son los recursos o mejoras que le gustaría ver para ayudar a controlar el calor?

2. How often do you experience extreme heat where you live?

   ¿Con qué frecuencia siente calor extremo en el lugar donde vive?

3. Do you experience any health impacts as a result of the heat? If so, what are they? Do you have sufficient resources to get medical attention for these health impacts?

¿Sufre algún impacto en la salud como resultado del calor? Si es así, ¿cuáles son? ¿Tiene suficientes recursos para obtener atención médica para estos impactos en la salud?

4. How are you notified of extreme heat events and how do you prepare? Are those methods sufficient? Would you like to see other ways to be notified, if so what are they? Are there other resources you would like to have available to prepare for the heat, if so what are they?

   ¿Cómo se les notifica de los eventos de calor extremo y cómo se preparan? ¿Son suficientes esos métodos? ¿Le gustaría ver otras formas de ser notificado, si es así, cuáles son? ¿Hay otros recursos que le gustaría tener disponibles para prepararse para el calor, si es así, cuáles son?

5. Do you experience any power outages when there are heat waves? If so, how do you manage not having power? How long do the outages tend to last? What resources would you like to have available when you're experiencing a power outage?

   ¿Sucede algún corte de energía cuando hay olas de calor? Si es así, ¿cómo se navega sin tener electricidad? ¿Cuánto tiempo suelen durar los apagones? ¿Qué recursos le gustaría tener disponibles cuando hay un corte de energía?

6. Do you think trees make a difference to help manage the heat? Do you see sufficient tree canopy provided in your neighborhood that you can use as a resource? Are the existing trees in good health and well maintained? Where would you like to see more tree canopies?

   ¿Cree que los árboles marcan la diferencia para ayudar a controlar el calor? ¿Hay suficientes copas de árboles en su vecindario que pueda usar como recurso? ¿Los árboles existentes gozan de buena salud y están bien mantenidos? ¿Dónde le gustaría ver más copas de árboles?

7. Are there specific areas in the community where extreme heat is of particular concern? What makes them of particular concern? What would you like to see done to improve those areas?

   ¿Hay áreas específicas en la comunidad donde el calor extremo es de particular preocupación? ¿Qué los hace especialmente preocupantes? ¿Qué le gustaría que se hiciera para mejorar esas áreas?

8. Outside of your home, where do you go to cool off when you are impacted by heat? Do you go to a park, or air conditioned shopping mall, and if so, where are they located? Why are those the places you choose to help manage the heat? Would you like to see more or other cooling resources, and if so, what kind and where?

   Fuera de su casa, ¿a dónde va a refrescarse cuando le impacta el calor? ¿Va a un parque o a un centro comercial con aire acondicionado, y si es así, dónde están ubicados? ¿Por qué esos son los lugares que elige para ayudar a controlar el calor? ¿Le gustaría ver más u otros recursos de enfriamiento y, de ser así, de qué tipo y dónde?

9. What else do you want to share about how extreme heat has impacted you, your family or your neighbors?

   ¿Qué más quiere compartir sobre cómo el calor extremo le ha afectado a usted, a su familia o a sus vecinos?

Note | *Nota:*

Please mark on the maps any geographic specific feedback you received during this discussion.

Por favor, marque en los mapas cualquier comentario geográfico específico que haya recibido durante esta discusión.



Goal & Purpose of Community Conversation
Objetivo y propósito de la conversación comunitaria

To understand how members of the community experience increased precipitation and flooding in their daily lives. The maps can be used as a starting point for discussing increased precipitation and flooding issues as people experience them in the community. These conversations will be used to add context to the current hazard data we have. If using the CVA data map or mapping tool we provided, you may want to turn on the following layers to help share increased precipitation and flooding-related impacts and resources:

> *Comprender cómo los miembros de la comunidad observan y sienten un aumento de las precipitaciones e inundaciones en su vida diaria. Los mapas se pueden utilizar como punto de partida para discutir los problemas del aumento de las precipitaciones e inundaciones a medida que las personas los observan en la comunidad. Estas conversaciones se utilizarán para agregar contexto a los datos de peligros actuales que tenemos. Si utiliza el mapa de datos de CVA o la herramienta de mapeo que proporcionamos, puede activar las siguientes capas para ayudar a compartir el aumento de los impactos y recursos relacionados con las precipitaciones e inundaciones:*

- 10-year Annual Chance Flood I *Inundación con probabilidad anual de 10 años*
- 50-year Annual Chance Flood I *Inundación con probabilidad anual de 50 años*
- 100-year Annual Chance Flood I *Inundación con probabilidad anual de 100 años*
- 500-year Annual Chance Flood I *Inundación con probabilidad anual de 500 años*
- Combined Very High and High Hazard Dam Inundation Area I *Área combinada de inundación de presas de riesgo muy alto y alto*
- Community Health and Equity Index | *Índice de Salud y Equidad Comunitaria*

Definition | *Definición*:

Extreme precipitation is defined as heavy rainfall in a short period that threatens flooding, especially in urban areas. For the CVA, this is defined as any two-day period where precipitation exceeds 1.38 inches, which is the 95th percentile of the 30-year average.

***Las precipitaciones extremas** se definen como lluvias intensas en un período corto que amenazan con inundaciones, especialmente en áreas urbanas. Para el CVA, esto se define como cualquier período de dos días en el que la precipitación supera las 1.38 pulgadas, que es el percentil 95 del promedio de 30 años.*

Related Terms / Términos relacionados:

10-year flood: A 10-year annual chance of flood means that these are flood events that have a **10 percent chance of occurring in a single year**. This type of storm would be an above average storm such as a heavy summer thunderstorm, which could be approximately an inch or more of rain in one hour *that results in flooding*. This is the highest potential chance of flood and a lower intensity event than the other flood types.

***Inundación de 10 años**: Una probabilidad anual de inundación de 10 años significa que se trata de eventos de inundación que tienen un **10 por ciento de probabilidad de ocurrir en un solo año**. Este tipo de tormenta sería una tormenta superior al promedio, como una fuerte tormenta de verano, que podría generar aproximadamente una pulgada o más de lluvia en una hora y que provoca inundaciones. Esta es la probabilidad potencial más alta de inundación y un evento de menor intensidad que los otros tipos de inundaciones.*

50-year flood: A 50-year annual chance of flood means that these are flood events that have a **two percent chance of occurring in a single year**. An example of this type of event would be a flood caused by above average precipitation from a large storm such as a tropical storm or a similar type of storm that rains heavily over several days, which could be approximately two inches or more of rain in one hour *that results in flooding*. This is the second highest potential chance of flood and a higher intensity event than a 10-year event.

***Inundación de 50 años**: Una probabilidad anual de inundación de 10 años significa que se trata de eventos de inundación que tienen un **10 por ciento de probabilidad de ocurrir en un solo año**. Este tipo de tormenta sería una tormenta superior al promedio, como una fuerte tormenta de verano, que podría generar aproximadamente una pulgada o más de lluvia en una hora y que provoca inundaciones. Esta es la probabilidad potencial más alta de inundación y un evento de menor intensidad que los otros tipos de inundaciones.*

100-year flood: A 100-year annual chance flood means that these are flood events that have a one percent chance of occurring or exceeded in any given year. An example of this type of event would be a flood caused by high rates of precipitation from a larger storm such as a tropical storm or a similar type of storm that rains heavily over several days.

***Inundación de 100 años**: Una probabilidad anual de inundación de 100 años significa que se trata de inundaciones que tienen un **uno por ciento de probabilidad de ocurrir en un solo año**. Un ejemplo de este tipo de evento sería una inundación causada por altas tasas de precipitación de una tormenta más grande, como una tormenta tropical o un tipo similar de tormenta que llueve intensamente durante varios días, lo que podría generar aproximadamente dos pulgadas o más de lluvia en una hora y que resulta en*

inundaciones. Esto tiene una probabilidad potencial de inundación menor que una inundación de 50 años y sería más intensa que una inundación de 50 años.

500-year flood: A 500-year annual chance of flood means that these are flood events that have a 0.2 percent chance of occurring or exceeded in any given year. For example, Hurricane Hillary dropped four inches of rain in an hour and was nearly a 500-year storm in 2023.

***Inundación de 500 años**: Una probabilidad anual de inundación de 100 años significa que se trata de inundaciones que tienen un **0.2 por ciento de probabilidad de ocurrir en un solo año**. Por ejemplo, el huracán Hillary dejó caer cuatro pulgadas de lluvia en una hora y en 2023 fue una tormenta que duró casi 500 años. Esta es la probabilidad potencial más baja de inundación y un evento de mayor intensidad que los otros eventos de inundación.*

Combined Very High and High Hazard Dam Inundation Area: Areas with a high or very high risk of inundation from the failure or improper operation of a dam that can cause loss of human life.

***Área combinada de inundación de presas de riesgo muy alto y alto**: Áreas con un riesgo alto o muy alto de inundación debido a la falla o operación inadecuada de una presa que puede causar pérdida de vidas humanas.*

Community Health and Equity Index: This measurement of community health and equity is included within the City's Health Atlas. This index examines the spatial relationship between vulnerable populations and standardizes demographic, socio-economic, health conditions, land use, transportation, food environment, crime and pollution burden variables and then averages them together to yield a score between 0-100 with lower values indicating better community health.

***Índice de equidad y salud comunitaria**: Esta medida de la salud y la equidad de la comunidad se incluye en el atlas de salud de la ciudad. Este índice examina la relación espacial entre poblaciones vulnerables y estandariza variables demográficas, socioeconómicas, condiciones de salud, uso del suelo, transporte, entorno alimentario, delincuencia y carga de contaminación y luego las promedia para obtener una puntuación entre 0 y 100, donde los valores más bajos indican mejor salud comunitaria.*

Exposure to Hazards: Likelihood an area, asset, or population will physically intersect with a hazard event, such as a flood or drought. The CVA focuses on how climate-related factors are expected to change the extent and intensity of hazard events and what is exposed.

***Exposición a peligros**: Probabilidad de que un área, activo o población se cruce físicamente con un evento peligroso, como una inundación o una sequía. El CVA se centra en cómo se espera que los factores relacionados con el clima cambien el alcance y la intensidad de los eventos peligrosos y lo que está expuesto.*

Flooding: Temporary overflow of excess water from bodies of water onto dry land from rainfall.

Inundaciones: *Desbordamiento temporal del exceso de agua de cuerpos de agua hacia tierra firme debido a las lluvias.*

Mitigation strategies: Recommendations to reduce and manage the impact of potential risks from climate hazards.

Estrategias de mitigación*: Recomendaciones para reducir y gestionar el impacto de los riesgos potenciales de los peligros climáticos.*

Public health: Organized community efforts aimed at the prevention of disease and the promotion of health through the mitigation of climate impacts, such as heat-related illnesses prevention and addressing climate-related diseases.

Salud pública*: Esfuerzos comunitarios organizados destinados a la prevención de enfermedades y la promoción de la salud mediante la mitigación de los impactos climáticos, como la prevención de enfermedades relacionadas con el calor y el tratamiento de enfermedades relacionadas con el clima.*

Resilience: The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self organization, and the capacity to adapt to stress and change.

Resiliencia*: La capacidad de un sistema social o ecológico para absorber perturbaciones mientras conservando la misma estructura básica y formas de funcionamiento, la capacidad de organización, y la capacidad de adaptarse al estrés y al cambio.*

Sensitivity: Refers to the degree to which an area, asset, or population is expected to experience adverse impacts because of climate hazards. This is affected by structural or environmental attributes, like when buildings were built, or social factors, like access to health care.

Sensibilidad*: Se refiere al grado en que se espera un área, activo o población es más susceptible y se espera que sea afectada por impactos adversos debido a los peligros climáticos. Esto se ve afectado por atributos estructurales o ambientales, como cuándo se construyeron los edificios, o factores sociales, como el acceso a la atención médica.*

Vulnerability: Describes the extent an area, asset, or population is likely to be harmed by a climate hazard. This is a function of exposure, sensitivity and adaptive capacity.

Vulnerabilidad: *Describe la medida en que es probable que un área, activo o población se verá afectada por un riesgo climático. Esta es una función de la exposición, la sensibilidad y la capacidad de adaptación.*

Data Context | *Contexto de datos:*

- Rising temperatures can increase evaporation and intensify the water cycle, which can lead to more frequent and intense storms. This can also lead to increased precipitation and a higher risk of flooding in areas affected by storms.

    - *El aumento de las temperaturas puede aumentar la evaporación e intensificar el ciclo de la lluvia, lo que puede provocar tormentas más frecuentes e intensas. Esto también puede provocar un aumento de las lluvias y un mayor riesgo de inundaciones en las zonas afectadas por las tormentas.*
- Extreme precipitation can create impacts not captured by available data including lived experiences with localized street flooding, clogged storm drains, and commuting disruption.
    - *Las tormentas extremas pueden crear impactos que no reflejan los datos disponibles, incluidas las experiencias vividas con inundaciones de calles localizadas, obstrucciones de drenajes e interrupciones en los viajes diarios.*
- Data that was mapped is primarily focused on annual chance of flooding as an impact so this conversation is more focused on lived experience.
    - *Los datos que se ven en los mapas se centran principalmente en la probabilidad anual de inundaciones como impacto, entonces esta conversación se centra más en la experiencia vivida.*
- The community plan area maps can be used as a tool when identifying locations where heavy precipitation can create impacts that may include flooding and non-flood related impacts. Non-flood related impacts are things like erosion, damage to sidewalks, fallen trees, disruption of walking routes, bus route detours, etc.
    - *Los mapas de los planes comunitarios se pueden utilizar para identificar y marcar lugares donde las fuertes lluvias pueden crear impactos que pueden incluir inundaciones e impactos no relacionados con inundaciones. Los impactos no relacionados con inundaciones son cosas como erosión, daños a las aceras, árboles caídos, interrupción de rutas para caminar, desvíos de rutas de autobuses, etc.*

Questions | *Preguntas:*

The following are questions that you may use to guide conversation regarding increased precipitation and flooding.

Las siguientes son preguntas que puede utilizar para guiar la conversación sobre precipitaciones e inundaciones extremas.

1. How does extremely heavy rainfall affect you? Do you experience flooding? If so, where? Do you have to make changes to your daily routine when there are storms? If so, what are those changes? What kind of resources would you like to see to help manage those storms?

   ¿Cómo le afectan las lluvias extremas e intensas? ¿Sufre inundaciones? ¿Si es así, donde? ¿Tiene que hacer cambios en su rutina diaria cuando hay tormentas? Si es así, ¿cuáles son esos cambios? ¿Qué tipo de recursos le gustaría ver para ayudar a gestionar esas tormentas?

2. Do you experience any health impacts as a result of the storms? If so, what are they? Do you have sufficient resources to get medical attention for these health impacts?

   ¿Le impacta la salud de alguna manera como resultado de las tormentas? Si es así, ¿Que son? ¿Tiene recursos suficientes para obtener atención médica para estos impactos en la salud?

3. Do you notice any change in pests like mosquitos as a result of the storms? If so, what do you see or experience? Do you have any health concerns about these pests? If so, do you feel you have enough resources to address the health concerns or exposure to these pests?

   ¿Nota algún cambio en plagas como los mosquitos como consecuencia de las tormentas? Si es así, ¿qué ve o cuál es su experiencia? ¿Tiene algún problema de salud acerca de estas plagas? Si es así, ¿cree que tiene suficientes recursos para rehabilitarse de los problemas de salud o la exposición a estas plagas?

4. Do you feel that there have been more frequent storms recently? Are those storms longer than storms in the past?

   ¿Cree que últimamente ha habido tormentas más frecuentes? ¿Son esas tormentas más largas que las del pasado?

5. How are you notified of extreme rainfall and how do you prepare? Are those methods sufficient? Would you like to see other ways to be notified, if so what are they? Are there other resources you would like to have available to prepare for storms and flooding, if so what are they?

   ¿Cómo se le notifica sobre los avisos de las lluvias extremas y cómo se prepara? ¿Son suficientes esos métodos? ¿Le gustaría ver otras formas de recibir notificaciones? Si es así, ¿cuáles son? ¿Hay otros recursos que le gustaría tener disponibles para prepararse para las tormentas e inundaciones? Si es así, ¿cuáles son?

6. Are there specific locations in the community where you find that extreme rainfall and flooding is a particular issue? If so, where do you see it? Do you see those impacts with every rain or a certain amount of rain? If so, please explain.

   ¿Hay lugares específicos en la comunidad donde usted encuentra que las lluvias extremas y las inundaciones son un problema particular? Si es así, ¿dónde los observa? ¿Observa estos impactos con cada lluvia o con una cierta cantidad de lluvia? Si es así, favor de explicar.

7. Do you experience any power outages when there are heavy storms? If so, how do you manage not having power? How long do the outages tend to last? What resources would you like to have available when you're experiencing a power outage?

   ¿Sufre algún corte de electricidad o apagón cuando hay fuertes tormentas? Si es así, ¿cómo se navega sin tener electricidad? ¿Como cuánto duran los cortes? ¿Qué recursos le gustaría tener disponibles cuando hay un corte de electricidad o apagón?

8. Do you have any mudslides or landslides as a result of the increased number and length of storms? If so, please describe and where. How do you navigate the mudslides?

   ¿Tiene deslizamientos de tierra o deslave de tierra como resultado de las tormentas más frecuentes y cuales duran más tiempo? Si es así, favor de describirlo y dónde los observa. ¿Cómo se navega por los deslizamientos de tierra?

9. Have you experienced any issues with mold as a result of the increased number and length of storms, like with your health? If so, please describe.

   ¿Ha observado algún problema con el moho como resultado de las tormentas más frecuentes y cuales duran más tiempo, como con su salud? Si es así, favor de describirlo.

