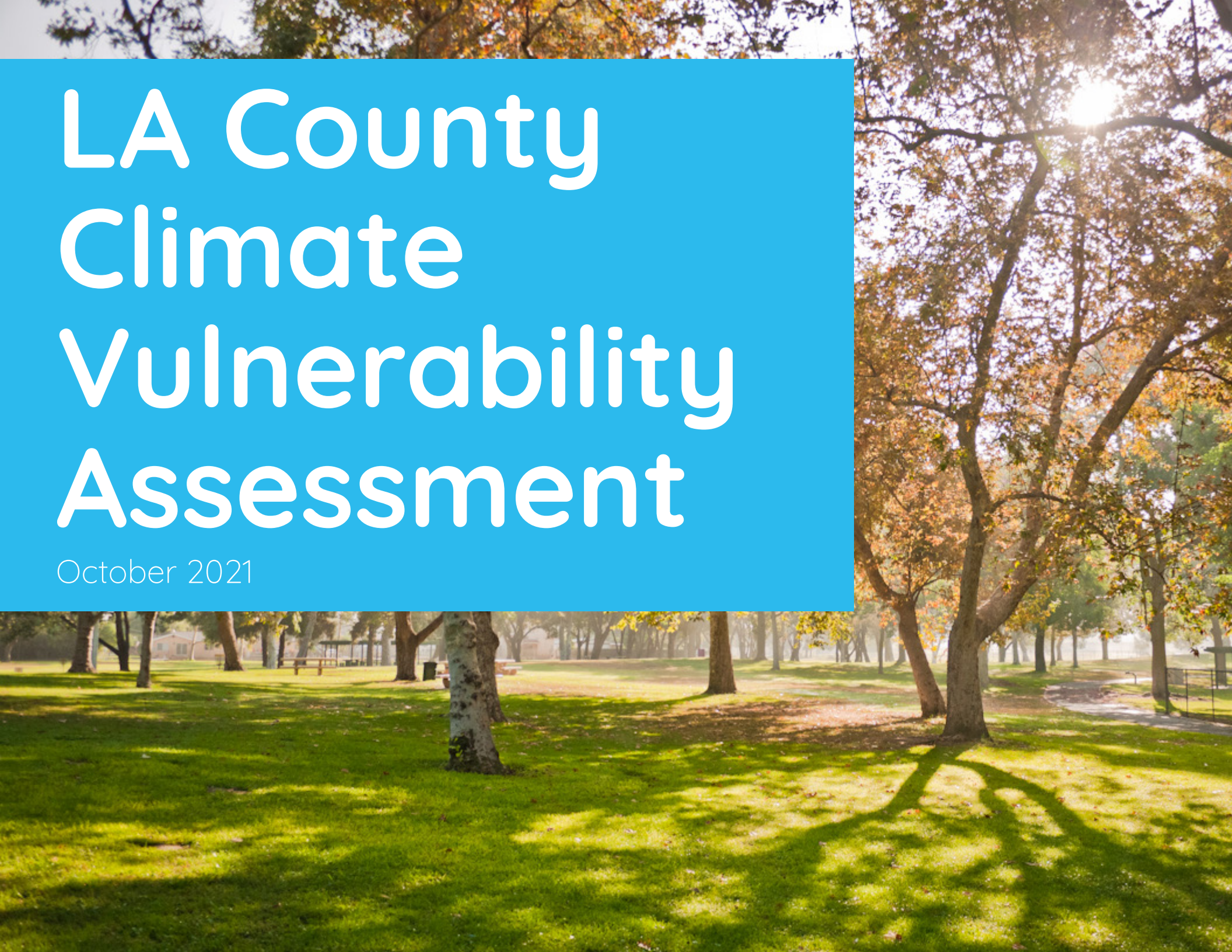


LA County Climate Vulnerability Assessment

October 2021



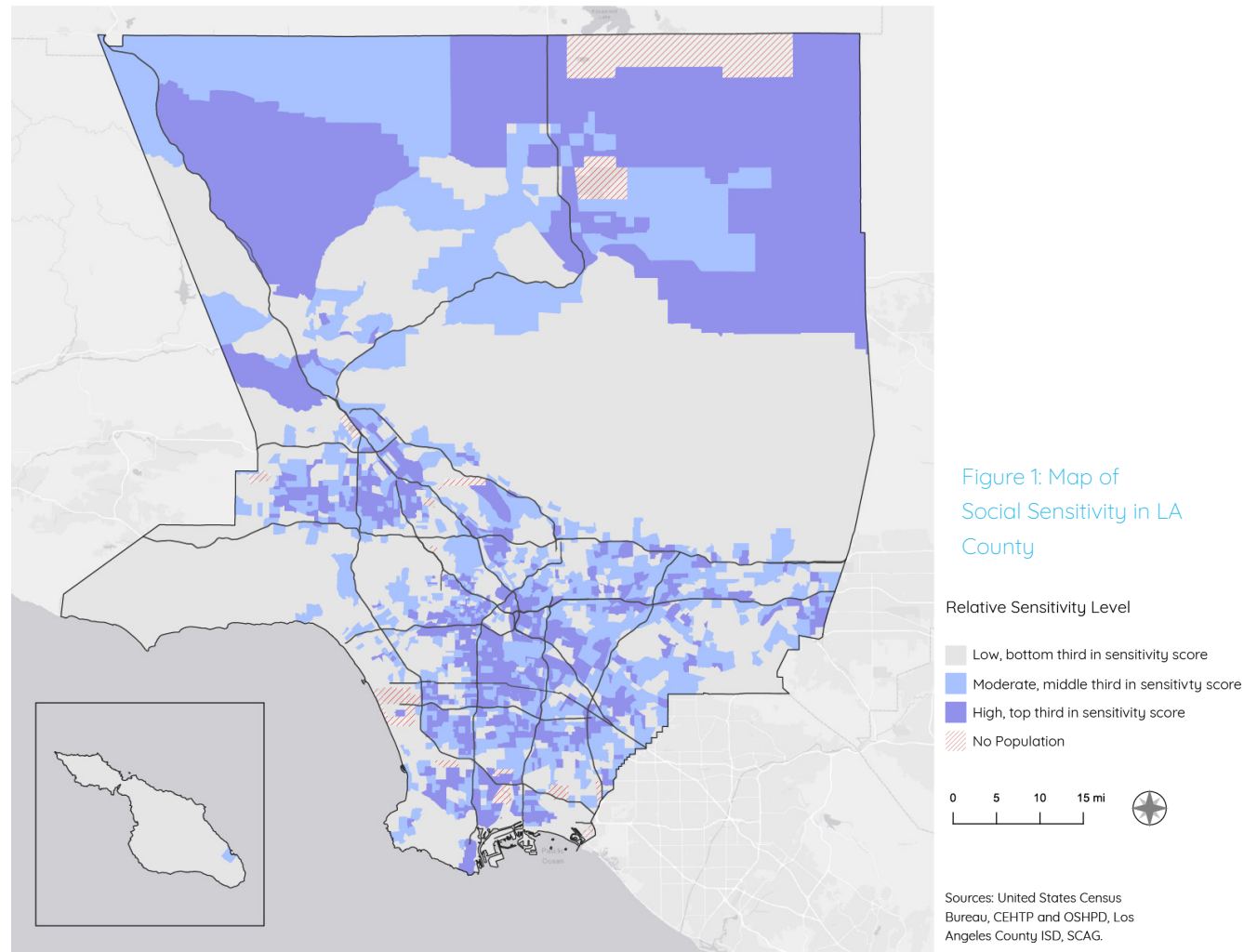
Executive Summary

Report goals and structure

In recent years, LA County has experienced record-breaking high temperatures, prolonged drought, and more intense wildfires. Each unprecedented event strains our communities, directly harming our health, infrastructure, and the natural resources we rely on. Such climate hazards are projected to become increasingly severe and frequent in the coming decades. This report, the LA County Climate Vulnerability Assessment (CVA), fulfills a commitment outlined in the OurCounty Sustainability Plan, identified by stakeholders as a top priority: to assess how people and infrastructure in LA County may be vulnerable to the changing climate. The County's vision of sustainability demands that we work to understand increasingly dangerous threats.

