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Blue Ribbon Commission on Climate Action and Fire-Safe Recovery: UCLA Research Context and Considerations Informing Resilient Rebuilding from the January 2025 Los Angeles Fires

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BLUE RIBBON COMMISSION **ON**

IN COLLABORATION WITH

UCLA

CLIMATE ACTION AND FIRE-SAFE RECOVERY

Final Commission Recommendations and Action Plans

FOR THE RESILIENT
AND SUSTAINABLE
REBUILDING OF LOS ANGELES

&

UCLA Research Context and Considerations

INFORMING RESILIENT
REBUILDING FROM THE JANUARY
2025 LOS ANGELES FIRES

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Organizations listed for identification purposes only.

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PART II

UCLA Research Context and Considerations

INFORMING RESILIENT REBUILDING FROM THE JANUARY 2025 LOS ANGELES FIRES



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Disclaimer

The analysis expressed in this report is that of the authors and not necessarily that of any of the contributors, reviewers, or community participants, nor does it represent the University of California, Los Angeles as a whole. Reference to individuals or their affiliations in this report does not represent their endorsement of the report's contents.

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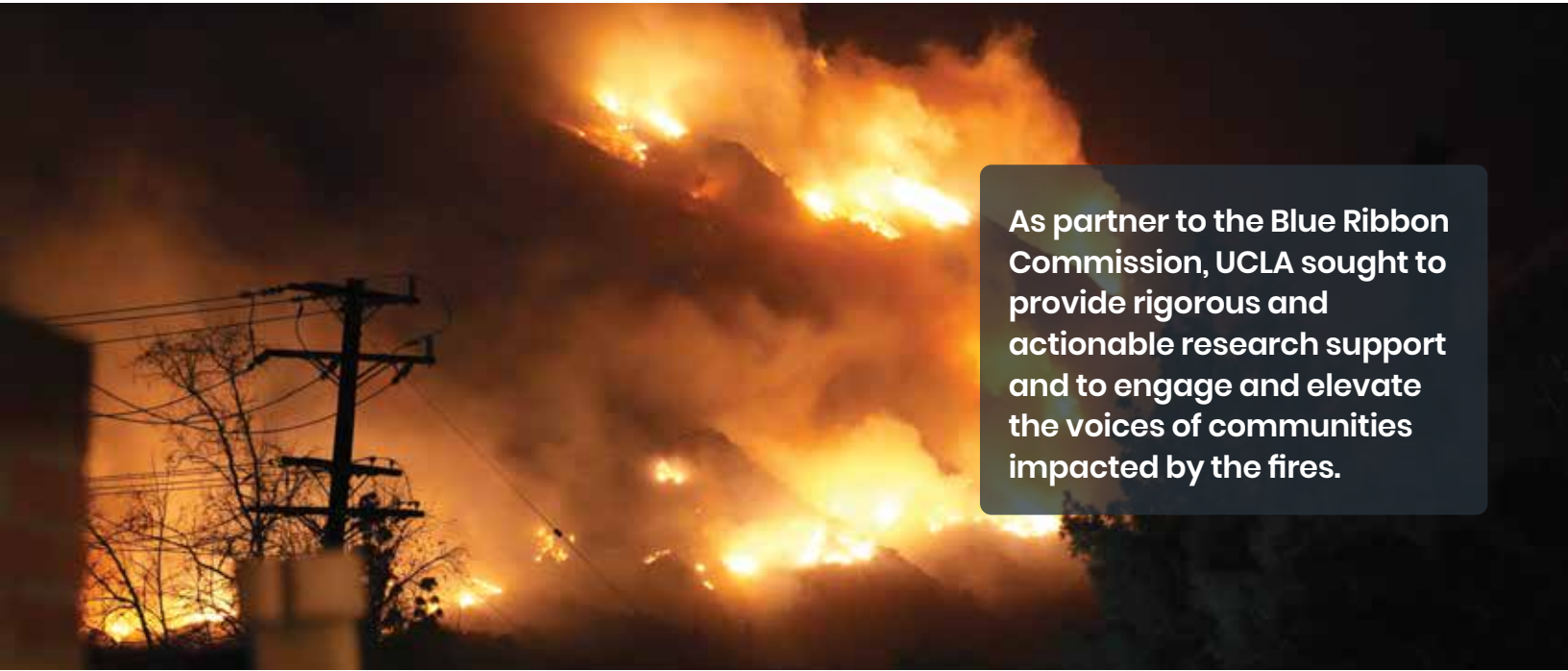
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Executive Summary



As partner to the Blue Ribbon Commission, UCLA sought to provide rigorous and actionable research support and to engage and elevate the voices of communities impacted by the fires.

The catastrophic Los Angeles firestorms of January 2025 served as a critical turning point for the Southern California region, causing widespread destruction, displacement, and loss of life. In the fires' wake lie challenges at every scale.

Tens of thousands of Angelenos face the daunting task of rebuilding homes and businesses, often without adequate insurance to cover the expense. Communities with deeply rooted histories seek to restore the connective threads and diverse populations that made them unique. And alongside the urgency of bringing back what was lost lies recognition that the region must fortify itself for a future in which climate change pushes fire into urban communities more regularly.

As partner to the Blue Ribbon Commission on Climate Action and Fire Safe Recovery, UCLA's role was twofold: to provide Commissioners with rigorous, up-to-date, and actionable knowledge from leading subject matter experts, and to engage and elevate the voices of communities impacted by the fires. UCLA's goal was to ensure that the Commissioners

could consider this information, along with their own expertise and guidance from other stakeholders, as they formulated their policy recommendations.

Here we offer a summary of the most relevant knowledge curated, consolidated, and presented by UCLA to the Commissioners. It foregrounds the distinctive characteristics of the fire-impacted communities—their topographies, compositions, and cultural histories—that will inform all aspects of rebuilding and how communities adapt to living with escalating future risk. It outlines the broader backdrop of the region's fire vulnerability, existing policies, and opportunities for building resilience to fire and other hazards. It offers lessons from other fire recovery experiences and examines the design of governing entities that could lead rebuilding and fire resilience efforts. Most importantly, it reports on the goals, concerns, and priorities shared by fire survivors as they engaged in conversations about recovery and rebuilding.

This report is a companion piece to the Commission's recommendations and provides broader context and considerations that informed those recommendations. Outlined here are areas of scientific consensus, areas where ongoing debates are underway, gaps in research, and questions on which policies must balance distinct—and sometimes competing—values. Taken together, the research and community voices that informed the Commission's work underscore a fundamental imperative for leaders: the powers and authorities available to government demand that it take on an outsized role in recovery, but only through cooperative and engaged partnership can it restore the trust needed to guide the region to equitable resilience.

Los Angeles can no longer afford to be reactive in the face of growing climate-driven threats, as we learned at too high a cost in January 2025. We offer this work as a starting point to help policy makers contextualize the recommendations from the Blue Ribbon Commission and take actions necessary to restore communities in the short term and prepare for the dynamic risks of an uncertain future.



Photo Credit: Los Angeles County.

Introduction



Before the Los Angeles firestorms ended, it had already become clear that they would be a turning point for the Southern California region. The devastating impacts of one of the most destructive natural disasters in U.S. history have touched all aspects of life in the LA region, uprooting communities, destroying livelihoods, ravaging the natural environment, and taking lives.

Recovery will not be fast, nor simple. In 24 days, the fires destroyed what had taken decades—and in some cases, a century—to build: homes, infrastructure, people’s sense of security.

As residents and their representatives began coming together to begin the long road to recovery, two inextricably related questions began surfacing repeatedly: *how could this have happened* and *how can we prevent it from happening again?*

We live in a fire-prone region, a truth becoming less ignorable in a changing climate fueled by the burning of fossil fuels. Future fires are inevitable; the scale of death, displacement, and destruction we saw in January 2025 is not.



Photo Credit: Los Angeles County

Combining Academic Expertise and Practical Experience



In February 2025, LA County Supervisor Lindsey Horvath announced the formation of the Blue Ribbon Commission on Climate Action and Fire Safe Recovery and its partnership with UCLA.

The Commission, composed of 20 volunteer civic leaders with a range of professional backgrounds, was tasked with developing a comprehensive set of recommendations to guide the LA region's recovery efforts, with a focus on improving resilience in the face of climate-driven disasters, like extreme heat, longer droughts, floods, and fire.

UCLA partnered with the Commission to provide research and engagement support. Over the next several months, the UCLA team worked closely with the Commissioners as they narrowed down issue areas in working groups, investigated possible policy paths, and drafted their recommendations.

UCLA leveraged expertise from across the campus and beyond, assembling more than 40 leading scholars from a diverse array of fields, plus an outstanding group of staff and students to collectively provide research and engagement expertise and programmatic support.

The core UCLA team organized convenings for Commissioners to meet with subject matter experts and compiled myriad detailed legal and policy briefs and research syntheses to inform and respond to Commissioners' priorities. The team sought to learn from post-disaster rebuilding efforts in other communities and from the research efforts of other groups in the region working on different aspects of rebuilding from the LA fires. UCLA also led an engagement process with impacted communities, first serving as messengers between community-led processes and the Commission, and eventually working with the Department of Angels to host convenings for the Commissioners to hear directly from survivors of the Eaton and Palisades Fires.

The Commission's recommendations are informed by this partnership, but ultimately reflect solely the views of the Commission. Commissioners drew on UCLA's and other academic research to augment their own professional expertise and applied their own independent judgment to policy tradeoffs surfaced through research and community engagement. The Commission's recommendations represent the culmination of a process that, at every step of the way, incorporated up-to-date, relevant knowledge from experts at UCLA and beyond.

Complex Policies, Limited Time Frame



Photo Credit: Los Angeles County

Still, an important reality that shaped both the logistics and the substance of UCLA's collaboration with the Commission was a very limited timeframe.

Policy and politics often move faster than academic research. That is especially true in the immediate aftermath of a disaster. It was important for the Commission to release its recommendations in time to inform critical policy pathways that take shape in the months following a disaster. UCLA's goal was to deliver high-quality information rapidly to augment and refine the Commission's thinking; the time-constrained nature of the process also leaves more questions to be explored in the future.

Reflected in these pages is a high-level summary of context and considerations that were in front of Commissioners as they developed and refined their recommendations. This report is not an exhaustive review of all the topics for which the UCLA team provided research support, nor is it—nor could it be—a comprehensive discussion of all the issues that will come into play while rebuilding after the firestorms and retrofitting the region for resilience.

Results from this partnership set the table for the future in two ways. First, the Commission's policy recommendations provide a guidebook for city, county, state, and federal decision makers to take actions that will help accelerate equitable rebuilding and advance climate action and resilience to future fire. Second, the rapid-pace research synthesis and new relationships forged among scholars to deliver that synthesis helped identify critical gaps in knowledge about the science of fire mitigation in the LA region and the optimal design of institutions that can reduce the region's vulnerability to fire and other climate-amplified hazards over the long term. While this report represents the completion of our short-term partnership with the Commission, UCLA researchers intend for this to be the beginning of a longer process of collaboration to implement a research-informed, community-guided strategy for a more resilient Los Angeles.

Guiding Principles



Photo Credit: Los Angeles County

The following principles guided UCLA's work in supporting the Blue Ribbon Commission.

- **Resilience:** Improving the capacity of people, communities, and the natural environment to withstand fire and mitigate its urban spread.
- **Sustainability:** Lessening exposure to fire and other climate-amplified hazards over the long term by reducing greenhouse gas emissions.
- **Equity:** Responding to the needs of those with least capacity to mobilize resources for fire resilience and recovery.
- **Insurability:** Building mutually reinforcing systems through which actions by residents and communities to protect themselves from fire enable access to affordable and adequate insurance coverage.
- **Informed by science:** Advancing the best context-specific current knowledge about fire risks and promoting adaptive policy that adjusts to new information and evolving conditions.
- **Informed by community priorities:** Learning from and accountable to the experiences of those immediately affected by the fires.

Community Engagement: Learning From Fire-Impacted Communities



UCLA engaged in a three-month effort to understand shared goals, common concerns, and top priorities of residents and local organizations related to recovery and rebuilding in communities impacted by the Palisades and Eaton fires. The approach taken by UCLA and the Commission involved going directly to where community members impacted by the devastating fires of January 2025 were meeting, and seeking to foreground their priorities in the Commission's recommendations. There were two phases to this community engagement.

First, the UCLA team conducted qualitative research. This included listening to survivors and other community members ask questions and make statements:

- publicly in meetings and events hosted by a government entity;
- quasi-publicly at community events hosted by local groups and non-profit organizations; and
- privately in volunteer interviews and one-on-one meetings with UCLA researchers.

UCLA researchers attended 23 government-hosted meetings, participated in 14 community events, and conducted 17 private interviews. Although this research was primarily carried out between March and May, the team also reviewed publicly available recordings of government-hosted events from January and February. The UCLA engagement team regularly updated Commissioners on the broad themes and concerns they were hearing from community members as well as specific details relevant to recommendations under consideration by the Commission's working groups.

The engagement process culminated with meetings that brought together community leaders with Commissioners for both groups to learn from one another. Community members provided feedback on the initial recommendations proposed by the Commission and discussed broader concerns and priorities for their communities' futures. Quotes from these meetings and from interviews with UCLA researchers are provided anonymously in this report in order to protect the privacy of fire survivors.

Collective Action and Shared Goals

A diversity of perspectives exist within and across the communities devastated by the Eaton and Palisades fires. Summarizing a multitude of goals, visions, concerns, and priorities on complex topics is fraught with challenges.

First, it is important to emphasize the leadership of fire survivors. They are organizing themselves into community groups and collectives to help each other recover and rebuild, individually and collectively. Dozens of groups have sprung up to address recovery needs in innovative ways, founded by survivors who dedicate countless hours to their community. These efforts often come on top of a full-time job, and the additional equivalent of a full-time job spent navigating the complicated and time-intensive recovery process at an individual level.

Common goals expressed by survivors include rebuilding in a way that balances urgency, safety, affordability, and sustainability. At the same time, tensions among the goals can occur. For example, mandates to improve safety and affordable insurability can add on to a long list of requirements for homeowners hoping to rebuild quickly.



“There is a tension between building back better and building back fast.”

– Palisades resident



“The disaster creates a golden opportunity to build a green belt with indigenous plants.”

– Malibu resident

Residents are putting forth innovative ideas and bold, nuanced visions for their community’s future. They are envisioning sustainable and connected communities, for example, with more sidewalks, safe places to bike, and green spaces for gathering.

Common Concerns and Top Priorities

Community concerns and priorities are summarized below, starting with the most foundational and cross-cutting, followed by those that are particularly time sensitive, and finally other top priorities for long-term recovery (see the Appendix for the latter).