10. What else do you want to share about how extreme precipitation and flooding has impacted you, your family or your neighbors?

    ¿Qué más desea compartir sobre cómo las lluvias e inundaciones extremas lo han impactado a usted, a su familia o a sus vecinos?

Note | *Nota:*

Please mark on the maps any geographic specific feedback you received during this discussion.

Por favor, marque en los mapas cualquier comentario geográfico específico que haya recibido durante esta discusión.



Goal & Purpose of Community Conversation
Objetivo y propósito de la conversación comunitaria

To understand how members of the community experience sea level rise in their daily lives. The maps can be used as a starting point for discussing sea level rise as people experience them in the community. These conversations will be used to add context to the current hazard data we have. If using the CVA data map or mapping tool we provided, you may want to turn on the following layers to help share sea level rise-related impacts and resources:

Comprender cómo los miembros de la comunidad observan y sienten el aumento en el nivel del mar en su vida diaria. Los mapas se pueden utilizar como punto de partida para discutir los problemas del aumento en el nivel del mar a medida que las personas los observan en la comunidad. Estas conversaciones se utilizarán para agregar contexto a los datos de peligros actuales que tenemos. Si utiliza el mapa de datos de CVA o la herramienta de mapeo que proporcionamos, puede activar las siguientes capas para ayudar a compartir el aumento en el nivel del mar relacionados con las precipitaciones e inundaciones:

- Community Health and Equity Index | *Índice de Salud y Equidad Comunitaria*
- Sea Level Rise 25 cm with 100-yr storm | *Aumento del nivel del mar de 25 cm con una tormenta de 100 años*
- Sea Level Rise 200 cm with 100-yr storm | *Aumento del nivel del mar de 200 cm con una tormenta de 100 años*

Definition | *Definición*:

Sea Level Rise is defined as the increase in the ocean's surface height relative to the height of nearby land. Coastal low-lying areas are exposed to Sea Level Rise, but Sea Level Rise also raises water levels in tidal water bodies, increasing risk of inland flooding.

***El aumento del nivel del mar** se define como el aumento de la altura de la superficie del océano en relación con la altura de la tierra cercana. Las zonas costeras bajas están expuestas al aumento del nivel del mar, pero el aumento del nivel del mar también eleva*

los niveles de agua en las masas de agua de las mareas, lo que aumenta el riesgo de inundaciones en tierra interior.

Related Terms / *Términos relacionados:*

10-year flood: A 10-year annual chance of flood means that these are flood events that have a **10 percent chance of occurring in a single year**. This type of storm would be an above average storm such as a heavy summer thunderstorm, which could be approximately an inch or more of rain in one hour *that results in flooding*. This is the highest potential chance of flood and a lower intensity event than the other flood types.

***Inundación de 10 años**: Una probabilidad anual de inundación de 10 años significa que se trata de eventos de inundación que tienen un **10 por ciento de probabilidad de ocurrir en un solo año**. Este tipo de tormenta sería una tormenta superior al promedio, como una fuerte tormenta de verano, que podría generar aproximadamente una pulgada o más de lluvia en una hora y que provoca inundaciones. Esta es la probabilidad potencial más alta de inundación y un evento de menor intensidad que los otros tipos de inundaciones.*

50-year flood: A 50-year annual chance of flood means that these are flood events that have a **two percent chance of occurring in a single year**. An example of this type of event would be a flood caused by above average precipitation from a large storm such as a tropical storm or a similar type of storm that rains heavily over several days, which could be approximately two inches or more of rain in one hour *that results in flooding*. This is the second highest potential chance of flood and a higher intensity event than a 10-year event.

***Inundación de 50 años**: Una probabilidad anual de inundación de 50 años significa que se trata de inundaciones que tienen un **dos por ciento de probabilidad de ocurrir en un solo año**. Un ejemplo de este tipo de evento sería una inundación causada por precipitaciones superiores al promedio de una gran tormenta, como una tormenta tropical o un tipo similar de tormenta que llueve intensamente durante varios días, lo que podría generar aproximadamente dos pulgadas o más de lluvia en un solo día. hora que resulta en inundaciones. Esta es la segunda probabilidad potencial más alta de inundación y un evento de mayor intensidad que un evento de 10 años.*

100-year flood: A 100-year annual chance of flood means that these are flood events that have a **one percent chance of occurring in a single year**. An example of this type of event would be a flood caused by high rates of precipitation from a larger storm such as a tropical storm or a similar type of storm that rains heavily over several days, which could be approximately two inches or more of rain in one hour *that results in flooding*. This has a lower potential chance of flood than a 50-year flood and would be more intense than a 50-year flood.

***Inundación de 100 años**: Una probabilidad anual de inundación de 100 años significa que se trata de inundaciones que tienen un **uno por ciento de probabilidad de ocurrir en un solo año**. Un ejemplo de este tipo de evento sería una inundación causada por altas tasas de precipitación de una tormenta más grande, como una tormenta tropical o un tipo similar de tormenta que llueve intensamente durante varios días, lo que podría*

generar aproximadamente dos pulgadas o más de lluvia en una hora y que resulta en inundaciones. Esto tiene una probabilidad potencial de inundación menor que una inundación de 50 años y sería más intensa que una inundación de 50 años.

500-year flood: A 500-year annual chance of flood means that these are flood events that have a **0.2 percent chance of occurring in a single year**, which could be approximately three inches or more of rain in one hour *that results in flooding*. For example, Hurricane Hillary dropped four inches of rain in an hour and was nearly a 500-year storm in 2023. This is the lowest potential chance of flood and a higher intensity event than the other flood events.

***Inundación de 500 años**: Una probabilidad anual de inundación de 100 años significa que se trata de inundaciones que tienen un **0.2 por ciento de probabilidad de ocurrir en un solo año**. Por ejemplo, el huracán Hillary dejó caer cuatro pulgadas de lluvia en una hora y en 2023 fue una tormenta que duró casi 500 años. Esta es la probabilidad potencial más baja de inundación y un evento de mayor intensidad que los otros eventos de inundación.*

Community Health and Equity Index: This measurement of community health and equity is included within the City's Health Atlas. This index examines the spatial relationship between vulnerable populations and standardizes demographic, socio-economic, health conditions, land use, transportation, food environment, crime and pollution burden variables and then averages them together to yield a score between 0-100 with lower values indicating better community health.

***Índice de equidad y salud comunitaria**: Esta medida de la salud y la equidad de la comunidad se incluye en el atlas de salud de la ciudad. Este índice examina la relación espacial entre poblaciones vulnerables y estandariza variables demográficas, socioeconómicas, condiciones de salud, uso del suelo, transporte, entorno alimentario, delincuencia y carga de contaminación y luego las promedia para obtener una puntuación entre 0 y 100, donde los valores más bajos indican mejor salud comunitaria.*

Exposure to Hazards: Likelihood an area, asset, or population will physically intersect with a hazard event, such as a flood or drought. The CVA focuses on how climate-related factors are expected to change the extent and intensity of hazard events and what is exposed.

***Exposición a peligros**: Probabilidad de que un área, activo o población se cruce físicamente con un evento peligroso, como una inundación o una sequía. El CVA se centra en cómo se espera que los factores relacionados con el clima cambien el alcance y la intensidad de los eventos peligrosos y lo que está expuesto.*

Flooding: Temporary overflow of excess water from bodies of water onto dry land from rainfall. .

***Inundaciones**: Desbordamiento temporal del exceso de agua de cuerpos de agua hacia tierra firme debido a las lluvias.*

Mitigation strategies: Recommendations to reduce and manage the impact of potential risks from climate hazards.

***Estrategias de mitigación**: Recomendaciones para reducir y gestionar el impacto de los riesgos potenciales de los peligros climáticos.*

Public health: Organized community efforts aimed at the prevention of disease and the promotion of health through the mitigation of climate impacts, such as heat-related illnesses prevention and addressing climate-related diseases.

***Salud pública**: Esfuerzos comunitarios organizados destinados a la prevención de enfermedades y la promoción de la salud mediante la mitigación de los impactos climáticos, como la prevención de enfermedades relacionadas con el calor y el tratamiento de enfermedades relacionadas con el clima.*

Resilience: The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self organization, and the capacity to adapt to stress and change.

***Resiliencia**: La capacidad de un sistema social o ecológico para absorber perturbaciones mientras conservando la misma estructura básica y formas de funcionamiento, la capacidad de organización, y la capacidad de adaptarse al estrés y al cambio.*

Sea Level Rise 25 cm with 100-year Storm: This is the potential for coastal flooding if the sea level were to rise by 25 centimeters during a 100-year storm. This is a Federal Emergency Management Agency (FEMA) model based on climate change projections.

***Aumento del nivel del mar de 25 cm con una tormenta de 100 años:** Este es el potencial de inundaciones costeras si el nivel del mar se aumenta 25 centímetros durante una tormenta de 100 años. Este es un modelo de la Agencia Federal para el Manejo de Emergencias (FEMA) basado en proyecciones de cambio climático.*

Sea Level Rise 200 cm with 100-year Storm: This is the potential for coastal flooding if the sea level were to rise by 200 centimeters during a 100-year storm. This is a Federal Emergency Management Agency (FEMA) model based on climate change projections.

***Aumento del nivel del mar de 200 cm con una tormenta de 100 años:** Este es el potencial de inundaciones costeras si el nivel del mar se aumenta 200 centímetros durante una tormenta de 100 años. Este es un modelo de la Agencia Federal para el Manejo de Emergencias (FEMA) basado en proyecciones de cambio climático.*

Sensitivity: Refers to the degree to which an area, asset, or population is more susceptible to and expected to experience adverse impacts because of hazards. This is affected by structural or environmental attributes, like when buildings were built, or social factors, like access to health care.

***Sensibilidad**: Se refiere al grado en que un área, activo o población es más susceptible y se espera que sea afectada por impactos adversos debido a los peligros. Esto se ve afectado por atributos estructurales o ambientales, como cuándo se construyeron los edificios, o factores sociales, como el acceso a la atención médica.*

Vulnerability: Describes the extent an area, asset, or population is likely to be harmed by a climate hazard. This is a function of exposure, sensitivity and adaptive capacity.

> ***Vulnerabilidad:*** *Describe la medida en que es probable que un área, activo o población se verá afectada por un riesgo climático. Esta es una función de la exposición, la sensibilidad y la capacidad de adaptación.*

Data Context | *Contexto de datos:*

- Rising temperatures can increase melting of sea ice in other parts of the world that raise sea levels globally. This can also lead to a higher risk of flooding in areas affected by storms near the coast.
    - *El aumento de las temperaturas puede aumentar el derretimiento del hielo marino en otras partes del mundo, lo que eleva el nivel del mar a nivel mundial. Esto también puede provocar un mayor riesgo de inundaciones en las zonas afectadas por tormentas cercanas a la costa.*
- The maps show hazards based upon 25 centimeters of sea level rise plus a 100-year storm and a more extreme scenario of 200 centimeters of sea level rise plus a 100-year storm.
    - *Los mapas muestran peligros basados en un aumento de 25 centímetros del nivel del mar más una tormenta de 100 años y un escenario más extremo de 200 centímetros de aumento del nivel del mar más una tormenta de 100 años.*
- Areas that experience impacts from sea level rise will be very specific areas of the coast so a good reference is to think about your lived experience where storms that create large waves have flooded areas near the beach since this impact will become more severe as sea levels rise.
    - *Las áreas que serán afectadas por impactos por el aumento del nivel del mar serán áreas muy específicas de la costa por lo que una buena referencia es pensar en su experiencia vivida donde tormentas que crean grandes olas han inundado áreas cercanas a la playa ya que este impacto se volverá más severo a medida que aumente el nivel del mar.*
- The community plan area maps can be used as a tool when identifying locations where heavy precipitation can create impacts that may include flooding and non-flood related impacts. Non-flood related impacts are things like erosion, damage to sidewalks, fallen trees, disruption of walking routes, bus route detours, etc.
    - *Los mapas de los planes comunitarios se pueden utilizar para identificar y marcar lugares donde las fuertes lluvias pueden crear impactos que pueden incluir inundaciones e impactos no relacionados con inundaciones. Los impactos no relacionados con inundaciones son cosas como erosión, daños a las aceras, árboles caídos, interrupción de rutas para caminar, desvíos de rutas de autobuses, etc.*

Questions | *Preguntas:*

The following are questions that you may use to guide conversation regarding sea-level rise.

> *Las siguientes son preguntas que puede utilizar para guiar la conversación sobre el aumento del nivel del mar.*

1. Do you experience sea level rise now or just when storms create large waves on the coast that create flooding? Does it impact your life? If so, where? Do you have to make changes to your daily routine when there are storms that create coastal flooding? If so, what are those changes? What kind of resources would you like to see to help reduce those impacts?

   ¿Siente o observa un aumento del nivel del mar ahora o simplemente cuando las tormentas crean grandes olas en la costa que provocan inundaciones? ¿Afecta su vida? ¿Si es así, donde? ¿Tiene que hacer cambios en su rutina diaria cuando hay tormentas que generan inundaciones costeras? Si es así, ¿cuáles son esos cambios? ¿Qué tipo de recursos le gustaría ver para ayudar a reducir esos impactos?

2. Since sea level rise will increase the risk of coastal flooding, will this impact your life or work? If so, what are those impacts? What are your concerns about future impacts from continued sea level rise?

   Dado que el aumento del nivel del mar aumentará el riesgo de inundaciones costeras, ¿esto afectará su vida o su trabɛjo? Si es así, ¿cuáles son esos impactos? ¿Cuáles son sus preocupaciones sobre los impactos futuros del aumento continuo del nivel del mar?

3. Do you feel that there have been more frequent storms that create coastal flooding or damage to beaches, piers, and other public coastal areas recently? Are those storms having a greater impact than in the past?

   ¿Cree que recientemente han habido tormentas más frecuentes que causan inundaciones costeras o daños a playas, muelles y otras áreas costeras públicas? ¿Esas tormentas están teniendo un impacto mayor que en el pasado?

4. How are you notified of coastal flooding and how do you prepare? Are those methods sufficient? Would you like to see other ways to be notified, if so what are they? Are there other resources you would like to have available to prepare for storms and coastal flooding, if so what are they?

   ¿Cómo se le notifica sobre los avisos de las inundaciones costeras y cómo se prepara? ¿Son suficientes esos métodos? ¿Le gustaría ver otras formas de recibir notificaciones? Si es así, ¿cuáles son? ¿Hay otros recursos que le gustaría tener disponibles para prepararse para las tormentas e inundaciones costeras? Si es así, ¿cuáles son?

5. Are there places on the map that are already impacted by sea level rise and coastal flooding that are not located in the sea-level rise or flooding maps? If so, indicate where this is occurring on the map.

   ¿Hay lugares en el mapa que ya están afectados por el aumento del nivel del mar y las inundaciones costeras que no están ubicados en los mapas de aumento del nivel del mar o inundaciones? Si es así, indique dónde ocurre esto en el mapa.

6. Have you experienced any issues with coastal flooding from sea level rise or storms that have damaged where you live or impacted your health? If so, please describe.

¿Ha observado algún problema con inundaciones costeras debido al aumento del nivel del mar o tormentas que han dañado el lugar donde vive o han impactado su salud? Si es así, favor de describirlo.

7. Do you view sea level rise and flooding as two different issues or as related issues? What do you think would be a good starting point for preparing your community for future sea level rise and coastal flooding risks?

   ¿Considera el aumento del nivel del mar y las inundaciones como dos cuestiones diferentes o como cuestiones relacionadas? ¿Cuál cree que sería un buen punto de partida para preparar a su comunidad para el futuro aumento del nivel del mar y los riesgos de inundaciones costeras?

8. What else do you want to share about your concerns about sea level rise or how it has impacted you, your family or your neighbors?

   ¿Qué más desea compartir sobre sus preocupaciones sobre el aumento del nivel del mar o cómo le ha afectado a usted, su familia o sus vecinos?

Note | *Nota:*

Please mark on the maps any geographic specific feedback you received during this discussion.

Por favor, marque en los mapas cualquier comentario geográfico específico que haya recibido durante esta discusión.



Goal & Purpose of Community Conversation
Objetivo y propósito de la conversación comunitaria

To understand how members of the community experience wildfire in their daily lives. The maps can be used as a starting point for discussing wildfire hazards as people experience them in the community. These conversations will be used to add context to the current hazard data we have. If using the CVA data map or mapping tool we provided, you may want to turn on the following layers to help share wildfire-related impacts and resources:

> *Comprender cómo los miembros de la comunidad observan y sienten con incendios forestales en su vida diaria. Los mapas se pueden utilizar como punto de partida para discutir los problemas de los incendios forestales a medida que las personas los observan en la comunidad. Si utiliza el mapa de datos CVA o la herramienta de mapeo que proporcionamos, puede activar las siguientes capas para ayudar a compartir los impactos y recursos relacionados con los incendios forestales:*

- Community Health & Equity Index I *Índice de Salud y Equidad Comunitaria*
- Cooling & Heating Centers | *Centros de enfriamiento y calefacción*
- Hydration Stations | *Estaciones de hidratación*
- Recreation and Parks Facilities | *Instalaciones de Recreación y Parques*
- Wildfire Severity Zones I *Zonas de gravedad de incendios forestales*

Definition | *Definición*:

Wildfire is defined as uncontrolled fire occurring on undeveloped land that requires extinguishing. Wildfires become a hazard when they threaten people, buildings, and assets, and wildfire smoke presents serious public health risks.

> ***Los incendios forestales*** *se definen como incendios incontrolados que ocurren en terrenos no urbanizados y que requieren extinción. Los incendios forestales se convierten en un peligro cuando amenazan a personas, edificios y bienes, y el humo de los incendios forestales presenta graves riesgos para la salud pública.*

Related Terms | *Términos relacionados:*

Cooling Center: A cooling center is a free, indoor air-conditioned location where you can keep cool when there are extreme heat weather conditions. During extended periods of excessive heat, LA City will open dedicated cooling centers. These dedicated spaces will typically be located at City Recreation and Parks and LA City Public Library facilities.

