

CLIMATE CHANGE AND AT-RISK POPULATIONS



OVERVIEW

Climate Change Projections

Climate Sensitive Populations and Indicators

Elderly and Heat Risk

People Experiencing Homelessness

Strategies and Recommendations

CLIMATE PROJECTIONS **HIGHLIGHTS**

Under a “business as usual” scenario, the South Bay is projected to experience:

- An increase in **annual average temperatures** of 5° by mid-century (2040-2069) and 7° F by late-century (2070-2100)
- An average of 17 **extreme heat days** per year with temperatures over 91°F by late-century
- 2-3 more **extreme precipitation** events (1.09 inches) per year by late-century
- 1-2 feet of **sea level rise** by 2050 and 3-7 feet by 2100 under low (66% probability) & medium-high (0.5% probability) risk aversion scenarios, respectively
- Increased frequency and intensity of **wildfire events**

This section identifies and quantifies the climate stress the South Bay is projected to experience using data from Cal-adapt.org

Climate projections are based on the standardized climate change scenarios from the Intergovernmental Panel on Climate Change (IPCC) Representative Concentrated Pathways (RCP) scenarios: **the *mitigating scenario (RCP 4.5)* and the *business as usual scenario (RCP 8.5)*.**

HEAT-RELATED ILLNESS

- The greatest climate threat to human lives is extreme heat.
- Heat cramps involve severe painful cramping of the muscles in the arms, legs or abdomen often accompanied by swelling of legs and feet. If heat cramps are not treated with cooling and hydration, the person is at risk of developing heat exhaustion and heat stroke.
- Heat exhaustion is more serious and generally includes an elevated core body temperature that is up to 104°F. Symptoms include generalized malaise, weakness, nausea, vomiting, headache, confusion, rapid heart rate and sweating. Untreated heat exhaustion can progress to heat stroke within minutes or hours.
- The most serious illness is heat stroke, a severe and life-threatening failure of the body's ability to cool, with core temperature generally over 104°F. Heat stroke includes severe mental status changes, seizures, loss of consciousness, kidney failure and abnormal cardiac rhythm. If not promptly treated, heat strokes can result in death or permanent neurological impairment.



SOCIAL VULNERABILITY INDICATORS

- Social vulnerability is a function of diverse demographic and socio-economic factors that influence a community's sensitivity to climate change. In consultation with member-cities, the SBCCOG developed a list of factors—or indicators to consider when planning for climate impacts.

Indicator	Data Description
Homelessness	Percent of population experiencing homelessness
Elderly living alone	Percent of population over the age of 65 living alone
Rent-burdened	Percent of population spending over 50% of their income on rent
Chronic Disease	Percent of population with COPD, coronary heart disease, asthma or diabetes
Outdoor Workers	Percent of population who work in construction
No Health insurance	Percent of population without health insurance

ELDERLY LIVING ALONE

- ❖ Several factors contribute to the vulnerability of elderly, people 65 years of age and older, living alone:
 - Impaired muscle strength, coordination, cognitive ability, and ability to regulate body temperature (thermoregulation)
 - Pre-existing health conditions which can increase susceptibility to more severe climate impacts
 - Limited mobility (inability to evacuate) may increase risk of climate related impacts
 - Social isolation or dependent-on-care populations can be impacted at higher rates during extreme heat and weather events

Of the 522 deaths that occurred in Chicago during the 1995 heat wave, 73% were 65 years or older



Legend

TPL- Population over 64

- Very high (>23.4%)
- High (16.9% - 23.4%)
- Moderate (12.7% - 16.8%)
- <all other values>