1. **Improving Trust in Government and Preparing for Change:** Community trust in government is a topline concern that impacts other concerns and priorities. Residents want the government to do more to support their long-term recovery. At the same time, many are deeply skeptical of county and city institutions and want more community control and accountable representation. Foundationally, residents want local governments to acknowledge that current systems did not protect them and that as the climate changes, disasters will become more frequent and severe, requiring agile government systems that can learn from and adapt to changing community needs and climate conditions.



“Regional entities should be preparing for a fire that is 3, 5, or 10 times worse than what happened. We need to keep one foot in addressing challenges and opportunities of today while preparing for the very different challenges and opportunities of the future.”

– Altadena resident

2. Ensuring Services to Prevent, Respond to, and Recover from Disasters:

Per the above, a key concern for fire survivors deciding if they should return is whether adequate government systems are in place to ensure their safety. Residents note strong feelings of frustration around government's communication, coordination, and services before, during, and after the fires. Some residents are uncertain about returning unless they receive more assurances that the government will 1) more proactively maintain public lands to lower the risk of future fires, 2) address theft and improve police protection in the burn areas, and 3) improve emergency response systems to protect them during any future disaster.



"We need a reliable foundation of fire prevention and response services. They are baseline requirements for community safety and a precondition for rebuilding."

- Sunset Mesa resident

3. Addressing Soil Contamination and Labor

Protections: Residents are worried about soil contamination and the absence of systematic testing from state and federal agencies, which is in contrast to what has occurred after other major fires. The uncertainty about whether the land itself is safe poses a barrier to rebuilding, as many fear long-term health risks. Property owners are urging both widespread soil testing and remediation. Additionally, there is concern that the contaminated soil could harm the health of workers involved in debris removal and reconstruction efforts.



"Workers need to be trained and given proper equipment."

- Palisades resident

4. Combating Land Speculation and Ensuring

Community Control: The stress, uncertainty, and financial strain of rebuilding is resulting in the selling of land to corporate entities. Residents raise concerns about predatory real estate speculation, and the resulting loss of community. Particularly in Altadena, there is a strong desire to preserve Black and Brown homeownership. Local non-profit organizations, community land trusts, and land banks are combating land speculation through their initiatives to purchase land and keep it within the community. These organizations are raising capital and making important progress, but without sustained funding such as from the government, are unable to acquire land at a scale commensurate with deep-pocket corporate entities. Residents have also expressed concern that renters and those with standing but unlivable homes are not receiving enough assistance from the government, again underscoring the desire for community-led recovery backed by streamlined and coordinated government support.



"Communities should be empowered to lead recovery and resilience efforts."

- Altadena resident

5. Rebuilding Safely, Sustainability, and Affordability.

Community members express support for fire-resistant and sustainable rebuilding measures, but they are concerned this might increase costs. Residents are calling on the government to provide direct financial support to rebuild for fire resistance



"We need explicit direct assistance...to rebuild with fire-resistant, electrified homes."

- Altadena resident

and insurability (e.g., to meet the state’s Chapter 7A and Zone 0 standards) and for sustainability and climate action (e.g., to meet solar panel requirements and go all-electric). Community organizers are looking into bulk purchasing to address supply-chain issues and lower costs for building materials and household supplies. Many non-profit organizations are providing other forms of assistance.

- 6. Coordinating Entities Proposed by the Commission.** In meetings with community members, Commissioners presented proposals for two new local entities: a Resilient Rebuilding Authority and a Fire Control District. Residents expressed interest in and urgency around both as mechanisms to fund community priorities at scale, including to combat land speculation and to coordinate fire mitigation measures, such as vegetated buffer zones and building retrofits. Community members’ suggestions for the proposals as drafted in the Commission’s initial recommendations included incorporating strong community representation on the governing board for the Resilient Rebuilding Authority and ensuring financial and decision-making transparency for the Fire Control District.

See the Appendix for more information about the aforementioned themes and the following other community priorities:

- 7. Making Water and Energy Infrastructure More Resilient**
- 8. Combating Land Speculation and Ensuring Community Control**
- 9. Balancing Land Use Considerations**
- 10. Increasing Fire Resilience With Defensible Spaces**

The Appendix also includes more details about UCLA’s process for community engagement and the meetings where community leaders shared feedback on the Commission’s initial recommendations and draft action plans.

Context and Considerations

FRAMEWORK FOR CHANGE



The Blue Ribbon Commission on Climate Action and Fire Safe Recovery was formed as an independent body by LA County Supervisor Lindsey Horvath to “develop a comprehensive set of recommendations to ensure Los Angeles County’s recovery efforts are designed to withstand the realities of a changing climate.” This report offers background material, built on a large body of accumulated scientific research, to set the context for the final recommendations developed by the Commission.

First, it is important to define some key terms. What does a “fire safe recovery” “designed to withstand the realities of a changing climate” mean?

Fire is a natural part of the Southern California landscape, inevitable and necessary for maintaining the region’s ecosystems. “Fire safe” refers to accepting this natural occurrence of fire and reducing, as much as possible, its harmful impacts to people, our communities, and the natural environment.

Eliminating all risk is impossible; however, it is possible to make the LA region more resilient by improving the capacity of people, communities, and the natural environment to withstand fire and mitigate harm from its spread into urban areas.

Because the changing climate is an important factor driving the frequency and intensity of wildfire, and the patterns by which fire moves across landscapes and into urban areas, becoming more fire safe also demands “climate action.” That means making design choices in the built environment that reduce emissions of climate-warming greenhouse gases, along with consideration of a broader set of climate-amplified hazards, including heat, drought, and floods.

Fire risk in LA County is shaped by natural systems of chaparral and grasslands; human systems encompassing not just our built environment and landscaping but also social and economic conditions; and a changing climate that brings increased heat and more variable precipitation, creating fuel conditions that are susceptible to fire ignition and spread during the region’s high wind events.

No single set of actions is adequate to address the interactions among these systems. Risks and response options arise from the choices made by governments, businesses, and civil society at many

scales, from individual households to city, county, state, and national levels. An individual family's fire risk will depend on the design and materials of their home and landscaping, the design and materials of the other homes in their neighborhood, the firefighting and emergency response assets available locally, the management of infrastructure and park lands many miles away, and the financial and technical resources brought to these layers of protection from throughout the region, the nation, and the world.

Coordinated steps by many actors across jurisdictions and sectors of society can significantly improve fire resilience and ready the region for a changing climate. Taken together, such improvements would enable communities rebuilding after the 2025 LA firestorms to preserve what they find most valuable while transforming their ability to live with and thrive amidst fire and a changing climate. Most of the steps would also help enhance the region's earthquake safety, as many of the issues at play in fire resilience—building retrofits, utility hardening, emergency preparedness and evacuation, insurance coverage, and rebuilding—are earthquake issues, too.

Enabling Transformation

The recent Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment report identified five enabling factors for transformational climate adaptation: technology, knowledge and capacity, finance, governance, and catalyzing conditions. Transformational adaptation, which re-aligns human and natural systems in a changing climate so all systems can thrive, is necessary to enable LA County and its rebuilt communities to live with fire. Action towards such adaptation is enabled when these five factors coalesce.

In the context of fire safe and resilient recovery, **technology** refers to a wide range of often novel problem-solving applications, from new building materials to modular construction techniques to sensor systems that shut down errant power lines before they start fires. **Knowledge and capacity** refers to widespread understanding of fire risks and best practices for addressing them and the ability of organizations at all scales, from households to governments, to work together to implement these best practices. Near-term investments in resilience yield longer-term benefits not only in economic terms, but also in avoided human suffering. **Finance** refers to making funds available for such investments. Often, such finance is not available because of misaligned incentives or failures to design enabling institutions. **Governance** refers to re-aligning the organizations and institutions at multiple scales to orient public, private, and civil society actors toward societal goals.

Fear of change and a status quo bias can inhibit coordinated action. But a large-scale disaster can create the catalyzing conditions needed to spur learning and change.

Time Horizons for Transformation

Alongside the task of enhancing the region's resilience to fire risk lies the urgency of rebuilding communities where thousands have lost homes, businesses, schools, and loved ones. Disasters can catalyze learning and policy change, but they can also aggravate inequality and dismantle a community's social infrastructure -- a source of resilience itself. Long delays in rebuilding take a toll on the health and well-being of survivors. A fire safe recovery requires policies, institutions, and financial support that enable the return of displaced residents to a community more hardened against future fire risks.

A fire safe recovery therefore demands a staged approach that encompasses the immediacy of equitable rebuilding along with longer-term actions to mitigate fire risk. Science and social science can inform strategies across the trajectory of recovery. As the risk landscape evolves in response to changes in natural and human systems and the impacts of climate change, so too will science evolve and progress, teaching us more about best practices for fire resilience and the governance and finance approaches that can work best in LA County.

That we will learn more in the future is a constant of the human experience; the promise of new information is rarely a good reason to delay needed action. Rather, the potential for learning opens up opportunities for adaptive governance and design, in which near-term steps are organized to maximally benefit from future improvements in knowledge.

The demands of rebuilding are immense. Policy makers and leaders across the public, private, and non-profit sectors must spend much of their time and attention focused on day-to-day management of the process. But rebuilding also offers leaders an opportunity to lift their gazes and take actions that shift the longer-term trajectory of the region. In our research support to the Blue Ribbon Commission, we aimed to identify policy leverage points in which incremental near-term actions can facilitate and lock in longer-term beneficial change.

Key Concepts

Two concepts—**risk and resilience**—are critical to the Commission’s approach to fire safe recovery.

Risk is what we seek to reduce. Risk is the potential for adverse consequences for human or ecological systems, recognizing the diversity of values and objectives associated with such systems. The concept provides a framework for understanding the increasingly severe, interconnected, and often irreversible impacts of climate change on ecosystems, biodiversity, and human systems; differing impacts across regions, sectors, and communities; and how to best reduce adverse consequences for current and future generations. In the context of disaster management, risk is a product of the dynamic interactions among hazards, including wildfire but also heat, drought, floods, earthquakes, and other events that could cause damages and loss of life; the exposure of human and ecological systems to that event; and the vulnerability of affected people and assets to harm from the event. Actions to reduce hazards, exposure, or vulnerability all help reduce risk.

Resilience is the condition to which we aspire. Resilience is the capacity of human and ecological systems to cope with a hazardous event, trend, or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure while also allowing for learning and transformation.

TRACING THE LA FIRES



Photo Credit: Los Angeles County

Over three weeks of continuous burning, the January 2025 LA fires damaged or destroyed more than 18,000 structures, claimed at least 29 lives, and forced nearly 200,000 people to evacuate, scarring the LA landscape and traumatizing vast numbers of Angelenos. Extreme fire weather intensified by climate change, concurrent ignitions, and vulnerabilities in urban infrastructure and the built environment all contributed to these fires becoming the most destructive in the region's history.

The Palisades Fire erupted during the morning hours of January 7 in the vegetated recreation area of Temescal Canyon, a popular hiking area near the Pacific Ocean. Later that day, about 30 miles away, the Eaton Fire ignited in the Eaton Canyon area, another

cherished recreation area north of Pasadena. Fueled by high winds, both fires rapidly expanded overnight into urban areas. By January 8, the Palisades fire reached 15,832 acres while the Eaton fire expanded to 10,600 acres. The coinciding fires placed substantial strain on the region's suppression resources, limiting firefighters' ability to contain the fires' spread. Water supply was one of many constraints, with pressure dropping at some hydrants while firefighters battled the fires.

Smaller, secondary fires ignited while the Palisades and Eaton fires were still burning. Among LA County's eight fires within a few days were the Hurst Fire in Sylmar, the Sunset Fire in the Hollywood Hills, the Woodley Fire in Sepulveda Basin, and the Kenneth Fire in the West San Fernando Valley, the last of which spread rapidly to reach over 1,000 acres. These secondary fires, which consumed approximately 1,930 acres in total, were extinguished by January 16. Although minimal damages were reported from these fires, they put tens of thousands of residents under evacuation orders or notices and created additional demand on strained firefighting resources.

After three and a half weeks of continuous suppression efforts, firefighters reported full containment of both the Palisades and Eaton fires on January 31. The fires left immense damage in their wake, each ranking among the most destructive fires in California history. The Palisades Fire had burned through 23,448 acres of the Pacific Palisades neighborhood of LA city, the city of Malibu, and the unincorporated community of Sunset Mesa, destroying 6,833 structures and damaging an additional 973. The Eaton Fire caused even more harm as it spread across 14,021 acres, destroying 9,418 structures and damaging 1,073, mostly in the unincorporated community of Altadena, but also reaching into the nearby cities of Pasadena and Sierra Madre. Even among those whose homes survived, thousands were displaced, some for days and others for months, as utility service was restored and residents ensured the baseline safety of their return. Smoke and soot exposures caused a spike in hospital visits regionwide, and soil and indoor contamination reached far beyond the burn scars, with unknown long-term health effects.

At least 29 people died in the fires, 17 in Eaton and 12 in Palisades. Nearly all were seniors or had disabilities, and most died in their homes.

Communication and Evacuation

The fires exposed key evacuation vulnerabilities including road network design, communication, and multimodal coordination. Congestion occurred in the Palisades because of neighborhood design: extensive street networks and cul-de-sacs that all funnel onto a single main road. The Palisades evacuation highlighted the risks of bottlenecks in canyon neighborhoods, and also brought to light critical gaps in pre-disaster coordination and management that could have reduced the risks associated with inadequate evacuation routes.

The timing of alerts was another key challenge in the Palisades evacuation. Residents did not receive consistent communication during the early stages of the fire; many chose to evacuate on their own before an official order was issued. The lack of traffic coordination contributed to gridlock on the neighborhood's few arterial roads, leading residents to abandon cars along important corridors, which in turn created additional challenges for fire response vehicles.

Despite road design and geography that is better suited to evacuation, the Eaton fire resulted in higher fatalities than the Palisades Fire, particularly in West Altadena. On the night of January 7th, delayed evacuation alerts left West Altadena residents uncertain for hours about whether they should leave their homes. Many chose to evacuate independently, driven by the visible threat of flames blocks away. Some reported seeing no fire trucks as they fled, despite their neighborhoods being engulfed in flames. Evacuation decisions typically follow a chain of command: first, fire personnel and sheriff's deputies assess the fire's movement and projections; then the Office of Emergency Management issues alerts; finally, officials on the ground ensure the evacuation is carried out. In West Altadena, however, numerous reports indicate that officials on the ground instructed residents to leave hours before any electronic alerts were sent.

Power outages in Altadena further complicated evacuation efforts. Many utility poles were destroyed, and other lines were intentionally de-energized as safety precautions for firefighters. The resulting lack of electricity left residents with limited ways to receive updates, as they were unable to watch the news or access the internet. According to the PBS WARN Database, officials did not send alerts to parts of West Altadena; even if they had, it remains unclear whether all residents would have received them because of the outages.