> ***Centro de enfriamiento**: Un centro de enfriamiento es un lugar interior gratuito con aire acondicionado donde puede mantenerse fresco cuando hay condiciones climáticas de calor extremo. Durante períodos prolongados de calor excesivo, la ciudad de Los Ángeles abrirá centros de enfriamiento exclusivos. Estos espacios dedicados generalmente estarán ubicados en las instalaciones de Parques y Recreación de la Ciudad y en las instalaciones de la Biblioteca Pública de la Ciudad de Los Ángeles.*

Hydration Station: Public, free drinking water stations made available through the LA Department of Water and Power (LADWP) for the health of residents and visitors. Hydration stations are in mostly public areas throughout all 15 City Council districts and are available for drinking and filling water bottles.

> ***Estación de hidratación**: Estaciones de agua potable públicas y gratuitas disponibles a través del Departamento de Agua y Energía de Los Ángeles (LADWP por sus siglas en inglés) para la salud de residentes y visitantes. Las estaciones de hidratación se encuentran principalmente en áreas públicas en los 15 distritos concejales y están disponibles para beber y llenar botellas de agua.*

Sensitivity: Extent an area, asset, or population is more susceptible to and expected to experience adverse impacts because of climate hazards. This is affected by structural or environmental attributes, like when buildings were built, or social factors, like access to health care.

> ***Sensibilidad:** Se refiere al grado en que se espera un área, activo o población es más susceptible y se espera que sea afectada por impactos adversos debido a los peligros climáticos. Esto se ve afectado por atributos estructurales o ambientales, como cuándo se construyeron los edificios, o factores sociales, como el acceso a la atención médica.*

Vulnerability: Describes the extent an area, asset, or population is likely to be harmed by a climate hazard. This is a function of exposure, sensitivity and adaptive capacity.

> ***Vulnerabilidad:** Describe la medida en que es probable que un área, activo o población se verá afectada o perjudicada por un riesgo climático. Esta es una función de la exposición, la sensibilidad y la capacidad de adaptación.*

Wildfire Severity Zones: These fire hazard zones are based on increasing fire hazard in three levels of medium, high and very high. Zones are developed by the California Department of Forestry and Fire Protection (CalFIRE) using a model that includes many factors such as fire history, vegetation, flame length, blowing embers, terrain, weather and the likelihood of buildings igniting.

***Zonas de gravedad de incendios forestales**: Estas zonas de riesgo de incendio se basan en un riesgo de incendio creciente en tres niveles: medio, alto y muy alto. El Departamento de Protección Forestal y Contra Incendios de California (CalFIRE) desarrolla las zonas utilizando un modelo que incluye muchos factores como la historia de incendios, la vegetación, la longitud de las llamas, las brasas, el terreno, el clima y la probabilidad de que los edificios se incendien.*

Data Context | *Contexto de los datos*:

- Most neighborhoods within the City limits will not include a wildfire severity zone.
    - *La mayoría de los vecindarios dentro de los límites de la ciudad no incluirán una zona de gravedad de incendios forestales.*
- Wildfire severity data displayed on the map is based on fire hazards modeled by CalFIRE. This shows the potential effect of a fire event on the environment.
    - *Los datos de gravedad de los incendios forestales que se muestran en el mapa se basan en los riesgos de incendio modelados por CalFIRE. Esto muestra el efecto potencial de un incendio en el medio ambiente.*
- Typically, this is measured by the loss of vegetation both above the ground and below the ground but also includes soil impacts like erosion, nutrient degradation and soil salinity.
    - *Normalmente, esto se mide por la pérdida de vegetación tanto por encima como por debajo del suelo, pero también incluye impactos en el suelo como la erosión, la degradación de nutrientes y la salinidad del suelo.*
- While uncommon, there have been recent examples of large wildfires in California spreading into urban areas that are not included in wildfire severity zones (e.g.,Tubbs Fire in Santa Rosa during 2017).
    - *Es poco común, pero han habido ejemplos recientes de grandes incendios forestales en California que se propagan a áreas urbanas que no están incluidas en las zonas de gravedad de los incendios forestales (por ejemplo, el incendio Tubbs en Santa Rosa durante 2017).*

Questions | *Preguntas:*

The following are questions that you may use to guide conversation regarding wildfire.

Las siguientes son preguntas que puede usar para guiar la conversación sobre el calor extremo.

1. How does wildfire and wildfire risk affect you? Have you had any personal experiences with a wildfire? If so, where? Do you have to make changes to your daily routine when there are fires in the area? If so, what are those changes? What kind of resources would you like to see to help manage wildfire risk?

    ¿Cómo le afectan los incendios forestales y el riesgo de incendios forestales? ¿Ha tenido alguna experiencia personal con un incendio forestal? ¿Si es así, donde? ¿Tiene que hacer cambios en su rutina diaria cuando hay incendios en su área? Si es así, ¿cuáles son esos cambios? ¿Qué tipo de recursos le gustaría ver para ayudar a gestionar el riesgo de los incendios forestales?

2. When was the last time you experienced wildfire smoke? How did it affect your daily life?

   ¿Cuándo fue la última vez que observó el humo de un incendio forestal? ¿Cómo le afectó su vida diaria?

3. How are you notified of ongoing wildfires or wildfire risk?

   ¿Cómo se le notifica sobre incendios forestales en curso o riesgo de incendios forestales?

4. What differences in your lifestyle have you made due to the risk of wildfire?

   ¿Qué diferencias ha hecho en su estilo de vida debido al riesgo de incendios forestales?

5. Are there specific locations within the community where you feel wildfire is of particular concern?

   ¿Hay lugares específicos dentro de la comunidad donde cree que los incendios forestales son motivo de preocupación?

6. Most neighborhoods do not have any data supporting wildfire risk so it might appear blank for this hazard. With this in mind, is the map of wildfire risk accurate to your experience? Do you think it should be noted as a higher or lower risk than it is?

   La mayoría de los vecindarios no tienen datos que respalden el riesgo de incendios forestales, por lo que podrían aparecer en blanco para este peligro. Teniendo esto en cuenta, ¿el mapa de riesgo de incendios forestales se ajusta a su experiencia? ¿Cree que debería señalarse como un riesgo mayor o menor del que es actualmente?

7. What else do you want to share about how wildfire has impacted you, your family or your neighbors?

   ¿Qué más desea compartir sobre cómo los incendios forestales lo han impactado a usted, a su familia o a sus vecinos?

Drought Hazard Mitigation Strategy Facilitation Guide I *Guía de facilitación de estrategias de mitigación para la sequía*



Goal of Community Conversation
Objetivo de la conversación comunitaria

- To ask for input on mitigation strategies to address projected impacts of drought and what community priorities are for implementing these strategies.
- *Para solicitar comentarios sobre estrategias de mitigación para abordar los impactos proyectados la sequía y cuáles son las prioridades de la comunidad para implementar estas estrategias.*

Summary of Community Data/Feedback and Proposed Mitigation Strategies Summary
Resumen de datos/comentarios de la comunidad y resumen de estrategias de mitigación propuestas

Key Themes of Input
Temas clave de entrada

- Drinking water availability was a primary concern for FTBMI* community members, with secondary concerns related to the availability of water for fighting wildfires or agriculture needs. (FTBMI Tribal Climate Resiliency Plan)
- *La disponibilidad de agua potable era una preocupación principal para los miembros de la comunidad FTBMI*, con preocupaciones secundarias relacionadas con la disponibilidad de agua para combatir incendios forestales o necesidades agrícolas. (Plan Tribal de resiliencia climática de los FTBMI)*
- FTBMI community members expressed substantial concern for the anticipated impact drought will have on tribal practices. (FTBMI Tribal Climate Resiliency Plan)
- *Los miembros de la comunidad FTBMI expresaron gran preocupación por el impacto previsto que la sequía tendrá en las prácticas tribales. (Plan tribal de resiliencia climática de los FTBMI)*
- There is a lot of stress and worries with affording basic needs like water. In the summer, there are water limitations. We need more hydration stations. Food prices also go up during a drought. (Promesa BH, SBCC, SCOPE, Pacoima Beautiful, Rising Communities)

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- *Hay mucho estrés y preocupaciones cuando estamos pensando en cómo pagar para las necesidades básicas como el agua. En verano es cuando hay limitaciones de agua. Necesitamos más estaciones de hidratación. Los precios de los alimentos también aumentan durante una sequía. (Promesa BH, SBCC, SCOPE, Pacoima Beautiful, Rising Communities)*
- There are significant water rate changes during a drought and landlords change water pressures, but these impacts are not being felt by wealthier communities and businesses who don't conserve water/take responsibility. (Promesa BH, SBCC, SCOPE, Rising Communities)
- *Hay cambios significativos en los precios del agua durante una sequía y los propietarios cambian la presión del agua, pero estos impactos no los sienten las comunidades y empresas más ricas que no conservan el agua ni asumen responsabilidad. (Promesa BH, SBCC, SCOPE, Rising Communities)*
- People buy and cook with bottled water because water quality does not always seem safe. (Promesa BH)
- *La gente compra y cocina con agua embotellada porque la calidad del agua no siempre parece segura. (Promesa BH)*
- During droughts, people can't use water to cool down when it is very hot. There are no splash pads and there are restrictions on other water sources. (SBCC)
- *Durante las sequías, la gente no puede usar agua para refrescarse cuando hace mucho calor. No hay plataformas para chapotear y existen restricciones sobre otras fuentes de agua. (SBCC)*

Mitigation Measures Shared Thus Far
Medidas de mitigación compartidas hasta ahora

- Classes on how to irrigate with rain water more efficiently. (Promesa BH)
- *Clases de cómo regar con agua de lluvia de forma más eficiente. (Promesa BH)*
- More hydration stations and better signage/wayfinding of all hydration stations. (Promesa BH, Pacoima Beautiful, Rising Communities, SBCC, SCOPE)
- *Más estaciones de hidratación y mejor señalización/señalización de todas las estaciones de hidratación. (Promesa BH, Pacoima Beautiful, Rising Communities, SBCC, SCOPE)*
- Supplementary water sources will be required to meet water needs in the region. Recycled water has great potential to meet this need given its year-round availability. (FTBMI* Tribal Climate Resiliency Plan)
- *Se necesitarán fuentes adicionales de agua para satisfacer las necesidades hídricas en la región. El agua reciclada tiene un gran potencial para cubrir esta necesidad debido a su disponibilidad durante todo el año. (FTBMI* Tribal Climate Resiliency Plan)*
- Encourage water conservation and the diversification of water resources such as graywater and water recycling. (FTBMI* Tribal Climate Resiliency Plan)
- *Fomente la conservación del agua y la diversificación de recursos hídricos mediante opciones como el uso de aguas grises y el reciclaje del agua. (FTBMI* Tribal Climate Resiliency Plan)*

After reviewing the themes of what we heard from you previously about potential future impacts of drought:

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Después de revisar los temas de lo que escuchamos anteriormente sobre los posibles impactos futuros de la sequía:

1. *Is what we heard in the previous phase of outreach about how drought affects our communities accurate to your experience?*
   ¿Lo que escuchamos en la fase anterior de divulgación sobre cómo la sequía afecta a nuestras comunidades es exacto a su experiencia?

2. *Is there anything you would like to add?*
   ¿Hay algo más que quieran agregar?

Discussion Context
Contexto de la discusión

- During periods of drought, there are domestic water shortages, which can lead to increased charges and concerns over affordability. (LA County Climate Vulnerability Assessment)
- *Durante los períodos de sequía, hay escasez de agua doméstica, lo que puede generar mayores cargos y preocupaciones sobre la asequibilidad. (Evaluación de vulnerabilidad climática del condado de Los Ángeles)*
- Drought can also impact power generation in the region and lead to high utility costs. The state's driest drought from 2012 to 2016 substantively decreased hydroelectricity generation, such that hydropower as a share of the state's total power generation dropped from 18 percent to just 13 percent in that timeframe. (LA County Climate Vulnerability Assessment)
- *La sequía también puede afectar la generación de energía en la región y generar altos costos de servicios públicos. La sequía más seca que afectó al estado entre 2012 y 2016 disminuyó sustancialmente la generación hidroeléctrica, de modo que la energía hidroeléctrica como porcentaje de la generación eléctrica total del estado cayó del 18 por ciento a solo el 13 por ciento en ese período. (Evaluación de vulnerabilidad climática del condado de Los Ángeles)*
- Climate change will continue to increase the severity of drought and result in significantly reduced snowpack, which is an important water reservoir. (FTBMI Tribal Climate Resiliency Plan)
- *El cambio climático seguirá aumentando la gravedad de la sequía y dará lugar a una reducción significativa de la capa de nieve, que es una importante reserva de agua. (Plan tribal de resiliencia climática de los FTBMI)*
- Snowpack is expected to decline 60-85% in the future. (FTBMI Tribal Climate Resiliency Plan)
- *Se espera que la capa de nieve disminuya entre un 60% y un 85% en el futuro. (Plan tribal de resiliencia climática de los FTBMI)*
- More intense droughts will also coincide with more extreme heat days, soil drying, and wildfire risks. (FTBMI Tribal Climate Resiliency Plan)
- *Las sequías más intensas también coincidirán con días de calor más extremo, secado del suelo y riesgos de incendios forestales. (Plan tribal de resiliencia climática de los FTBMI)*

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- Within FTBMI boundary, water systems are physically vulnerable to water outages and water will become more expensive. (FTBMI Tribal Climate Resiliency Plan)
- *Dentro de los límites del FTBMI, los sistemas de agua son físicamente vulnerables a cortes de agua y el agua se volverá más cara. (Plan tribal de resiliencia climática de los FTBMI)*
- Outdoor water use continues to consume roughly half of total urban water; reducing outdoor use presents one of the biggest opportunities for further cost-effective urban conservation. (Water Use in California's Communities Fact Sheet, April 2022, Public Policy Institute of California)
- *El uso de agua exterior sigue consumiendo aproximadamente la mitad del agua urbana total; Reducir el uso al aire libre presenta una de las mayores oportunidades para una mayor conservación urbana rentable. (Hoja informativa sobre el uso del agua en las comunidades de California, abril de 2022, Instituto de Políticas Públicas de California)*

Mitigation Strategies and Resources Discussion
Discusión sobre estrategias y recursos de mitigación

You are part of the CVA process because your lived experience of drought makes you an expert on strategies and resources needed to help you and your community be more resilient. The previously shared examples of mitigation strategies address the input provided by your communities; they are intended to be a starting point for exploring community-inspired solutions. For our discussion today, think of a strategy as a path to a solution and an action as a step along that path.
Ustedes son parte del proceso de CVA porque su experiencia vivida de la sequía lo convierte en un experto en estrategias y recursos necesarios para ayudarlo a usted y a su comunidad a ser más resilientes. Los ejemplos de estrategias de mitigación compartidos anteriormente abordan los aportes proporcionados por sus comunidades; están destinados a ser un punto de partida para explorar soluciones inspiradas en la comunidad. Para nuestra discusión de hoy, piense en una estrategia hacia una solución y una acción como un paso para alcanzar esa meta.

Let's think through strategies that would work best for the community. When thinking about strategies for addressing drought, think about the following concepts:
Pensemos en estrategias que funcionarían mejor para la comunidad. Cuando piense en estrategias para la sequía, piense en los siguientes conceptos:

- Methods will need to balance using vegetation and water to cool spaces but using drought-tolerant and native plants to conserve water.
- *Los métodos deberán equilibrar el uso de vegetación y agua para enfriar los espacios, pero el uso de plantas nativas y tolerantes a la sequía para conservar el agua.*
- Drought can reduce the availability of water and increase the cost of drinking water.
- *La sequía puede reducir la disponibilidad de agua y aumentar el costo del agua potable.*

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- Since water supplies may decrease due to climate change, think about the role of water conservation in preparing communities and individuals for more frequent drought.
- *Dado que los suministros de agua pueden disminuir debido al cambio climático, piense en el papel de la conservación del agua en la preparación de comunidades e individuos para sequías más frecuentes.*

Some best practices for drought resiliency include the following:
Algunas mejores prácticas para la resiliencia a la sequía incluyen las siguientes:

- Expand awareness of the City's Rainwater Harvesting Rebates and Grass Replacement Rebates programs to increase participation in the programs and facilitate accessibility to residents across the City, prioritizing those within Communities of Concern and areas that have had historically lower participation in the programs. (San Diego's 2022 Climate Action Plan)
- *Ampliar el conocimiento sobre los programas de reembolsos por recolección de agua de lluvia y reembolsos por reemplazo de césped de la ciudad para aumentar la participación en los programas y facilitar la accesibilidad a los residentes de toda la ciudad, dando prioridad a aquellos dentro de las comunidades de interés y áreas que históricamente han tenido una menor participación en los programas. (Plan de Acción Climática 2022 de San Diego)*
- Residents would like to see a fund developed that would help to maintain these large shade trees, assist with the financial burden of removing the dead trees, and the purchase of replacement trees. (Greater Phoenix Heat Action Planning Guide)
- *A los residentes les gustaría que se desarrollara un fondo que ayudaría a mantener estos grandes árboles de sombra, ayudaría con la carga financiera de eliminar los árboles muertos y comprar árboles de reemplazo. (Guía de planificación de acción contra el calor en el área metropolitana de Phoenix)*
- Reduce water and energy use through LADWP incentives. (Resilient Los Angeles, City of LA)
- *Reducir el uso de agua y energía a través de incentivos del LADWP. (Los Ángeles resilientes, Ciudad de Los Ángeles)*
- Operation NEXT will revolutionize local water resources in Los Angeles by using advanced processes to recycle and purify wastewater from the Hyperion Water Reclamation Plant in Playa del Rey. This will enable the city to use this purified, local water source in multiple ways to offset imported water from the Colorado River, and Bay-Delta. (L.A.'s Drinking Water Quality Report, LA Department of Water and Power)
- *La Operación NEXT revolucionará los recursos hídricos locales en Los Ángeles mediante el uso de procesos avanzados para reciclar y purificar las aguas residuales de la Planta de Recuperación de Agua Hyperion en Playa del Rey. Esto permitirá a la ciudad utilizar esta fuente de agua local purificada de múltiples maneras para compensar el agua importada del río Colorado y el Delta de la Bahía. (Informe sobre la calidad del agua potable de Los Ángeles, Departamento de Agua y Energía de Los Ángeles)*

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The following questions are meant to guide the collaborative conversation and don't need to be asked but serve to help facilitate the conversation:
Las siguientes preguntas están destinadas a guiar la conversación colaborativa y no es necesario formularlas, pero sirven para ayudar a facilitar la conversación:

1. *Did any of those strategies resonate for you and your community? If so, please explain.*
   ¿Alguna de esas estrategias resonó para usted y su comunidad? Si es así, explique.

