

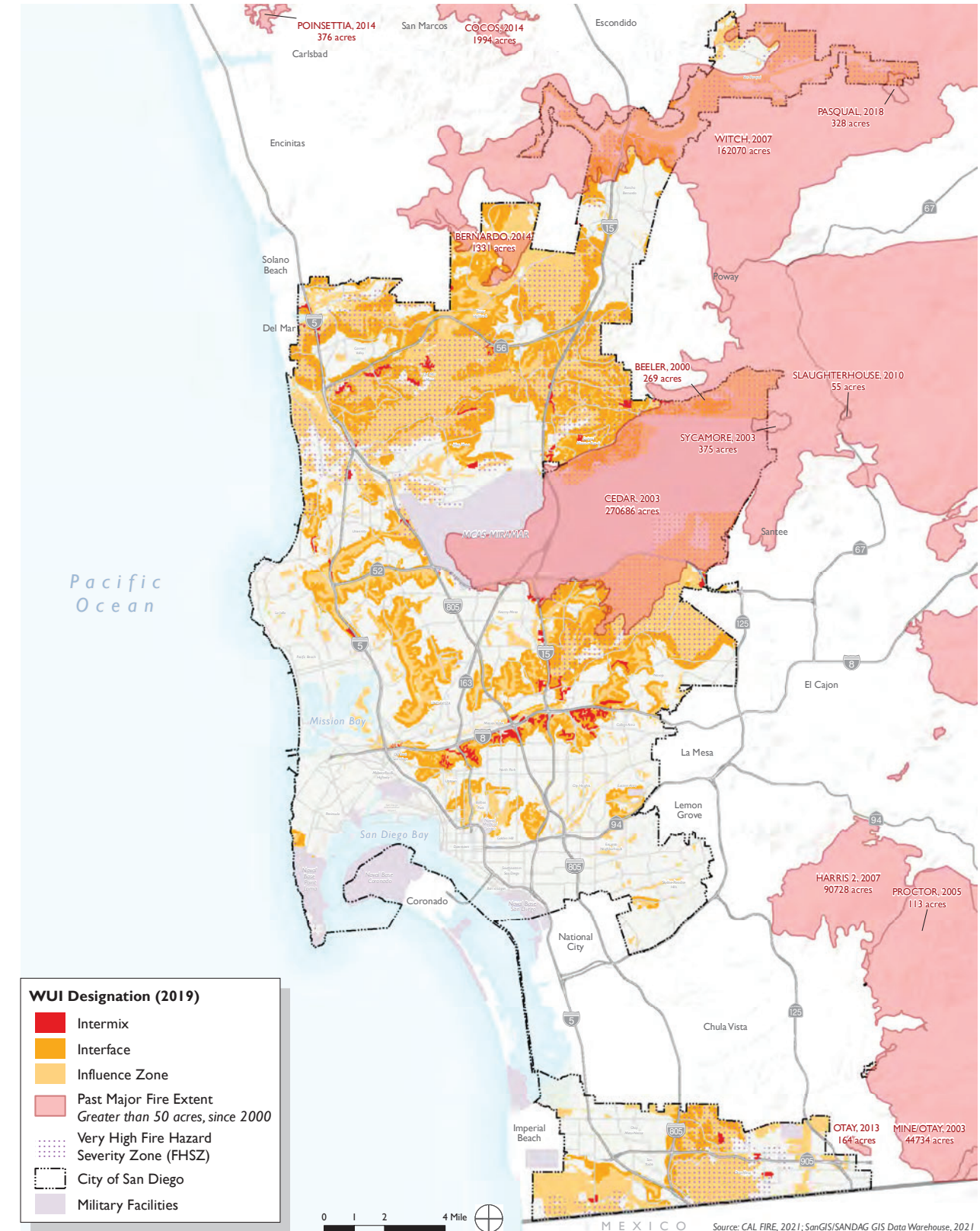
# CLIMATE CHANGE & RESILIENCE

## Natural Hazards

### FLOOD HAZARDS



### PAST FIRE EXTENTS AND FIRE HAZARD ZONES



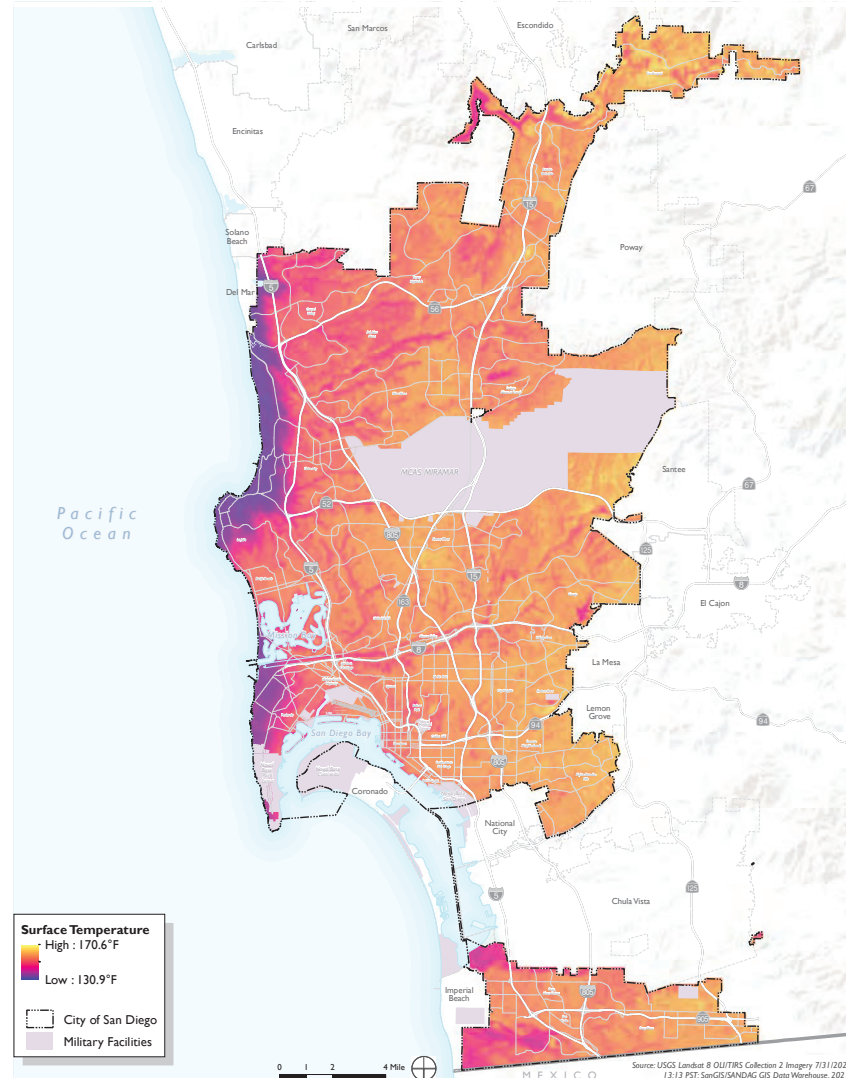
Natural disasters and hazards such as wildfires and flooding are exacerbated by climate change and pose an increased threat to life and property. Due to the varying geographic nature of the city, in addition to historical development patterns that impact the contemporary environment, certain residents of the city are more at risk than others.

The Federal Emergency Management Agency (FEMA) has identified flood risk areas, which include floodways and areas with 0.2 percent or 1 percent annual chance of flooding (known as 500-Year and 100-Year floodplains, respectively). These zones occur along the coastline as well as along waterways and canyons throughout the city.

Wildland Urban Interface zones measure development intensity and fire risks based on proximity to wildland (non-developed) areas, part of a study by CAL FIRE last updated in 2019. San Diego is within a local responsibility area (LRA), and areas designated as Very High Fire Hazard Severity Zones are shown in dotted hatch. These areas are susceptible to wildfires that could damage adjacent or nearby structures. Major fire events (greater than 50 acres) since 2000 have also encroached within the city, particularly in the northeastern portions.