Investigations are underway to determine the cause of delayed evacuation alerts for the Eaton fire. Residents have noted that evacuation efforts in neighboring cities such as Pasadena, Arcadia, and La Cañada seemed to be more effective. Unlike these incorporated cities, which have their own municipal governments, Altadena is an unincorporated community governed by the LA County Board of Supervisors. Unincorporated communities lack the political representation, and often an equivalent level of service delivery, experienced by their neighbors in incorporated cities. As a consequence, residents often feel a mix of pride in their independence and resentment about their neglect (Anderson, 2008; Purifoy, 2021; Edgeley et al., 2020). Many Black residents in Altadena expressed feeling abandoned and overlooked during a moment when their lives were at risk. The delayed evacuation orders and alerts have underscored both physical and social vulnerabilities, particularly among historically marginalized communities.

CURRENT AND FUTURE FIRE RISK

Climate Change and Wildfire Hazard

The LA firestorms ignited during a confluence of risk factors that arose from both natural variability and a changing climate. A roughly one-in-20-year Santa Ana wind event coupled with a roughly one-in-50-year dry start to the rainy season created the ideal conditions for destructive fire. Near-record wind speeds, reaching up to 100 miles per hour, spread fire through extremely low-moisture vegetation. If ignitions occur during a Santa Ana wind event, large wildfires often follow.

The overwhelming majority of wildfire ignitions in Southern California are attributable to human activity (Andreozzi et al. 2023; Chen & Jin 2022), especially during the Santa Ana season. Power infrastructure, especially transmission lines, presents a particular challenge, contributing to ignitions either through line damage (falling lines, conductor slaps, and faults) or utility circuit malfunctions (overloads and arcing). In high-wind conditions, power lines are at a much higher risk of failure. Whether power lines had a role in igniting any of the January 2025 fires is under investigation.

The sequencing of climate-related events intensified the LA fires. Two consecutive extreme wet years allowed vegetation to build up. The wet years were followed by an unusually hot and dry summer, and then an unusually dry start to the wet season. These latter two factors made the vegetation highly flammable (Madakumbura et al. 2025; Swain et al. 2025). This sequence fits into a larger pattern of intensifying climate “whiplash,” swings between heavy precipitation during wet years and severe heat and drought during dry years. Climate whiplash is associated with heightened fire risk and may be growing more common as climate change accelerates, though the precise effects of climate change on California’s variable precipitation patterns is not a settled research question (Williams et al. 2024). The drying effect of the preceding warm hot summer is likely to be directly traceable to a warming climate.

Climate change may be shortening and sharpening California’s precipitation seasonality, concentrating more precipitation in fewer winter months (Luković et al. 2021; Swain 2021). Warming temperatures reduce the moisture content of vegetation and human-made structures, generating dry fuels (Pierce et al. 2013; Williams et al. 2019). Warmer, drier fall and spring seasons, coupled with extremely wet winters, offer the “worst of both worlds,” encouraging grass and brush buildup following rainy winters and subsequent vegetation drying. This cycle creates extremely flammable, dense landscapes. A final ingredient is the region’s dry Santa Ana winds that push downslope from the desert out to the ocean, gaining speed as they move through narrow passes and canyons. These winds regularly occur during October through March, which historically has also been the region’s wet season. By delaying the onset of winter precipitation, climate change may be making it more likely that Santa Ana winds arrive while vegetation is still dry and highly flammable.

Urban Firestorms

The January 2025 LA firestorms represent an emerging type of catastrophic event in which wildfire transforms into an urban conflagration after spreading into a densely populated area. Both the Palisades and Eaton fires ignited on steep wildland hillsides and were driven by winds towards dense neighborhoods where fire began to spread primarily from structure to structure, rather than through vegetation. This pattern has been observed in several suburban and urban settings in recent years. In 2017, the Tubbs Fire began as a wildfire in rural Napa County, spreading through vegetated areas for three hours before reaching populated suburban neighborhoods in Sonoma County and the city of Santa Rosa. The fire ultimately caused the deaths of 22 people and destroyed 5,700 structures, approximately 5% of the city's housing stock. Similarly, the 2021 Marshall Fire in Boulder County, Colorado began as a wildland fire in grasslands, but rapidly transitioned into a highly destructive urban conflagration that destroyed more than 1,000 structures.

Destructive fires at the Wildland Urban Interface (WUI) often occur during extreme wind events, which transport embers over considerable distances, igniting fires ahead of the main fire front. During the LA fires, embers ignited spot fires two to three miles in front of the established fireline in every direction. This nonlinear fire progression puts further strain on firefighting efforts as unpredictable spot fires ignite. High winds can also carry embers over traditional fuel breaks like highways, as seen in the Tubbs and Marshall fires, as well as in the 2018 Woolsey Fire that jumped the Ventura Freeway in LA's San Fernando Valley.

When fires spread from wildlands into built areas, various ignition mechanisms interact dynamically, promoting fire spread throughout communities. Wind-driven embers can land and ignite, especially where combustible materials have accumulated on or near structures. Close structure spacing, flammable features like fencing, and continuous vegetation leading up to structures allow ignition through direct flame contact. Because fire in the built environment burns hotter than pure vegetation fire, ignition can also occur through radiant heat. Burning homes thus become a vector for damaging or destroying neighboring structures (Knapp et al., 2021). Faced with multiple pathways to ignition, suburban WUI neighborhoods are highly vulnerable to fire spreading into their community, particularly in the face of extreme fire conditions.

Los Angeles Fire Vulnerability

Angelenos are highly exposed to the rising hazard of urban firestorms. In 2020, 20% of LA County's 3.5 million housing units were located in the WUI (Mockrin et al., 2023). The most populated WUI areas are predominantly situated in the foothills of the ranges that run east to west, including the Santa Monica, San Gabriel, Verdugo, and Santa Susana Mountains, but the WUI reaches into other hilly enclaves as well, including Palos Verdes Hills and Puente Hills. Housing in the WUI overwhelmingly consists of single-family homes, often built along narrow canyon roads or perched on ridgelines amid dense brush, bringing people and property into close proximity with fire-prone environments and creating evacuation challenges when fire arrives. Much of the area destroyed in the Palisades fire fits this profile. But fire risk reaches beyond these known hazard areas. Most of the relatively flat, densely populated, gridded neighborhoods of Altadena that were devastated in the Eaton fire have not been designated as high-hazard areas in the state fire agency's most recent mapping effort.

Compounding the high exposure to fire risk is the physical vulnerability of properties. Research clearly demonstrates that hardening structures through use of fire-resistant materials and design on exterior features including roofs, vents, eaves, windows, and walls is a critical factor in resisting ignitions and increasing the odds of structure survival after a fire (Syphard & Keeley, 2019; Troy et al., 2022; Affif et al., 2025). California has gone farther than any other state in incorporating these elements into building standards in areas considered to be at high fire hazard. The state began introducing fire-resistant building codes for construction of new homes in the 1990s, then strengthened those requirements with introduction of the Chapter 7A standards of the California Building Code, which went into effect in 2008. These advances in construction materials and standards have a positive effect on building survivability; a California home built after 2007 is about 40% less likely to be destroyed than one built in 1990 facing the same risk (Baylis & Boomhower, 2021). Yet nearly 90% of LA County's housing stock was built before 1990, before introduction of any fire-resistant codes. Fewer than 5% of homes destroyed in the Palisades fire and almost no destroyed Eaton homes were built after 2008 (Rumbach & McTarnaghan, 2025).

Once buildings ignite in densely developed areas, close spacing between structures can lead to rapid neighborhood-wide fire spread. Structures themselves constitute major fuel sources, once ignited, and can create a contagious effect that sets neighboring homes alight. In the Marshall Fire, housing density and spacing were highly impactful on home survivorship, with radiant heat identified as a key spread factor (Metz et al., 2024). The devastating 2023 Lahaina Fire in Maui demonstrated how density can interact with wind, as narrow streets and closely spaced buildings created wind channels that allowed fire to flow through the community (Ehrke, 2024). Density is not destiny, however. Denser developments allow easier access by fire suppression crews, and risks from density can be offset with structure hardening and potentially with design elements such as staggered setbacks (Syphard et al., 2017). In populous and housing-scarce regions like LA County where development in the WUI is already well-established, density alone is not the most important consideration; rather, the primary concern is landscape-level development patterns for how buildings intermingle with surrounding open space (Syphard et al. 2013).

A final element in properties' physical vulnerability is vegetation that can ignite from flying embers and propel fire spread. Dry vegetation, along with dry fencing and auxiliary structures on a property that can act as fuel, are incontrovertible hazards that accelerate fire burning into and through populated neighborhoods. Less certain is the impact of maintained, high-moisture vegetation, even in close proximity to structures. In developed areas where trees and plants are typically well-irrigated, vegetation can act to absorb radiant heat and catch embers, potentially reducing structure-to-structure fire spread (Moritz et al., 2014; Escobedo et al., 2025). Evidence about the aggregate effect of parcel-level vegetation on structures' vulnerability to fire in the Southern California urban context is mixed; science is advancing alongside the rising incidence of wildfire reaching into urban areas. Recent findings suggest value in maintaining defensible space for fire mitigation as well as for the protection and access it provides for firefighters, but do not provide clear guidance on optimal distance for defensible space or types of vegetation that might be most appropriate at different distances to mitigate fire risk (Syphard et al., 2017; Syphard & Keeley, 2019; Syphard et al., 2021; Mockrin et al., 2022; Escobedo et al., 2025).

COMMUNITIES IN THE FIRE PATHS



Photo Credit: Los Angeles County

Disasters upend the social fabric of affected communities and exacerbate existing social disparities. The physical vulnerability of the built environment in the areas burned by the January firestorms interacted with social and economic conditions that shape the capacity of individuals and communities to respond to the destruction.

Population Diversity

Although both the Eaton and Palisades fires reached across neighborhoods and jurisdictional boundaries, the majority of survivors are from the communities of Altadena and Pacific Palisades. Before the fires, these were thriving, multigenerational communities with robust local economies.

Each has distinct social vulnerabilities, but also financial resources and strong senses of place that could provide a strong footing for recovery (Ong et al., 2025a; Rumbach & McTarnaghan, 2025).

The fires struck places that were relatively prosperous. Median incomes were substantially higher than in LA County as a whole, especially in the Palisades. Homeownership was widespread; the proportions of impacted households who were renters—22% in Altadena and 26% in the Palisades—are less than half the rate countywide. Yet these aggregate numbers mask economic diversity in Altadena, which exhibited unusually high levels of inequality; while a quarter of households had incomes over \$250,000 per year, another quarter was earning less than \$65,000. More than one in six Altadenans lived at less than twice the poverty level, making them eligible for many public safety-net programs.

Altadena is the home of a historically Black, culturally vibrant community where 82% of Black households are property owners. This high ownership rate is in part a product of segregation and redlining, which deflated home prices and enabled Black families to purchase Altadena homes even while being shut out of homebuying elsewhere through deed restrictions and other discriminatory housing policies (Ong et al., 2025b). Many of these homes have remained within families across generations. Altadena is notable for its racial diversity: 18% of Altadenans are Black, 27% are Latino, and nearly six in ten Altadenans have a racial or ethnic identity that is not white.

The Pacific Palisades is less racially diverse, with 80% of residents identifying as white. Fire's disruption reaches beyond its impact on residents, however, and touches a workforce that was over one-third Latino (González et al., 2025). The Palisades does not have the wide economic inequality seen in Altadena, but still the fires destroyed many modest homes, including several hundred residences in two mobile home parks. Mobile home owners can face high barriers to rebuilding, starting with long delays in securing debris removal and continuing with insurance payouts and the restoration of park

infrastructure. Among owners of higher-value Palisades properties, household wealth was significantly concentrated in those long-held, high-value properties, increasing owners' vulnerability to fire's impacts, especially given that many of the homes were uninsured or underinsured. Like Altadena, the Palisades is a highly stable community, with a high proportion of seniors (approximately 25% in both communities, compared to 14% countywide). Seniors are particularly vulnerable to short-term effects of disasters, facing challenges in their ability to evacuate and to cope with immediate response needs, and their trajectories for longer-term recovery and rebuilding are distinct from younger adults and families.

Renters' Vulnerability

Renters face acute risks from fire. Pre-existing housing burden costs and a region-wide lack of affordable rental units suggest that many renters displaced from Altadena and the Palisades may be left housing insecure or unable to find commensurate housing.

Half or more of residents from both communities experienced rent burden, spending more than 30% of their income on housing costs. More than a quarter of Altadena renters were extremely rent-burdened, paying at least half their income on rent. Renters, especially those facing cost burdens related to housing, face high risk of displacement and economic insecurity after disasters. The high costs of rent leaves households with little flexibility for saving, buying renters' insurance, and addressing other necessities. Nationally, just 40% of renters carry insurance, compared with 88% of homeowners (Insurance Information Institute, 2023; Harvard Joint Center for Housing Studies, 2022). When fire strikes, most tenants therefore have no protection for personal property, liability, or additional living expenses.

Damage to Local Businesses

The Pacific Palisades and Altadena were home to robust local economies that supported livelihoods for residents and workers from other parts of the region alike. More than 1,100 private businesses were located in Altadena, including 849 microbusinesses that had fewer than 10 employees (Ong et al., 2025a). Microbusinesses made up the majority of businesses within the Eaton Fire burn zone and experienced the highest destruction rates. The Palisades Village, highly affected by the fire, was a bustling commercial center in which most businesses were damaged or destroyed. The Village was a hub for grocery and household goods, dining, and open space, providing residents and visitors with both economic and social infrastructure.

In community meetings, residents of both areas consistently expressed support for mixed-use redevelopment in commercial areas. Palisades residents specifically advocated for affordable housing above businesses in the Village, and proposed hotel development and prefabricated solutions for mobile home residents. In the Eaton burn area, many residents expressed interest in mixed-use redevelopment near major transit corridors. In both communities, there have been calls to revisit zoning frameworks to loosen height and design standards, allowing flexibility that would enable community-serving mixed-use projects, including affordable housing for seniors and the local labor force.

Concentration of Housing Wealth

Because of extreme housing scarcity and economic inequality in the LA region, home ownership and home value play a disproportionate role in personal wealth, even within wealthy communities. In the Pacific Palisades and Altadena where current median home prices are \$3.10 million and \$1.26 million, respectively, the high prices represent, in many cases, long-term residency more than current household income. By limiting reassessment increases, California's Proposition 13 enables long-term residents to have lower user costs for a high-value property, producing a lock-in effect on housing mobility (Ferreira, 2010). Both communities had relatively low turnover in ownership, with median sale dates of destroyed properties being more than 15 years ago. Especially in Altadena, many of the properties had been passed intergenerationally.