2. *Are there any strategies or actions that are currently underway in the City or your community that you want to build on to reduce impacts from drought? Please explain.*
   ¿Hay alguna estrategia o acción actualmente en marcha en la ciudad o en su comunidad que desee aprovechar para reducir los impactos de la sequía? Por favor explique.

3. *What additional strategies and actions do you think would reduce the impact of drought in your community?*
   ¿Qué estrategias y acciones adicionales cree que reducirían el impacto de la sequía en su comunidad?

4. *What roles do you see for the City and other partners in reducing drought impacts?*
   ¿Qué parte o rollo ve para la ciudad y otros socios en la reducción de los impactos de la sequía?

5. *What role do you see for community members in reducing drought impacts?*
   ¿Qué parte o rollo ve para los miembros de la comunidad en la reducción de los impactos de la sequía?

6. *What other mitigation ideas do you have that you'd like to see explored in the CVA?*
   ¿Qué otras ideas de mitigación tiene que le gustaría que se explorarán en el CVA?

7. *Based on the strategies you prefer and have come up with, what might be needed to effectively implement these strategies in this community?*
   Según las estrategias que prefiere y que se le han ocurrido, ¿qué podría ser necesario para implementar estas estrategias de manera efectiva en esta comunidad?

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Goal of Community Conversation
Objetivo de la conversación comunitaria

- To ask for input on mitigation strategies to address projected impacts of extreme heat and what community priorities are for implementing these strategies.
- *Para solicitar comentarios sobre estrategias de mitigación para abordar los impactos proyectados del calor extremo y cuáles son las prioridades de la comunidad para implementar estas estrategias.*

Summary of Community Data/Feedback and Proposed Mitigation Strategies Summary
Resumen de datos/comentarios de la comunidad y resumen de estrategias de mitigación propuestas

Key Themes of Input
Temas clave de entrada

- Single most pressing concern was air quality, which "informs the need for climate resilience strategies that address air pollution through multiple avenues such as extreme heat interactions." (FTBMI* Tribal Climate Resiliency Plan)
- *La preocupación más apremiante era la calidad del aire, que "informa la necesidad de estrategias de resiliencia climática que aborden la contaminación del aire a través de múltiples vías, como las interacciones con el calor extremo". (Plan tribal de resiliencia climática de los FTBMI*)*
- Tribal members generally disagreed that their neighborhood had services/programs to assist people during a heatwave. (FTBMI Tribal Climate Resiliency Plan)
- *Los miembros tribales generalmente no estaban de acuerdo con que su vecindario tuviera servicios/programas para ayudar a las personas durante una ola de calor. (Plan tribal de resiliencia climática de los FTBMI*)*
- More shade is needed at bus stops. (Rising Communities, Promesa BH**, Pacoima Beautiful, SBCC, SCOPE)
- *Se necesita más sombra en las paradas de autobús. (Rising Communities, Promesa BH, Pacoima Beautiful, SBCC, SCOPE)*

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- More apartment units or homes should have built-in AC units. (Rising Communities, Promesa BH, Pacoima Beautiful, SBCC, SCOPE)
- *Más unidades de apartamentos o casas deberían tener unidades de aire acondicionado integradas. (Rising Communities, Promesa BH, Pacoima Beautiful, SBCC, SCOPE)*
- When turning on the AC during the summer, residents have an increased financial strain due the electricity bills being high. (Rising Communities, Promesa BH, Pacoima Beautiful, SBCC, SCOPE)
- *Al prender el aire acondicionado durante el verano, los residentes tienen una mayor presión financiera debido a las elevadas facturas de electricidad. (Rising Communities, Promesa BH, Pacoima Beautiful, SBCC, SCOPE)*
- The heat impacts school attendance due to the lack of green spaces and indoor recess activities; kids play outside and can overheat, there also aren't enough AC units. (Promesa BH, SBCC)
- *El calor impacta la asistencia escolar por la falta de espacios verdes y actividades de recreo bajo techo; los niños juegan afuera y pueden sobrecalentarse, tampoco hay suficientes unidades de aire acondicionado. (Promesa BH, SBCC)*
- Majority of survey respondents did not believe there was enough tree coverage in their neighborhoods to provide adequate shade. (all)
- *La mayoría de los encuestados no creían que hubiera suficiente cobertura de árboles en sus vecindarios para proporcionar una sombra adecuada. (todos)*
- The trees are very important. They provide the oxygen for us to breathe and stay cool. (Rising Communities, Promesa BH, Pacoima Beautiful)
- *Los árboles son muy importantes. Nos proporcionan el oxígeno para respirar y mantenernos frescos. (Rising Communities, Promesa BH, Pacoima Beautiful)*
- Community is observing a general trend against green space and towards pavement/removing landscaping, especially in new development like affordable housing projects. We need open and green spaces instead of concrete everywhere, including schools, apartment complexes, and public spaces. At the very least, there should be groundcover/pavement that offsets or deflects heat. (Promesa BH, Pacoima Beautiful, SBCC)
- *La comunidad está observando una tendencia general contra los espacios verdes y hacia el pavimento/eliminación de jardines, específicamente en el nuevo desarrollo como en proyectos de viviendas de bajos recursos. Necesitamos espacios abiertos y verdes en lugar de concreto en todas partes, incluidas escuelas, complejos de apartamentos y espacios públicos. Como mínimo, debe haber una cubierta vegetal o pavimento que compense o desvíe el calor. (Promesa BH, Pacoima Beautiful, SBCC)*
- Tree layer on mapping tool exaggerates the amount of trees that actually exist. (Promesa BH)
- *La capa de árbol en la herramienta de mapeo exagera la cantidad de árboles que realmente existen. (Promesa BH)*
- There aren't cool spaces/centers to spend time with family. There is little shade in existing public spaces. (Promesa BH, Pacoima Beautiful)
- *No hay espacios/centros de enfriamiento para pasar tiempo en familia. Hay poca sombra en los espacios públicos existentes. (Promesa BH, Pacoima Beautiful)*

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Mitigation Measures Shared Thus Far

Medidas de mitigación compartidas hasta ahora

- Encourage the use of cooling methods to reduce the heat retention of pavement and surfaces. (all)
- *Fomentar el uso de métodos de enfriamiento para reducir la retención de calor del pavimento y las superficies. (todos)*
- Expand access to at-home heat adaptation resources like air conditioning and insulation retrofits for homes. (FTBMI Tribal Climate Resiliency Plan)
- *Ampliar el acceso a recursos de adaptación al calor en el hogar, como aire acondicionado y modernizaciones del aislamiento de los hogares. (Plan tribal de resiliencia climática de los FTBMI)*
- Install shade and water structures in high use areas that protect pedestrians from heat on streets and in other public places. (FTBMI Tribal Climate Resiliency Plan)
- *Instalar estructuras de sombra y agua en áreas de alto uso que protєjan a los peatones del calor en las calles y otros lugares públicos. (Plan tribal de resiliencia climática de los FTBMI)*
- Support urban river conservation and restoration efforts to enhance threatened plant and animal habitat and create community benefits (water capture, urban cooling, green space access). (FTBMI Tribal Climate Resiliency Plan)
- *Apoyar los esfuerzos de conservación y restauración de ríos urbanos para mєjorar el hábitat de plantas y animales amenazados y crear beneficios para la comunidad (captura de agua, enfriamiento urbano, acceso a espacios verdes). (Plan tribal de resiliencia climática de los FTBMI)*
- Include specialized monitoring in Pacoima as part of the 2024 annual Air Quality Monitoring Network Plan. (Pacoima Beautiful - UCLA Community Air Quality Monitoring in Pacoima, California)
- *Incluir monitoreo especializado en Pacoima como parte del Plan Anual de la Red de Monitoreo de la Calidad del Aire 2024. (Pacoima Beautiful - Monitoreo de la calidad del aire comunitario de UCLA en Pacoima, California)*
- Strengthen programs that support community-based air monitoring to achieve environmental equity, such as AB 617. (Pacoima Beautiful - UCLA Community Air Quality Monitoring in Pacoima, California)
- *Fortalecer los programas que apoyan el monitoreo del aire comunitario para lograr la equidad ambiental, como AB 617. (Pacoima Beautiful - UCLA Community Air Quality Monitoring en Pacoima, California)*
- Work with South Coast AQMD and Pacoima stakeholders to nominate the area for CARB's community-based enforcement programs. (Pacoima Beautiful - UCLA Community Air Quality Monitoring in Pacoima, California)
- *Trabaјar con las partes interesadas de South Coast AQMD y Pacoima para nominar el área para los programas de aplicación de la ley basados en la comunidad de CARB. (Pacoima Beautiful - Monitoreo de la calidad del aire comunitario de UCLA en Pacoima, California*
- Install cool pavement material on City parking lots and in the public right- of-way, prioritizing Communities of Concern, to increase building energy efficiency and reduce urban heat island effect. (Pacoima Beautiful, SCOPE)
- *Instalar material de pavimento fresco en los estacionamientos de la ciudad y en la vía pública, dando prioridad a las comunidades de interés, para aumentar la eficiencia*

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energética de los edificios y reducir el efecto de isla de calor urbana. (Pacoima Beautiful, SCOPE)

- Future analysis should consider: utilizing stops from additional transit providers; conducting a refined approach to accessing tree shade using Public Works parkway tree inventory; and consider points of interest relative to stops, such as schools, hospitals, and grocery stores. (Pacoima UCLA Student Report: Bus Shelter Equity: A study of the distribution of bus shelters in Los Angeles County and unincorporated communities)
- *En futuro análisis se debería considerar: la utilización de paradas de proveedores adicionales de transporte; implementar un enfoque refinado para acceder a la sombra de los árboles utilizando el inventario de árboles del parque de Obras Públicas; y tener en cuenta puntos de interés como escuelas, hospitales y tiendas de comestibles en relación a las paradas. (Informe de Estudiantes de UCLA: Equidad en las Paradas de Autobús: Un estudio sobre la distribución de las paradas de autobús en el Condado de Los Ángeles y comunidades no incorporadas)*
- Develop a clear and transparent methodology for siting bus shelters. This formula should consider factors such as existing equity and heat metrics to ensure equitable distribution of shelters across different neighborhoods. (UCLA, Identifying And Addressing Heat Inequities in the City of Los Angeles)
- *Desarrollar una metodología clara y transparente para la ubicación de refugios de autobús. Esta fórmula debería considerar factores como la equidad existente y métricas de calor para garantizar una distribución equitativa de refugios en diferentes vecindarios. (UCLA, Identificación y Abordaje de las Inequidades de Calor en la Ciudad de Los Ángeles)*
- Involve residents and local stakeholders in the design and siting of bus shelters (UCLA, Identifying And Addressing Heat Inequities in the City of Los Angeles)
- *Involucrar a residentes y partes interesadas locales en el diseño y ubicación de refugios de autobús. (UCLA, Identificación y Abordaje de las Inequidades de Calor en la Ciudad de Los Ángeles)*
- Improve coordination between Sidewalk and Transit Amenities Program (STAP) and other heat adaptation initiatives in Los Angeles (UCLA, Identifying And Addressing Heat Inequities in the City of Los Angeles)
- *Mejorar la coordinación entre el Programa de Aceras y Amenidades de Transporte (STAP) y otras iniciativas de adaptación al calor en Los Ángeles. (UCLA, Identificación y Abordaje de las Inequidades de Calor en la Ciudad de Los Ángeles)*
- New street trees in the public Right-Of-Way planted at least one street tree per 30 linear feet of street frontage with new development. (Draft DCP Landscape and Site Design Ordinance)
- *Nuevos árboles en la calle en el derecho de paso público plantados al menos un árbol en la calle por cada 30 pies lineales de frente de calle con nuevo desarrollo. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*
- Facilitate, encourage and incentivize new development and existing buildings to install shade structures on building storefronts like awnings along sidewalks with priority along sidewalks without tree shade. (Draft DCP Landscape and Site Design Ordinance)
- *Facilitar, alentar e incentivar nuevos desarrollos y edificios existentes para instalar estructuras de sombra en los escaparates de los edificios, como toldos a lo largo de las aceras, con prioridad a lo largo de las aceras sin sombra de árboles. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*

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- Residential building designs that promote cross-ventilation through the use of windows on two sides and/or skylights in new development. (Draft DCP Landscape and Site Design Ordinance)
- *Diseños de edificios residenciales que promueven la ventilación cruzada mediante el uso de ventanas en dos lados y/o tragaluces en nuevos desarrollos. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*
- Tree conservation and preservation of existing healthy trees on private property and minimize/prevent tree removal on the public Right-Of-Way. (Draft DCP Landscape and Site Design Ordinance)
- *Conservación y preservación de árboles sanos existentes en propiedad privada y minimizar/prevenir la remoción de árboles en el derecho de vía público. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*
- Provide trees in open space areas of new development and existing buildings at a minimum ratio of one tree for each 500 square feet of landscaped areas where palms and succulents do not qualify as trees. (Draft DCP Landscape and Site Design Ordinance)
- *Proporcionar árboles en áreas de espacios abiertos de nuevos desarrollos y edificios existentes en una proporción mínima de un árbol por cada 500 pies cuadrados de áreas ajardinadas donde las palmeras y las suculentas no califican como árboles. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*
- Provide a minimum of 30% shade coverage of outdoor areas in new development using climate-adapted or locally native trees and shrubs or alternative means. (Draft DCP Landscape and Site Design Ordinance)
- *Proporcionar una cobertura de sombra mínima del 30% de las áreas exteriores en nuevos desarrollos utilizando árboles y plantas nativos locales o adaptados al clima o medios alternativos. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*
- Incentivize permeable paving materials in driveways, pathways, and other circulation areas in lieu of concrete, asphalt or other impervious surfaces. (Draft DCP Landscape and Site Design Ordinance)
- *Incentivar materiales de pavimentación permeables en entradas de vehículos, caminos y otras áreas de circulación en lugar de concreto, asfalto u otras superficies impermeables. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*

After reviewing the themes of what we heard from you previously about impacts of extreme heat:
Después de revisar los temas de lo que escuchamos anteriormente sobre los impactos del calor extremo:

1. *Is what we heard in the previous phase of outreach about how heat affects our communities accurate to your experience?*
   ¿Lo que escuchamos en la fase anterior de divulgación sobre cómo el calor afecta a nuestras comunidades es exacto a su experiencia?

2. *Is there anything you would like to add?*
   ¿Hay algo más que quieran agregar?

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Discussion Context

Contexto de la discusión

- By mid-century, projections suggest that most of the County will likely shift to moderate or high exposure to extreme heat, with the majority of LA County in high exposure by mid-century. (LA County Climate Vulnerability Assessment)
- *Para mediados de siglo, las proyecciones sugieren que la mayor parte del condado probablemente cambiará a una exposición moderada o alta al calor extremo, y la mayor parte del condado de Los Ángeles tendrá una exposición alta para mediados de siglo. (Evaluación de vulnerabilidad climática del condado de Los Ángeles)*
- Annual average maximum temperatures are expected to increase around 4.6 degrees Fahrenheit by 2050. (FTBMI Tribal Climate Resiliency Plan)
- *Se espera que las temperaturas máximas promedio anuales aumenten alrededor de 4,6 grados Fahrenheit para 2050. (Plan tribal de resiliencia climática de los FTBMI)*
- As temperatures rise, the duration of heat waves will increase as well. (FTBMI Tribal Climate Resiliency Plan)
- *A medida que aumentan las temperaturas, también aumentará la duración de las olas de calor. (Plan tribal de resiliencia climática de los FTBMI)*
- The projected number of extreme heat days is expected to increase by 8-20 days in the south and 29-36 days in the north of the FTBMI Land Boundary. (FTBMI Tribal Climate Resiliency Plan)
- *Se espera que el número proyectado de días de calor extremo aumente entre 8 y 20 días en el sur y entre 29 y 36 días en el norte del límite terrestre de FTBMI. (Plan tribal de resiliencia climática de los FTBMI)*
- Impacts from extreme heat will disproportionately affect low-income communities, who may have little access to preventative healthcare, and older homes, which are more likely to trap heat. (FTBMI Tribal Climate Resiliency Plan)
- *Los impactos del calor extremo afectarán desproporcionadamente a las comunidades de bajos ingresos, que pueden tener poco acceso a atención médica preventiva, y a las casas más antiguas, que tienen más probabilidades de atrapar el calor. (Plan tribal de resiliencia climática de los FTBMI)*
- Nighttime temperatures are projected to increase as well, partly due to built surfaces releasing heat absorbed during the day. (FTBMI Tribal Climate Resiliency Plan)
- *También se prevé que las temperaturas nocturnas aumenten, en parte debido a que las superficies construidas liberan el calor absorbido durante el día. (Plan tribal de resiliencia climática de los FTBMI)*

Mitigation Strategies and Resources Discussion

Discusión sobre estrategias y recursos de mitigación

You are part of the CVA process because your lived experience of extreme heat makes you an expert on strategies and resources needed to help make you and your community more resilient. The previously shared examples of mitigation strategies address the input provided by your communities; they are intended to be a starting point for exploring community-inspired solutions. For our discussion today, think of a strategy as a path to a solution and an action as a step along that path.