# CLIMATE CHANGE & RESILIENCE

DAYTIME LAND SURFACE TEMPERATURE

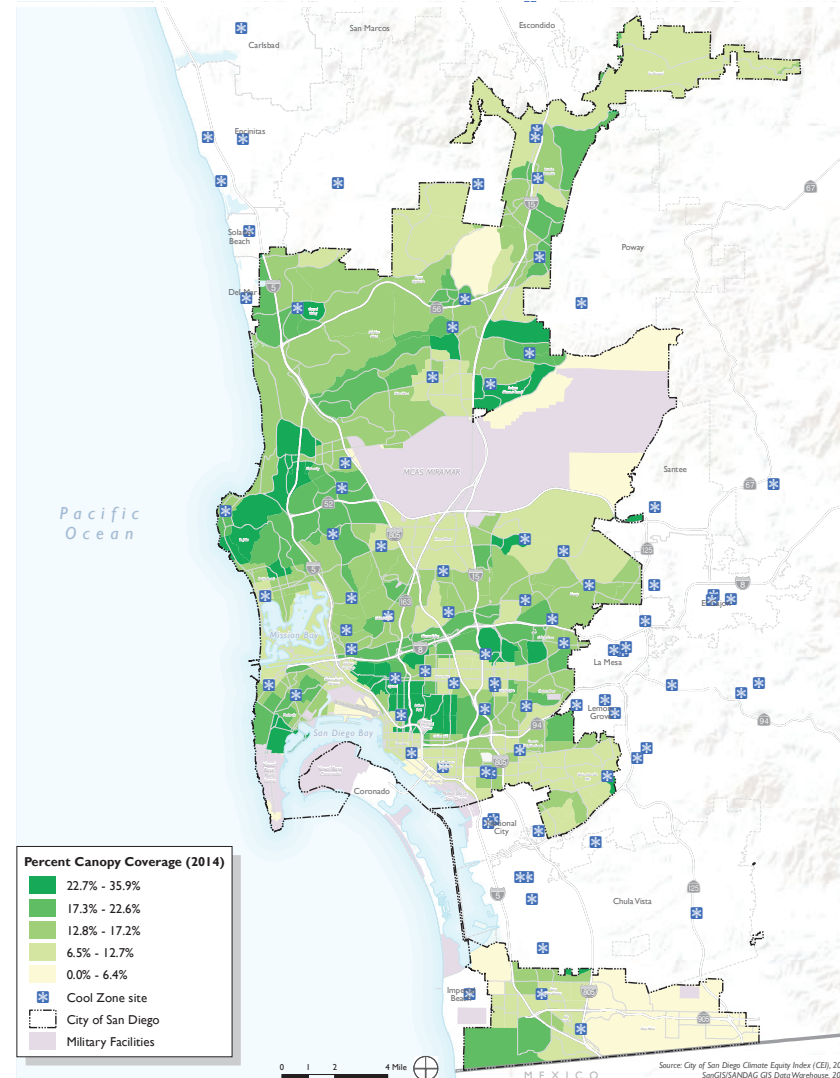


## Urban Heat

Built environments, where structures like buildings and roads are concentrated and greenery is limited, absorb and re-emit heat more than natural landscapes such as forests and water bodies. This leads to higher temperatures in urban areas that can be 1-7°F hotter during the day and 2-5°F hotter at night compared to outlying rural areas. This is referred to as the urban heat island effect. As cities grow and as climate change leads to more frequent and severe extreme heat events, risk of heat-related illnesses can be a growing concern.

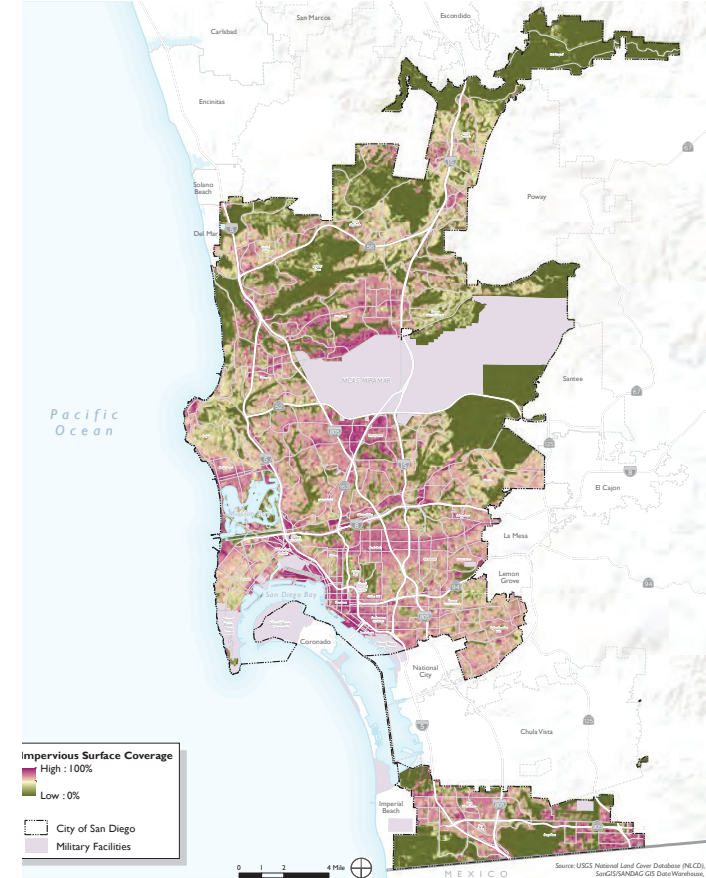
San Diego generally enjoys milder temperatures due to coastal cooling, and the average number of extreme heat days (those exceeding 93.3°F, or the 98th percentile temperature between 1961-1990) has historically been about 4 per year. However, CalAdapt projects that this number will more than triple by 2070, at 15 extreme heat days per year.