Where property wealth does not align with current residents' other assets, these high values can limit people's options for recovery and rebuilding. Rebuilding costs have risen faster than insured values, leaving many without the payouts needed for full recovery. As insurers pull back or cap coverage, homeowners face significant rebuilding shortfalls, putting pressure on families who lost their homes and may not be able to afford rebuilding in the current, higher-cost context. Ultimately, financing gaps for rebuilding threaten to displace middle- and lower-income populations and disrupt generational wealth building. Residents whose wealth was significantly tied to their homes will be most affected and most vulnerable to displacement.

Insurance and Rebuilding

Insurance coverage is a critical driver of household- and community-level recovery (You & Kousky, 2024; Billings et al., 2022). Even among those with relatively high levels of social and economic privilege, insurance coverage can be a driver of inequality post-disaster, separating those who have support to return and restore their lives from those who must exhaust their personal resources, including retirement savings, leaving them more financially precarious (Rhodes & Besbris, 2022). For those who are less privileged, retirement or other savings may not be an option, and people turn to friends and family or credit card debt to cover expenses.

Climate-amplified natural disasters, coupled with rising rebuilding costs, have fundamentally reshaped California's insurance landscape. Following the 2017 and 2018 wildfire seasons—the two most damaging in the state's history until the LA fires, producing an underwriting loss equivalent to double the total underwriting profit generated from 2001 to 2016 (Riggs et al., 2025)—private insurance carriers started to retreat from California. Since 2022, seven of the top 12 insurers have paused or restricted new business.

The retreat is most visible in high-fire risk areas. Although private insurers account for 96% of the overall market in LA County, their presence is notably lower—and declining—in the Palisades and Eaton fire burn areas. From 2020 to 2023, the Palisades saw a 36% drop in new policies, while the Eaton fire area experienced a 28% decline. Alongside sinking rates of new policies, insurers are starting to decline renewal of existing policies; State Farm alone dropped almost 70% of its Pacific Palisades policies in 2024. Homeowners who can access private insurance have seen rising premium prices, particularly in very high risk areas, where insurance prices rose by 80% from 2015 to 2022.

Homeowners in fire-prone areas increasingly rely on the California FAIR Plan, a last-resort syndicated insurance pool that provides limited coverage, typically capped at \$3 million, at expensive rates. As

private insurance has become harder to find in very risky areas, or prohibitively expensive, the state's FAIR Plan has expanded substantially. As of 2022, the Palisades and Eaton burn areas already had high percentages of properties insured under the FAIR Plan, and FAIR coverage has risen since that time. In the Palisades alone, policy counts grew to 1,430 in September 2024, an 85% increase from 2023.

California's insurance market instability reflects a historic failure to incorporate climate risks and a market structure that fails to promote and reward investments in risk reduction. Insurers' fire losses are driving premium hikes for policyholders across the state. Additional premium costs and coverage restrictions provide some limited market incentive for new buyers to avoid high-risk areas, but existing residents have historically had no price incentive to harden properties or support public investments in risk mitigation measures.

The state is beginning to move toward a regulatory model that creates those incentives. Under the Department of Insurance's Sustainable Insurance Strategy, a new regulation allows major insurers to use probabilistic catastrophe modeling in rate-making in exchange for expanding coverage in fire-distressed areas of California. The models are required to account for mitigation efforts, but the private models used by insurers lack the transparency needed for property owners and communities to evaluate the return on investment for mitigation. Early efforts are underway to develop a public model that could be used for decision making and also serve as a mechanism for advancing fire risk mitigation science. Ultimately, with fire disaster costs rising so quickly, stabilizing the insurance market will involve higher premium costs, at least for those living in high-risk areas. Without attention to offsetting those costs for low-income households, more will be priced out of the insurance market, contributing to inequity in recovery when fire arrives.

For the thousands of Angelenos who have lost their homes, many do not have any or enough insurance coverage to cover the cost of rebuilding. Rates of uninsurance and underinsurance are difficult to estimate. Countywide, roughly one in ten homes are uninsured (Davis & Shepard, 2025). On average, insured households have higher incomes and savings; those with mortgages are also more likely to be insured (You & Kousky, 2024). Lower-income seniors or owners of inherited properties are therefore the most likely owners to be facing recovery without any insurance. Many more are underinsured, not only because of insurance market disruption but also because of failure by insurance agents to ensure that coverage levels keep current with skyrocketing property values and rebuilding costs. Here too, those with longer tenure in their homes are likely to be most affected.

Gaps between insurance coverage and costs are important to account for when considering added resilience- and climate-related requirements during the rebuild of properties destroyed in the LA firestorms. For those covered by a full replacement cost insurance policy, the expense of meeting requirements does not need to be paid out of pocket; California requires "law and ordinance coverage," or the provision of adequate coverage to comply with updated building codes. Strengthening resilience standards could even reduce costs for insured owners over the long term as actuarial practice and insurance premiums increasingly incorporate mitigation actions. For the large portion of owners who are uninsured or underinsured, new requirements could add to the hurdles and costs associated with rebuilding.

Hardening buildings is one of the most critical protections against fire risk, but it is difficult to estimate how much hardening is enough. There is not enough post-fire evidence to calculate the return on investment, whether for individual owners or for the strained insurance market, for different levels of hardening standards. The efficacy of current Chapter 7A standards on structure survivability is well

established, creating a strong justification for extending those standards to all areas demonstrated to be vulnerable to fire. Under current policy, more than 40% of destroyed homes would not be required to adhere to Chapter 7A standards in rebuilding, all in the Eaton burn area. The added cost of meeting Chapter 7A standards is estimated at \$30,000 for a 2,000-square foot home (modestly larger than the 1,572-square foot median size of homes destroyed in the Eaton fire), likely less than 3% of total rebuild cost (Hernandez, 2025). Upgrading standards to higher levels of protection recommended by the Insurance Institute for Business & Home Safety (IBHS) adds additional expense—nominally for the Wildfire Prepared Home standard, but much more for the Prepared Home Plus standard, which doubles the added cost for hardening (Barrett et al., 2022). IBHS laboratory and demonstration research validates the protectiveness of these protocols, but their impacts on structure survivability in urban fire settings is not known, precluding analysis of return on investment or aggregate social benefits from their adoption.

In the abstract, there may be readiness to pay costs for enhancing resilience: after the fires, a UC Berkeley/Los Angeles Times poll found 80% of LA County voters backed tougher building codes to make homes fire-resistant, even if that raises construction costs. In practice, coming on top of other real expenses, added costs for these features can sometimes feed public resistance to new requirements (Ellery et al., 2023).

Rebuilding in a Housing Crisis

The Eaton and Palisades fires brought new strain to a housing market already in crisis. Housing costs in the LA area are among the highest in the nation, creating severe rent burdens and leaving homeownership out of reach for most households. Inadequate housing supply also contributes to pervasive homelessness. For the tens of thousands of people displaced by the fires, scarce housing added uncertainty, complication, and expense in the weeks following the fires; among those who had recorded official changes of address within the first four months, more than half ended up in neighborhoods at least a half-hour drive away (Kaysen et al., 2025). But the impacts of housing undersupply reached beyond immediate survivors, as the added demand from those displaced sent rents rising regionwide.

The housing crisis is a central part of the risk landscape that shapes policy decisions about rebuilding. The devastation brought by the fires begs the question of whether it is appropriate to build homes and businesses in areas demonstrated to be exposed to fire risk. Yet retreat from fire-prone areas is not a straightforward proposition even in theory, let alone in practice, as it involves trading off housing supply for protection from a risk that is difficult to delineate in space and dynamic over time (Koslov & McConnell, 2024). Roughly two in ten properties in LA County are located in the WUI. Ruling out these areas from current and future post-disaster rebuilding would add substantial constraint on already scarce housing supply, reducing housing security, which is the leading predictor of positive recovery outcomes at individual and community scales.

Risk associated with severe housing undersupply begs the opposite question of whether fire-affected neighborhoods should be rebuilt to accommodate more housing than previously. Added density through lot splits, accessory dwelling units, and small multiunit buildings could help with the region's housing affordability problem while also providing income that property owners might need in order to rebuild at all. But added density increases the number of people in fire-prone areas, expanding overall exposure and adding to congestion on evacuation routes. Density also can increase the hazard of structure-to-structure fire spread. Fire-resistant construction helps mitigate fire spread risks, and

community-level mitigation measures may offer additional protection if coordinated at the neighborhood level.

Beyond the objective implications of how a higher-density rebuild would affect fire safety, there are equity considerations in planning for added density in fire-impacted communities when other communities throughout the county have failed to meaningfully increase their housing supply. This question is especially relevant in Altadena, where the community's diversity and high rates of Black homeownership are entwined with the history of redlining and systemic discrimination. Ultimately, the question of density in rebuilding entails consideration of multiple, potentially competing, priorities: the ramifications for fire risk, the social risks of housing insecurity, recognition of historic and ongoing inequities, and the role of the rebuild as part of a comprehensive regional housing strategy. Regardless, housing pressure will increase in the short term, regionwide, because of displaced residents and the temporary workforce who will come into the area for the rebuild.

Rebuilding Workforce

The fires' impacts reach beyond those who lived and worked in the affected areas. Another set of challenges relates to workers who are critical for cleanup and rebuilding. These workers are disproportionately immigrants, both documented and undocumented, who are vulnerable to worker exploitation because of linguistic barriers, legal precarity, and economic vulnerability, among other reasons. Immigrants comprise an estimated 41% of the construction workforce statewide (Siniavskaia, 2024), and are likely even more highly represented among day laborers hired for cleanup. Unscrupulous employers can use immigrants' status and their fear for family members as leverage to subject them to dangerous working conditions. Past experiences with disaster recovery bear out these concerns; researchers in disaster areas have observed upticks in worker exploitation, trafficking, and worker safety violations (Barrick et al., 2025). The climate of fear created by recent federal immigration enforcement actions exacerbates this situation, lowering the likelihood that workers will report violations. In the months following the January 2025 fires, journalists and scholars observed widespread evidence of immigrant workers engaged in cleanup without proper protective equipment, and being exposed to contaminated soils and ash through gardening and housekeeping work (Reyes-Velarde & Kuang, 2025).

LESSONS FOR RECOVERY AND REBUILDING



Photo Credit: Los Angeles County

Recovery from large-scale fire disasters is often a slow, arduous process that places significant strain on affected residents and communities. In the short term, survivors focus on coping with the mental and physical health effects of the trauma and on securing housing and economic stability. As their attention shifts to longer-term rebuilding and possible return, they face substantial financial and administrative burdens, or “dollar costs” and “time costs.”

The dollar costs of rebuilding are often the largest barrier to return. On top of the gap created by uninsurance or underinsurance, permitting costs and localized spikes in demand for labor and materials increase the financial strain on residents. Those who seek to rebuild homes and businesses also face

substantial time costs in navigating complex administrative processes to access aid from different sources, make insurance claims, and negotiate with builders and permitting agencies – typically with no experience and insufficient information. These tasks demand time and effort from families during a period when they are grappling with the disruption and trauma of losing their home and continuing to manage temporary living and schooling arrangements. Lack of confidence in whether aid will actually materialize can also cause hesitancy, leading people to delay time-critical steps. When these delays are prolonged, expiration of temporary aid can permanently lock residents out of rebuilding (Stephenson, 2024).

These complex logistics extend to community rebuilding. Local governments that already operate under tight fiscal constraints are called on to coordinate and carry out an array of activities to facilitate recovery. Administrative and operational challenges can delay the clearing of hazardous material and repair of critical infrastructure. In areas with difficult topography or limited road capacity, traffic bottlenecks make it difficult to move personnel and materials. Lack of coordination between hazard removal and infrastructure restoration then becomes a barrier to residents’ rebuilding efforts. The scattering of residents, influx of real estate investors, loss of community gathering spaces, and additional burdens borne by community-based organizations all add to the challenge of coordinating recovery actions and enabling a community-centered rebuilding process.

Pre-existing social conditions shape the vulnerability of individuals and communities to fire impacts and their avenues for recovery. Those with higher incomes have resources that reduce their risk and enhance their capacity to recover, including reliable vehicles for evacuation, quality health care, higher levels of insurance coverage, and experience in navigating complex financial transactions. Economic

insecurity and housing precarity can send people on a different recovery pathway, where inadequate information impedes access to resources that could help close the capacity gap, leading to loss of social support networks and eventual displacement (Lambrou et al., 2025). Racial and ethnic minorities, immigrants, and Indigenous people often face additional barriers to accessing government and private support and feel a lack of trust in the communications and resources they are able to access.

Although these challenges and disparities are seen consistently across fire recovery settings, recovery outcomes vary widely, both across communities and across individuals. To tackle these challenges and advance an effective, resilient, and equitable recovery, Los Angeles can draw upon lessons learned from the Tubbs, Marshall, and Woolsey Fires – recent events that have notable similarities to the January 2025 LA firestorms, and which demonstrate how sound policymaking can lead to better recovery outcomes.

Fire Analogues: The Tubbs, Woolsey, and Marshall Fires

The Tubbs fire (Sonoma County, CA, 2017), the Woolsey Fire (LA and Ventura Counties, CA, 2018), and the Marshall fire (Boulder County, CO, 2021) are particularly useful learning events to inform LA's recovery, for several reasons:

1. *Similar fire characteristics.* Like the LA fires, all three of these fires occurred during high wind events in drought conditions. Following ignition due, at least in part, to electrical utility infrastructure, wind-driven embers quickly spread the fires into developed areas historically not considered at high risk of fire damage. Each resulted in large-scale destruction.
2. *Similar policy challenges.* In the wake of each fire, policymakers were faced with the challenge of how to facilitate rebuilding when residents were facing widespread financial strain. Like LA, the affected regions also considered questions of how to approach fire-resistant building standards, land use policy, energy codes, and disaster preparedness during the recovery process.
3. *Innovative policy approaches.* Local governments and NGOs instituted several innovative strategies to streamline the recovery process and improve coordination and communication.
4. *Measurable successes.* Though not without room for improvement, recoveries following both the Tubbs and Marshall fires exceeded the typical rate. Three years post-fire, over 80% of homes destroyed by the Tubbs fire had been rebuilt, as had about two-thirds of Marshall fire homes, compared to the national average of 25% after five years.

Lessons Learned

Streamlining Reconstruction

In the wake of all three fires, policymakers sought to reduce the onerousness of permitting processes, with actions including:

- Waiving fees for critical steps such as discretionary planning, demolition, and temporary housing permits.
- Adopting new planning procedures to frontload administrative tasks and mandate three-year approval timelines.