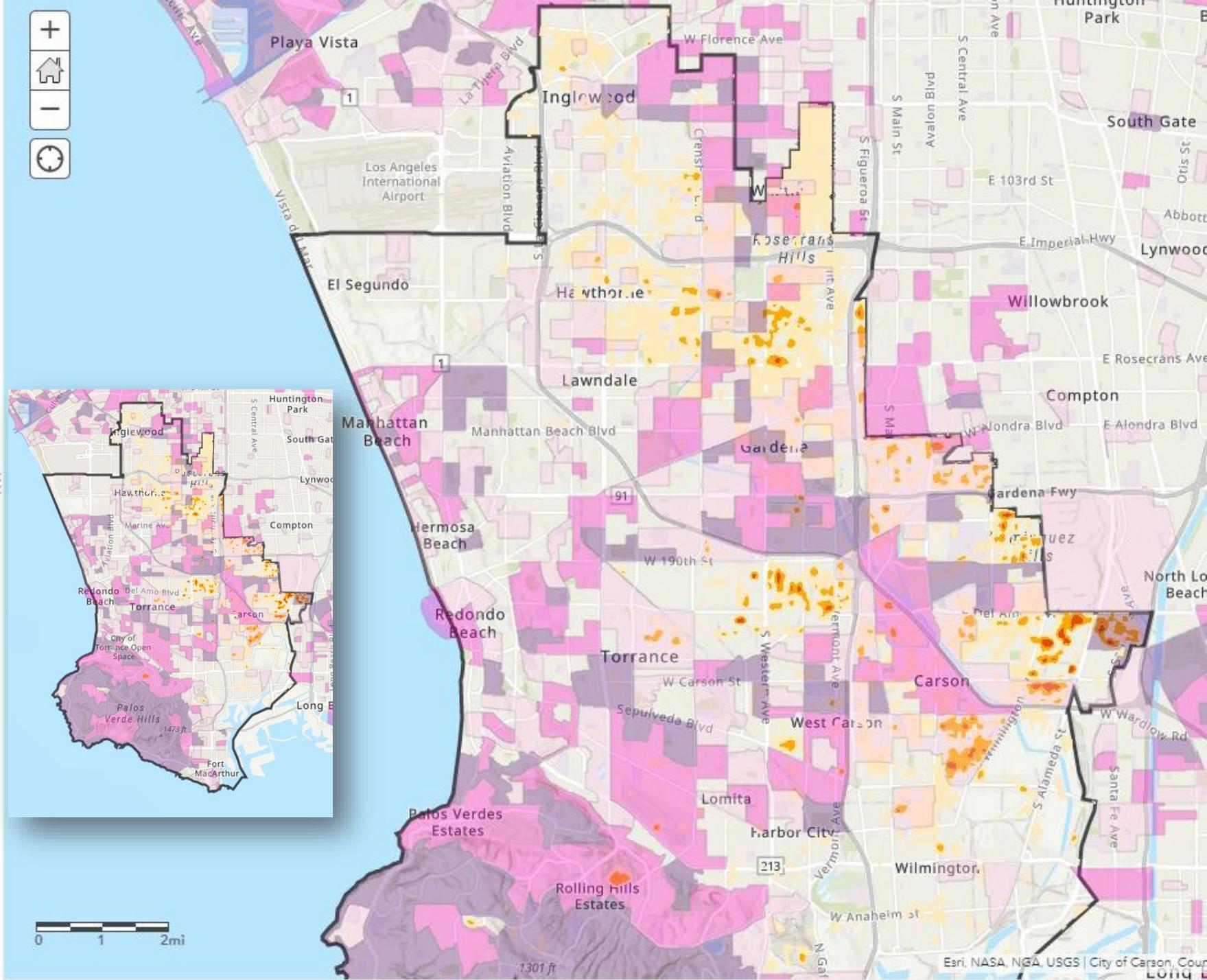
Land Surface Temperature

- Moderate (99.94 - 102.71)
- High (102.72 - 106.14)
- Very High (106.15 - 123.65)
- Other

