

Our Climate Crisis:

A GUIDE FOR SOCIAL COMMUNITIES IN THE WILDLAND URBAN INTERFACE

Executive Summary

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Our Climate Crisis:
**A Guide for SoCal
Communities in the
Wildland Urban Interface**

Evelin Weber

Executive Director (The Malibu Foundation)

Shea Cunningham

Principal Investigator

Dean Kubani

Project Advisor

Julissa Alvarado (UCLA)

and **Rose Johnson** (Carnegie Mellon University)

California Climate Action Corps Summer Fellows

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MESSAGE

FROM THE EXECUTIVE DIRECTOR

The Malibu Foundation was created by local residents immediately following the devastating Woolsey Fire in 2018. The Foundation believes that community resilience and adaptability are key to creating sustainability in an area particularly vulnerable to the effects climate change.

2021 brought more weather extremes and mass casualty events across much of the western United States including heat waves, drought, wildfires, and flooding. This trend of extreme events is likely continue. The Santa Monica Mountains region was not prepared for the Woolsey Fire and the flooding and landslides that followed. We feel that it is only a matter of time until another natural tragedy occurs in the area. As a Foundation, we needed to do something to respond to the urgency and impact of these events – not just talk, but a plan of action.

The Malibu Foundation convened stakeholders from state and county government along with residents and local organizations to figure out how to prepare and adapt to these extreme weather events. This **Climate Action Plan** was the outcome of this group's work. We hope that the clear, actionable items in this Plan, which calls on all stakeholders to work together, will enable the region to be better prepared and more resilient against future natural disasters.

A special thanks to all of the partners who have contributed time, energy and creativity into developing this Plan.

Sincerely,



Evelin G. Weber
Executive Director



ACKNOWLEDGEMENTS

The Santa Monica Mountains are the ancestral lands of the Chumash, the Gabrielino Tongva and the Tataviam tribes. With gratitude, we honor this land and the people who have been its environmental stewards for thousands of years. As such, we are committed to doing our part to become better stewards of this region by conserving its precious resources, including the native flora and fauna, and helping the current inhabitants live more sustainably.

This report is the result of a highly collaborative project that kicked off in January 2021. A dedicated project advisory committee (PAC) guided the process and provided valuable input along the way.



SUBCOMMITTEE

We are deeply grateful to the following Project Advisory Committee (PAC)* and emergency communications subcommittee members:

Alison Frazzini,
LA County Office of Sustainability

Antoine Kunsch,
Resource Conservation District of the
Santa Monica Mountains*

Beth Burman, Topanga Coalition for
Emergency Preparedness (TCEP)

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Cecilie Stuart,
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Dr. Chris Doran, Pepperdine University,
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Resilient Palisades*

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Jonathan Parfrey, Climate Resolve*

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Madelyn Glickfeld, water policy expert

Mark Winn,
emergency communications expert

Dr. Marti Witter, National Park Service

Mary Sue Maurer,
Councilmember, City of Calabasas

Mikke Pierson,
Councilmember, City of Malibu

Rick Wood,
emergency communications expert

Ryan Ulyate,
North Topanga Canyon Fire Safe
Council

Susan Duenas, City of Malibu

Tessa Charnofsky, LA County

Supervisor Sheila Kuehl's Office

Thuy Hua, LA County Regional

Tim Pershing, CA Assembly Member
Richard Bloom's Office

* PAC members with an asterisk (*) represent official collaborating partner organizations



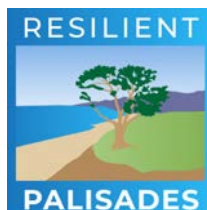
SPECIAL THANKS

Initial research assistance was provided by a hard-working USC capstone project graduate student team (Ana Rosas, Muhan Zhang, Youngwoo Kwon, Ruofan Zhang and their advisor Peter Roberston). Overall guidance and mapping assistance was provided by Sabrina Bornstein and Eden Axelrad of BuroHappold Engineering, which was critical to ensuring this report's accuracy.

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Finally, this project would not have been possible without support from The Malibu Foundation's board of directors; and copy editor Amanda Greene.

COLLABORATING PARTNER ORGANIZATIONS





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INTRODUCTION

The communities of the Santa Monica Mountains (SMM) are particularly vulnerable to natural hazards such as earthquakes, fires, and landslides and the increasing impacts of climate change, including prolonged droughts, extreme heat and precipitation, storm surges and sea level rise. In November 2018, the devastating Woolsey Fire burned over 97,000 acres and destroyed over 1,600 homes and other structures in the cities of Malibu, Agoura Hills, Calabasas, Westlake Village and the unincorporated SMM area. Three years after the Woolsey Fire, the region is still in the difficult process of recovering.

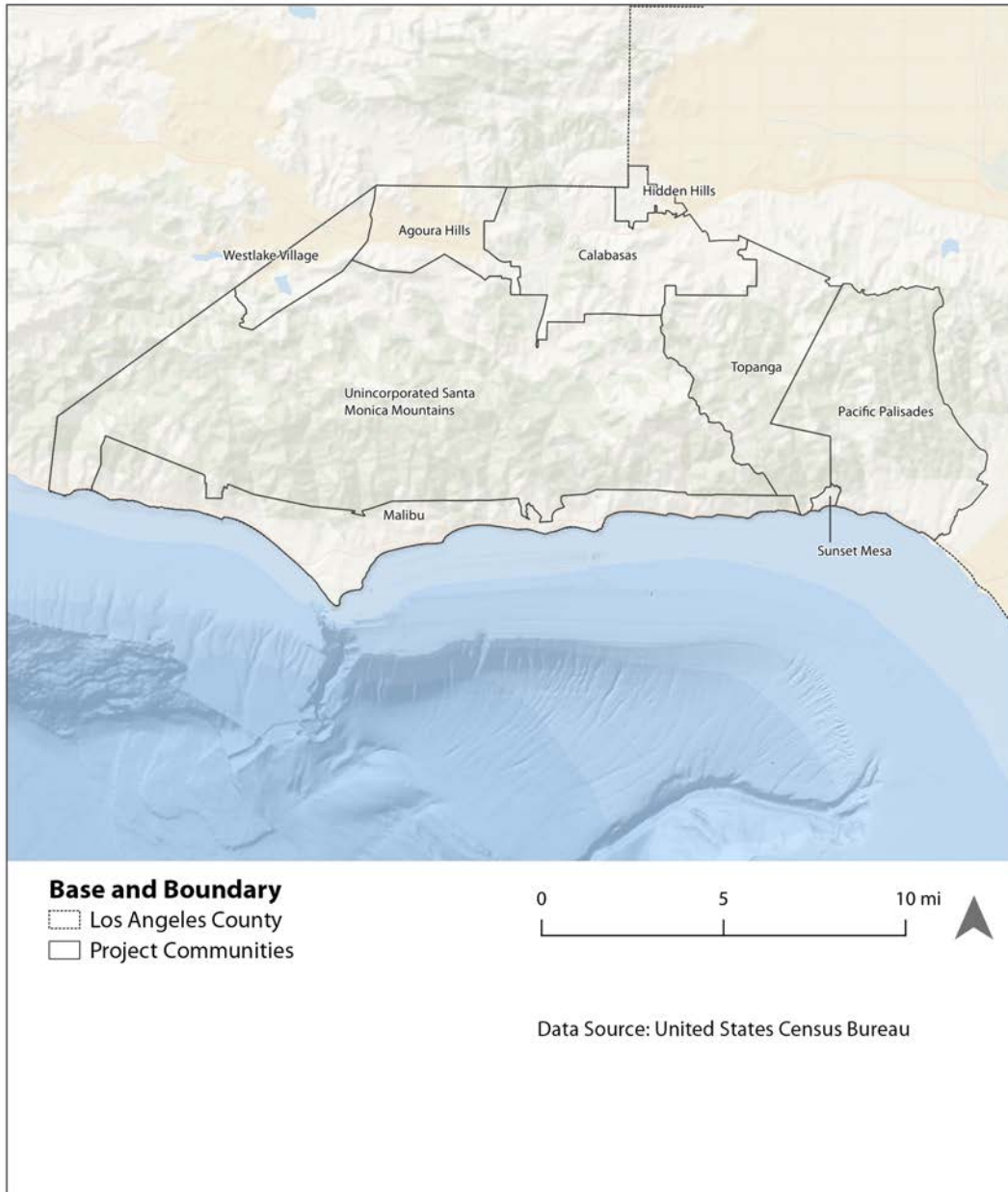
Unfortunately, this challenging time has been compounded by the COVID-19 pandemic, which has had a profound impact on local economies and the health and well-being of the community – especially for its less affluent residents and older adults. However, “The Great Reset” also presents the region with an opportunity to create more awareness about climate change and proactively build resilience to the resulting shocks and stressors of climate change – including hotter, faster, and more frequent wildfires. It is an opportunity to help minimize the loss of property, lives and livelihoods and be better prepared when the next disaster strikes. It is also an opportunity to strengthen community cohesion, equity, and inclusion by identifying and supporting the most vulnerable populations within the region.