High climate vulnerability is generally defined as a combination of **increased exposure** to climate hazards; **high sensitivity**, or susceptibility, to negative impacts of exposure; and **low adaptive capacity**, or ability to manage and recover from exposure. A map of social sensitivity, which shows the geographic distribution of LA County residents with heightened susceptibility to climate hazards, is shown in Figure 1.

Social Sensitivity



Report goals and structure

The CVA builds on a solid foundation of climate research to analyze vulnerability in LA County—examining climate risks to the County’s diverse people and places, including populations with heightened susceptibility to climate impacts, across unincorporated communities and 88 municipalities.

Developed by the Chief Sustainability Office in collaboration with a wide range of partners, this report includes four key components:

The Climate Hazard Assessment (CHA)

evaluates potential changes in the frequency and severity of specific climate hazards (extreme heat, wildfire, extreme precipitation and inland flooding, coastal flooding, and drought) resulting from climate change in the coming decades.

The Social Vulnerability Assessment (SVA)

looks at the level of risk across communities and populations and identifies groups and places that are highly vulnerable to climate hazards—these groups and places experience high susceptibility and likelihood of increased exposure to climate hazards.

The Physical Vulnerability Assessment (PVA)

examines how physical infrastructure and facilities across the County face risk of damage from climate hazards and outlines how damage to highly vulnerable facilities could affect people and society.

The Cascading Impacts Assessment

explains how infrastructural systems rely on one another and how harms to one type of infrastructure can affect other facilities, related services, and the people who rely on those services.

Equity is the core focus of this report. *Vulnerability*, in the context of this discussion, does not signify any kind of innate individual weakness; to understand how climate hazards and adaptation strategies may impact people differently, we looked at structural inequities and other factors that put some people at greater risk of negative impacts. We used qualitative and quantitative methods to create a combined approach that highlights the voices, stories, and experiences of frequently excluded, highly vulnerable groups.



Los Angeles County Parks & Recreation



Extreme heat

Extreme heat will increase in frequency, severity, and duration—with up to a tenfold increase in the occurrence of heat waves by mid-century. The largest increases will occur in the Santa Clarita and San Fernando Valleys. Rising temperatures can jeopardize health and well-being in many ways, such as by worsening respiratory and heart conditions. It can cause significant damage, repair costs, and service interruptions to our physical infrastructure. We are particularly concerned about parks and energy infrastructure, both of which play critical roles in helping people to keep cool during extreme heat but which are themselves highly vulnerable to extreme heat.



Wildfire

Wildfires will become larger, more frequent, and more destructive—especially in the San Gabriel Mountains, where the wildfire burn area may increase up to 40 percent by mid-century. Although much of the additional destruction will likely occur in unpopulated areas, more than a million housing units in the wildland-urban interface will continue to be at risk. Furthermore, wildfire smoke will continue to affect people across the County, with 40 percent of residents already reporting that

they have avoided going outside because of air quality impacts. Wildfire also jeopardizes water quality and energy assets serving residents across the County.



Inland flooding and extreme precipitation

Rainfall patterns will change, with drier springs and summers and wetter winters. The concentration of rainfall over short periods will increase the likelihood of inland flooding and subsequent landslides and mudslides. It is not possible to calculate the amount of increased risk using existing data; data gaps and outdated floodplain maps belie a history and potential future of devastating floods. Energy infrastructure, again, is one of the physical assets at highest risk, along with medical facilities, transportation, and water systems.



Coastal flooding

A rise in sea level of up to 2.5 feet by mid-century will lead to more frequent and severe coastal flooding, especially in low-lying areas unprotected by natural bluffs. Low-income communities will find it particularly difficult to prepare for and recover from flooding events, and the events may have an outsized impact on the local economy because of the

concentration of key industries along the coast, including tourism, shipping, and select energy assets.



Drought

Drought and mega-drought will also become more likely because of rising temperatures and shifting precipitation patterns. Lack of water will not only harm water supply and treatment systems but other infrastructure and physical assets that rely on water—notably, power plants and parks. Communities that rely on single-source or small water service providers could lose direct access to clean water. Additionally, drought may increase the level of dust in the air in desert communities, a change that would be especially harmful to people with respiratory conditions or who spend a lot of time outside.