- Partnering with local builders to create a “menu” of pre-approved home designs, allowing residents to avoid time-consuming custom design and permitting steps.
- Contracting with private firms to open additional permitting centers and expand capacity.
- Creating designated development zones with streamlined planning and design requirements.
- Simplifying permitting processes for public infrastructure, as with residential construction, and incorporating planned improvements or upgrades as part of the rebuild process.

Overall, these measures are credited with accelerating rebuilding. Where permit costs remained high, they stymied rebuild progress, even when paying the permit costs would unlock additional financial aid (Stephenson, 2024). Successful streamlining takes a coordinated effort by all relevant entities: for example, slow application processing and coordination failures by an electrical utility then created bottlenecks on solar system hookups and service connections during the Marshall fire recovery (Kohler, 2023).

Building Standards and Codes

The general dilemma facing policymakers in this area is how to balance two competing priorities: facilitating a speedy and affordable rebuild process, and holding to regulations and standards that promote future fire safety and other goals, such as energy efficiency. Following the Tubbs, Woolsey, and Marshall fires, policymakers prioritized accelerating the rebuild, forgoing opportunities to enhance resilience. Faced with the option to expand Chapter 7A requirements to the Coffey Park area post-Tubbs, the City of Santa Rosa elected not to do so, citing cost concerns and predicting that the fire was a one-off event (Kasler & Sabalow, 2019; Schmidt, 2020). The latter assertion was criticized by experts, and went against the recommendations of several firms involved with the rebuild (Froman, 2021; Kasler & Sabalow, 2019).

Among jurisdictions affected by the Marshall Fire, only unincorporated Boulder County adopted updated fire-resistant construction codes, expanding ignition-resistant building requirements to a broader area that included the fire area, and kept its energy standards in place. Two incorporated cities affected by the fires either weakened standards or made no changes. Despite some policy lenience, a majority of Marshall Fire rebuilds have adopted fire-resistant features and contemporary green building codes, including where they were not required. Incentives helped to motivate adoption of these features, even while incentive programs were hindered by unclear communication with potential recipients (Ellery et al., 2023).

Financial Incentives and Financing Options

State and local governments and philanthropic organizations all have sought to provide financial support for housing following fire events. In some cases, new efforts were focused exclusively on fire-related rebuilding; in others, governments used the fire as a catalyst to adopt more ambitious efforts to address long-term housing needs. Almost all of the programs focus on reducing felt-dollar costs, primarily (though not exclusively) for residents, via various financial mechanisms:

- Expanded financing availability through low-interest loans and forgivable loans and grants. Examples include Sonoma County’s Energy Independence Program, focused on financing fire safety; the CalHome Disaster Assistance grant won by Santa Rosa Housing Authority to fund rebuilds in Coffey Park; the Sonoma County Housing Fund, which provides loans for affordable housing creation; and Colorado’s Housing Recovery Program, which provides loans for rebuild

and mitigation efforts that are forgivable for low-income households. Some programs were designed to reach beyond the immediate rebuild, such as the Renewal Enterprise District established by Santa Rosa and Sonoma County, which combined new financing options and streamlined permitting processes to foster long-term development. Federal programs – most notably several FEMA-administered programs, various Small Business Administration loans, and Community Development Block Grant-Disaster Recovery (CDBG-DR) Funds – have been foundational financial resources for these housing assistance efforts.

- Tax credits, tax exemptions, and rebates. Post-Marshall fire, Colorado state and local governments were particularly active in this area, offering sales and use tax exemptions for construction materials, permit valuation adjustments to increase tax refunds, and electrification rebates for disaster-affected homes.
- Discounted, deferred, or waived fees for permitting and utility services, such as those offered through Santa Rosa's High Density Multi-Family Residential Incentive Program.
- Philanthropic efforts by organizations such as the Community Foundation of Sonoma County, which provided grants to nonprofit organizations, and efforts by groups like the Catholic Charities of California and UndocuFund for Fire Relief in Sonoma County to target aid to particular at-risk populations (renters and undocumented families, respectively).
- Coordinated incentives. In Colorado, the Disaster Recovery Program established by the Impact Development Fund (a community development financial institution) created a centralized pipeline to funnel financial aid from multiple different programs and sources to affected households while requiring only a single application. The program staff made determinations on applicant funding eligibility and distributed funds to applicants or contractors, effectively negating the need for residents to juggle multiple application processes and greatly reducing time costs.

Community Coordination and Communication

The City of Santa Rosa has been lauded for its community-centered approach to recovery following the Tubbs fire. A “block captain” system arose organically and promoted constructive engagement between residents and local officials (Kirkham et al., 2025). Santa Rosa officials connected residents directly with critical expertise, established an ad hoc rebuild committee to meet weekly with city recovery personnel, and held more than 250 public rebuild and recovery meetings. The city also created a public-facing data tool for tracking recovery progress. Nonprofit organizations boosted these efforts; the Community Foundation of Sonoma County's disaster case managers program offers one example. Nonprofits played a critical role in building connections across recovery agencies and ensuring responsiveness to community needs (Miller & Mach, 2022).

Recovery Outcomes

Policy decisions after the Tubbs, Woolsey, and Marshall Fires helped accelerate rebuilding, resulting in more rapid recovery than is the case in many post-fire settings. Flexible use of diverse funding sources, partnership with community-based organizations, and coordination across sectors were key contributors to positive recovery outcomes.

Resilient recovery has not been even, however. In most cases, fire-devastated communities have rebuilt without consistent fire-hardening or clean energy improvements. Following a familiar pattern after

disasters, property ownership and income have played a large role in shaping people's ability to recover and return to the community after the Marshall Fire. Among those who lost homes in the fire, lower-income households were more likely to be underinsured, and consequently were less likely to make fast progress in rebuilding (Rumbach et al., 2023). One year post-fire, renters were much more likely to have moved and more likely to have left the area. Rising housing costs were a key driving factor in this displacement. Moreover, renters were more likely to be uninsured or underinsured and less likely to be engaged in or feel supported by local decision making processes (Dickinson et al., 2024).

Experiences in these three and other fire-impacted communities reveal that post-fire recovery is most successful when it is community-led and staged to provide support over a long recovery timeline. Short-term investments to build community cohesion can help stabilize and reconnect neighbors with one another. After meeting people's immediate needs for stability and care, the social networks reinforced through the short-term response can anchor a rebuilding that prioritizes equity and the restoration of shared spaces. The social infrastructure that emerges through the rebuild can then support institutions and practices that increase resilience over the long term.

PLANNING FOR INFRASTRUCTURE AND EVACUATION



The fire risk landscape calls for a rethinking of the infrastructure that powers our communities, delivers water across the dry LA region, and keeps us connected with one another. Energy, water, transportation, and communications systems need to be hardened to withstand escalating fire hazards in order to perform as designed, while the demands of responding to fire—along with other climate-amplified and seismic hazards—creates new expectations for these systems that reach beyond their original designs. On top of the requirements for resilience, transformation of energy and transportation systems is essential for reducing climate change that is amplifying fire and other risks.

Energy

California's energy system planning is attempting to address competing and entangled priorities, many of which are exacerbated by climate change: minimizing utility-related wildfire ignition, increasing system resilience and ability to withstand fire exposure, supporting the rise in peak electricity demand, managing system losses, transitioning to renewable generation sources, and addressing growing energy affordability concerns (Sathaye et al., 2012). Leading strategies to reduce utility-related wildfire risk and strengthen resilience emphasize continuous improvement. This means not attempting radical changes to the system's architecture, but rather ensuring that the architecture incorporates the latest technologies (e.g., smart meters) and is well maintained.

Grid Hardening

The electricity grid's historical architecture, designed to transport power unidirectionally from a few large generator stations to many smaller consumers, is dependent on transmission infrastructure carrying large loads at high voltages across expansive remote lands and a distribution grid delivering to end users. Wildfire risk is an inherent weakness in that design, and the risk is rising as aging infrastructure gets exposed to higher temperatures (Brenner, 2020). In an effort to mitigate that risk—and the strict liability associated with utility-caused wildfire ignitions—utilities increasingly rely on public safety power shutoffs, or PSPS, de-energizing lines during adverse weather conditions to reduce the potential for ignition. But PSPS can leave customers without power during the very weather conditions that can lead to an emergency event, when access to electricity-powered communications and other infrastructure is critical.

Hardening and/or redesigning the grid to reduce utility-related wildfire risk must take into consideration the impacts on utility reliability, implications for natural resources and human health, environmental and subsurface conditions, resilience to fires and other hazards, and investment costs. Fires directly damage distribution and transmission lines, while contributing to transmission capacity losses as well. Some grid hardening strategies also provide benefits during fire events, include undergrounding (burying above-ground electric lines and other infrastructure), insulating and spacing above-ground lines, strengthening power poles, and improving operations like inspection frequency, vegetation management, and protocols for de-energizing lines during high fire risk periods. These strategies, which can be combined with advanced prevention and detection methods, are typically costly and have long lead times, and their effectiveness can be difficult to verify. Southern California Edison, one of the two major utilities that serve LA County, has said that its protocols have reduced catastrophic wildfire risk by 85%, but that assertion to investors is currently being litigated (Petersen, 2025). Regardless of effectiveness, implementation of these strategies across the state is already a strong upward driver of electricity rates.

Growing recognition of the energy system's contribution to fire risk has prompted calls for more widespread undergrounding, which is often presented as the only strategy which can reduce nearly all fire risk. Pacific Gas & Electric reports that undergrounding can reduce 99% of the risk of wildfire ignition from electrical equipment, while better insulating lines with protective covering offers 62% risk reduction (PG&E, 2023; Beam, 2023). Undergrounding transmission lines, which is uncommon in the United States, raises questions about rights of way and maintenance costs associated with finding and repairing faults in buried infrastructure. In the LA region, transmission lines run through vast areas of public lands; the feasibility, ecosystem impacts, seismic risks, and costs of burying transmission lines are not known. For distribution lines, coordinating undergrounding across energy, water, and communications infrastructure in the rebuild of burned areas could streamline access and reduce costs. Distribution undergrounding would nevertheless be extremely costly, the expense for which would likely be shared across the entire utility service area. The fairness of socializing these costs is brought into question due to the discrepancy between who bears the expense of undergrounding relative to who benefits.

Building Electrification

The build out of grid infrastructure and subsequent need for grid hardening depends on future residential electricity demand. All-electric rebuilding is likely faster and cheaper than reinstating dual fuel systems, and, combined with distributed energy resources, can support resilience during electric service disruptions (Kosmala-Dahlbeck et al., 2025). But all-electric rebuilding requires a solid understanding of energy demand. Pre-fire consumption can be used as a baseline for post-fire demand, but must be contextualized by pre-fire efficiency and electrification efforts. New UCLA research finds that pre-fire Altadena single family electric energy use intensity (kWh/sqft) was over 17% greater than in the Pacific Palisades, and for multi-family, 51% (Sheinberg et al., 2025). This difference is likely attributed to variations in climate, appliance age and efficiency, and building vintage and construction.

For rebuilding in Altadena, pursuing high-efficiency all-electric new construction with the same square footage as the damaged property would decrease electricity consumption by an estimated 40% relative to pre-fire consumption. Minimum-efficiency all-electric appliances in new construction offer a lower level of benefit, reducing total energy consumption by 22%. In contrast, in the Pacific Palisades, where pre-fire residences had lower energy use intensities, increasing the share of electric appliances would result in somewhere between just 2% lower and 34% higher total electricity consumption

(depending on appliance efficiency), because there is less opportunity for efficiency gains. In all cases, however, electrification decreases overall energy use intensity (EUI), as electricity is a more efficient fuel than natural gas.

While high-efficiency building electrification can greatly reduce overall building EUI, efficiency gains cannot always, and have not historically, offset significantly larger building sizes that require more electricity overall to operate. Despite stricter building codes and improvements in building materials and appliances, building energy consumption in California has increased over the past decades as buildings have trended larger, especially in high income neighborhoods (Fournier et al., 2019).

Distributed Energy

The above discussion assumes a continued predominant reliance on imported electricity. Moving to a more decentralized system with distributed energy resources would be a substantial paradigm shift in the power sector, requiring extensive distribution grid modernization efforts including advanced meters, sensors, relays, automated switches, and storage systems. All of these components involve costs to both the utility and the consumer. A more distributed system could enhance resilience in the case of disasters, and contribute additional electricity resources to the grid. At the same time, the costs would likely be to the customer in installing the systems and to the utility from a diminished consumption from the grid, which would lessen aggregate utility revenues.

The California Energy Code currently requires 100% solar adoption for new construction. If implemented in the rebuilding zones, this would represent a dramatic increase in local solar. In the Eaton Fire region, 4 kW systems per single family residence would readily offset estimated annual consumption (Sheinberg et al., 2025). This holds true even with increasing share of electric appliances. The 4 kW system default may not be suitable for households that use less electricity. Further, SoCal Edison customers are incentivized to install battery energy storage systems with net billing tariffs. This would reduce the amount of electricity exported to the grid, as well as households' reliance on purchased electricity. In the Palisades, there are relatively fewer single family residences, but with greater square footage. UCLA research findings show that 4 kW systems per residence would be insufficient to offset annual electricity consumption. However, the electricity expected to be drawn from the grid is still drastically reduced with across-the-board solar adoption, and slightly larger systems (approximately 6 kW per home) would make up the difference.

Gas Infrastructure

While the focus of both policy makers and the public has been on electricity infrastructure, the gas system is not without risk, in terms of accidents involving gas pipelines, service disruptions, and intensified building fires. During the LA fires, fuel pipelines carrying gasoline and other fuels from California to the Las Vegas Valley were temporarily shut down for over a day due to fire-related power outages (Seba & Khan, 2025). Meanwhile, natural gas pipelines reportedly remained connected days after fires had reached homes, producing "seven to eight foot-tall walls of flames" (Promoting and Improving Safety and Efficient Pipeline Infrastructure 2025).

However, the potential for an accelerated transition away from natural gas in the burn areas has ramifications for the customers with surviving homes who are still expecting service from the existing pipeline network. As the gas customer base is expected to shrink, the costs of maintaining the network remain. For example, if homes are rebuilt with electric space and water heating, but maintain gas for

cooking and other less energy-intensive end-uses, it is estimated that gas demand for damaged and destroyed buildings could shrink as much as 83% below the pre-fire baseline (Sheinberg et al., 2025). Decommissioning these branches of the system, preceded by a neighborhood-scale transition away from natural gas, will reduce the risks of gas rate hikes, as well as help meet the state's climate goals and provide safety benefits. Managing gas risks requires a cohesive strategy to incentivize all-electric new construction and the comprehensive electrification of existing buildings.