TREE CANOPY COVERAGE & COOLING CENTERS



The above left map shows daytime surface temperature data obtained from satellite imagery, which varies by up to 40°F between areas and is significantly hotter along the eastern inland edges of the city. The above-right map shows that these hotter areas also have less tree canopy coverage, meaning they have less shade to mitigate heat accumulation. Many of these tracts (in light yellow) also do not have a Cool Zone site where at-risk populations such as seniors can access air-conditioned settings to escape the heat.

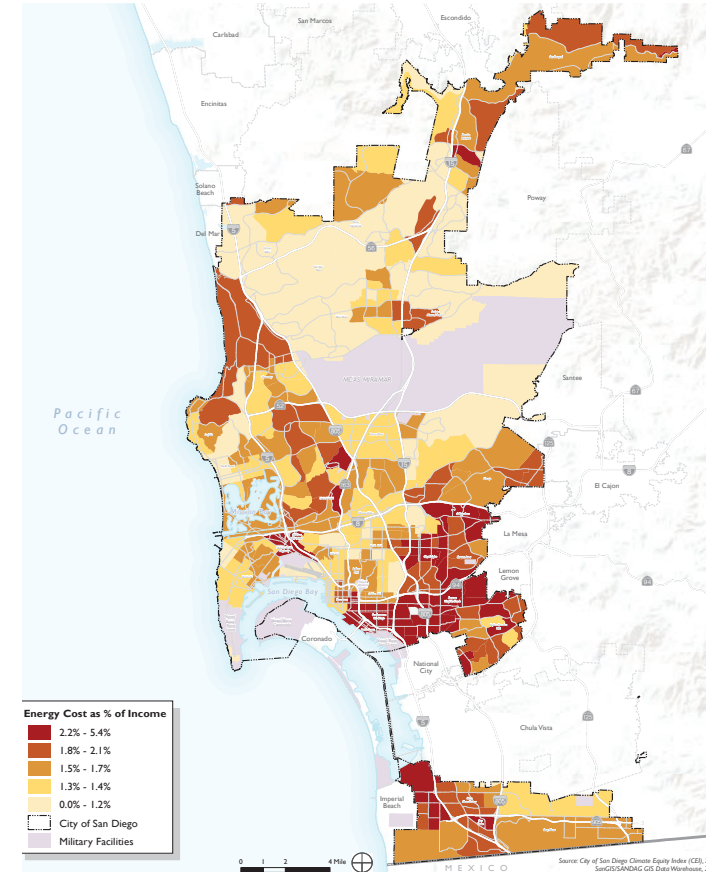
IMPERVIOUS SURFACE COVER



Impervious surface cover, or urban land cover types found in developed areas such as buildings and pavement, are an indicator of places where urban heat could accumulate.

In San Diego, there are many natural lands where impervious surface cover is as low as 0 percent, but other areas where development is highly concentrated include Kearny Mesa, Mira Mesa, Mission Valley, Downtown, and eastern Otay Mesa.

ENERGY COST BURDEN, 2015-2017



As energy use needs increase to combat high heat, energy cost-burdened households may struggle to afford the energy needed to cool themselves and their homes.

This map illustrates the disparity in energy cost burdens in the city, which is based on data from San Diego Gas and Electric (SDG&E) and ACS 2017, measured as the three-year average annual cost of energy as a percent of median household income.

Some residents have an energy cost burden that is more than four times that of residents in the least cost-burdened areas. In particular, Otay Mesa-Nestor, Downtown, Southeastern, Encanto, City Heights, and College Area communities are among the most burdened in the city.