SBCCOG Boundary - COG_Outline_Projected

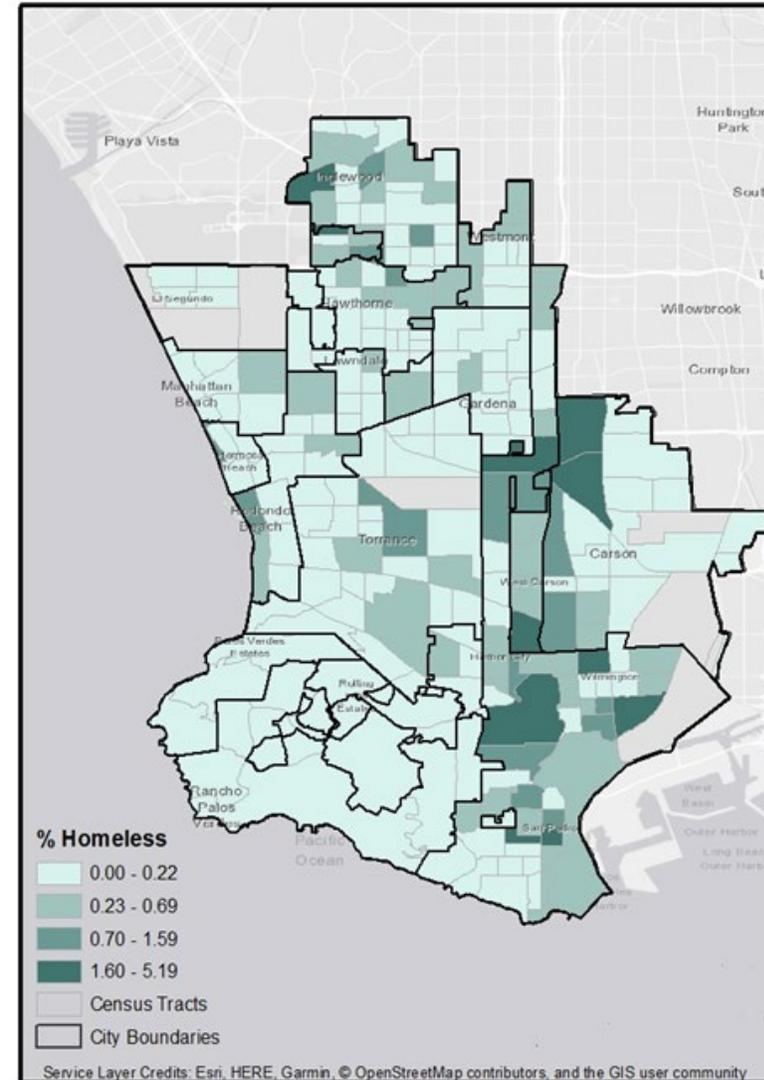


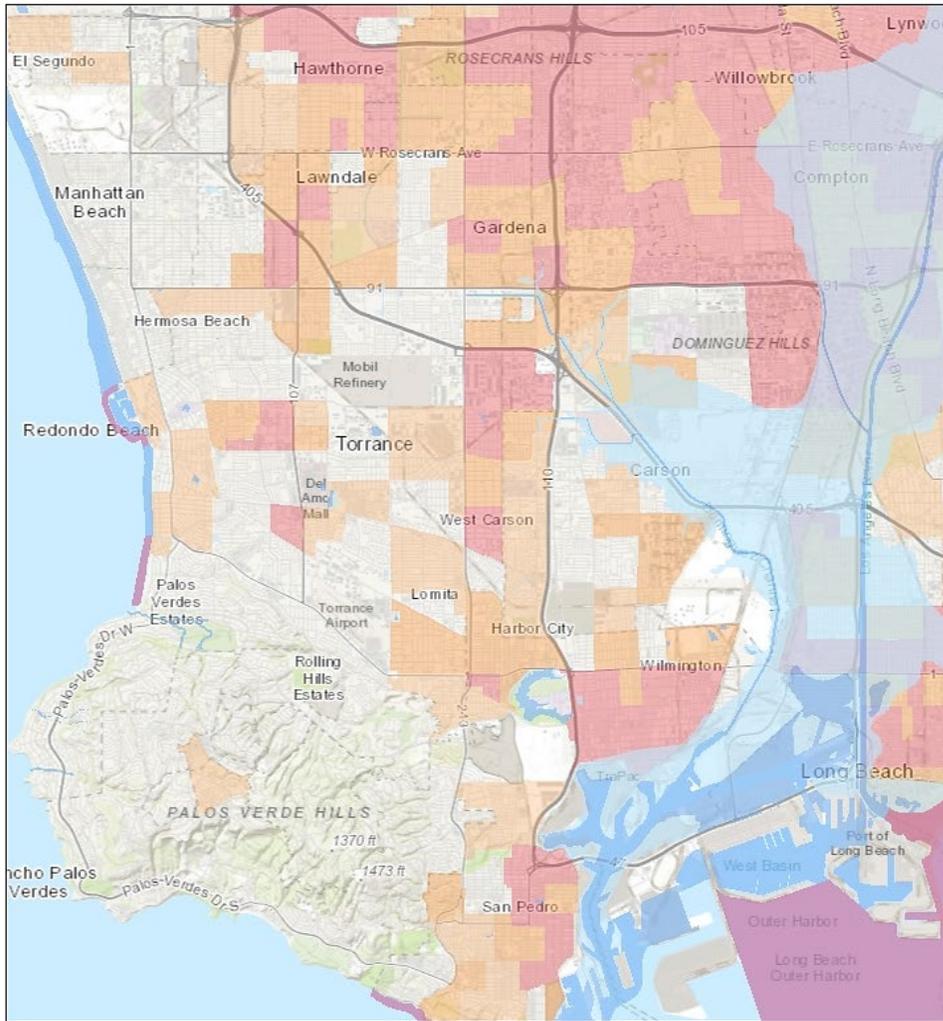
By overlaying land surface temperature with distributions of elderly residents, we can identify communities of heightened risk and prioritize adaptive measures in those areas.