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Ustedes son parte del proceso de CVA porque su experiencia vivida de calor extremo lo convierte en un experto en estrategias y recursos necesarios para ayudarlo a usted y a su comunidad a ser más resilientes. Los ejemplos de estrategias de mitigación compartidos anteriormente abordan los aportes proporcionados por sus comunidades; están destinados a ser un punto de partida para explorar soluciones inspiradas en la comunidad. Para nuestra discusión de hoy, piense en una estrategia hacia una solución y una acción como un paso para alcanzar esa meta.

Let's think through strategies that would work best for the community. When thinking about strategies for extreme heat, think about the following concepts:
Pensemos en estrategias que funcionarían mejor para la comunidad. Cuando piense en estrategias para el calor extremo, piense en los siguientes conceptos:

- Natural and human-built methods for creating shade
- *Métodos naturales y artificiales para crear sombra*
- Expanding green infrastructure
- *Ampliación de la infraestructura verde*
- Reducing pavement or pavement temperature
- *Reducir la temperatura del pavimento o del pavimento*
- Ways to keep people cool on hot days
- *Maneras de mantener a la gente fresca en los días calurosos*
- Access to water and cooling resources
- *Acceso a recursos de agua y refrigeración*
- Any other concepts around heat exposure that are important to you
- *Cualquier otro concepto sobre la exposición al calor que sea importante para usted*

Some best practices for extreme heat resiliency include the following:
Algunas de las mejores prácticas para la resiliencia al calor extremo incluyen las siguientes:

- Work with communities to design and implement urban heat solutions that address community needs. (Greater Phoenix Heat Action Planning Guide)
- *Trabajar con las comunidades para diseñar e implementar soluciones de calefacción urbana que aborden las necesidades de la comunidad. (Guía de planificación de acción contra el calor en el área metropolitana de Phoenix)*
- Prioritize heat solutions that provide environmental benefits for under-resourced communities. (Greater Phoenix Heat Action Planning Guide)
- *Priorizar soluciones de calefacción que brinden beneficios ambientales para las comunidades de bajos recursos. (Guía de planificación de acción contra el calor en el área metropolitana de Phoenix)*
- Preserve and enhance tree canopy and green infrastructure throughout Clark County, ensuring equitable distribution of such assets across all neighborhoods. (All-In Clark County Sustainability and Climate Action Plan, Las Vegas, NV)
- *Preservar y mejorar las copas de los árboles y la infraestructura verde en todo el condado de Clark, garantizando una distribución equitativa de dichos activos en todos los vecindarios. (Plan integral de acción climática y de sostenibilidad del condado de Clark, Las Vegas, NV)*
- Amend building code regulations to require a percentage of all non-roof (e.g., hardscape) surfaces around new buildings meet certain criteria to reduce urban heat island effect. (San Diego's 2022 Climate Action Plan)

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- *Modificar las regulaciones del código de construcción para exigir que un porcentaje de todas las superficies que no sean techos (por ejemplo, superficies duras) alrededor de edificios nuevos cumplan con ciertos criterios para reducir el efecto de isla de calor urbana. (Plan de Acción Climática 2022 de San Diego)*

The following questions are meant to guide the collaborative conversation and don't need to be asked but serve to help facilitate the conversation:
Las siguientes preguntas están destinadas a guiar la conversación colaborativa y no es necesario formularlas, pero sirven para ayudar a facilitar la conversación:

1. *Did any of those strategies resonate for you and your community? If so, please explain.*
   ¿Alguna de esas estrategias resonó para usted y su comunidad? Si es así, explique.

2. *Are there any strategies or actions that are currently underway in the City or your community that you want to build on to reduce impacts from extreme heat? Please explain.*
   ¿Hay alguna estrategia o acción actualmente en marcha en la ciudad o en su comunidad que desee aprovechar para reducir los impactos del calor extremo? Por favor explique.

3. *What additional strategies and actions do you think would reduce the impacts of extreme heat in your community?*
   ¿Qué estrategias y acciones adicionales cree que reducirían los impactos del calor extremo en su comunidad?

4. *What roles do you see for the City and other partners in reducing extreme heat impacts?*
   ¿Qué parte o rollo ve para la Ciudad y otros socios en la reducción de los impactos del calor extremo?

5. *What role do you see for community members in reducing extreme heat impacts?*
   ¿Qué parte o rollo ve para los miembros de la comunidad en la reducción de los impactos del calor extremo?

6. *What other mitigation ideas do you have that you'd like to see explored in the CVA?*
   ¿Qué otras ideas de mitigación tiene que le gustaría que se explorarán en el CVA?

7. *Based on the strategies you prefer and have come up with, what might be needed to effectively implement these strategies in this community?*
   Según las estrategias que prefiere y que se le han ocurrido, ¿qué podría ser necesario para implementar estas estrategias de manera efectiva en esta comunidad?

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Goal of Community Conversation
Objetivo de la conversación comunitaria

- To ask for input on mitigation strategies to address projected impacts of increased precipitation and flooding and what community priorities are for implementing these strategies.
- *Solicitar comentarios sobre estrategias de mitigación para abordar los impactos proyectados relacionados con las precipitaciones extremas e inundaciones y cuáles son las prioridades de la comunidad para implementar estas estrategias.*

Summary of Community Data/Feedback and Proposed Mitigation Strategies Summary
Resumen de datos/comentarios de la comunidad y resumen de estrategias de mitigación propuestas

Key Themes of Input
Temas clave de entrada

- Heavy precipitation is overwhelming stormwater systems in specific streets and locations across multiple neighborhoods. (SBCC, Rising Communities)
- *Las fuertes precipitaciones están abrumando los sistemas de aguas pluviales en calles y ubicaciones específicas en varios vecindarios. (SBCC, Rising Communities)*
- Community members want additional maintenance and clean-up performed to reduce stormwater drain clogs that occur during heavy precipitation events. (SBCC, Rising Communities, Promesa BH)
- *Los miembros de la comunidad quieren que se realice mantenimiento y limpieza adicionales para reducir las obstrucciones en los drenajes de aguas pluviales que ocurren durante eventos de fuertes precipitaciones. (SBCC, Rising Communities, Promesa BH)*
- Community is covered by cement, so there are no places where water could go and be captured; we should have trees with root systems that can absorb high volumes of rain and that don't raise the sidewalks. (Promesa BH)

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- *Comunidad cubierta de cemento, por lo que no hay lugares por donde pueda ser captada el agua; deberíamos tener árboles con sistemas de raíces que puedan absorber grandes volúmenes de lluvia y que no levanten las aceras. (Promesa BH)*
- Water accumulation leads to an increase in mosquitoes. (Promesa BH, SBCC)
- *La acumulación de agua provoca un aumento de los mosquitos. (Promesa BH)*
- Increased precipitation damages infrastructure like house walls, causes mold. (SBCC)
- *El aumento de las precipitaciones daña la infraestructura, como las paredes de las casas, y provoca moho. (SBCC)*
- Communities experience flooding in specific spots across neighborhoods. (Rising Communities, SBCC, Promesa BH)
- *Las comunidades experimentan inundaciones en puntos específicos de los vecindarios. (Rising Communities, SBCC, Promesa BH)*
- Flooding can lead to potholes and road damage. (Rising Communities, SBCC, Promesa BH)
- *Las inundaciones pueden provocar baches y daños en las carreteras. (Rising Communities, SBCC, Promesa BH)*
- Residents think that flood notifications are important. (Rising Communities, SBCC, Promesa BH)
- *Los residentes creen que las notificaciones de inundaciones son importantes. (Rising Communities, SBCC, Promesa BH)*
- Flooding causes traffic congestion and makes accidents more likely. There is also flooding in schools which impacts students' education. (Promesa BH)
- *Las inundaciones provocan congestión del tráfico y aumentan la probabilidad de accidentes; También hay inundaciones en las escuelas que afectan la educación de los estudiantes. (Promesa BH)*
- Sidewalks get flooded and back up storm drains so it is impossible to use the sidewalks. Trash buildup contributes to flooding by blocking the storm drains. (Promesa BH, SBCC)
- *Las aceras se inundan y obstruyen los desagües pluviales, por lo que es imposible utilizarlas. La acumulación de basura contribuye a las inundaciones al bloquear los desagües pluviales. (Promesa BH, SBCC)*
- Need more permeable surfaces instead of paving with asphalt. (Promesa BH)
- *Se necesitan superficies más permeables en lugar de pavimentar con asfalto. (Promesa BH)*

Mitigation Measures Shared Thus Far
Medidas de mitigación compartidas hasta ahora

- Enhance floodplains to allow local streams and rivers to accommodate flows during storm events and capture stormwater for groundwater replenishment. (FTBMI* Tribal Climate Resiliency Plan)
- *Mejorar las llanuras aluviales para permitir que los arroyos y ríos locales se adapten a los flujos durante las tormentas y capturen las aguas pluviales para reponer las aguas subterráneas. (Plan tribal de resiliencia climática de los FTBMI*)*
- Facilitate nature-based stormwater infrastructure that slow, spread, and sink rainfall during storm events (e.g. bioswales, rain gardens). (FTBMI* Tribal Climate Resiliency Plan, North East Trees, Draft Venice Local Coastal Plan, Department of City Planning)

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- *Facilitar una infraestructura de aguas pluviales basada en la naturaleza que ralentice, propague y hunda las lluvias durante las tormentas. (Plan tribal de resiliencia climática de los FTBMI*, Borrador del Plan Costero Local de Venecia, Departamento de Planificación)*
- Local capture of stormwater through nature-based solutions to enhance local water supply, reduce stress on aquatic ecosystems, and provide supplementary benefits like shading, cooling, and habitat. (FTBMI* Tribal Climate Resiliency Plan, Draft Venice Local Coastal Plan, Department of City Planning)
- *Captura local de aguas pluviales a través de soluciones basadas en la naturaleza para mejorar el suministro de agua local, reducir el estrés en los ecosistemas acuáticos y proporcionar beneficios complementarios como sombra, enfriamiento y hábitat. (Plan tribal de resiliencia climática de los FTBMI*, Borrador del Plan Costero Local de Venecia, Departamento de Planificación)*
- We need more hubs to be cooling centers and or other support centers for youth and elderly that are dealing with the climate impacts of heat, flooding/rain. (SCOPE, SBCC, Pacoima Beautiful, Promesa BH, Rising Communities)
- *Necesitamos que más centros sean centros de enfriamiento u otros centros de apoyo para jóvenes y ancianos que estén lidiando con los impactos climáticos del calor, las inundaciones y la lluvia. (SCOPE, SBCC, Pacoima Beautiful, Promesa BH, Rising Communities)*
- Increased drains and improved water drainage in streets – gutters flood because of trash pile up (residents are forced to drain street water themselves – using sticks, etc.) (Rising Communities, Pacoima Beautiful, Promesa BH, SBCC, SCOPE)
- *Mayores desagües y mejor drenaje de agua en las calles: los canalones se inundan debido a la acumulación de basura (los residentes se ven obligados a drenar el agua de la calle ellos mismos, usando palos, etc.) (Rising Communities, Pacoima Beautiful, Promesa BH, SBCC, SCOPE)*
- New street trees in the public Right-Of-Way planted at least one street tree per 30 linear feet of street frontage with new development. (Draft DCP Landscape and Site Design Ordinance)
- *Nuevos árboles en la calle en el derecho de paso público plantados al menos un árbol en la calle por cada 30 pies lineales de frente de calle con nuevo desarrollo. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*
- Tree conservation and preservation of existing healthy trees on private property and minimize/prevent tree removal on the public Right-Of-Way. (Draft DCP Landscape and Site Design Ordinance)
- *Conservación y preservación de árboles sanos existentes en propiedad privada y minimizar/prevenir la remoción de árboles en el derecho de vía público. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*
- Provide trees in open space areas of new development and existing buildings at a minimum ratio of one tree for each 500 square feet of landscaped areas where palms and succulents do not qualify as trees. (Draft DCP Landscape and Site Design Ordinance)
- *Proporcionar árboles en áreas de espacios abiertos de nuevos desarrollos y edificios existentes en una proporción mínima de un árbol por cada 500 pies cuadrados de áreas ajardinadas donde las palmeras y las suculentas no califican como árboles. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*

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- Provide a minimum of 30% shade coverage of outdoor areas in new development using climate-adapted or locally native trees and shrubs or alternative means. (Draft DCP Landscape and Site Design Ordinance)
- *Proporcionar una cobertura de sombra mínima del 30% de las áreas exteriores en nuevos desarrollos utilizando árboles y plantas nativos locales o adaptados al clima o medios alternativos. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*
- Incentivize permeable paving materials in driveways, pathways, and other circulation areas in lieu of concrete, asphalt or other impervious surfaces. (Draft DCP Landscape and Site Design Ordinance)
- *Incentivar materiales de pavimentación permeables en entradas de vehículos, caminos y otras áreas de circulación en lugar de concreto, asfalto u otras superficies impermeables. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*

After reviewing the themes of what we heard from you previously about impacts of extreme precipitation and flooding:
Después de revisar los temas de lo que escuchamos anteriormente sobre los impactos del aumento de las precipitaciones y las inundaciones:

1. *Is what we heard in the previous phase of outreach about how increased precipitation and flooding affects our communities accurate to your experience?*
   ¿Lo que escuchamos en la fase anterior de divulgación sobre cómo el aumento de las precipitaciones y las inundaciones afecta a nuestras comunidades es exacto a su experiencia?

2. *Is there anything you would like to add?*
   ¿Hay algo más que quieran agregar?

Discussion Context
Contexto de la discusión

- Climate change will increase the likelihood of extreme precipitation events and occurrence of severe floods due to stronger atmospheric rivers, and extend the flood hazard season. (FTBMI* Tribal Climate Resiliency Plan)
- *El cambio climático aumentará la probabilidad de que se produzcan precipitaciones extremas y de inundaciones graves debido a ríos atmosféricos más fuertes, y prolongará la temporada de peligro de inundaciones. (FTBMI* Plan Tribal de Resiliencia Climática)*
- Increased flooding would damage homes, highways, and critical power, water, and sewer infrastructure. (FTBMI Tribal Climate Resiliency Plan)
- *El aumento de las inundaciones dañaría viviendas, carreteras e infraestructura crítica de energía, agua y alcantarillado. (FTBMI Plan Tribal de Resiliencia Climática)*
- The Los Angeles River and several dams are identified as high hazard flood infrastructure, or are at risk of failure from a 100-year storm. (FTBMI Tribal Climate Resiliency Plan)

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- *El río Los Ángeles y varias represas están identificadas como infraestructura de alto riesgo de inundaciones o corren el riesgo de fallar debido a una tormenta de 100 años. (FTBMI Plan Tribal de Resiliencia Climática)*
- Inland flooding and extreme precipitation can and do occur independently and can have discrete impacts on people and infrastructure. (LA County Climate Vulnerability Assessment)
- *Las inundaciones y las precipitaciones extremas pueden ocurrir y ocurren de manera independiente y pueden tener impactos discretos en las personas y la infraestructura. (Evaluación de vulnerabilidad climática del condado de Los Ángeles)*
- Inland flooding can cause equipment damage to electricity generation and distribution systems, impair hospital facilities and equipment, erode road and bridge infrastructure, and overwhelm stormwater systems. (LA County Climate Vulnerability Assessment)
- *Las inundaciones pueden causar daños a los equipos de los sistemas de generación y distribución de electricidad, dañar las instalaciones y equipos hospitalarios, erosionar la infraestructura de carreteras y puentes y abrumar los sistemas de aguas pluviales. (Evaluación de vulnerabilidad climática del condado de Los Ángeles)*
- When the design capacity of storm drain systems is exceeded by a major storm, or when storm drain infrastructure is unable to function because of debris blockage, these systems can contribute to localized flooding. (LA County Climate Vulnerability Assessment)
- *Cuando una tormenta importante excede la capacidad de diseño de los sistemas de drenaje pluvial, o cuando la infraestructura de drenaje pluvial no puede funcionar debido a la obstrucción de escombros, estos sistemas pueden contribuir a inundaciones localizadas. (Evaluación de vulnerabilidad climática del condado de Los Ángeles)*
- Because extreme precipitation is anticipated to become more variable and more intense, storm drain systems could face high volumes of stormwater through mid-century. (LA County Climate Vulnerability Assessment)
- *Debido a que se prevé que las precipitaciones extremas se vuelvan más variables e intensas, los sistemas de drenaje pluvial podrían enfrentar grandes volúmenes de aguas pluviales hasta mediados de siglo. (Evaluación de vulnerabilidad climática del condado de Los Ángeles)*
- Periods of severe drought may be followed by extreme precipitation events leading to risk of flooding, mudslides, and damage to water infrastructure. (Resilient Los Angeles, City of LA)
- *Los períodos de sequía grave pueden ir seguidos de precipitaciones extremas que provocan riesgos de inundaciones, deslizamientos de tierra y daños a la infraestructura hídrica. (Los Ángeles Resilientes, Ciudad de Los Ángeles)*
- Water quality regulations increasingly require on-site management of runoff from storms up to a key design storm from historic hydrology. While this assists in reducing runoff from smaller storms that can improve surface water quality, it does not address large-scale flooding that may result from more extreme rainfall events. (California's Fourth Climate Change Assessment: Los Angeles Region)
- *Las regulaciones sobre la calidad del agua exigen cada vez más la gestión in situ de la escorrentía de las tormentas hasta una tormenta de diseño clave de la hidrología*

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histórica. Si bien esto ayuda a reducir la escorrentía de tormentas más pequeñas que pueden mejorar la calidad del agua superficial, no aborda las inundaciones a gran escala que pueden resultar de eventos de lluvia más extremos. (Cuarta Evaluación del Cambio Climático de California: Región de Los Ángeles)

Mitigation Strategies and Resources Discussion

Discusión sobre estrategias y recursos de mitigación

You are part of the CVA process because your lived experience of extreme precipitation and flooding makes you an expert on strategies and resources needed to help make you and your community more resilient. The following examples of mitigation strategies address the input provided by your communities; they are intended to be a starting point for exploring community-inspired solutions.