Throughout this report, we identify specific communities that are vulnerable to climate hazards. Some examples, out of more than 47 communities highlighted in the report, include

- **North Lancaster, Hi Vista, and Roosevelt** in the Antelope Valley, at risk of exposure to both extreme heat and inland flooding, which have high proportions of children and/or older adults;

Takeaways

- **Reseda** and **Winnetka** in the San Fernando Valley, at risk of exposure to extreme heat, which have high proportions of limited-English households and people with preexisting health conditions;
- **Santa Clarita**, at risk of exposure to both extreme heat and wildfire, which has a high proportion of older adults living alone and low transit access;
- **Montebello**, at risk of exposure to extreme heat, which has a high proportion of people with disabilities and low vehicle access;
- **Westlake** and **Crenshaw** in the Central and South Central parts of LA City, both at risk of inland flooding, which have large proportions of people without access to vehicles or informational resources (e.g., internet and libraries);
- **Long Beach** and **San Pedro**, at risk of flooding from extreme precipitation and/or sea-level rise, which have many low-income households;
- **East LA, South Gate**, and **Bellflower** in the east and southeast parts of the County, where limited tree canopy, buildings with poor temperature control, and lots of pavement magnify the impacts of even modest increases in temperature.



Takeaways

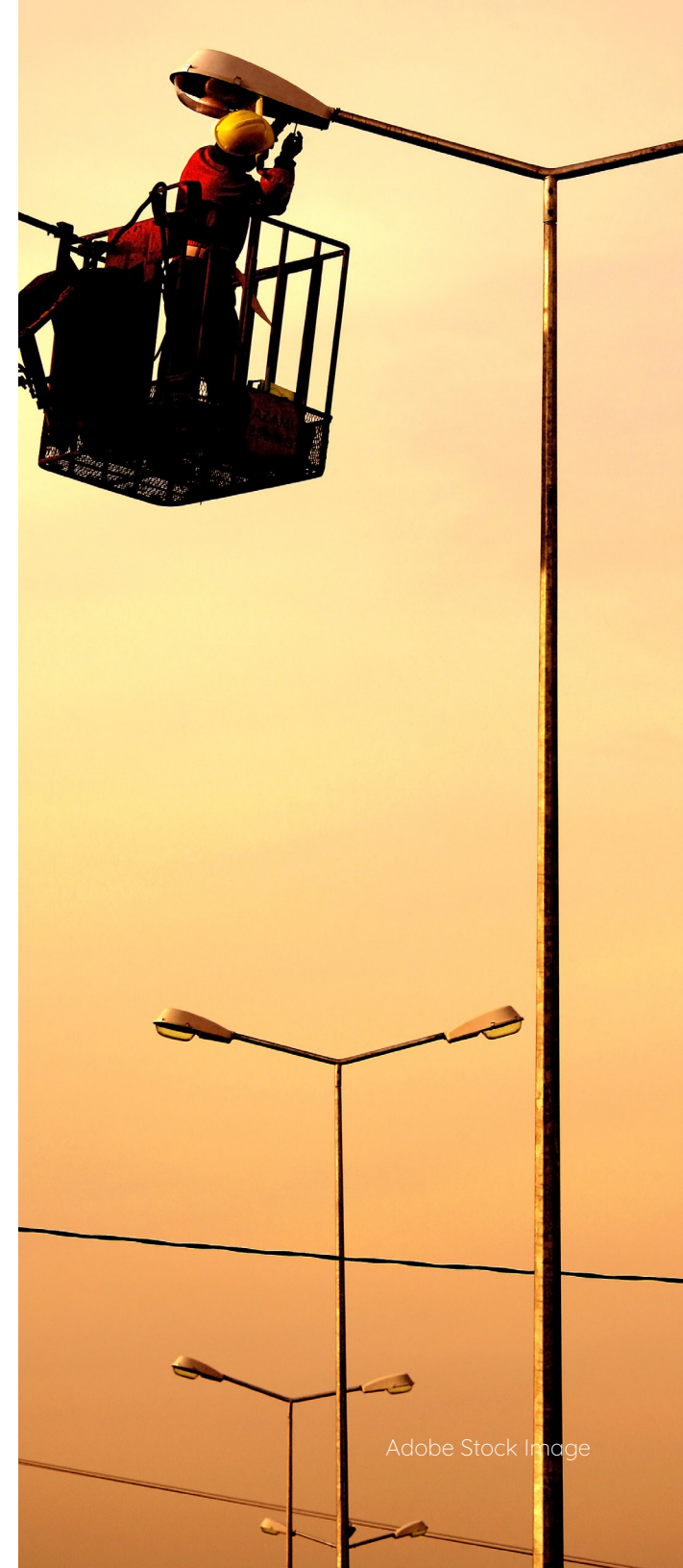
We also highlight concerns about people whose risks may be underrepresented in spatial analyses, such as:

- **People living in mobile homes:** the majority of mobile homes are located in high hazard areas, and they are more susceptible to damage and overheating than fixed houses or larger buildings.
- **People who depend on electrically powered medical devices:** the high vulnerability of energy infrastructure is a problem for all County residents, but power outages have especially acute and urgent impacts on people who need electricity to stay alive, like those with health conditions requiring oxygen equipment.
- **People experiencing homelessness:** even relatively low levels of exposure can be hazardous to people who lack physical shelter from climate hazards.
- **People who are climate-exposed at work:** for extreme heat in particular, exposure at work may be compounded by an inability to recover in the home environment, among climate-exposed workers, like landscapers who both work and live in places with no or poor thermal regulation.

- **Native populations:** adding to historical trauma and ongoing injustice that puts these populations at greater risk of negative impacts, the reduction of the region's natural biodiversity decreases access to traditional foods and culturally significant plants. Climate events like wildfire, high winds, and sea level rise, can destroy cultural sites and sacred land.

We demonstrate throughout the report that many of these vulnerabilities are highly racialized; policies rooted in racial oppression and discrimination have created racial inequities across all facets of society, such that people of color are overrepresented within and among many of the highly vulnerable communities and populations.

Our cascading impacts analysis shows that climate-related threats to our energy supply are pervasive. Because energy infrastructure is connected to every other type of infrastructure and energy assets are vulnerable to many hazards, addressing these risks must be a top priority. Furthermore, the analysis found that workforce availability is central to the operation of every infrastructure system—a point that was underscored by the workforce-related challenges of the COVID-19 pandemic, which were observed during this report's development.



Adobe Stock Image

Takeaways

Lastly, perspectives and experiences shared by community members revealed that many of the vulnerabilities just articulated will intersect with, and exacerbate, the ongoing housing affordability crisis and broader economic inequality in LA County. In 2018, nearly one-third of all households in Los Angeles County were severely housing cost-burdened, meaning that they spent more than half of their income on housing. Climate hazards may render some of the existing housing stock uninhabitable, further shrinking the overall housing supply and forcing people to relocate to safer areas, possibly outside of LA County. Additionally, actions to mitigate climate hazards could, without precautionary measures, lead to gentrification of low-income areas and financially driven displacement.

Any type of displacement is disruptive to social connections, which are important to a person's ability to survive future disasters. However, many stakeholders also shared that their social connections extend beyond their neighborhood and into regional networks of shared backgrounds, occupations, or characteristics. These connections are sustained by organizations or institutions that are well-positioned to help people understand and prepare for climate risks. These trusted organizations can play a critical role in developing and disseminating culturally relevant information and resources for climate hazards.

Acting on this information

As a technical assessment, this report does not outline a climate adaptation plan or recommend specific steps to prepare for the changing climate. However, the County has committed to using the findings of this assessment to inform a range of County-led climate adaptation, emergency preparedness, community resilience, and other efforts. We also encourage other local jurisdictions to use the CVA for their own decision-making processes, and we hope that communities and groups at risk of harm will find it helpful in advocating for equitable changes in policies, practices, and investments.

Endnotes

- 1 University of Southern California, Dana and David Dornsife College of Letters, Arts and Sciences, Center for Economic and Social Research. *LABarometer: Top 5 Takeaways from The Sustainability and Resilience Report*. University of Southern California, 25 Sept. 2020, cesr.usc.edu/sites/default/files/Top5_sustainability.pdf. Accessed 10 Sept. 2021.

Front cover provided by Los Angeles County Parks & Recreation.



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