CLIMATE CHANGE AND HOMELESSNESS

- ❖ The risk factors for mortality and morbidity from heat correlate closely with the characteristics of individuals experiencing homelessness.
- ❖ Pre-existing psychiatric illness has been shown to triple the risk of death from extreme heat. Other risk factors for death during heat waves include cardiovascular disease, pulmonary disease, living alone, not using air conditioning, alcoholism, and cognitive impairment. These are all characteristics that may be more common amongst homeless individuals.

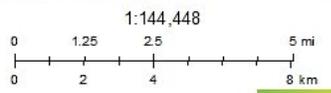




August 28, 2019

FEMA Flood Zones
<all other values>

- FLOODWAY
- 1 PCT ANNUAL CHANCE FLOOD HAZARD CONTAINED IN CHANNEL
- 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
- HIGH VELOCITY WAVE ACTION

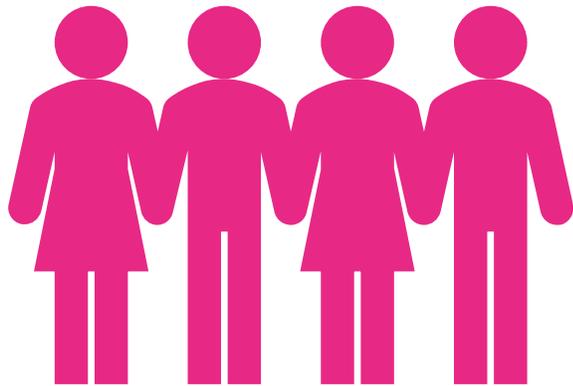


By overlaying housing insecure (or rent-burdened) households with flood zones, we can identify areas at greatest risk of residents becoming homeless due to a climate-related event.

The housing cost burdened layer highlights tracts with high percent of households that are making less than 80% of the HUD Area Median Family Income and paying greater than 50% of their income to housing costs.



DISCUSSION QUESTIONS



- Older people and people experiencing homelessness require better information regarding climate threats and health. What communication strategies work best with different groups of older or homeless people?
- Are registries of older people useful for evacuation planning?
- How can technology (e.g., geographic information systems, electronic medical records) be of use in evacuations of frail or homeless people?



ADAPTIVE STRATEGIES

What actions can cities take to mitigate climate risk to sensitive populations?

All-heat related deaths are potentially preventable!

- Cooling centers
 - ❑ Ensuring they are operational and have back-up power generation
 - ❑ Increasing community awareness that there are city-designated cooling centers
- Neighborhood check-up programs and outreach teams
 - ❑ Case Study: Milwaukee County deploys a 'Heat Task Force' plan when temperature reaches 105° F. As part of the plan, seniors receiving services from county agencies will get a check-up
- Expand or promote weatherization programs for elderly and low-income residents (access to air conditioning)

POLICIES AND INITIATIVES

What's happening now?

- City of Los Angeles– proposed ordinance to make it easier for authorities to clear homeless encampments in severe fire zones (summer 2019)
- On July 31, 2018 the Board of Supervisors directed the Chief Executive Office's Homelessness Initiative and the Office of Emergency Management to:
 - Develop a pre-planned and coordinated emergency response to significant heat events that will address the needs of people experiencing homelessness. This would identify how homeless services (LAHSA HET) and other outreach programs can support the work of emergency service departments
 - Determine feasibility of LAHSA HETs to transport clients in need of cooling centers
 - Coordinate a multi-agency effort to develop a plan to address at-risk homeless encampments in wildland interface and riverbeds