Water

The challenges faced by local water suppliers in some ways parallel those faced by electric utilities. Their core responsibility is to provide reliable service, safely, at an affordable price. As fire hazards rise, they seek to harden infrastructure to withstand fire exposure, while also pursuing resilience measures to respond to other climate-amplified hazards like drought and flooding. And like electric utilities, they face growing pressure to redesign their systems to help reduce the region's vulnerability to fire. A key difference between water and energy utilities is that locally, they are quite fragmented rather than centralized; there are about 200 community water systems in LA County alone, ranging in size and complexity.

Water for Firefighting

Local water supply systems provide water for everyday or structural firefighting, but they have not been designed or expected to maintain adequate supply or water pressure to support fighting wildfires or large-scale fires that start in wildland and spread to urban areas (Pierce et al., 2025). There are no regulatory guidelines for urban water systems to provide wildfire support; the minimal guidelines that do exist for water system fire response focus on fire's impacts on water supply and infrastructure, rather than vice versa.

The rising risk of wildfire-initiated urban conflagrations demands consideration of how water systems can better support firefighting needs. Opportunities exist for planning and design improvements that would bolster water systems' ability to manage supply assets and water pressure under emergency conditions. Partnerships with property owners and neighborhoods who seek to make their own investments in localized water assets for fire response could help ensure that these investments are designed to provide co-benefits such as stormwater capture and not to draw down public water supply during fire events.

However, water is only one element of wildfire-fighting; experts agree that no water system could have "stopped" the LA fires, and efforts to build the capacity needed for suppression of wildfire-ignited urban conflagrations would be extremely costly, energy-intensive, and a strain on the region's water resources. There are three categories of potential major capacity enhancements for water systems to fight wildfires: hyper-local water supply, hyper-local distribution system infrastructure hardening and demand responsiveness, and enhanced power (Sowby & Porter, 2024; Pierce et al., 2025). Large-scale investments in any of these measures involve tradeoffs between the value of fire readiness and the value of other priorities for urban water systems. Because state fiscal rules limit water systems' flexibility in how they distribute the costs of system improvements, all ratepayers may have to share the costs of fire-readiness investments, even if those investments largely benefit only part of a water system's service area (Mukherjee et al., 2016). Enhancing capacity for fire response ultimately could jeopardize

affordability of water service to meet basic needs, especially where costs are spread across small customer bases.

While large water systems like the LA Department of Water and Power might find avenues to make significant investments in improving their ability to supply water for fighting urban firestorms, these investments are not likely to be possible for the many small water systems serving high-fire risk communities. Ultimately, there are hard limits on what can be expected for water systems' fire-readiness, given the limiting physics of water and its movement through pipelines and across rugged landscapes where wildfire fighting often occurs.

Drinking Water Contamination

As systems use water supply to help fight wildfire, and as fires contaminate upstream water sources, water suppliers also face impairments to drinking water quality, which threatens their mandate to maintain reliable water delivery to communities. Fire can also introduce dangerous levels of contaminants through its impacts to distribution systems and private premise plumbing. This is largely, but not exclusively, due to a loss of pressure that allows fire contaminants like ash, soot, and smoke to infiltrate the water supply through damaged pipes and open hydrants (Proctor et al., 2020; Whelton et al., 2023).

Burned or melted water infrastructure — including some storage tanks, distribution pipes, meters, and domestic well infrastructure — can also release dangerous levels of volatile organic compounds (VOCs), like benzene, and semi-VOCs into drinking water supplies. In response to the water contamination risks, at least 9 of the 11 LA County water systems impacted by the fires issued a variety of “Boil Water,” “Do Not Drink,” or “Do Not Use” advisories over the first four months post-fires (Pierce et al., 2025).

Most if not all systems affected followed lessons learned based on the experience from recent fires, which in the last few years have been developed to address water quality restoration issues. All system-controlled drinking water quality issues were reported to be resolved by all affected utilities four months after the fires began (James and Haggerty, 2025). However, many questions and opportunities for improvement in speed, coordination, communication and restoration of consumer confidence in tap water remain across Los Angeles.

Evacuation

Evacuation procedures have been a common source of criticism in the aftermath of major fire events. Severe, wind-driven conflagrations like the LA fires can overwhelm emergency services' capacity to gather intelligence and take evacuation actions in real time. The logistics of the evacuation process itself is often daunting for residents; limited road capacity and simultaneous ingress of firefighters can create traffic blockages, especially in topographically challenging areas like the Palisades.

Overcoming these challenges requires local governments and emergency services to engage in comprehensive advance planning, accompanied by proactive, concrete steps to ensure that infrastructure and institutional capacity are adequate to respond to a worst-case fire scenario. Effective preparation involves in-depth evacuation scenario planning; hardening of critical infrastructure and advance placement of resources; and a traffic modeling and management strategy. Communications

are complementary to all other aspects of evacuation planning, as they aid in managing the flow of evacuees and directing them to pre-placed resources.

Strategic infrastructure hardening and improvements may help facilitate a faster evacuation process and protect lives. Expanding road capacity through widening or new connections may be infeasible in canyon neighborhoods or require encroachments on private property. A more practical option might be to reduce vehicles on the road through infrastructure improvements that allow pedestrians to reach pickup points that have easier egress options. Hardening of cell towers and power systems helps preserve the integrity of communications that are essential to managing evacuating traffic. Heat-resistant shelter-in-place structures and temporary refuges and staging sites can further strengthen the system, providing additional short-term options for evacuees.

Often more cost-effective than hard infrastructure upgrades are improvements to planning, coordination, and resource placement. Advance planning that incorporates transportation modeling and simulation can help identify neighborhood-level traffic patterns and design coordinated routes and procedures for egress. Although evacuations rely overwhelmingly on personal automobiles, incorporating multi-modal transportation and directives to maximize vehicle occupancy into plans and ongoing communication with residents can be critical for saving lives from fast-moving fires. As wildfire simulation models advance, they can be integrated with road network and other infrastructure planning models to help city planners and emergency responders manage evacuation scenarios in real time and plan capital investments over the longer term (Jana et al., 2025).

Understanding disparate levels of vulnerability among residents in neighborhoods exposed to fire risk can inform strategies to reduce fire fatalities. Elderly, frail, impaired, and disabled people are heavily overrepresented in deaths from fire (Gilbert & Butry, 2018; Mijal & Willey, 2022; Willey, 2023). Addressing the evacuation needs of these groups may involve incorporating transit access via shuttles or carpools into evacuation planning for those who cannot drive; ensuring availability of paratransit or healthcare transport options; and training and certifying personnel to act as drivers and medical caregivers in an evacuation scenario (Ji and Bills 2025).

INSTITUTIONS FOR RECOVERY AND REBUILDING



A key challenge during disaster recovery is to design processes and institutions that can speed rebuilding while providing accountability and minimizing the inequities that emerge from recovery processes (Johnson & Olshansky, 2017). Managing recovery in urban settings requires coordinating the activities of overlapping jurisdictions with different levels of organizational capacity, different laws and policies, and different demographics, land values, and housing and infrastructure quality. Strong leadership, deep technical expertise, effective communication and collaboration capabilities, and robust funding support are necessary to tackle these complex, multifaceted problems and

advance a cohesive disaster recovery strategy. The sequential nature of the recovery process, where activities are predicated on those that came before, requires constant management to stage activities and balance the needs of individual households with those of the broader community.

Entities formed to manage recovery vary in their structures and powers. A coordinating agency can facilitate data sharing, communication, and resource logistics, and can help resolve inconsistencies among recovery service providers. The National Disaster Recovery Framework (NDRF) and its model for assigning Recovery Support Functions (RSFs) creates linkages across different levels of government and with private and community partners within identified domains of responsibility. These RSF structures, in turn, benefit from an entity that helps them coordinate with one another. At the other end of the powers spectrum is an agency with redevelopment powers that can provide centralized and comprehensive leadership for rebuilding by harnessing financial resources and directly leading construction projects within a defined area.

By many accounts, state and federal agencies have been coordinating their immediate response activities to the LA fires as prescribed. As early recovery tasks like debris removal conclude, there is uncertainty about how long-term recovery and rebuilding will be managed and financed. The form in which federal-state interagency coordination and the RSF structure will continue is currently unclear. In the aftermath of a disaster, CDBG-DR appropriations from Congress typically provide flexible funding to fill recovery and rebuilding gaps not covered by insurance or other federal and state disaster programs. The timing of these appropriations has varied widely after past disasters, sometimes taking months or even years before funds are obligated, but concern is mounting that federal recovery assistance will be slower and less robust than for prior disasters. In that context, the creation of a long-term recovery and rebuilding entity is all the more important, as it may need to catalyze funding and fill governance gaps to a greater degree than in a typical post-disaster setting. The following offers some considerations related to institutions for recovery and rebuilding.

Redevelopment Authorities

Redevelopment authorities are often part of major post-disaster rebuilding efforts (Johnson, 2014). These agencies have been empowered with a broad range of authorities—including property acquisition and banking, contracting, financing, and land use regulation—that can be used to control rebuilding costs and minimize land speculation. The financial backbone of redevelopment is tax increment financing (TIF), which allows the agency to issue bonds for up-front project development costs and repay them with the additional tax revenue generated by the gains in property values in the project area. In the recovery context, agencies often reinforce TIF with post-disaster government and philanthropic support funds.

TIF is a fitting instrument for funding fire rebuilding, because it directs part of the property value increase achieved through recovery back to recovery activities. However, because the Eaton and especially the Palisades burn areas are disproportionately wealthy relative to the county and the city as a whole, using TIF has the effect of capturing tax revenue for the benefit of the relatively well-off rather than spreading it around for projects and services that benefit the broader population. Equity concerns about TIFs have been on the rise in places like Chicago where TIF districts have proliferated to fund a range of development activities (Tresser, 2025). California law already permits time-limited uses of TIF, such as Enhanced Infrastructure Financing Districts (EIFDs) and Climate Resilience Districts (CRDs); limiting the time frame during which tax increment can be captured in fire-affected communities may enable effective recovery of those areas while helping to ameliorate concerns that wealth will be captured there over the longer term. While tools like TIF that catalyze local contribution to rebuilding costs can potentially reinforce inequity, the forces driving inequity in uncoordinated rebuilding are at least equally strong.

Currently, California does not have a policy instrument for localities to set up a redevelopment agency for this purpose. Historically, redevelopment powers were held by community redevelopment agencies (CRAs), created by state law in the mid-1940s to promote redevelopment of “blighted,” or disinvested, property in urban areas. After years of controversy mostly related to competition over tax revenues with school districts and other local governments, CRAs were dissolved by the Legislature in 2011. In February 2012, CRAs ceased operating, and successor agencies were created to wind down their obligations and activities.

One current California law does create a mechanism for redevelopment agencies to play a role in post-disaster rebuilding, but it cannot easily be applied to rebuilding from the January 2025 fires. In 1986, while CRAs were still operational, the Legislature passed the Disaster Recovery Reconstruction Act. This statute enables local jurisdictions to prepare in advance for a disaster event by establishing “reconstruction authorities,” with powers largely parallel to CRAs, for the purposes of rebuilding after the event. Because the Act requires a plan or ordinance creating the authority to be adopted by the local government prior to the event (which neither the County nor the City of Los Angeles had adopted), and because the CRA powers referenced in the Act have since been stripped from CRAs, the Act does not clearly enable creation of a “reconstruction authority” with redevelopment agency powers to respond to the destruction caused by the January 2025 fires. Legislation would therefore be required to create an authority with the full scope of redevelopment agency powers, and could define a scope and governing body suited to current needs in the Eaton and Palisades burn areas.

Public Financing Authorities

Carrying out the functions of a reconstruction authority without housing the full set of powers in a single entity would require layering of different institutions. Under California law, two other public financing authority types with TIF powers are CRDs and EIFDs. In most cases, appointees of the local legislative body will make up the majority of a CRD or EIFD governing board. It is possible to combine other financing instruments with TIF districts, such as Community Facilities Districts (also known as Mello-Roos Districts) that allow additional property tax to fund a specified infrastructure project, with voter approval. The CRD or EIFD could then contract with a nonprofit development corporation (NPDC) to carry out land purchases and contracting. Neither the financing authority nor the NPDC would have land use authority, so modifications of zoning or density in specified corridors would not be achievable through this structure. They also would not have power to oversee the permitting of redevelopment and reconstruction, and would have restrictions on use of their funds. More generally, creating multiple layers of governance dilutes accountability as functions are spread across multiple agencies; it would also likely complicate the recovery process and potentially slow down rebuilding efforts due to the need to align different timelines and accommodate the pace of different agencies.

Case Studies of Special Purpose Agencies for Redevelopment and Rebuilding

Agencies created for large-scale redevelopment or post-disaster rebuilding efforts can vary widely in their governing structures. These agencies have also creatively tapped into different sets of public and private funds and possessed differing levels and breadth of powers. Three case studies of special purpose redevelopment authorities offer lessons on the impacts of these design features. The jurisdictional and event-related contexts in which each one of these entities has been utilized are unique, and all have distinct organizational structures and levels of land ownership and control, but all have exercised powers that are much broader than those possessed by a CRD or EIFD acting alone.

Lower Manhattan Development Corporation

The Lower Manhattan Development Corporation (LMDC) was formed in 2001 to facilitate the reconstruction of Lower Manhattan after 9/11. Its parent corporation, Empire State Development (ESD), is a statewide economic development organization with extensive history and experience facilitating large-scale real estate development, typically by creating subsidiaries such as LMDC to work directly with developers, business leaders, and community members. Both LMDC and ESD have boards appointed by elected officials. LMDC also convened numerous advisory councils to represent various constituencies and stakeholders affected by the 9/11 attacks and by rebuilding.

LMDC performed a coordinating role for the rebuilding effort: facilitating design and construction on the World Trade Center site, which was owned by the Port Authority of New York and New Jersey; overseeing infrastructure projects led by the city; administering economic development programs sponsored by ESD; distributing federal grants to the community, cultural, and human services providers; and assisting with affordable housing programs administered by the city. Much of the real estate development that took place after 9/11 was financed by the Port Authority and through private capital raised by developers. LMDC's primary funding source was a pair of federal CDBG appropriations totaling \$2.78 billion. The organization has downsized substantially after spending down federal funds and completing

the September 11 memorial and surrounding rebuilding, but it remains in existence as a conduit for new grant distribution.

The LMDC case study highlights the pros and cons of a governance model in which the state and local governments are orchestrating the rebuilding while lacking direct control of land. Close involvement from state and local elected officials resulted in delays and controversies for project delivery. However, this involvement also allowed LMDC to leverage administrative and monetary support from both levels of the government. The professional real estate development expertise at ESD empowered LMDC to coordinate the activities of public and private stakeholders. Although LMDC did not directly control the land for redevelopment, the land was centrally owned by the Port Authority, which worked closely with LMDC.