In January 2021, the Malibu Foundation formed a collaboration with a broad range of community stakeholder groups and local experts to conduct a climate vulnerability assessment and resilience plan for the SMM wildland-urban interface (WUI) cities of Malibu, Agoura Hills, Calabasas, Hidden Hills and Westlake Village (which form the Las Virgenes Council of Governments), as well as Topanga, the Pacific Palisades, Sunset Mesa and adjacent unincorporated SMM communities.



Figure 1

SMM WUI REGION PROJECT AREA



KEY DEFINITIONS

Climate vulnerability can be defined as susceptibility to exposure to the hazards associated with climate change, such as more frequent and persistent droughts, more intense storms and wildfires, sea level rise and coastal flooding, and more frequent extreme heat events.

Climate resilience, on the other hand, is the ability to withstand the impacts of these climate related hazards. *Community resilience* relates to the ability of individuals and neighborhoods to support each other before, during, and after a disaster or crisis, strengthening connections within and between communities, and developing comprehensive support systems.¹

The *wildland urban interface (WUI)* is the transition zone between wilderness and land developed by human activity, an area where a built environment intermingles with the natural environment. Human settlements in the WUI are at a greater risk of catastrophic wildfire and several other climate hazards. The US Forest Service defines the WUI as a place where “humans and their development meet or intermix with wildland fuel.”²

This report seeks to:

- 1. Increase local knowledge** about the SMM WUI region’s climate hazards, the resulting impacts on infrastructure and community resources, and the region’s diverse populations;
- 2. Provide recommendations** to address and prepare for the disruptive, and potentially devastating impacts of climate change in the region; and
- 3. Serve as an actionable plan for regional coordination** by local governments and regional agencies on climate resilience strategies, and as a community resilience guide for individuals, neighborhood groups and other stakeholders in the region.

¹ “Principles of the Resilient Communities Program.” New America. Accessed September 5, 2021. <https://www.newamerica.org/resilient-communities/about/principles-resilient-communities-program/>

² <https://www.fs.fed.us/openspace/fote/reports/GTR-299.pdf>



METHODOLOGY

This study is based on the following:

- 1. Community Surveys:** Qualitative results from an on-line community survey based on Los Angeles County's 2020 adaptive capacity survey. Survey respondents were asked 67 questions in seven categories: (1) Demographics, (2) Climate Change & Woolsey Fire, (3) Extreme Heat, (4) Wildfire, (5) Floods, (6) Communications & Mobility, and (7) Mitigation, Sustainability & Preparedness. More than four hundred residents of the SMM WUI region participated in this survey between February and March 2021.
- 2. Listening Sessions:** Analysis from two listening sessions focused on older adults and day laborers/domestic workers. A total of thirty-five people participated in these sessions.
- 3. Community Asset Inventory:** A catalog of critical community infrastructure was compiled to identify the region's key physical resources and help assess its physical vulnerabilities and climate resilience.
- 4. Research and Data Analysis:** Reviews of key studies, including [LA County's 2021 Climate Vulnerability Assessment](#), analysis of census data, and the use of several other databases and statistical sources including CalAdapt, the National Oceanic and Atmospheric Administration (NOAA), and the Coastal Storm Modeling System (CoSMoS) informed this report and its conclusions.



COMMUNITY SURVEY HIGHLIGHTS

Community Survey Highlights

The community survey was conducted to qualitatively assess the physical, social, and economic vulnerabilities of residents in the region to extreme weather and climate events. It also evaluated their awareness of climate change risks and response measures, their level of emergency preparedness and community engagement, and their willingness to participate in mitigation and adaptation efforts. The survey analysis was incorporated into the overall climate vulnerability assessment and informed the final recommendations. Below are four examples of the survey questions and results.

Figure 2

Do you feel climate change is impacting you?

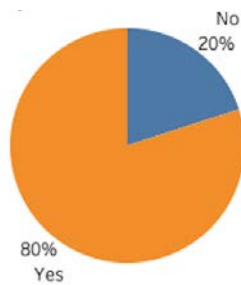


Figure 3

Adaption strategies for extreme heat you would consider in the next 1-3 years

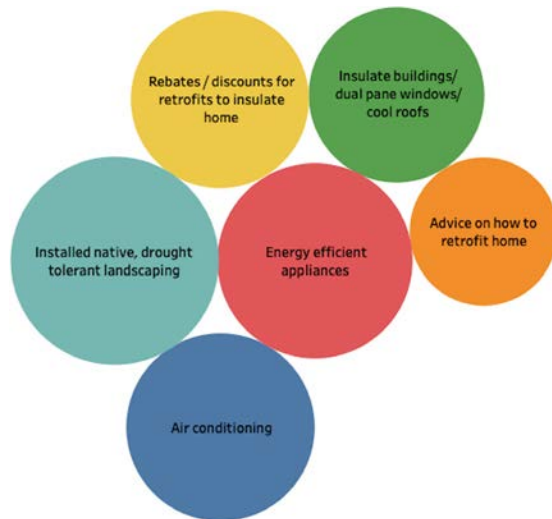


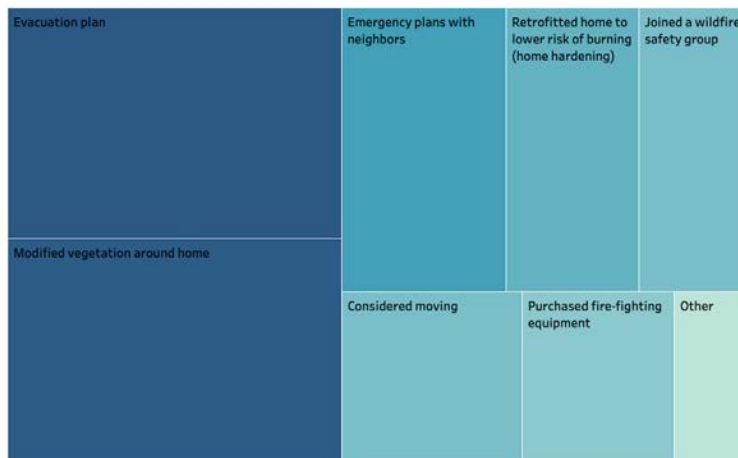
Figure 4

What words come to mind when you hear
“climate vulnerability”



Figure 5

What have you changed in your lifestyle to
adapt to/prepare for wildfire?