Ustedes son parte del proceso de CVA porque su experiencia vivida de la precipitación extrema y las inundaciones lo convierte en un experto en estrategias y recursos necesarios para ayudarlo a usted y a su comunidad a ser más resilientes. Los siguientes ejemplos de estrategias de mitigación abordan los aportes proporcionados por sus comunidades; están destinados a ser un punto de partida para explorar soluciones inspiradas en la comunidad.

Let's think through strategies that would work best for the community. When thinking about strategies for increased precipitation and flooding, think about the following concepts:

Pensemos en estrategias que funcionarían mejor para la comunidad. Cuando piense en estrategias para las precipitaciones extremas y las inundaciones, piense en los siguientes conceptos:

- Increased precipitation and flooding can be interrelated but not always. Precipitation leads to flooding only if the landscape and infrastructure cannot handle the quantity of water produced by increased precipitation.
- *El aumento de las precipitaciones y las inundaciones pueden estar interrelacionados, pero no siempre. Las precipitaciones provocan inundaciones sólo si el paisaje y la infraestructura no pueden soportar la cantidad de agua producida por el aumento de las precipitaciones.*
- Nature-based solutions such as rainfall catchment and parks can both capture the benefits of rainfall without leading to flooding.
- *Las soluciones basadas en la naturaleza, como la captación de lluvia y los parques, pueden capturar los beneficios de la lluvia sin provocar inundaciones.*
- It is important to note that stormwater infrastructure can be designed to handle increased precipitation events. However, appropriate maintenance and reducing the amount of waste flowing into storm drains requires action from City departments, communities, and individuals to ensure the system works properly.
- *Es importante señalar que la infraestructura de aguas pluviales se puede diseñar para soportar eventos de mayores precipitaciones. Sin embargo, el mantenimiento adecuado y la reducción de la cantidad de desechos que fluyen hacia los desagües pluviales requieren acciones por parte de los departamentos, comunidades e individuos de la ciudad para garantizar que el sistema funcione correctamente.*

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- In the past, stormwater infrastructure was designed to handle past flooding patterns so there is a need to upgrade stormwater infrastructure and roads to prepare for future flooding.
- *En el pasado, la infraestructura de aguas pluviales se diseñó para manєjar patrones de inundaciones anteriores, por lo que es necesario mєjorar la infraestructura de aguas pluviales y las carreteras para prepararse para futuras inundaciones.*
- Flooding can happen in areas that are not within a mapped floodplain or flood hazard zone.
- *Las inundaciones pueden ocurrir en áreas que no están dentro de una llanura aluvial cartografiada o una zona de peligro de inundación.*
- There are many natural and human-made solutions to reducing impacts from flooding.
- *Existen muchas soluciones naturales y creadas por el hombre para reducir los impactos de las inundaciones.*

The following questions are meant to guide the collaborative conversation and don't need to be asked but serve to help facilitate the conversation:
Las siguientes preguntas están destinadas a guiar la conversación colaborativa y no es necesario formularlas, pero sirven para ayudar a facilitar la conversación:

1. *Did any of those strategies resonate for you and your community? If so, please explain.*
   ¿Alguna de esas estrategias resonó para usted y su comunidad? Si es así, explique.

2. *Are there any strategies or actions that are currently underway in the City or your community that you want to build on to reduce impacts from increased precipitation and flooding? Please explain.*
   ¿Hay alguna estrategia o acción actualmente en marcha en la ciudad o en su comunidad que desee aprovechar para reducir los impactos de las precipitaciones y las inundaciones? Por favor explique.

3. *What strategies and actions do you think would reduce impacts from increased precipitation and flooding in your community?*
   ¿Qué estrategias y acciones cree que reducirían los impactos del aumento de las precipitaciones y las inundaciones en su comunidad?

4. *What roles do you see for the City and other partners in reducing impacts from increased precipitation?*
   ¿Qué parte o rollo ve para la Ciudad y otros socios en la reducción de los impactos de las precipitaciones y las inundaciones?

5. *What role do you see for community members in reducing impacts from increased precipitation and flooding? ¿Qué parte o rollo ve para los miembros de la comunidad en la reducción de los impactos de las precipitaciones y las inundaciones?*

6. *What other mitigation ideas do you have that you'd like to see explored in the CVA?*
   ¿Qué otras ideas de mitigación tiene que le gustaría que se explorarán en el CVA?

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7. *Based on the strategies you prefer and have come up with, what might be needed to effectively implement these strategies in this community?*
   Según las estrategias que prefiere y que se le han ocurrido, ¿qué podría ser necesario para implementar estas estrategias de manera efectiva en esta comunidad?

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Goal of Community Conversation

Objetivo de la conversación comunitaria

- To ask for input on mitigation strategies to address climate-related impacts on public health and what community priorities are for implementing these strategies.
- *Solicitar comentarios sobre estrategias de mitigación para abordar los impactos relacionados con el clima en la salud pública y cuáles son las prioridades de la comunidad para implementar estas estrategias.*

Summary of Community Data/Feedback and Proposed Mitigation Strategies Summary

Resumen de datos/comentarios de la comunidad y resumen de estrategias de mitigación propuestas

Key Themes of Input

Temas clave de entrada

- The single most pressing concern was air quality, which "informs the need for climate resilience strategies that address air pollution through multiple avenues such as extreme heat interactions." (FTBMI* Tribal Climate Resiliency Plan)
- *La preocupación más urgente fue la calidad del aire, que "informa la necesidad de estrategias de resiliencia climática que aborden la contaminación del aire a través de múltiples vías, como las interacciones con el calor extremo". (FTBMI* Plan Tribal de Resiliencia Climática)*
- Heat makes air quality and walking places a terrible and unhealthy experience. (SBCC, Rising Communities, SCOPE, Promesa BH, Pacoima Beautiful)
- *El calor hace que la calidad del aire y los lugares para caminar sean una experiencia terrible y poco saludable. (SBCC, Rising Communities, SCOPE, Promesa BH, Pacoima Beautiful)*
- Heat creates and exacerbates existing illnesses and causes nosebleeds, headaches, and rashes. (Promesa BH, SBCC, Rising Communities, Pacoima Beautiful, SCOPE)

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- *El calor crea y exacerba enfermedades existentes y provoca hemorragias nasales, dolores de cabeza y erupciones cutáneas. (Promesa BH, SBCC, Rising Communities, Pacoima Beautiful, SCOPE)*
- Air contamination and smoke exposure cause respiratory issues, allergies, and illnesses like bronchitis. (Promesa BH, SBCC, SCOPE, Pacoima Beautiful, Rising Communities)
- *La contaminación del aire y la exposición al humo causan problemas respiratorios, alergias y enfermedades como bronquitis. (Promesa BH, SBCC, SCOPE, Pacoima Beautiful, Rising Communities)*

Mitigation Measures Shared Thus Far
Medidas de mitigación compartidas hasta ahora

- Create cooling centers/other places with air conditioning and resilience hubs where residents can get support, coordinate communication, find resources, and reduce carbon pollution while enhancing quality of life. (FTBMI* Tribal Climate Resiliency Plan)
- *Crear centros de enfriamiento/otros lugares con aire acondicionado y centros de resiliencia donde los residentes puedan obtener apoyo, coordinar la comunicación, encontrar recursos y reducir la contaminación de carbono mientras mejoran la calidad de vida. (FTBMI* Plan Tribal de Resiliencia Climática)*
- Solar photovoltaic and/or community solar system in combination with stationary energy storage for microgrid implementation, capable of providing back-up power to entire residences for prolonged periods. (FTBMI* Tribal Climate Resiliency Plan)
- *Sistema solar fotovoltaico y/o comunitario en combinación con almacenamiento de energía estacionario para implementación de microrredes, capaz de proporcionar energía de respaldo a residencias enteras por períodos prolongados. (FTBMI* Plan Tribal de Resiliencia Climática)*
- Those with extreme health conditions should be assigned emergency generators for cases in these extreme weather conditions. (Rising Communities)
- *A aquellas personas con condiciones de salud extremas se les deben asignar generadores de emergencia para casos en estas condiciones climáticas extremas. (Rising Communities)*
- We need more hubs to be cooling centers and or other support centers for youth and elderly that are dealing with the climate impacts of heat, flooding/rain. (SCOPE, SBCC, Pacoima Beautiful, Promesa BH, Rising Communities)
- *Necesitamos que más centros sean centros de enfriamiento u otros centros de apoyo para jóvenes y ancianos que estén lidiando con los impactos climáticos del calor, las inundaciones y la lluvia. (SCOPE, SBCC, Pacoima Beautiful, Promesa BH, Rising Communities)*
- Increase tree canopy and open space and decrease industry and associated air quality impacts for multiple health benefits including reduced heat, air quality, and mental health. (All)
- *Aumentar la copa de los árboles y los espacios abiertos y disminuir la industria y los impactos asociados a la calidad del aire para obtener múltiples beneficios para la salud, incluida la reducción del calor, la calidad del aire y la salud mental. (Todos)*
- Include specialized monitoring in Pacoima as part of the 2024 annual Air Quality Monitoring Network Plan. (Pacoima Beautiful - UCLA Community Air Quality Monitoring in Pacoima, California)

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- *Incluir monitoreo especializado en Pacoima como parte del Plan Anual de la Red de Monitoreo de la Calidad del Aire 2024. (Pacoima Beautiful, Monitoreo de la calidad del aire comunitario de UCLA en Pacoima, California)*
- Strengthen programs that support community-based air monitoring to achieve environmental equity, such as AB 617. (Pacoima Beautiful - UCLA Community Air Quality Monitoring in Pacoima, California)
- *Fortalecer los programas que apoyan el monitoreo del aire comunitario para lograr la equidad ambiental, como AB 617. (Pacoima Beautiful - UCLA Community Air Quality Monitoring en Pacoima, California)*
- Work with South Coast AQMD and Pacoima stakeholders to nominate the area for CARB's community-based enforcement programs. (Pacoima Beautiful - UCLA Community Air Quality Monitoring in Pacoima, California)
- *Trabajar con las partes interesadas de South Coast AQMD y Pacoima para nominar el área para los programas de aplicación de la ley basados en la comunidad de CARB. (Pacoima Beautiful - Monitoreo de la calidad del aire comunitario de UCLA en Pacoima, California)*
- Future analysis should consider: utilizing stops from additional transit providers; conducting a refined approach to accessing tree shade using Public Works parkway tree inventory; and consider points of interest relative to stops, such as schools, hospitals, and grocery stores. (Pacoima Beautiful - UCLA Student Report: Bus Shelter Equity: A study of the distribution of bus shelters in Los Angeles County and unincorporated communities)
- *En futuro análisis se debería considerar: la utilización de paradas de proveedores adicionales de transporte; implementar un enfoque refinado para acceder a la sombra de los árboles utilizando el inventario de árboles del parque de Obras Públicas; y tener en cuenta puntos de interés como escuelas, hospitales y tiendas de comestibles en relación a las paradas. (Pacoima Beautiful - Informe de Estudiantes de UCLA: Equidad en las Paradas de Autobús: Un estudio sobre la distribución de las paradas de autobús en el Condado de Los Ángeles y comunidades no incorporadas)*
- Develop a clear and transparent methodology for siting bus shelters. This formula should consider factors such as existing equity and heat metrics to ensure equitable distribution of shelters across different neighborhoods. (Pacoima Beautiful - UCLA, Identifying And Addressing Heat Inequities in the City of Los Angeles)
- *Desarrollar una metodología clara y transparente para la ubicación de refugios de autobús. Esta fórmula debería considerar factores como la equidad existente y métricas de calor para garantizar una distribución equitativa de refugios en diferentes vecindarios. (Pacoima Beautiful - UCLA, Identificación y Abordaje de las Inequidades de Calor en la Ciudad de Los Ángeles)*
- Involve residents and local stakeholders in the design and siting of bus shelters (Pacoima Beautiful - UCLA, Identifying And Addressing Heat Inequities in the City of Los Angeles)
- *Involucrar a residentes y partes interesadas locales en el diseño y ubicación de refugios de autobús. (Pacoima Beautiful - UCLA, Identificación y Abordaje de las Inequidades de Calor en la Ciudad de Los Ángeles)*
- Improve coordination between Sidewalk and Transit Amenities Program (STAP) and other heat adaptation initiatives in Los Angeles (Pacoima Beautiful - UCLA, Identifying And Addressing Heat Inequities in the City of Los Angeles)

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- *Mejorar la coordinación entre el Programa de Aceras y Amenidades de Transporte (STAP) y otras iniciativas de adaptación al calor en Los Ángeles. (Pacoima Beautiful - UCLA, Identificación y Abordaje de las Inequidades de Calor en la Ciudad de Los Ángeles)*
- Increase access to open space and enhance trail connectivity to improve mental and physical health. (North East Trees)
- *Aumentar el acceso a áreas verdes y conectar senderos para promover la salud mental y física. (Árboles del noreste)*
- New street trees in the public Right-Of-Way planted at least one street tree per 30 linear feet of street frontage with new development. (Draft DCP Landscape and Site Design Ordinance)
- *Nuevos árboles en la calle en el derecho de paso público plantados al menos un árbol en la calle por cada 30 pies lineales de frente de calle con nuevo desarrollo. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*
- Facilitate, encourage and incentivize new development and existing buildings to install shade structures on building storefronts like awnings along sidewalks with priority along sidewalks without tree shade. (Draft DCP Landscape and Site Design Ordinance)
- *Facilitar, alentar e incentivar nuevos desarrollos y edificios existentes para instalar estructuras de sombra en los escaparates de los edificios, como toldos a lo largo de las aceras, con prioridad a lo largo de las aceras sin sombra de árboles. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*
- Residential building designs that promote cross-ventilation through the use of windows on two sides and/or skylights in new development. (Draft DCP Landscape and Site Design Ordinance)
- *Diseños de edificios residenciales que promueven la ventilación cruzada mediante el uso de ventanas en dos lados y/o tragaluces en nuevos desarrollos. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*
- Tree conservation and preservation of existing healthy trees on private property and minimize/prevent tree removal on the public Right-Of-Way. (Draft DCP Landscape and Site Design Ordinance)
- *Conservación y preservación de árboles sanos existentes en propiedad privada y minimizar/prevenir la remoción de árboles en el derecho de vía público. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*
- Provide trees in open space areas of new development and existing buildings at a minimum ratio of one tree for each 500 square feet of landscaped areas where palms and succulents do not qualify as trees. (Draft DCP Landscape and Site Design Ordinance)
- *Proporcionar árboles en áreas de espacios abiertos de nuevos desarrollos y edificios existentes en una proporción mínima de un árbol por cada 500 pies cuadrados de áreas ajardinadas donde las palmeras y las suculentas no califican como árboles. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*
- Provide a minimum of 30% shade coverage of outdoor areas in new development using climate-adapted or locally native trees and shrubs or alternative means. (Draft DCP Landscape and Site Design Ordinance)
- *Proporcionar una cobertura de sombra mínima del 30% de las áreas exteriores en nuevos desarrollos utilizando árboles y plantas nativos locales o adaptados al clima o medios*

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alternativos. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)

- Incentivize permeable paving materials in driveways, pathways, and other circulation areas in lieu of concrete, asphalt or other impervious surfaces. (Draft DCP Landscape and Site Design Ordinance)
- *Incentivar materiales de pavimentación permeables en entradas de vehículos, caminos y otras áreas de circulación en lugar de concreto, asfalto u otras superficies impermeables. (Borrador de Ordenanza de diseño de sitios y ajardinamiento del Departamento de Planificación)*

After reviewing the themes of what we heard from you previously about future impacts of climate change on public health:
Después revisando el temas de lo que escuchamos de usted anteriormente sobre impactos futuros del cambio climático en la salud pública:

1. *Is what we heard in the previous phase of outreach about the effects of climate change on public health accurate to your experience?*
   ¿Lo que escuchamos en la fase anterior de divulgación sobre los efectos del cambio climático en la salud pública es exacto a su experiencia?

2. *Is there anything you would like to add?*
   ¿Hay algo que quieran agregar?