Transbay JPA

The Transbay Joint Powers Authority (TJPA) is a California joint powers authority created in 2001 to design, build, operate and maintain a new transit center in San Francisco. During the 1989 Loma Prieta earthquake, the Transbay Terminal, a former bus terminal, and a nearby segment of the state freeway were severely damaged. A decade later, San Francisco voters passed Proposition H to develop a regional multimodal transportation hub on the Transbay Terminal site. In 2001, TJPA was created to facilitate reconstruction by leveraging multiple public resources. Its governing board is made up of representatives from agencies and local governments that operate services through the transportation hub, reflecting the joint nature of the project.

Initially, the San Francisco CRA oversaw the execution of the redevelopment plan along with TJPA. When CRAs were dissolved in 2011, the San Francisco Office of Community Infrastructure and Investment (OCII) took over the responsibility. Both the CRA, and later the OCII, had land use regulation powers over the former freeway parcels, which had been transferred by the California Department of Transportation (Caltrans) to facilitate rebuilding. Financing of the Transit Center project came from numerous sources. Most relevant for fire rebuilding are the Mello-Roos Community Facilities District, revenues from the sale of publicly owned land, and joint development agreements with private developers. Approximately one quarter of the funds for the first phase of the project (over \$515 million out of \$2,260 million) came from the sale of the former Caltrans parcels for mixed-use developments. TJPA added to the value of this land by increasing the allowable density and expanding allowable land uses. TJPA also entered into a joint development venture with a private development company to build the Salesforce Tower adjacent to the Transit Center, which provided additional funding for the project.

Cincinnati Center City Development Corporation

The final case, the Cincinnati Center City Development Corporation (3CDC), is not an example of post-disaster rebuilding, but offers unique lessons as a large-scale redevelopment effort led by a private NPDC, with extensive political and financial support from the city. 3CDC was created in 2003 to lead the revitalization of a distressed, historically Black urban core neighborhood, Over-the-Rhine. The board is made up of corporate leaders, all 30 of whom must contribute annually to 3CDC's operating costs. A 12-member Executive Committee makes the most critical investment decisions.

3CDC reported investing over \$2 billion dollars in the first 20 years of operation. Funding sources included a combination of public, private, and philanthropic dollars. The initial investments came from funds created by contributions from corporations led by Procter & Gamble (\$45 million) and the federal

New Markets Tax Credits (\$50 million) program. 3CDC leveraged these and other funding sources, along with TIF, to finance the redevelopment projects. City-administered TIF districts straddle the Over-the-Rhine neighborhood and the central business district, allowing tax increment dollars from the central business district to be used for the revitalization of Over-the-Rhine.

3CDC's redevelopment efforts have been touted as extremely successful. It has restored over 210 buildings, built 48 new ones, and created and improved parks, public spaces, and parking garages in both Over-the-Rhine and the central business district. The civic spaces reimagined by 3CDC have become popular destinations for both locals and tourists. The organization has also been aggressively purchasing historically significant properties and tapping into the federal Historic Tax Credit to rehabilitate and repurpose these properties. Observers have attributed 3CDC's success to the nimble governance that results from private business leadership and to its aggressive acquisitions, despite lacking eminent domain power, that allowed the organization to have significant control over redevelopment design. However, there are also clear downsides to the private sector-led revitalization model 3CDC represents. Most importantly, 3CDC's dependence on the private sector, and Procter & Gamble in particular, raises questions about the replicability of the model as well as its accountability to community members.

Post-fire Rebuilding

The urgency of action needed for post-fire rebuilding in LA is unquestionable. Without some coordinating entity, many owners will have no option except to sell to real estate speculators, spurring displacement, disintegration of previously thriving communities, and post-disaster gentrification.

The cases above illustrate how an authority created for a specific purpose can be empowered to enable a comprehensive approach to rebuilding that is impossible with only existing tools and mechanisms. In the Eaton and Palisades areas, the immediate challenge is not executing large projects on large parcels, but rather coordinating activities across thousands of small parcels in order to enable return by existing owners and implementation of a community-led vision of recovery. A rebuilding authority with powers comparable to California's now-dissolved CRAs streamlines this task by bringing together a diverse set of financing tools with land acquisition, permitting, and land use powers. By concentrating powers in a new entity, a rebuilding authority would have fewer checks than an entity like a joint powers authority (JPA) that requires ongoing negotiation and consent among its member agencies; it also would avoid the friction of reorganizing and redirecting an existing agency to a new purpose. Clear directives in its authorization; a time-limited focus on recovery; and a strong community voice in governance would narrow the authority's discretion and help orient it toward advancing resilience and community priorities.

RETROFITTING FOR FUTURE FIRE



Photo Credit: Los Angeles County

As Los Angeles confronts a monumental rebuilding task, it does so with recognition that a fire of similar nature – if not more dangerous, given climate trends – will occur again. Fire has been an integral part of Southern California’s ecology for millennia, but now poses unprecedented risks to human populations. Arriving on the heels of other major urban conflagrations, the LA firestorms demonstrate the importance of fire mitigation for the region’s public safety.

LA County has taken wildfire risk seriously in its planning activities, incorporating critical fire-adapted community and social vulnerability principles into its General Plan and Hazard Mitigation Plan. However, the county is an outlier in its lack of a county Community Wildfire Protection Plan (CWPP) to

coordinate and prioritize fire mitigation activities (Zhang et al., 2025). A process for developing a CWPP for the county’s unincorporated areas is underway, as is a process for developing a CWPP for the City of LA. CWPPs provide an organizing framework for fire planning, and the process of developing a CWPP can help raise the salience of fire readiness and strengthen stakeholder relationships that contribute to effectiveness in fire response (Jakes & Sturtevant, 2013). But CWPPs are limited in scope and authority—they are not well-suited to the spatial extent of the region’s fire vulnerability, and they do not have regulatory effect or dedicated funding.

For Los Angeles to substantially reduce its vulnerability to fire will require sustained commitment and regional coordination. Homes, businesses, and infrastructure throughout the region are not hardened to fire; vegetation and brush are not consistently maintained to minimize fire risk; the importance of changing behavior to avoid ignitions is not salient in the public’s consciousness; evacuation plans are postponed or grow stale. Because the nature of fire risk varies widely across ecosystems and built environments, the relative priority and best approach to any of these challenges depends on local context. But coordination of context-specific actions allows streamlining, cross-learning, and investments in projects that offer landscape-scale risk reduction. Mitigating the region’s fire risk will be costly, but so are the consequences of failing to do so.

Models for regional strategies to mitigate the risk of urban firestorms and regional entities to coordinate those strategies are only starting to emerge. The following offers some considerations related to risk-reduction actions, institutions, and financing mechanisms to inform future fire planning, including formation of a county Fire Control District.

Community-Scale Strategies for Risk Mitigation

The foundation for mitigating fire's risk to urban areas of Los Angeles is a layered approach that encompasses ignition prevention and detection, structural hardening, vegetation management at parcel and landscape scales, evacuation preparedness, and integrated community protections (Moritz et al., 2022). Some of these actions have been discussed elsewhere in this report. The following addresses a few in more depth and the importance of regional coordination.

Retrofitting Structures

Improving structural fire resistance is not confined to rebuilding destroyed homes. Hundreds of thousands of structures in the county's WUI are, like those that burned, highly vulnerable to fire ignition and ready fuel for fire spread. Wholesale refurbishing of structures to meet modern building standards would be disruptive, logistically onerous, and costly, but evidence on structural risk factors could inform priorities for focused hardening and retrofit programs. Research on fire-affected structures has identified eaves, window panes, and vent screens as particularly important to lowering a home's risk of burning (Syphard and Keeley 2019), and these features are conducive to minimally invasive retrofits. Non-flammable eaves and ember-resistant vent screens are especially important focus points, given their role in making homes more resistant to ember-based ignition—a key factor in wind-driven fires that transition into urban conflagrations. Moreover, these elements can cost a few thousand dollars per home to upgrade, significantly less than major features like roofs or exterior walls (IBHS 2021). Fire hardening of existing properties thus far has not been a high policy priority; California's Wildfire Mitigation Program, enacted in 2019, has to date only completed 31 home retrofits (CalOES 2025).

Defensible Space

Strategic landscape planning that distances fuel from structures provides undeniable protections for individual homes, neighborhoods, and firefighting crews, particularly when integrated at the community scale (Syphard et al., 2014; Syphard et al., 2017; Gollner et al., 2025). Defensible space requirements represent a core strategy to enhance wildfire resilience in Los Angeles and throughout the state. However, the application of defensible space policy carries tradeoffs and is complicated by lack of scientific consensus.

As described earlier in this report, science is still advancing to identify the varying effects of different vegetation on fire risk in urban conflagrations and how those effects might depend on the specific built environment context (Gollner et al., 2025; Syphard et al., 2017; Quarles et al., 2010). Vegetation varies in flammability not only across type, but also over time with weather and maintenance (Bethke et al., 2016). Vegetation that is protective or neutral at one point in time may become fuel at another, and vice versa. Vegetation also offers many benefits unrelated to fire risk, serving as a source of heat protection and carbon sequestration, protecting soil health and native habitats, and facilitating recreation. These tradeoffs complicate the value of vegetation clearance for household and community climate resilience (Keeley et al., 2005; Syphard et al., 2006). There is a research gap in measuring how the health and quality of life benefits of vegetation balance against any contribution that vegetation might make to fire vulnerability.

Defensible space regulations are designed to reduce structural exposure to fuels through tiered vegetation management strategies extending some distance from the structure. Defensible space is

typically divided into three zones: Zone 0 (0–5 ft), Zone 1 (5–30 ft), and Zone 2 (30–100 ft). Each zone serves a distinct purpose in reducing fire damage and thus requires different fuel modification strategies. Zone 0 strategies are intended to reduce the risk of structure ignition from proximate threats, such as ember accumulation at the base of a structure or structure-to-structure fire spread. Actions focus on the complete removal of combustible materials, including vegetation, mulch, wooden structures, and synthetic lawn, from the immediate area around a structure. Defensible space in Zones 1 and 2 disrupts fire pathways by creating discontinuity among plantings, eliminating fuel ladders, and removing dead vegetation (Valachovic et al., 2021).

Properties become subject to defensible space requirements according to California’s Fire Hazard Severity Zone (FHSZ) mapping framework, which is not designed to measure fire risk in urban built environments. The FHSZ framework assesses the likelihood and potential behavior of fires based on static physical conditions like slope, vegetation, fire history, and climate. Designations in non-wildland areas reflect the risk of flame and ember intrusion from fire in adjacent wildlands rather than the probability or behavior of fires caused by human ignition in non-wildland zones. California’s FHSZ areas are designated by either state or local government responsibility for fire protection.

California currently takes a blanket approach to fuel management requirements within defensible space zones. All property owners in the State Responsibility Area, and owners in the very high hazard zone of Local Responsibility Areas, must meet specific sets of requirements for vegetation management in each zone. Local jurisdictions may adopt additional requirements, but must at least enforce the basic requirements set out by the state. The state has long had regulations for Zones 1 and 2. Legislation in 2020 required the Board of Forestry to adopt regulations for Zone 0; as of spring 2025, the agency is in the midst of carrying out a rulemaking process for its draft Zone 0 regulations.

A blanket approach of consistent statewide restrictions for each defensible space zone offers several advantages. It simplifies enforcement; monitoring parcel-level vegetation that varies in condition over time is difficult and costly. Consistent regulations, especially those that center vegetation clearance, make it more feasible to use tools like LiDAR and aerial monitoring, which may boost compliance. A blanket approach may make it easier for insurance providers to incorporate defensible space protections into their coverage decisions. Providing a set of consistent state regulations also reduces the burden on low-capacity local governments to develop their own regulations.

Yet this blanket approach misses the opportunity to tailor requirements to local contexts. Regulatory frameworks that embrace a more context-specific approach to defensible space may offer a pathway to maintain the co-benefits of vegetation without increasing fire risk. Coupled with incentives and education, defensible space requirements could reduce fire vulnerability by promoting vegetation that is less susceptible to becoming fuel. This approach could also accommodate the wide variations in topography, ecosystems, and the built environment, across and within communities, including by creating requirements catered for urban neighborhoods in high-risk areas with small lot sizes that are increasingly susceptible to flames. This type of flexible framework is more difficult to implement and enforce, yet may have fewer unintended long-term consequences, including for fire. Building tools for more fine-grained monitoring of vegetation conditions is a ripe area for scientific innovation. Current state policy allows local jurisdictions to adopt additional rules on top of the state’s minimum requirements, but limits the flexibility of localities to craft policies that respond to local conditions and enforcement capacities.

The tradeoffs associated with defensible space cannot be remedied solely through scientific advancement. They also relate to Angelenos' tolerance for different forms of risk, both visible and less visible, and their willingness to bear financial and societal costs of increased fire safety. Because Los Angeles currently sits in the earliest stages of recognizing the severity of its fire hazard, community conversations and community approaches will be vitally important in setting the region on a path toward resilience.

Buffering from Fire

A large-scale intervention that could be part of a comprehensive regional fire mitigation strategy is the establishment and maintenance of a vegetated greenspace buffer (VGB) along the WUI between urban and open space areas. A vegetated area of relatively low flammability has the potential to absorb radiant heat without combusting, typically because the vegetation has higher foliar moisture. In contrast to traditional fuel treatments, greenspace buffer vegetation may be a means to slow or even stop fire spread (Cui et al. 2019). A secondary benefit is that greenspace buffer vegetation may also block ember travel; however, this is less likely to be effective if the buffer is not relatively close to the assets at risk. Greenspace buffers can also provide firefighters a safe place to work.

There is a gradient in VGBs that ranges from relatively natural (e.g., stands of high-moisture native vegetation) to tailored for specific human needs (e.g., exercise, agriculture), depending on whether the buffer is located on the open space side of the WUI versus more developed areas. For example, if an open space area is valued for its natural aesthetics and various ecosystem services (i.e., related to habitat, carbon, erosion, nutrient and water cycling), a VGB could be designed to support those goals. In LA County, stands of high-moisture native coast live oak trees have widespread potential application on the open space side of the WUI without producing net loss of native functioning habitat (Mayes et al. 2024). Riparian stream corridors could also serve as high moisture greenspace buffers (Susskind et al. 2023). These open space buffers would be strengthened when paired with VGBs on the developed and more urban side of the WUI. Natural greenspace buffers are also an option in more developed/urbanized environments, as are buffers composed of vegetation that supports food production or recreational uses, especially if water supplies are available for irrigation.

Different VGBs will vary in effectiveness under different environmental conditions (e.g., topographic positions, wind speeds, moisture levels). As a rule, wider and more moisture-rich networks of greenspace buffers are expected to function better, but also require more land, water, and ongoing maintenance. Maintenance is critical: all vegetation can burn if it becomes dry enough, meaning that these spaces can become fuel if not hydrated sufficiently, or if surface and dead materials are not removed. Invasive species of plants, many of which are relatively flammable, can also reduce a buffer's effectiveness. Long-term care and water needs are thus crucial considerations in siting and designing VGBs.