CLIMATE HAZARDS ASSESSMENT

By mid-century the Santa Monica Mountain region will experience a significant increase in the following climate hazards:

- **Prolonged droughts:** While ecosystems in Mediterranean climates are adapted to seasonal drought, multi-year droughts disrupt these systems.^{1,2} Extended periods of drought can exacerbate wildfire risk in the Santa Monica Mountains by increasing the duration of the critically low moisture content of the region's native vegetation.^{3,4}
- **Extended periods of extreme heat:** CalAdapt data project that by mid-century, under high emissions scenarios, maximum temperatures will rise by approximately five degrees across the region with nine to 19 extreme heat days per year. Communities along the north of the SMM region Agoura Hills, Calabasas, and Hidden Hills will face the largest temperature increases.
- **Frequent wildfires:** The entire SMM WUI region is categorized as a "Very High Fire Hazard Severity Zone".⁵ While all communities in the region have a high level of burn probability, the majority of the central mountainous area face an extreme risk.⁶ Seventy percent of survey respondents identified wildfire evacuation as their top physical and/or social climate vulnerability. High fire frequency can cause loss of native

1 Okin, G. S., Dong, C., Willis, K. S., Gillespie, T. W., & MacDonald, G. M. (2018). The impact of drought on native Southern California vegetation: Remote sensing analysis using MODIS-derived time series. *Journal of Geophysical Research: Biogeosciences*, 123, 1927–1939. <https://doi.org/10.1029/2018JG004485>

2 Venturas, M. D., et al. (2016). "Chaparral shrub hydraulic traits, size, and life history types relate to species mortality during California's historic drought of 2014." *PLOS ONE* 11(7): e0159145.

3 Dennison, P. E., Moritz, M. A., & Taylor, R. S. (2008). Evaluating predictive models of critical live fuel moisture in the Santa Monica Mountains, California. *International Journal of Wildland Fire*, 17(1), 18-27.

4 Keeley, J. E., et al. (2021). "Ignitions explain more than temperature or precipitation in driving Santa Ana wind fires." *Science advances* 7(30): eabh2262.

5 <https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps>

6 Scott, Joe H.; Gilbertson-Day, Julie W.; Moran, Christopher; Dillon, Gregory K.; Short, Karen C.; Vogler, Kevin C. 2020. Wildfire Risk to Communities: Spatial datasets of landscape-wide wildfire risk components for the United States. Fort Collins, CO: Forest Service Research Data Archive. Updated 25 November 2020. <https://doi.org/10.2737/RDS-2020-0016>



plant communities and wildlife habitat, which in turn makes the area more vulnerable to wildfire. Drought conditions can interact with fire to inhibit postfire regeneration, and drought-induced dieback of vegetation may increase rate of spread of fires and/or increase their intensity.

- **Flooding and landslides:** Precipitation events (rain) are expected to become more extreme - occurring within shorter time periods following longer periods of very dry weather.⁷ Precipitation levels are expected to increase most significantly in the Topanga, Pacific Palisades, and unincorporated areas of the Santa Monica Mountains in the higher elevation areas by mid-century. The region's creeks and lake basins, and low-lying areas are at high-risk for flooding and most of the built environment in the region is at risk of landslides.
- **Sea Level Rise-induced damage to coastal infrastructure:** The Sea level rise (SLR) map reveals that both a 0.75 meter and 2-meter SLR scenario could bring inundation levels (permanent flood levels) between 0 and 600 mm (approximately two feet). In a 2.0-meter SLR scenario, a large portion of the coast could be inundated with up to 400 mm (15.75 inches) of water. Both scenarios give rise to increased water levels that could result in a significant loss of infrastructure, especially in the Malibu Civic Center area, around the Pier and the adjacent commercial area, as well as further inland along Malibu Creek and along the Pacific Coast Highway (PCH). The United States Geological Survey's SLR analysis projects storm surge and wave run up that will inundate a large part of the Malibu Civic Center area.

⁷ [LA County Community Vulnerability Assessment \(CVA\), \(2021\)](#)



Figure 6
**WILDFIRE RISK TO
 POTENTIAL STRUCTURES**

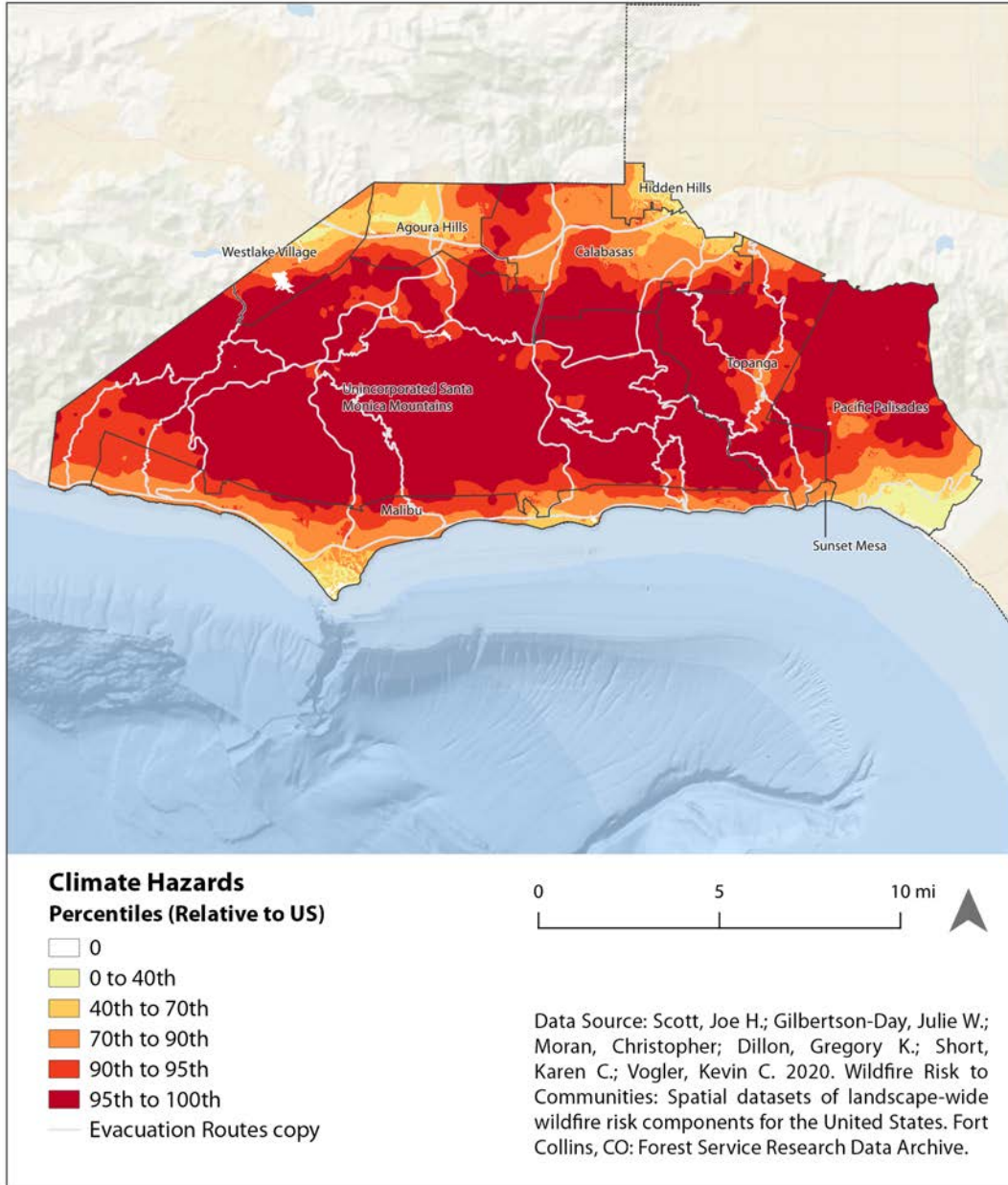
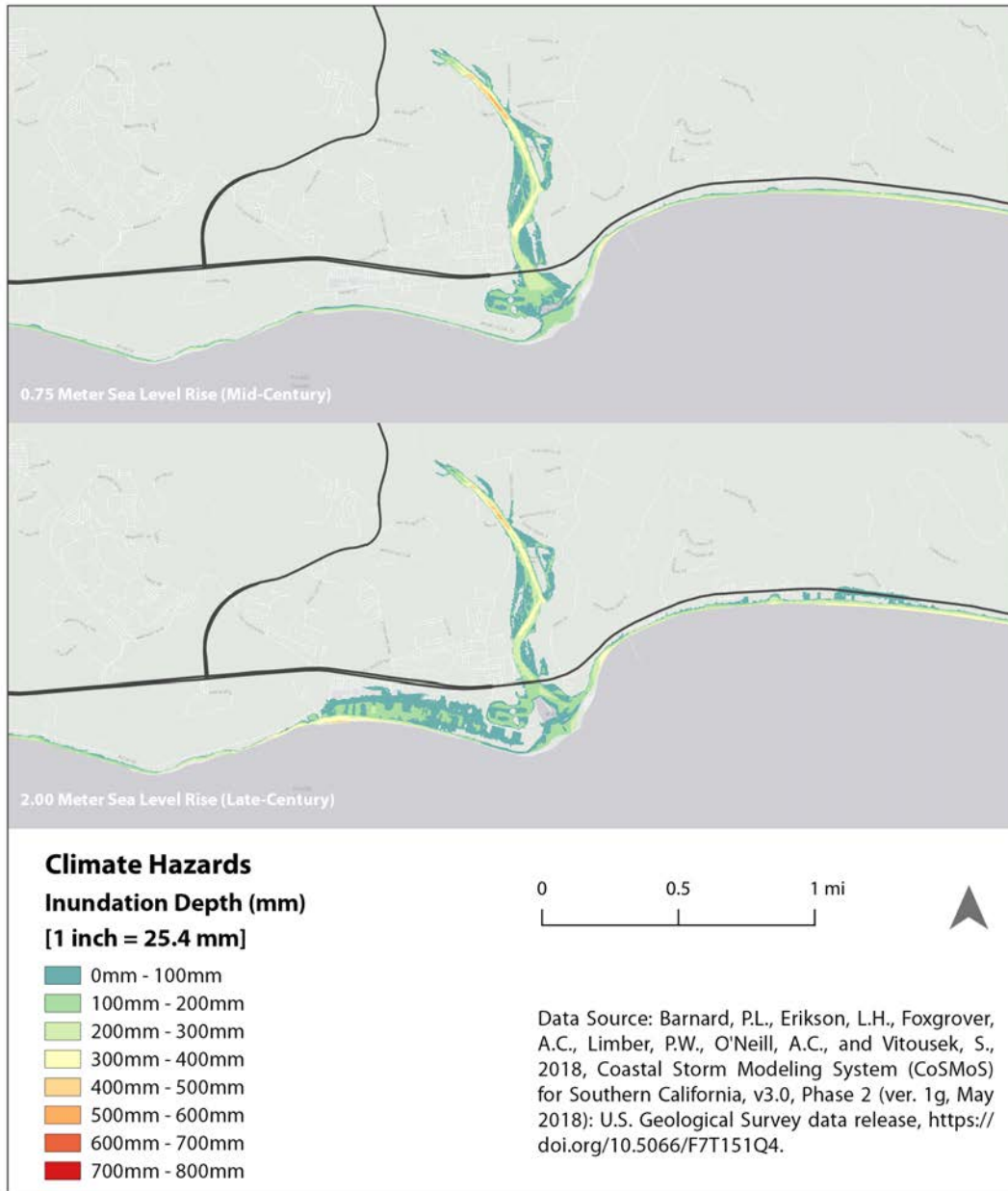