Discussion Context
Contexto de la discusión

- Low-income households are less able to pay for air conditioning during extreme heat, even if their home has air conditioning equipment. Many low-income neighborhoods are also overburdened by high levels of environmental pollution, contributing to respiratory and cardiovascular health impacts among residents. (LA County Climate Vulnerability Assessment)
- *Los hogares de bajos ingresos tienen menos posibilidades de pagar el aire acondicionado durante los períodos de calor extremo, incluso si su hogar tiene equipo de aire acondicionado. Muchos vecindarios de bajos ingresos también están sobrecargados por altos niveles de contaminación ambiental, lo que contribuye a los impactos en la salud respiratoria y cardiovascular de los residentes. (Evaluación de vulnerabilidad climática del condado de Los Ángeles)*
- Risk of exposure to very unhealthy and hazardous levels of air quality due to predictions of increased burn areas and fire frequencies in the FTBMI boundary. (FTBMI Tribal Climate Resiliency Plan)
- *Riesgo de exposición a niveles de calidad del aire muy malos y peligrosos a la salud debido a las predicciones de un aumento de las áreas quemadas y la frecuencia de los incendios en el límite del FTBMI. (FTBMI* Plan Tribal de Resiliencia Climática)*
- The health effects of particle pollution exposure can range from relatively minor (e.g., eye and respiratory tract irritation) to more serious health effects (e.g., exacerbation of asthma and heart failure, and premature death). The examination of persistent short-term exposures to wildfire smoke (i.e., exposures over a series of days up to a few weeks) has been limited to a few epidemiologic studies examining the

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cumulative effect of wildfire smoke exposure on the health of wildland firefighters. (Health Effects Attributed to Wildfire Smoke webpage, US Environmental Protection Agency)

- *Los efectos sobre la salud de la exposición a la contaminación por partículas pueden variar desde relativamente menores (p. ϵj., irritación de los ojos y del tracto respiratorio) hasta efectos más graves para la salud (p. ϵj., exacerbación del asma y la insuficiencia cardíaca, y muerte prematura). El examen de las exposiciones persistentes a corto plazo al humo de los incendios forestales (es decir, exposiciones durante una serie de días hasta algunas semanas) se ha limitado a unos pocos estudios epidemiológicos que examinan el efecto acumulativo de la exposición al humo de los incendios forestales en la salud de los bomberos forestales. (Página web sobre efectos sobre la salud atribuidos al humo de los incendios forestales, Agencia de Protección Ambiental de EE. UU.)*
- Heat ranks amongst the deadliest of all climate-driven hazards in California, and heat waves in cities are projected to cause two to three times more heat-related deaths by mid-century. (Protecting Californians From Extreme Heat, California Natural Resources Agency)
- *El calor se encuentra entre los peligros más letales provocados por el clima en California, y se proyecta que las olas de calor en las ciudades causarán entre dos y tres veces más muertes relacionadas con el calor para mediados de siglo. (Protegiendo a los Californianos del calor extremo, Agencia de Recursos Naturales de California)*
- Older populations, infants and children, pregnant people, and people with chronic illness can be especially sensitive to heat exposure. Combining these characteristics and existing health inequities with additional factors, such as poverty, linguistic isolation, housing insecurity, and the legacy of racist redlining policies, can put individuals at disproportionately high risk of heat-related illness and death. (Protecting Californians From Extreme Heat, California Natural Resources Agency)
- *Las poblaciones de mayor edad, los bebés y los niños, las personas embarazadas y las personas con enfermedades crónicas pueden ser especialmente sensibles a la exposición al calor. La combinación de estas características y las desigualdades sanitarias existentes con factores adicionales, como la pobreza, el aislamiento lingüístico, la inseguridad habitacional y el legado de políticas racistas de exclusión, puede poner a las personas en un riesgo desproporcionadamente alto de sufrir enfermedades y muerte relacionadas con el calor. (Protegiendo a los Californianos del calor extremo, Agencia de Recursos Naturales de California)*

Mitigation Strategies and Resources Discussion

Discusión sobre estrategias y recursos de mitigación

You are part of the CVA process because your lived experience of climate-related impacts on public health makes you an expert on strategies and resources needed to help make you and your community more resilient. The previously shared examples of mitigation strategies address the input provided by your communities; they are intended to be a starting point for exploring community-inspired solutions.

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Ustedes son parte del proceso de CVA porque su experiencia vivida de los impactos en la salud pública lo convierte en un experto en estrategias y recursos necesarios para ayudarlo a usted y a su comunidad a ser más resilientes. Los ejemplos de estrategias de mitigación compartidos anteriormente abordan los aportes proporcionados por sus comunidades; están destinados a ser un punto de partida para explorar soluciones inspiradas en la comunidad.

Let's think through strategies that would work best for the community. Concepts to think about during this conversation are:
Pensemos en estrategias que funcionarían mejor para la comunidad. Los conceptos en los que pensar durante esta conversación son:

- Wildfire smoke is hard to prevent due to the large distances it can travel so think about ways to limit outdoor activities and exposure when air quality is worse.
- *El humo de los incendios forestales es difícil de prevenir debido a las grandes distancias que puede recorrer, así que piense en formas de limitar las actividades al aire libre y la exposición cuando la calidad del aire es peor.*
- There are many potential ways to help vulnerable people reduce the impacts of heat on public health. These can take the form of methods such as creating awareness, reducing exposure, increasing access to healthcare and cooling near places where vulnerable people live, and many other methods.
- *Hay muchas formas potenciales de ayudar a las personas vulnerables a reducir los impactos del calor en la salud pública. Estos pueden tomar la forma de métodos como crear conciencia, reducir la exposición, aumentar el acceso a la atención médica y enfriar cerca de los lugares donde viven personas vulnerables, y muchos otros métodos.*

Some best practices for climate-related public health resiliency include the following:
Algunas de las mejores prácticas para la salud pública relacionada con el clima incluyen las siguientes:

- Support a comprehensive outreach campaign to prevent heat related illnesses among children, seniors, and people with disabilities in the care of licensed facilities.
- *Apoyar una campaña de divulgación integral para prevenir enfermedades relacionadas con el calor entre niños, personas mayores y personas con discapacidades bajo el cuidado de instalaciones autorizadas.*
    - Action: The campaign would target support for facilities most impacted by extreme heat with the least capacity to protect those in their charge. This includes, but is not limited to, facilities located in areas of the state where seasonal temperatures regularly reach above 90 degrees, facilities that serve residents and clients who are Supplemental Security Income recipients, facilities that serve seniors and people with disabilities, including but not limited to skilled residential care facilities, facilities that serve families eligible for state subsidized childcare, and licensees/workforce and residents/clients/ children that primarily use English as a Second Language. (Protecting Californians From Extreme Heat, California Natural Resources Agency)
    - *Acción: La campaña se centraría en el apoyo a las instalaciones más afectadas por el calor extremo y con menor capacidad para proteger a quienes*

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están a su cargo. Esto incluye, entre otras, instalaciones ubicadas en áreas del estado donde las temperaturas estacionales regularmente superan los 90 grados, instalaciones que atienden a residentes y clientes que son beneficiarios de Seguridad de Ingreso Suplementario, instalaciones que atienden a personas mayores y con discapacidades, incluidas, entre otras, instalaciones de atención residencial especializada, instalaciones que atienden a familias elegibles para cuidado infantil subsidiado por el estado, y licenciatarios/mano de obra y residentes/clientes/niños que utilizan principalmente el inglés como segundo idioma. (Protegiendo a los Californianos del calor extremo, Agencia de Recursos Naturales de California)

- Evaluate energy and cost-efficient strategies that could provide protection against heat and air pollution for vulnerable populations. (Protecting Californians From Extreme Heat, California Natural Resources Agency)
- *Evaluar estrategias energéticas y rentables que podrían brindar protección contra el calor y la contaminación del aire a las poblaciones vulnerables. (Protegiendo a los Californianos del calor extremo, Agencia de Recursos Naturales de California)*
- Residents proposed an Emergency Summer Plan for students in K-12 and adults in the community.
- *Los residentes propusieron un Plan de Emergencia de Verano para estudiantes de K-12 y adultos de la comunidad.*
    - Action: For adults, they would be made aware of the cool spots and official cooling centers, be able to use an app or live map on the bus stop shelter that would let them know the bus arrival times to avoid needless waiting in the hot sun and have access to water throughout their outdoor activity. (Greater Phoenix Heat Action Planning Guide, pg. 47)
    - *Acción: Para los adultos, se les informaría sobre los lugares frescos y los centros oficiales de enfriamiento, podrían usar una aplicación o un mapa en vivo en la parada de autobús que les permitiría saber los horarios de llegada de los autobuses para evitar esperas innecesarias bajo el sol. y tener acceso al agua durante toda su actividad al aire libre. (Guía de planificación de acción contra el calor en el área metropolitana de Phoenix, pág. 47)*
    - Action: For children, a program can be developed with teachers to educate students on heat safety, provide information about cool routes and spaces and the importance of rest while outside in high temperatures, and train them to always carry water. (Greater Phoenix Heat Action Planning Guide)
    - *Acción: Para los niños, se puede desarrollar un programa con los maestros para educar a los estudiantes sobre la seguridad contra el calor, brindarles información sobre rutas y espacios frescos y la importancia del descanso mientras están al aire libre con altas temperaturas, y capacitarlos para que siempre lleven agua. (Guía de planificación de acción contra el calor en el área metropolitana de Phoenix)*

The following questions are meant to guide the collaborative conversation and don't need to be asked but serve to help facilitate the conversation:
Las siguientes preguntas están destinadas a guiar la conversación colaborativa y no es necesario formularlas, pero sirven para ayudar a facilitar la conversación:

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1. *Did any of those strategies resonate for you and your community? If so, please explain.*
   ¿Alguna de esas estrategias resonó para usted y su comunidad? Si es así, explique.

2. *Are there any strategies or actions that are currently underway in the City or your community that you want to build on to reduce climate-related impacts on public health impacts? Please explain.*
   ¿Hay alguna estrategia o acción actualmente en marcha en la ciudad o en su comunidad que desee aprovechar para reducir los impactos del clima en la salud pública? Por favor explique.

3. *What strategies and actions do you think would reduce climate-related impacts on public health in your community?*
   ¿Qué estrategias y acciones adicionales cree que reducirían los impactos del clima en la salud pública?

4. *What roles do you see for the City and other partners in reducing climate-related impacts on public health?*
   ¿Qué parte o rollo ve para la Ciudad y otros socios en la reducción de los impactos del clima en la salud pública?

5. *What role do you see for community members in reducing climate-related impacts on public health?*
   ¿Qué parte o rollo ve para los miembros de la comunidad en la reducción de los impactos del clima en la salud pública?

6. *What other mitigation ideas do you have that you'd like to see explored in the CVA?*
   ¿Qué otras ideas de mitigación tiene que le gustaría que se explorarán en el CVA?

7. *Based on the strategies you prefer and have come up with, what might be needed to effectively implement these strategies in this community?*
   Según las estrategias que prefiere y que se le han ocurrido, ¿qué podría ser necesario para implementar estas estrategias de manera efectiva en esta comunidad?

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Goal of Community Conversation
Objetivo de la conversación comunitaria

- To ask for input on mitigation strategies to address projected impacts of sea level rise and understand what community priorities are for implementing these strategies.
- *Solicitar comentarios sobre estrategias de mitigación para abordar los impactos proyectados del aumento del nivel del mar y comprender cuáles son las prioridades de la comunidad para implementar estas estrategias.*

Summary of Community Data/Feedback and Proposed Mitigation Strategies Summary
Resumen de datos/comentarios de la comunidad y resumen de estrategias de mitigación propuestas

Key Themes of Input
Temas clave de entrada

- Even though the sea level rise may not occur where they live, it could still have negative impacts. (SBCC)
- *Aunque el aumento del nivel del mar puede no ocurrir donde viven, aún podría tener impactos negativos. (SBCC)*
- Sea level rise could take away the beaches where they go to play and cool off. (SBCC)
- *El aumento del nivel del mar podría impactar las playas donde van a jugar y refrescarse. (SBCC)*
- Sea level rise will flood coastal neighborhoods and push people inland to create a worse affordable housing shortage and higher prices. (SBCC)
- *El aumento del nivel del mar inundará las vecindades costeras y empujará a la gente hacia el interior, generando una peor escasez de viviendas asequibles y precios más altos. (SBCC)*

Mitigation Measures Shared Thus Far
Medidas de mitigación compartidas hasta ahora

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- Update emergency response plans and procedures to consider how emergency response activities will continue if roads are flooded and utilities are disrupted. (Draft Venice Local Coastal Plan, Department of City Planning)
- *Actualizar los planes y procedimientos de respuesta a emergencias para considerar cómo continuarán las actividades de respuesta a emergencias si las carreteras se inundan y los servicios públicos se interrumpen. (Borrador del Plan Costero Local de Venecia, Departamento de Planificación)*
- Flood-proof, retrofit, relocate, elevate, and add redundancy, e.g., back-up power, etc. to accommodate impacts. (Draft Venice Local Coastal Plan, Department of City Planning)
- *A prueba de inundaciones, modernizar, reubicar, elevar, y agregar redundancia, por ejemplo, energía de respaldo, etc., para adaptarse a los impactos. (Borrador del Plan Costero Local de Venecia, Departamento de Planificación)*
- Use vegetation, soils, and other elements and practices to restore natural processes required to manage water. For example, green stormwater infrastructure employs natural, on-site drainage strategies, such as low impact development, green roofs, permeable pavements, bioretention, e.g. vegetated swales, rain gardens, and cisterns. (Draft Venice Local Coastal Plan, Department of City Planning)
- *Utilizar vegetación, suelos y otros elementos y prácticas para restaurar los procesos naturales necesarios para gestionar el agua. Por ejemplo, la infraestructura verde de aguas pluviales emplea estrategias de drenaje natural in situ, como desarrollo de bajo impacto, techos verdes, pavimentos permeables, bioretención, p.e. cunetas con vegetación, jardines de lluvia y cisternas. (Borrador del Plan Costero Local de Venecia, Departamento de Planificación)*
- Geologic Hazard Abatement Districts (GHAD) or other tax incentive program, grant program, or direct cost share assistance to incentivize soft protection like beach nourishment and land use changes, or hard protection solutions like pumps or walls, for private landowners. (Draft Venice Local Coastal Plan, Department of City Planning)
- *Distritos de Reducción de Peligros Geológicos (GHAD) u otro programa de incentivos fiscales, programa de subvenciones o asistencia directa de costos compartidos para incentivar la protección blanda, como la nutrición de las playas y los cambios en el uso de la tierra, o soluciones de protección dura, como bombas o muros, para propietarios privados. (Borrador del Plan Costero Local de Venecia, Departamento de Planificación)*

After reviewing the themes of what we heard from you previously about impacts of sea level rise:
Después de revisar los temas de lo que escuchamos anteriormente sobre los impactos del aumento del nivel del mar:

1. *Is what we heard in the previous phase of outreach about how sea level rise affects our communities accurate to your experience?*
   ¿Lo que escuchamos en la fase anterior de divulgación sobre cómo el calor afecta a nuestras comunidades es exacto a su experiencia?

2. *Is there anything you would like to add?*
   ¿Hay algo más que quieran agregar?

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Discussion Context

Contexto de la discusión

- Projected sea level rise through 2100 will put critical infrastructure at risk, including water treatment plants, roads and highways, railways, and piers and marinas. (FTBMI* Tribal Climate Resiliency Plan)
- *El aumento proyectado del nivel del mar hasta 2100 pondrá en riesgo infraestructura crítica, incluidas plantas de tratamiento de agua, caminos y autopistas, ferrocarriles, muelles y puertos deportivos. (FTBMI* Plan Tribal de Resiliencia Climática)*
- Sea level rise can contaminate freshwater aquifers and result in flooding, which damages sewage pipes and causes sewage leaks. (FTBMI Tribal Climate Resiliency Plan)
- *El aumento del nivel del mar puede contaminar los acuíferos de agua dulce y provocar inundaciones, lo que daña las tuberías de alcantarillado y provoca fugas de aguas residuales. (FTBMI Plan Tribal de Resiliencia Climática)*
- Sea-level rise and storm surges can contribute to coastal flooding on highways, particularly at waterway crossings or low-lying areas of highway along the coast. (LA County Climate Vulnerability Assessment)
- *El aumento del nivel del mar y las marejadas ciclónicas pueden contribuir a las inundaciones costeras en las carreteras, particularmente en los cruces de vías navegables o en las zonas bajas de las carreteras a lo largo de la costa. (Evaluación de Vulnerabilidad Climática del Condado de Los Ángeles)*
- The port's cargo wharves were found to be vulnerable to temporary flooding in 12–37-inch sea-level rise scenarios that could delay or prevent operations. This would have social impacts, because cargo activities provide one in nine jobs in the area. (Port of Los Angeles Sea Level Rise Adaptation Study)
- *Se descubrió que los muelles de carga del puerto eran vulnerables a inundaciones temporales en escenarios de aumento del nivel del mar de 12 a 37 pulgadas que podrían retrasar o impedir las operaciones. Esto tendría impactos sociales, porque las actividades de carga generan uno de cada nueve empleos en la zona.* (Estudio de Adaptación al Aumento del Nivel del Mar del Puerto de Los Ángeles)

Mitigation Strategies and Resources Discussion

Discusión sobre estrategias y recursos de mitigación

You are part of the CVA process because your lived experience can inform these solutions. Let's think through strategies that would work best for the community. When thinking about strategies for sea level rise, think about the following concepts:

Ustedes son parte del proceso de CVA porque su experiencia vivida informará las soluciones. Pensemos en estrategias que funcionarían mejor para la comunidad. Cuando piense en estrategias para el aumento del nivel del mar, piense en los siguientes conceptos:

- Since sea level rise is a global phenomenon, local solutions need to acknowledge that reality.