Figure 7

COASTAL FLOODING HAZARD

Sea Level Rise & 100-Year Storm



CRITICAL INFRASTRUCTURE ASSESSMENT

A significant amount of critical infrastructure in the region is at risk from climate-related hazards and/or is inadequate to meet current needs during a disaster, including:

- The electric power grid is unreliable, and power outages are frequent events throughout the region.
- The telephone and cellular communications grid are also unreliable, particularly during power outages.
- Water demand in the region is almost entirely met using imported water, which will be increasingly unreliable in times of prolonged drought unless water agencies begin supplementing imported water with recycled water and stormwater capture.
- Most major roads in the region (many of which serve as evacuation routes) are at significant risk from flooding and landslides due to extreme precipitation and high intensity storm events. Pacific Coast Highway (PCH) is extremely susceptible to flooding from storm surges related to sea level rise. These risks are intensified in periods following wildfires when erosion potential is greatly increased, resulting in post-wildfire debris flows. Data from the UCLA Institute of Transportation Studies statewide study of post-wildfire debris flows for the SMM WUI region indicates that by mid-century the region's roadways are in the high or extremely high vulnerability categories and projected to be extensively impacted. Although it is not expected that all roads in the region will be impacted in the same way at the same time, the high risk of post-fire debris flow serves to markedly exacerbate the region's pre-existing challenge of limited and climate-vulnerable evacuation routes.⁸

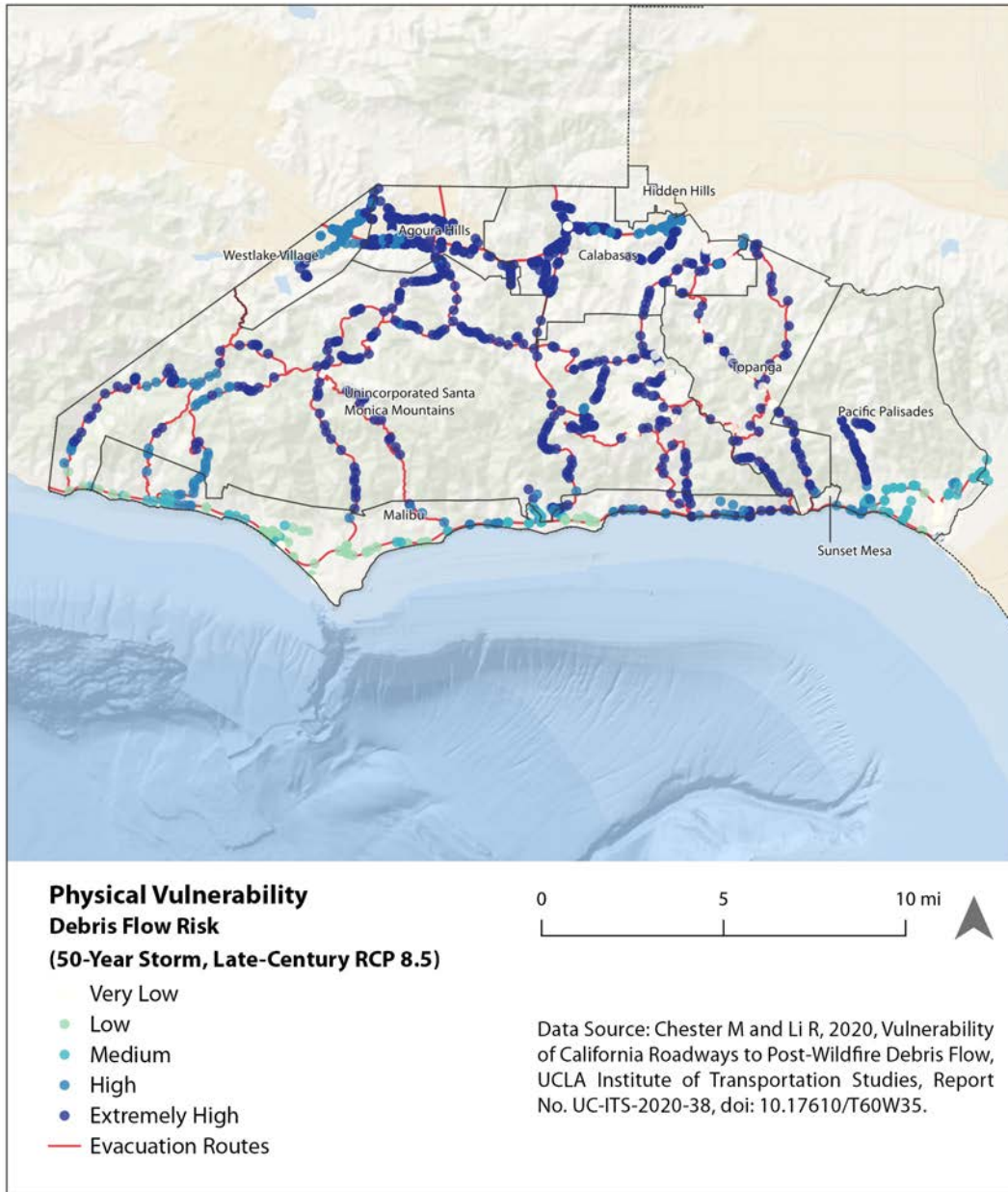
⁸ Chester, M. V. and Li, R. (2020). *Vulnerability of California Roadways to Post-Wildfire Debris Flows*. UCLA Institute of Transportation Studies. Doi: 10.17610/T60W35



Figure 8

FUTURE ROAD VULNERABILITY

Post-Wildfire Debris Flow



SOCIAL VULNERABILITY

Despite the region's relative privilege and wealth, our research revealed a substantive percentage of vulnerable populations in the region are at a heightened risk during emergency events. The most vulnerable populations identified in the SMM region include older adults (people 65 and older) and people with physical disabilities; people living alone; low-income residents and people living below the poverty level, including many residents of mobile home communities, households headed by women, day laborers, and people with limited English; and the unhoused community. All of these groups are especially susceptible to and disproportionately impacted by climate change hazards, and have a reduced adaptive capacity. Key intersectional issues faced by these populations include challenges with mobility, access to transportation, unreliable communications, and limited finances to prepare for, respond to, and mitigate climate emergencies.

- **Older adults (age 65 or over):** The SMM region is home to a disproportionately high percentage of older adults. While only 12% of LA County's residents are 65 or older, approximately 22% of the project region's population are in this age bracket. The Pacific Palisades has the highest concentration of residents over the age of 65. Older adults in the region are especially challenged by emergency communications and mobility issues and are disproportionately impacted by extreme heat and toxic wildfire smoke. Evacuation orders and road closures often make it difficult for older residents to leave due to road conditions and the inability for caregivers to enter the region and assist them.
- **Low-income and mobile home residents:** A significant number of the SMM region's residents (e.g., 22% in the City of Malibu) live in mobile homes in comparison to LA County (1.8%). Residents of mobile homes are typically of lower-income status and are considered highly vulnerable to the impacts of climate change as mobile homes are less energy



efficient with lower levels of insulation than site-built homes from the same era, and many are not equipped with air conditioning which can be costly to install and operate.⁹ Five to 10% of households are living in poverty throughout the more populated areas of the SMM region. Portions of the City of Malibu, the Pacific Palisades and unincorporated SMM have 10% to 25% of households living in poverty, while a small pocket in Agoura Hills has over 25% of households living in poverty.

- **Day laborers / Domestic Workers / Caregivers:** Most of the listening session participants from this group were not registered or even aware of the existence of emergency alert systems, which are critical public safety resources designed to help people reduce their risks and provide accurate evacuation information during emergency events. Several of the participants lost their jobs because of the Woolsey Fire’s destruction of homes in the region. Even if their employers’ homes were not destroyed, wildfire circumstances caused the loss of their employment opportunities for an extended period, which put a severe financial strain on them and their families. Like the older adult population, day laborers are also highly vulnerable to the negative health effects of wildfire smoke exposure. For day laborers, their health risks are further exacerbated by occupational hazards, low socio-economic status, limited access to health care, and the fact that most reside in South Los Angeles, which is plagued by higher levels of toxic air pollution than other parts of Los Angeles County.
- **The Unhoused Community:** According to LA County’s annual homeless count, an estimated 150 to 170 people experiencing homelessness (PEH) live in the SMM WUI region. Often overlooked, PEH are especially affected by climate change impacts, as they are more directly exposed to extreme weather conditions. PEH have limited resources available to them to assist with their disaster preparedness and a very limited ability to be proactive in emergency situations. To improve the adaptive capacity of the region’s unhoused population, and to create a safer environment for the entire region, the vulnerabilities of this population must be addressed.

⁹ Vulnerability, Housing. (2021). *Convergence of Climate-Health-Vulnerabilities*. Retrieved from <https://convergence.unc.edu/vulnerabilities/housing>:



Figure 9
OLDER ADULTS

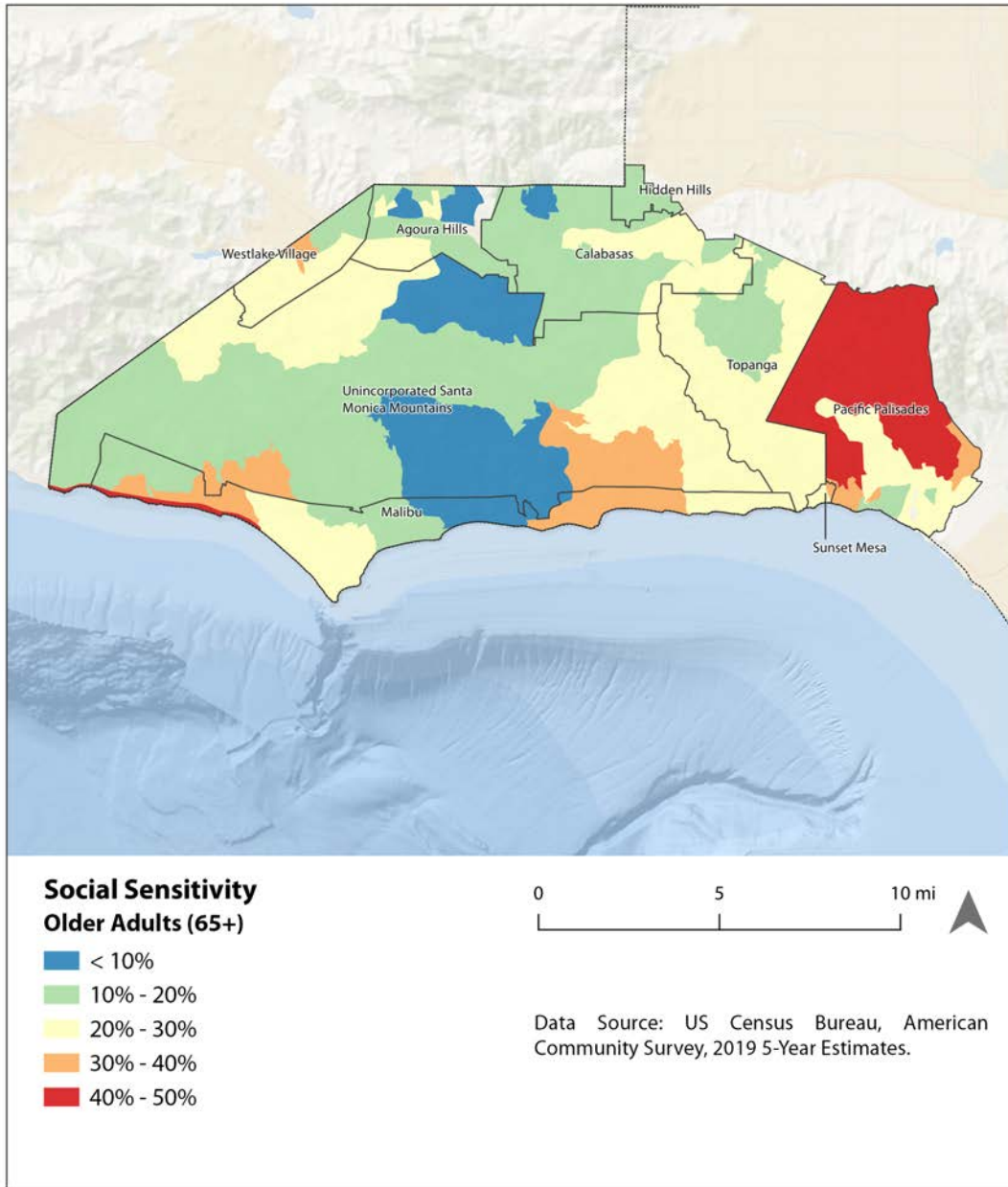
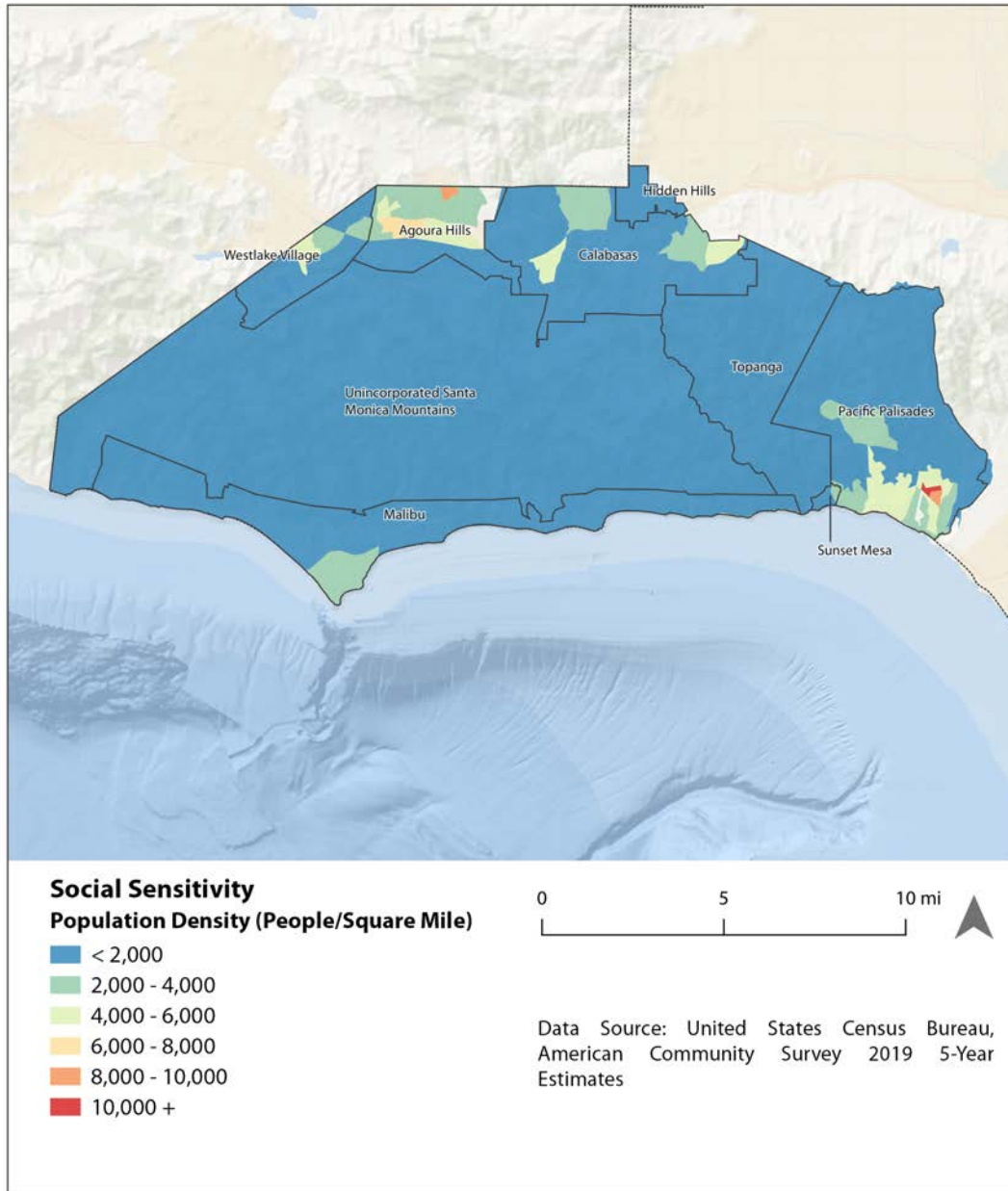


Figure 10

HOUSEHOLDS LIVING IN POVERTY



CLIMATE CHANGE RESILIENCE

A Comprehensive inventory of the SMM WUI region's community assets revealed that it is poorly prepared to deal with multiple threats presented by climate change.

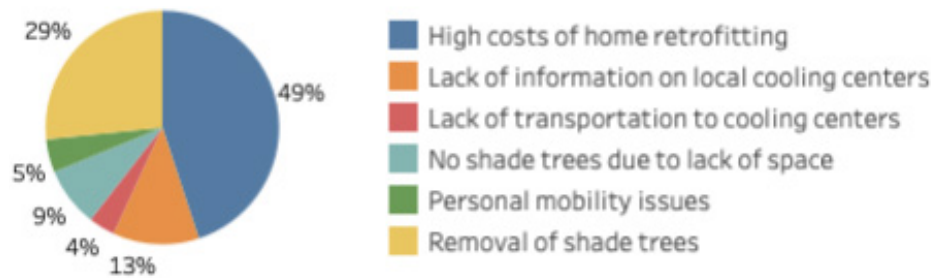
Specifically:

- Many residents have resource constraints that prevent them from upgrading their properties to be more resilient to climate threats – including home hardening, defensible space, and on-site solar with back-up power.
- There is a lack of adequate cooling centers in the region.
- Residents are not sufficiently aware of or prepared for the increasing threats related to climate change. Most cities in the region have not planned to address the long-term problems that will affect their communities related to climate change, including disruption to critical infrastructure and impacts on businesses and residents from excessive heat, flooding, wildfires, and drought.
- Emergency communications tend to be poorly coordinated amongst the various jurisdictions in the region. Not all communities in the region have emergency evacuation plans.
- There is limited overall coordination between cities and communities in the region as well as with the multiple agencies that have jurisdictions within the region.
- In addition to the city and county governments and local stakeholder organizations, there are multiple public jurisdictions and regional agencies across the SMM WUI region and a lack of sustained coordination.