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- *Dado que el aumento del nivel del mar es un fenómeno global, las soluciones locales deben reconocer esa realidad.*
- Nature-based solutions exist to make public beaches more resistant to impacts from sea level rise.
- *Existen soluciones basadas en la naturaleza para hacer que las playas públicas sean más resistentes a los impactos del aumento del nivel del mar.*
- Sea level rise may only impact the homes of those who live near the coast. However, sea level rise will also impact places further away that people will work, play, and travel through.
- *El aumento del nivel del mar sólo puede afectar a los hogares de quienes viven cerca de la costa. Sin embargo, el aumento del nivel del mar también afectará a los lugares más lejanos donde la gente trabaja, juega y viaja.*

Some best practices for extreme heat resiliency include the following:
Algunas de las mejores prácticas para la resiliencia al aumento del nivel del mar incluyen las siguientes:

- Maintain storm-resistant public beaches. (Hampton Roads Hazard Mitigation Plan, Virginia)
- *Mantener playas públicas resistentes a tormentas. (Plan de mitigación de riesgos de Hampton Roads, Virginia)*
- Groundwater Rise. Review remediation timelines for contaminated sites based on a groundwater model with projected sea level rise impacts. Work with applicable agencies to adjust remediation, as applicable. (Climate Adaptation and Hazard Mitigation Plan, City of Alameda, CA)
- *Aumento de las aguas subterráneas. Revisar los cronogramas de remediación para sitios contaminados basándose en un modelo de agua subterránea con impactos proyectados del aumento del nivel del mar. Trabajar con las agencias correspondientes para ajustar la remediación, según corresponda. (Plan de mitigación de riesgos y adaptación climática, Ciudad de Alameda, CA)*
- Protect and elevate key supply chain and evacuation routes.
    - Action: Define and map critical transportation corridors and facilities—including rail, road, and air—and evaluate their vulnerability to disaster and long-term changes due to subsidence and sea level rise (Our Land and Water: A Regional Approach to Adaptation, LASAFE, State of Louisiana)
- *Proteger y elevar la cadena de suministro clave y las rutas de evacuación.*
    - *Acción: Definir y mapear corredores e instalaciones de transporte críticos, incluidos ferrocarriles, carreteras y aire, y evaluar su vulnerabilidad a desastres y cambios a largo plazo debido a hundimientos y aumento del nivel del mar (Nuestra Tierra y Agua: Un Enfoque Regional para la Adaptación, LASAFE , Estado de Luisiana)*

The following questions are meant to guide the collaborative conversation and don't need to be asked but serve to help facilitate the conversation:
Las siguientes preguntas están destinadas a guiar la conversación colaborativa y no es necesario formularlas, pero sirven para ayudar a facilitar la conversación:

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1. *Did any of those strategies resonate for you and your community? If so, please explain.*
   ¿Alguna de esas estrategias resonó para usted y su comunidad? Si es así, explique.

2. *Are there any strategies or actions that are currently underway in the City or your community that you want to build on to reduce impacts from sea level rise? Please explain.*
   ¿Hay alguna estrategia o acción actualmente en marcha en la ciudad o en su comunidad que desee aprovechar para reducir los impactos del aumento del nivel del mar? Por favor explique.

3. *What strategies and actions do you think would reduce impacts from sea level rise in your community?*
   ¿Qué estrategias y acciones adicionales cree que reducirían los impactos del aumento del nivel del mar en su comunidad?

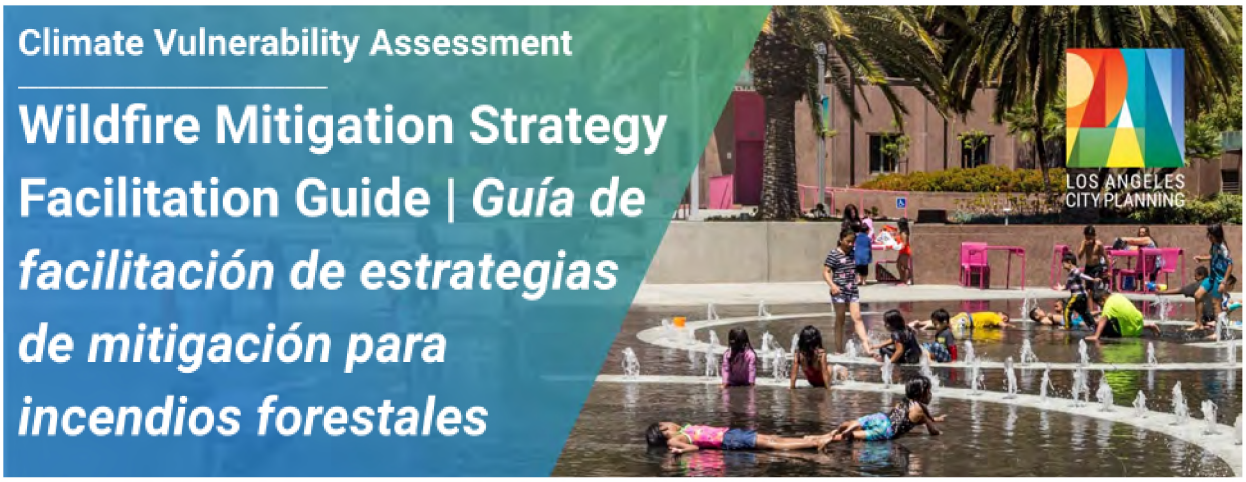
4. *What roles do you see for the City and other partners in reducing impacts from sea level rise?*
   ¿Qué parte o rollo ve para la Ciudad y otros socios en la reducción de los impactos del aumento del mar?

5. *What role do you see for community members in reducing impacts from sea level rise?*
   ¿Qué parte o rollo ve para los miembros de la comunidad en la reducción de los impactos del aumento del nivel del mar?

6. *What other mitigation ideas do you have that you'd like to see explored in the CVA?*
   ¿Qué otras ideas de mitigación tiene que le gustaría que se explorarán en el CVA?

7. *Based on the strategies you prefer and have come up with, what might be needed to effectively implement these strategies in this community?*
   Según las estrategias que prefiere y que se le han ocurrido, ¿qué podría ser necesario para implementar estas estrategias de manera efectiva en esta comunidad?

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Goal of Community Conversation
Objetivo de la conversación comunitaria

- To ask for input on mitigation strategies to address projected impacts of wildfires and what community priorities are for implementing these strategies.
- *Solicitar comentarios sobre estrategias de mitigación para abordar los impactos proyectados de los incendios forestales y cuáles son las prioridades de la comunidad para implementar estas estrategias.*

Summary of Community Data/Feedback and Proposed Mitigation Strategies Summary
Resumen de datos/comentarios de la comunidad y resumen de estrategias de mitigación propuestas

Key Themes of Input
Temas clave de entrada

- FTBMI* community members were significantly concerned with the impact wildfires were believed to have on tribal practices, and expressed the need to protect the cultural and ecologic heritage rooted in wildfire-risk land. (FTBMI Tribal Climate Resiliency Plan)
- *Los miembros de la comunidad FTBMI* estaban muy preocupados por el impacto que se cree que los incendios forestales tienen en las prácticas tribales, y expresaron la necesidad de proteger el patrimonio cultural y ecológico arraigado en las tierras con riesgo de incendios forestales. (FTBMI Plan Tribal de Resiliencia Climática)*
- Address fire risk from homeless individuals that are cooking or staying warm. (SBCC)
- *Abordar el riesgo de incendio de personas sin hogar que cocinan o se mantienen calientes. (SBCC)*
- Wildfires cause air pollution, which contribute to negative health effects (SBCC)
- *Los incendios forestales causan contaminación del aire, lo que contribuye a efectos negativos para la salud. (SBCC)*

Mitigation Measures Shared Thus Far

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Medidas de mitigación compartidas hasta ahora

- Enhance community engagement around wildfire risks, prevention, and evacuation, as well as grants and other programs and resources available to communities in High Fire Hazard Severity Zones. (FTBMI Tribal Climate Resiliency Plan)
- *Mєjorar la participación comunitaria en torno a los riesgos de incendios forestales, la prevención y evacuación, así como los subsidios y otros programas y recursos disponibles para las comunidades en zonas de alta gravedad de peligro de incendios. (Plan Tribal de Resiliencia Climática de FTBMI)*

After reviewing the themes of what we heard from you previously about wildfires:
Después de revisar los temas de lo que escuchamos anteriormente sobre los impactos de los incendios forestales:

1. *Is what we heard in the previous phase of outreach about how wildfires affect our communities accurate to your experience? ¿Lo que escuchamos en la fase anterior de divulgación sobre cómo los incendios forestales afectan a nuestras comunidades es exacto a su experiencia?*

2. *Is there anything you would like to add?*
   ¿Hay algo más que quieran agregar?

Discussion Context

Contexto de la discusión

- By mid-century, wildfire events in LA County and across the state are projected to be considerably larger, more frequent, and more destructive. (LA County Climate Vulnerability Assessment)
- *Se prevé que para mediados del siglo, los incendios forestales en el condado de Los Ángeles y en todo el estado serán considerablemente mayores, más frecuentes y más destructivos. (Evaluación de vulnerabilidad climática del Condado de Los Ángeles)*
- From 2012 to 2016, 74% of the acres burned were due to fires initiated by vegetation contacts – i.e., trees touching power lines, causing sparks and starting fires. Plentiful brush and undergrowth can also facilitate rapid expansion of wildfires once the initial spark is provided. (City of Glendale/CALFIRE Historical Wildfire Activity Statistics (Redbooks))
- *De 2012 a 2016, el 74% de los acres quemados se debieron a incendios iniciados por contactos con la vegetación, es decir, árboles que tocaron líneas eléctricas, provocando chispas y provocando incendios. La abundante maleza también puede facilitar la rápida expansión de los incendios forestales una vez que se produce la chispa inicial. (Ciudad de Glendale/CALFIRE Estadísticas históricas de actividad de incendios forestales (Redbooks))*
- Prolonged drought and extreme heat will continue to increase the frequency of large fires. (FTBMI Tribal Climate Resiliency Plan)
- *La sequía prolongada y el calor extremo seguirán aumentando la frecuencia de los grandes incendios. (FTBMI Plan Tribal de Resiliencia Climática)*
- Burn areas in lands within the FTBMI boundary are expected to increase by 40% by 2050. (FTBMI Tribal Climate Resiliency Plan)

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- *Se espera que las áreas quemadas en tierras dentro de los límites del FTBMI aumenten en un 40% para 2050. (FTBMI Plan Tribal de Resiliencia Climática)*

Mitigation Strategies and Resources Discussion

Discusión sobre estrategias y recursos de mitigación

You are part of the CVA process because your lived experience of wildfire exposure makes you an expert of what strategies and resources are needed to help make you and your community more resilient. The previously shared examples of mitigation strategies address the input provided by your communities; they are intended to be a starting point for exploring community-inspired solutions. For our discussion today, think of a strategy as a path to a solution and an action as a step along that path.

Ustedes son parte del proceso de CVA porque su experiencia vivida de la exposición a incendios forestales lo convierte en un experto en estrategias y recursos necesarios para ayudarlo a usted y a su comunidad a ser más resilientes. Los siguientes єjemplos de estrategias de mitigación abordan los aportes proporcionados por sus comunidades; están destinados a ser un punto de partida para explorar soluciones inspiradas en la comunidad. Para nuestra discusión de hoy, piense en una estrategia hacia una solución y una acción como un paso para alcanzar esa meta.

Let's think through strategies that would work best for the community. Concepts to think about during this conversation are:

Pensemos en estrategias que funcionarían mєjor para la comunidad. Cuando piense en estrategias para los incendios forestales, piense en los siguientes conceptos:

- Wildfire is a part of natural processes, but human activities, including preparation can reduce fire risks.
- *Los incendios forestales son parte de procesos naturales, pero las actividades humanas, incluida la preparación, pueden reducir los riesgos de incendio.*
- Strategies can address the root causes of wildfire and prevent human behavior that starts fires and worsen impacts.
- *Las estrategias pueden abordar las causas fundamentales de los incendios forestales y prevenir el comportamiento humano que inicia incendios y empeora sus impactos.*
- When a fire happens, think about what can reduce impacts from fire or help people and your community recover more quickly.
- *Cuando ocurre un incendio, piense en qué puede reducir los impactos del incendio o ayudar a las personas y a su comunidad a recuperarse más rápidamente.*

Some best practices for wildfire resiliency include the following:

Algunas mєjores prácticas para la resiliencia a los incendios forestales incluyen las siguientes:

- Promote Fire-Adapted Human Communities (Strategy 10, Adaptation Strategies and Approaches for Managing Fire in a Changing Climate, Climate-MDPI)
- *Promover comunidades humanas adaptadas al fuego (Estrategia 10, Estrategias y enfoques de adaptación para el manєjo de incendios en un clima cambiante, Climate-MDPI)*
- Engage and Incorporate Values of Indigenous Communities in Fire Management Decisions (Approach 9.3, Adaptation Strategies and Approaches for Managing Fire in a Changing Climate, Climate-MDPI)

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- *Involucrar e incorporar los valores de las comunidades indígenas en las decisiones sobre el manєjo de incendios (Enfoque 9.3, Estrategias y enfoques de adaptación para el manєjo de incendios en un clima cambiante, Climate-MDPI)*
- Use fire events as opportunities for ecosystem realignment (Strategy 8, Adaptation Strategies and Approaches for Managing Fire in a Changing Climate, Climate-MDPI)
- *Utilizar los incendios como oportunidades para la realineación de los ecosistemas (Estrategia 8, Estrategias y enfoques de adaptación para el manєjo de incendios en un clima cambiante, Climate-MDPI)*
- Revegetate burned areas using fire-tolerant and drought-adapted species and genotypes (Approach 8.1, Adaptation Strategies and Approaches for Managing Fire in a Changing Climate, Climate-MDPI)
- *Revegetar áreas quemadas utilizando especies y genotipos tolerantes al fuego y adaptados a la sequía (Enfoque 8.1, Estrategias de adaptación y enfoques para el manєjo del fuego en un clima cambiante, Climate-MDPI)*
- Deliver fire safety messages through presentations at homeless programs such as mobile medical clinic, educational programs, or at local soup kitchens. (Identifying Methods to Reduce Homeless Involved Fires, Humboldt Bay Fire Authority, Eureka, CA)
- *Transmitir mensajes de seguridad contra incendios a través de presentaciones en programas para personas sin hogar, como clínicas médicas móviles, programas educativos o comedores comunitarios locales. (Identificación de métodos para reducir los incendios involucrados en personas sin hogar, Autoridad de Bomberos de Humboldt Bay, Eureka, CA)*
- Where possible, place all electrical distribution equipment in conduit underground. (Marshall Fire Mitigation Assessment Team: Best Practices for Wildfire-Resilient Subdivision Planning, FEMA)
- *Siempre que sea posible, colocar todos los equipos de distribución eléctrica en conductos subterráneos. (Equipo de evaluación de mitigación de incendios de Marshall: Mєjores prácticas para la planificación de subdivisiones resistentes a incendios forestales, FEMA)*
- A minimum of 10 feet of clearance should be maintained around utility equipment. (Marshall Fire Mitigation Assessment Team: Best Practices for Wildfire-Resilient Subdivision Planning, FEMA)
- *Se debe mantener un mínimo de 10 pies de espacio libre alrededor de los equipos de servicios públicos. (Equipo de evaluación de mitigación de incendios de Marshall: Mєjores prácticas para la planificación de subdivisiones resistentes a incendios forestales, FEMA)*
- Use noncombustible materials (e.g., concrete, masonry, metal), particularly for fences that attach to adjacent homes or structures. (Marshall Fire Mitigation Assessment Team: Best Practices for Wildfire-Resilient Subdivision Planning, FEMA)
- *Utilice materiales no combustibles (p. єj., hormigón, mampostería, metal), especialmente para cercas que se fijan a casas o estructuras adyacentes. (Equipo de evaluación de mitigación de incendios de Marshall: Mєjores prácticas para la planificación de subdivisiones resistentes a incendios forestales, FEMA)*
- Provide structural hardening measures for the entire home (e.g., upgrading to a Class A roof). (Marshall Fire Mitigation Assessment Team: Best Practices for Wildfire-Resilient Subdivision Planning, FEMA)

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- *Proporcionar medidas de refuerzo estructural para toda la casa (por ejemplo, actualizar a un techo Clase A). (Equipo de evaluación de mitigación de incendios de Marshall: Mejores prácticas para la planificación de subdivisiones resistentes a incendios forestales, FEMA)*

The following questions are meant to guide the collaborative conversation and don't need to be asked but serve to help facilitate the conversation:
Las siguientes preguntas están destinadas a guiar la conversación colaborativa y no es necesario formularlas, pero sirven para ayudar a facilitar la conversación:

1. *Did any of those strategies resonate for you and your community? If so, please explain.*
   ¿Alguna de esas estrategias resonó para usted y su comunidad? Si es así, explique.

2. *What do we lose in our community when there is a wildfire and what do we need to protect those assets from future wildfires?*
   ¿Qué perdemos en nuestra comunidad cuando hay un incendio forestal y qué necesitamos para proteger esas instalaciones de futuros incendios forestales?

3. *Are there any strategies or actions that are currently underway in the City or your community that you want to build on to reduce wildfire impacts? Please explain.*
   ¿Hay alguna estrategia o acción actualmente en marcha en la ciudad o en su comunidad que desee aprovechar para reducir los impactos de los incendios forestales? Por favor explique.

4. *What strategies and actions do you think would reduce the chance of wildfire in your community?*
   ¿Qué estrategias y acciones adicionales cree que reducirían la posibilidad de los incendios forestales en su comunidad?

5. *What roles do you see for the City and other partners in reducing wildfire risk?*
   ¿Qué parte o rollo ve para la Ciudad y otros socios en la reducción de los impactos de los incendios forestales?

6. *What role do you see for community members in reducing wildfire risk?*
   ¿Qué parte o rollo ve para los miembros de la comunidad en la reducción de los impactos de los incendios forestales?

7. *What other mitigation ideas do you have that you'd like to see explored in the CVA?*
   ¿Qué otras ideas de mitigación tiene que le gustaría que se explorarán en el CVA?

8. *Based on the strategies you prefer and have come up with, what might be needed to effectively implement these strategies in this community?*
   Según las estrategias que prefiere y que se le han ocurrido, ¿qué podría ser necesario para implementar estas estrategias de manera efectiva en esta comunidad?

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