Figure 11

KEY CHALLENGES IN MANAGING EXTREME HEAT

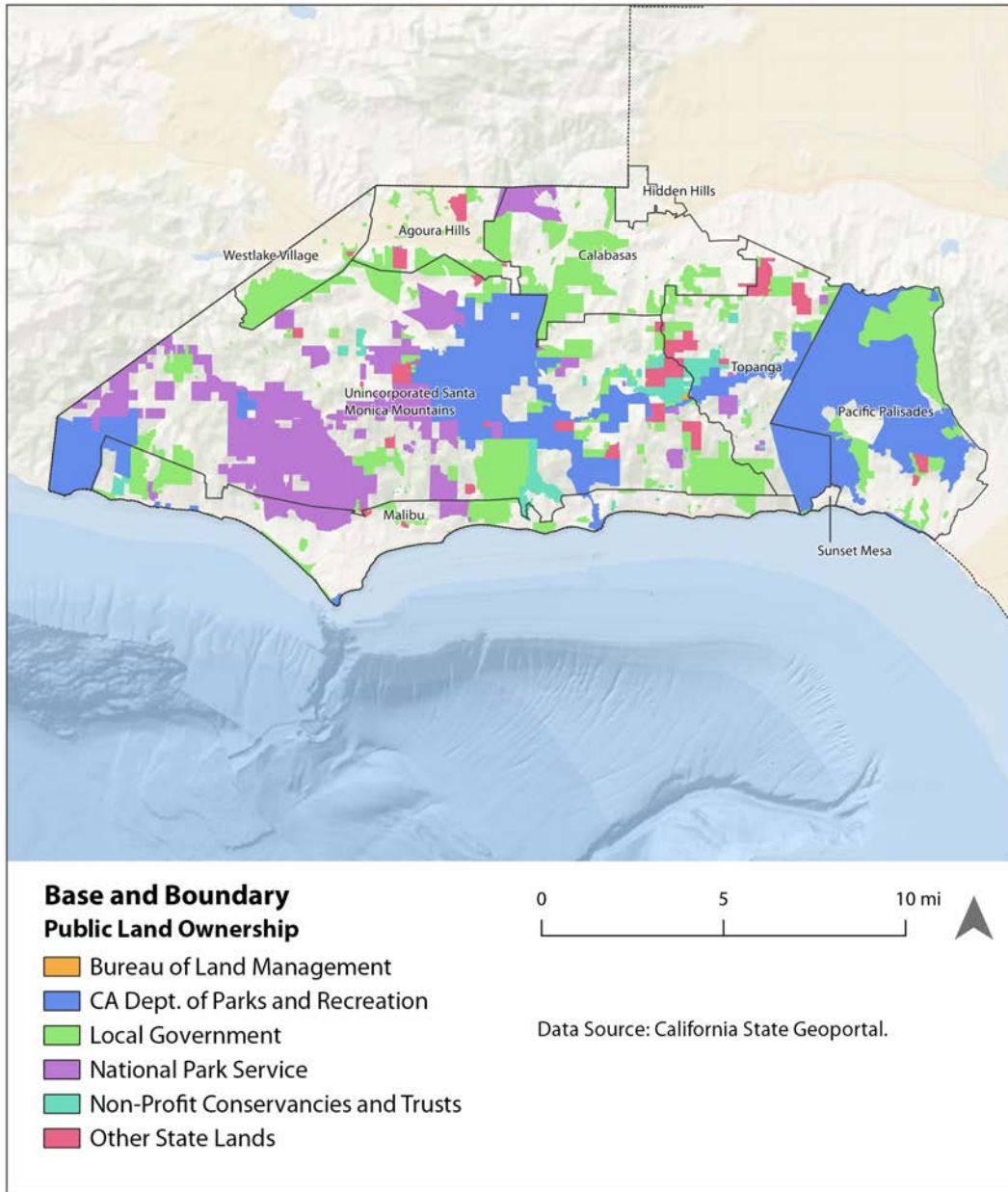


The Public Land Ownership Map illustrates the multi-jurisdictional web that makes up the SMM WUI region. In addition to the nine communities and local and county governments, a large portion of the land is owned by state and federal agencies, including the Department of Parks and Recreation, the Bureau of Land Management, the National Park Service and non-profit conservancies and trusts such as the Mountains Recreation and Conservation Authority (MRCA) and the Santa Monica Mountains Conservancy. The multitude of regional stakeholders points to the need for a wide-spread collaborative approach on climate resilience solutions. A regional approach with multi-jurisdictional collaboration is also a way to avoid duplication of efforts, pool resources, and reduce costs.



Figure 12

PUBLIC LAND OWNERSHIP MAP



RECOMMENDATIONS

High Priority Action Recommendations

The following is a summary of the **Highest Priority Actions** that must be taken to improve Climate Resilience in the SMM WUI Region:

Local Government Leadership on Climate Change: Of the six local government agencies in the region, to date only two - Los Angeles County and the City of Agoura Hills - have shown leadership in addressing climate change and its impacts through the development and implementation of comprehensive climate and resilience plans. The cities of Malibu, Westlake Village, Hidden Hills and Calabasas have only made limited, piecemeal efforts in these areas, usually to meet minimum compliance with State planning requirements such as hazard mitigation. **Recommendation:** All jurisdictions within the region should develop and implement comprehensive and aggressive Climate Action and Adaptation Plans to adequately prepare their infrastructure and communities to withstand the significant and multiple hazards that climate change is already bringing to the region as well as rapidly and significantly reduce greenhouse gas emissions. To facilitate coordination and implementation, we recommend this be actualized through the Las Virgines Malibu Council of Governments (LVMCOG).



Infrastructure Resilience

- **Roads:** Most major roads in the region, many of which serve as evacuation routes, are at significant risk from landslides and floods due to high intensity storm events. These risks are intensified in periods following wildfires when soil erosion potential is greatly increased. Pacific Coast Highway, in particular, is extremely susceptible to both landslides and flooding from storm surges related to sea level rise.
Recommendations: In light of anticipated climate impacts to roads throughout the region, all local government agencies should update their existing local emergency response and evacuation plans, including capacity analysis of primary and secondary evacuation routes, and other mitigation measures to address impacts from fires, floods and landslides. In addition, further analysis of projected landslides and debris flows should be implemented to identify specific locations that need proactive slope and canyon stabilization to avoid the need for more costly and disruptive post-disaster repairs.
- **Water:** Water demand in the region is almost entirely met using imported water sources, which will be increasingly unreliable due to the effects of climate change such as elongated periods of severe drought.
Recommendations: Local government agencies (Las Virgenes Water District, West Basin Municipal Water District and District 29) should re-evaluate their water supply resources in light of future climate-related drought projections and develop action plans to maximize the use of local water resources. Action plans should at minimum include: new strategies to increase stormwater capture and storage, and transition to recycled water; encouragement and direction for all small package water treatment plants in the region to upgrade treatment to allow either non-potable or potable water supply; and policies that will ensure aggressive action is taken to reduce water demand, such as incentives for residents and businesses to replace inefficient water fixtures and to adopt drought tolerant, climate adapted landscaping practices that use native plants.



- **Energy:** The electric power grid is unreliable, and power outages are frequent events throughout the region. The vast majority of public facilities, single and multi-family residences and businesses are not equipped with on-site solar, battery backup, or other systems to allow them to operate during power outages. **Recommendations:** Local government agencies and local utilities should provide incentives to local residents and business to install nano- and micro-grid energy systems with back up and islanding capabilities. These systems would continue to provide energy during power outages and promote resilience during emergency events.

Specifically, local governments should:

- * Educate the community on the economic benefits (e.g., tax incentives and rebates) and the environmental benefits (e.g., reduce carbon emissions) of installing on-site solar to grow the region's adaptative capacity.
- * Identify key municipal buildings for on-site solar installation with battery backup and islanding capabilities to establish safe refuge centers during power outages.
- * Provide target assistance for low income and older adult residents, beginning with those who rely on medical devices.
- * Hire a consulting company that specializes in community solar microgrids to develop a feasibility study.
- * Work with local utility to establish rights to operationalize the microgrid.



- **Communications:** Surveys of residents from throughout the region called out the unreliability of the region’s emergency communication system during extreme weather events and wildfires, and uncertainty around evacuation protocols and emergency information as the primary concerns that need to be addressed. **Recommendations:** Local governments and other agencies should provide all households in the region with hand-crank AM/FM radios and FRS two-way radios to ensure that they are able to receive critical information and evacuation alerts during emergency events. In addition, all local government agencies should direct their emergency operations personnel to:
 1. Maintain updated communications and evacuations plans for their jurisdiction;
 2. Regularly provide training and updates to residents in their jurisdiction; and
 3. Establish neighborhood groups to support vulnerable individuals and groups to assist with communication, transportation, and evacuation during emergency events.



Social Resilience

- **Provide Sustained Financial Assistance:** Local governments and other stakeholder organizations should identify funding assistance (e.g., FEMA, the CA Public Utilities Commission) to help lower-income and fixed-income homeowners complete essential home hardening and defensible space upgrades to their homes (particularly for older homes in high-risk areas of the region), and to purchase emergency kits that include emergency communication devices. Financial assistance is also needed to help these residents and low-income renters in the region with heat-reduction strategies such as installing insulation, passive cooling retrofits, and energy efficient air conditioners, and planting native shade trees to prepare for excessive heat events. In addition, the following are key recommendations for the region's most vulnerable populations:
- **Older Adults:** Local governments and wildfire safety organizations should work together to develop an inventory of all adults 65+, identify neighbors willing to check on these residents during an emergency event, and organize sustained communication assistance and emergency trainings that target the needs of the older adult community, including technical assistance with emergency communications. Public assistance for older adults should also include transportation to cooling centers and safe refuge areas for older adults, as well as energy resilience programs that prioritize residents who rely on electricity-dependent medical equipment.
- **Day Laborers / Domestic Workers / Caregivers:** Those with limited English proficiency are at risk of missing critical messaging, especially if they rely on word-of-mouth communication. Access to up-to-date hazard information is crucial in preparing for climate emergencies. Local governments should provide multi-language disaster materials and trainings for people with limited English -- starting with Spanish, the second most prevalent language in the region. Local governments should also explore funding sources and establish a public-private regional financial assistance fund to support day laborers, domestic workers, and caregivers during periods of disaster and recovery.





SPANISH-LANGUAGE EMERGENCY PREPAREDNESS

In partnership with the Malibu Foundation and Malibu Labor Exchange, the City of Malibu hosted the region's first Spanish-language Emergency Preparedness event on September 11, 2021. A total of 49 day laborers and domestic workers in the region participated. In addition to education, they received technical assistance with emergency alert notifications, hand cranked radios, and emergency kits. The hope is that this will become an annual event supported by municipalities and residents throughout the SMM WUI region.

- **The Unhoused Community:** More public resources are needed to help improve the wellbeing of the region’s unhoused community, including the establishment of a dedicated center in the City of Malibu where the majority of people experiencing homelessness in the region reside. This center should include lockers, showers, drinking water, food, charging stations for cell phones and limited short-term housing and services to connect people with permanent housing.
- **Build and Sustain Community Connections:** Local governments and other stakeholder organizations should take a leadership role in creating more inter-connected and supportive communities by identifying vulnerable individuals in the region with limited mobility and/or disabilities or health issues and link them with neighbors who can provide assistance and transportation during emergencies. Fire departments and other emergency services should be provided with regularly updated information about vulnerable individuals within their operating areas.
- **Create Relief and Evacuation Centers, and a Regional Heat Response and Mitigation Plan:** All local government agencies within the region should review and update their existing emergency response plans to ensure there are adequate heat response facilities available, including cooling centers to service vulnerable residents during extreme heat events, and evacuation centers to provide temporary shelter for residents and workers in their jurisdictions. A thorough coordinated heat response and mitigation plan can inform a systemic approach to implementing heat reduction strategies throughout the WUI region.



- **Increase Climate Resilience Awareness and Emergency Preparedness**

Education: All local government agencies within the region should review and update their existing emergency response plans to ensure that they also include up-to-date information regarding primary, secondary and tertiary evacuation routes, and multiple overlapping emergency communication channels that are accessible to all people in the region. Local government agencies should also take the lead on ensuring that homeowner groups, neighborhood organizations, and other community groups are able to provide regular and comprehensive emergency drills and training to their constituents to increase community preparedness. These groups should ensure that all residents in the region, especially older adults, are aware of emergency response plans, evacuation routes, and other essential information for their local area and WUI region, and have up-to-date personal emergency response kits with communication devices, food, water and first aid supplies and any necessary important documents and medications they require.



PERSONAL RESPONSIBILITY

Taking **personal responsibility** for being prepared for emergencies is of critical importance for residents living in the SMM WUI. It is imperative that individuals take the necessary actions to be aware and prepared, as well as help ensure their neighbors, especially older adults with mobility issues, are safe and are able to evacuate during emergencies. Each City and community should be aware of the [Fire Safe Council](#) wildfire safety information and pursue [Firewise Community Certification](#). In addition, each neighborhood should also have a [Community Emergency Response Team \(CERT\)](#)-trained liaison.

- **The Business Community:** Some businesses, such as grocery stores and gas and electric vehicle charging stations, can provide essential services during high winds, extreme heat, and other emergency events that do not require evacuation. However, within the region there is little coordination among businesses and local government to ensure these essential resource providers are available and functional during power outages. In the City of Malibu, and in much of the SMM region, businesses are not required to obtain a business license to operate. As a result, there is no comprehensive directory of the business community for the region to use to communicate information, which makes the business community especially vulnerable during extreme weather and related emergency events. The Malibu Chamber of Commerce has identified the region’s unreliable communication and electrical systems as key challenges for the business community, especially during emergencies.

Recommendations:

1. Local governments should require each business property to have an onsite emergency source of power;
2. Local government agencies and utilities should provide incentives and assistances to local businesses within their jurisdictions to install reduced cost solar photovoltaic systems with battery backup to allow them to continue to operate during emergency events and electricity blackouts;
3. Local government agencies should require business licenses throughout the region to create a reliable and up-to-date contact list during emergencies, as well as provide revenue for cities to better support the community. Local Chambers of Commerce should be enlisted to maintain and update this business database and coordinate with local emergency response personnel; and
4. Local government agencies should ensure businesses within their jurisdictions are equipped with resilient communication systems (FRS radios, hand-cranked radios, etc.) to provide communications during periods of cell service outage.



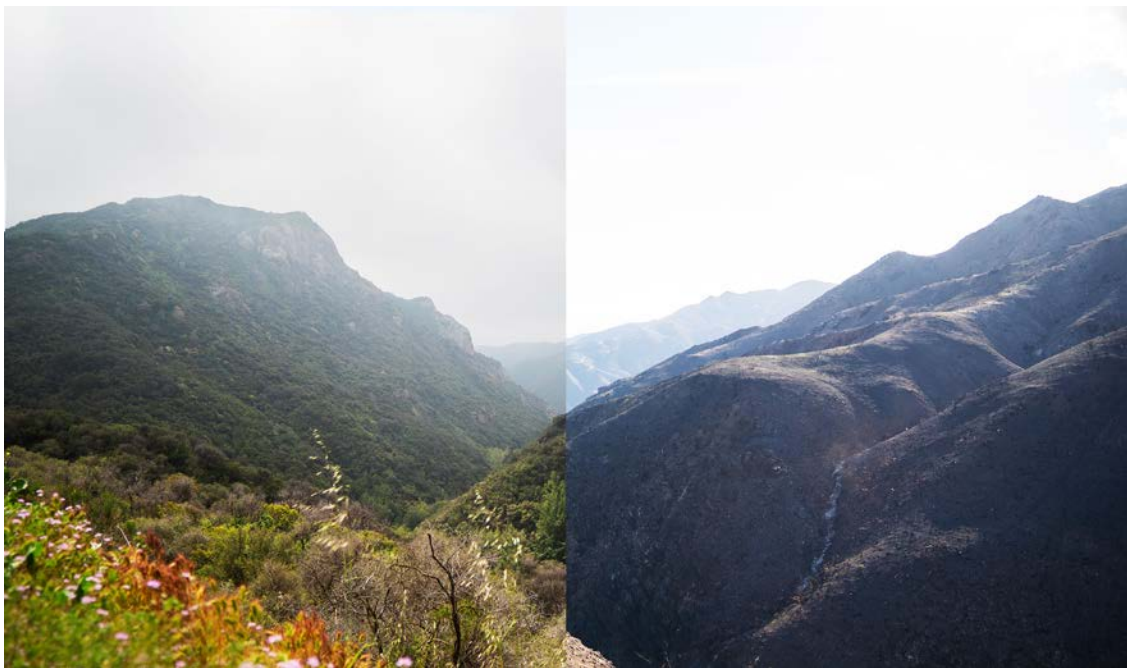
Regional Collaboration for Climate Resilience

The development of an effective comprehensive support system to mitigate climate impacts and build the adaptive capacity to withstand and recover from future shocks and stressors of climate hazards requires both a critical mass of engaged residents and effective and sustained regional collaboration. In the words of National Park Service Fire Ecologist Marti Witter, for regional collaboration to be effective it must:

1. Be permanent
2. Be supported administratively
3. Provide necessary professional and scientific expertise
4. Have its findings and recommendations incorporated into agency plans and actions and in regional and local planning and regulatory actions
5. Provide or advise on project funding
6. Ensure policy and practice are data driven and supported by science



We hope that this report will not only inform residents, stakeholder groups, and municipal decision makers in the region, but inspire them to take action and work together toward a climate resilient future.



Santa Monica Mountains — Before and After 2019
Photo by Michael Racanelli (Instagram @mikeracanelli)



PHOTO CREDITS



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