Most existing greenspace buffers were created for purposes like food production or recreation, and the fire protection they provide is an ancillary benefit. Building a VGB from existing developed and open space land is fraught with logistical complications as well as design questions related to both the developed and the open space sides of the WUI. Parts of the Eaton and Palisades burn areas may or may not be well suited to a VGB; immediate assessment of the mitigation potential for such an intervention within these burn footprints might allow acquisition of key parcels before rebuilding on those parcels proceeds.

Institutions for Fire Mitigation

Effective fire protection and mitigation is the product of multiple interlocking systems at different scales, necessitating a coordinating entity that can prioritize investments and create synergies across different strategies. A regional entity that is informed by community preferences and works with scientists, firefighters, local officials, and other stakeholders could develop fire mitigation approaches that are responsive to the LA context while building institutional knowledge and capacity that can also assist in addressing other climate-amplified hazards (e.g. drought, heat, flood). This entity could be designed with mechanisms that allow management techniques to adapt as science progresses.

Marin Wildfire Prevention Authority

A useful model for informing a new Fire Control District for LA County is the Marin Wildfire Prevention Authority (MWPA), established in 2020 to coordinate among fire protection member agencies to plan, fund, and execute wildfire risk mitigation and preparedness work in Marin County. The MWPA is a JPA funded by a parcel tax approved by Marin County voters through Measure C in March 2020.

Measure C built upon Marin County's longstanding interest and efforts in fire safety. Marin established one of the first fire safe councils in the US in 1991 and has implemented fire mitigation practices over subsequent decades. The 2017 Sonoma County fires motivated Marin to evaluate its own fire preparedness. In its 2019 report, a Civil Grand Jury tasked with this evaluation recommended creating a countywide umbrella agency to fund, coordinate, and lead fire protection planning. This recommendation, coupled with significant public interest in the proposal and the critical support of local fire chiefs, spurred the campaign for Measure C (Powell, 2022).

The Civil Grand Jury recommended that the new entity be funded with a quarter-cent countywide sales tax. In response to opposition from taxpayer groups, as well as results from a poll of county residents, backers ultimately proposed a parcel tax with a ten-year sunset (Pera, 2020). The governing bodies for 17 of the 19 county agencies responsible for firefighting services agreed to sign on as members of the MWPA. Measure C ultimately passed with 71% support. Measure C sunsets after ten years and will be up for renewal by Marin County voters in 2030.

The MWPA organizes its operations across five geographic zones. Projects must have approval from at least 50% of member agencies, whose jurisdictions must represent at least 50% of the population within MWPA's service area. The Board of Directors and MWPA's committees each have representation from each member agency. As highlighted in a one-year update from the Civil Grand Jury, this governance model departs from the original recommendation for a unified agency that would have the authority to require members to be subject to its rules and policies.

The JPA agreement specifies MWPA spending distributions. MWPA dedicates 60% of proceeds to practices that directly impact wildfire risk mitigation including but not limited to vegetation management, wildfire detection, evacuation plans and alerts, public education, and grants. Within vegetation management spending, 80% of funds must be allocated within the operational zone from which the funding was generated. The JPA agreement allocates 20% of total funds to defensible space and fire-resistant structure evaluations. The remaining 20% goes to local-specific prevention efforts, distributed in proportion to revenue raised within each member agency's jurisdiction. Proportions are averaged over a five-year period, providing MWPA with the flexibility to fund large, or high-priority,

projects and redistribute funding more evenly in following years. This strict framework has restricted the agency's ability to add staff.

Community voice in the MWPA occurs through the Community Oversight Committee, which has dedicated representation from the five zones and specified constituencies (taxpayer group, environmental group, community-based organization, fire prevention group) and is charged with reviewing and reporting on the MWPA's spending annually.

The MWPA offers a potential model for regionally coordinated mitigation, with a structure that facilitates collaboration among fire agencies, local governments, and community stakeholders. Measure C parcel taxes provide the MWPA's funding base that enables it to fund and facilitate vegetation management, evacuation planning, public education, and defensible space projects. The JPA governance structure is an important limitation: by prioritizing geographic representation, it limits flexibility in setting project priorities and providing operational capacity for the authority to carry out its work. The pending sunset of Measure C also is a constraint. Importantly, the MWPA represents a vehicle for interest and organization around fire mitigation that predated formation of the authority; the dedicated funding stream essential to authority operations came about because of coalition-building and mobilization of broad public support.

LA County Landscape Maintenance Districts

Mobilization toward a countywide Fire Control District can build on the activities of existing government agencies and community-based efforts including Fire Safe Councils and Firewise communities. One entity that could be marshaled toward a larger role in fire mitigation is LA County's existing Landscape Maintenance Districts, which have important powers consistent with those necessary to carry out a countywide fire control strategy. These three districts, established through the Landscaping and Lighting Act of 1972, can levy annual assessments (subject to approval by a majority of parcel owners in the district), assess different fees in different zones based upon services provided, install and provide ongoing maintenance of landscaping, and acquire land for open space purposes.

There are practical limitations to using existing Landscape Maintenance Districts to fully pilot a Fire Control District. Although their activities include brush clearance and irrigation that are relevant to a regional fire mitigation strategy, they mostly focus on the ornamental and aesthetic aspects of landscaping. The existing districts also do not appear to hold and manage property themselves at present; doing so in this context would likely be a novel experience, and could come with increased assessment costs that parcel owners may be reluctant to shoulder. Overall, because fire protection-related services make up only a small portion of what these districts do, districts may require additional resources and capacities when focusing on undertaking fire mitigation projects with which they are not currently familiar. Yet as the region works toward a broader mitigation strategy, Landscape Maintenance Districts have existing powers that could be leveraged toward fire protection goals.

Funding Fire Mitigation

Both the MWPA and the Landscape Maintenance Districts raise questions about how the costs of fire mitigation activities should be distributed. Apart from specified exemptions, the Marin County parcel tax applies uniformly throughout the jurisdictions that are part of the MWPA; a sales tax to fund fire mitigation activities that was passed by Boulder County voters after the Marshall Fire similarly applies

countywide. However, the benefits of fire mitigation are not evenly experienced, especially in a large county like Los Angeles. Disaster avoidance is a net gain for all of the county and beyond, but the gain accrues disproportionately to those who live in high hazard areas. A revenue instrument that delineates assessment rates to account for the unequal benefits of public spending on climate resilience can help motivate public support for higher levels of spending (Mullin et al., 2019).

Risk-adjusted fees assigned by severity of fire risk zones may be a feasible instrument for funding a Fire Control District. The Government Code sections that establish local government authority to levy special taxes do not contain a uniformity provision. Where state statutes have required uniformity, courts have held that the tax can be assessed on square footage and accounting for differences in parcel uses, as long as the formula applied to all parcels in a zone is the same. There is a portion of the Government Code that specifically lays out the requirements for special taxes used for fire protection or prevention. The local agency levying the taxes may “establish zones or areas within the local agency and may restrict the levy of the special tax to those zones or areas.” The Code specifically allows for variation of the tax by parcel, but based on the degree of fire protection and prevention services available in the affected area. If there were differences in the availability of services in different fire severity zones, and/or if services varied such that certain properties were better protected by the mitigation services being provided, that would seem to justify a differential assessment across parcels.

Cooperative Fire Preparation

As the region begins to confront the immense scale of its fire risk, the challenge will be to design and implement a cooperative approach to fire preparation with reinforcing institutions that build capacity for fire mitigation and reward where it occurs. Efforts to retrofit properties, engage in evacuation planning, maintain lower-fire risk plantings and remove flammable invasive species, and invest in infrastructure hardening and community-level mitigation measures like vegetated buffers: a cooperative, reinforcing system would offer incentives and support for all of these activities, and reward them with the security of property insurance and a sense of heightened safety. A serious response to fire risk requires the powers and authorities of government, but expansion of government authority without treating residents and community groups as partners in the effort could produce strategies that are overly restrictive, punitive rather than supportive, and detrimental to other values and uses that Angelenos derive from their landscapes. An approach that builds on existing efforts and advances trust as a core principle has the strongest prospects for producing resilience over the long term (Moritz et al., 2014).

Conclusion

This report is a snapshot of a broad effort by UCLA to compile research and community feedback to inform the LA County Blue Ribbon Commission on Climate Action and Fire Safe Recovery as it developed recommendations for concrete policy actions to advance resilient rebuilding in Los Angeles.

Planning for and undertaking an equitable, resilient recovery from the January 2025 firestorms will not be easy. As we have laid out in this report, balancing fire safety, climate action, and equitable recovery requires thoughtful consideration and tough decision making, in the face of uncertainty and real tradeoffs.

Our objective was to provide the Commission rigorous, accurate, and relevant research, access to community input, and other information vital for their consideration in drafting their recommendations.

This, we believe, is an essential start to what will be an ongoing process. We hope the information we have gathered, synthesized, and analyzed here will continue to provide context to elected officials, community leaders, residents, and other key decision makers beyond the scope of the important work of this Commission. Our work for the Commission also identifies critical gaps and opportunities for advancing research that can help support decision making into the future.

Pre-existing Vulnerabilities

Before the firestorms, our region faced tremendous social, structural, and environmental challenges: income and wealth disparity, housing unaffordability, aging water and power infrastructure, climate change-driven extremes in drought and deluge patterns, and interjurisdictional friction, to name only a few.

Like all disasters, the January 2025 firestorms have laid bare the depth—and highlighted the urgency—of the challenges that already existed.

Through UCLA's community engagement process, it also became abundantly clear that deep distrust of government exists at a time when robust government action is needed to mitigate the negative impacts this disaster will have on our communities. Fire survivors are organizing themselves to address community needs for relief, recovery and rebuilding—and are asking for improved coordination, communication, and support from the government as partners.

Preparing for Future Disasters

It is inevitable that our region will see future climate change-driven disasters. The impact of each such disaster, whether it be fire or flooding, will be amplified by—and will amplify—underlying systemic vulnerabilities.

Out of the destruction caused by the January 2025 firestorms, we have tried to shine light on what those underlying issues are and how they increase risks for Southern California's communities, and provide necessary context for mitigating these vulnerabilities in the future.

Any program for recovery has to address these issues head on, and we hope the context provided here makes that task easier for those who hold the levers of power, now and in the future.

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Appendix: Learning From Fire-Impacted Communities

This appendix provides a detailed overview of UCLA’s community engagement efforts, along with the primary goals, concerns, and priorities shared by fire survivors. It also includes a summary of feedback on the Commission’s *Initial Recommendations and Draft Action Plans*, which played a key role in shaping the final recommendations. First, this appendix acknowledges community stakeholders who shared their expertise, experiences, and perspectives with UCLA researchers and Commissioners.

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Eaton Fire Communities

Community members from the Eaton Fire area who generously agreed to an interview with UCLA researchers included (in alphabetical order, with their main affiliation): Hans Allhoff, Altadena Heritage; Greg Apodaca, Community 3.0⁺; Ingrid Ashida, Eaton Fire Survivors Network; Joy Chen, Eaton Fire Survivors Network; Matt Craig, Eaton Fire Survivors Network; Rémy De La Peza, Morena Strategies; David Flannery, Eaton Fire Survivors Network; Alejandra Guerrero, Office of: Office; Patty Rattermann, Postfire LA; Cynthia Sigler, Foothill Catalog Foundation; and iO Tillett Wright, Postfire LA.

Thank you to David Flannery of the Eaton Fire Survivors Network, Darlene Nipper of Evolve Altadena, and Willem Swart of the Foothill Catalog Foundation for advising UCLA on the organizing of a group meeting that brought together the Commissioners with Altadena and Pasadena community members.

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Swârt; Cindy Starrett; iO Tillett Wright; and Valerie Zavala. This half-day meeting received expert facilitation from Chrissie Castro and beautiful visual notetaking by Christopher Fuller.

Palisades Fire Communities

Community members from the Palisades Fire area who kindly agreed to an interview meeting with UCLA researchers included (in alphabetical order, with their main affiliation): Lou Kamer, Pacific Palisades Residents Association; David Rosenstein, Resilient Palisades; Nancy Sussman, Riviera Estates Association; and Maryam Zar, Palisades Recovery Coalition.

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APPROACH

Over the course of three months, UCLA conducted qualitative research with fire-impacted communities to understand shared goals, common concerns, and top priorities of residents and local organizations related to recovery and rebuilding in communities impacted by the Palisades and Eaton fires. There were two phases to this community engagement.

First, UCLA researchers listened to survivors and other community members ask questions and make statements in the following contexts: 1) publicly in meetings and events hosted by a government entity, such as the County of Los Angeles or City of Los Angeles; 2) quasi-publicly at community events hosted by local groups and non-profit organizations; and 3) privately in interviews and one-on-one meetings with UCLA researchers.

The following lists the number of interviews, meetings, and events that a UCLA researcher(s) attended to listen and learn from communities impacted by either the Eaton Fire or the Palisades Fire.

Eaton Fire:

- Interviews: 9
- Community-organized meetings: 10
- Government-hosted meetings: 14

Palisades Fire:

- Interviews: 8
- Community-organized meetings: 4
- Government-hosted meetings: 9

Next, UCLA and partners at the Department of Angels organized convenings that brought together community leaders and Commissioners. These included:

- A focus group on April 17, in which community members from Altadena and the Palisades engaged with Commissioners about the challenges and benefits of all-electric home building post-fire;
- A presentation on April 24 at the Malibu City Council meeting on the Commission's recommendations related to water system resilience and safety;
- A meeting on May 5, in which 19 community leaders from the Palisades and Brentwood provided feedback on topline recommendations from the Commission;
- A meeting on May 10, in which 29 community leaders from Altadena and Pasadena engaged with the Commissioners on their top concerns and priorities; and
- A meeting on May 21, in which 9 community members from Sunset Mesa provided feedback on the Commission's recommendations and shared their top concerns and priorities.

COMMUNITY GOALS, CONCERNS, AND PRIORITIES

This section summarizes shared goals, topline concerns, and common priorities around recovery and rebuilding that UCLA researchers heard from multiple community members at multiple venues. Summarizing myriad perspectives on complex and sensitive topics is fraught with challenges. No fire-impacted community is homogenous. A diversity of perspectives exist within and across the communities.

The following is not an exhaustive list of perspectives nor a comprehensive list of topics that are top of mind in the fire-impacted communities. UCLA narrowed in on themes most relevant to the Commission's scope of long-term recovery and rebuild. Immediate priorities, such as immediate rent relief, received less attention due to the Commission's scope, not due to importance. UCLA researchers also acknowledge that those who have the time to participate in meetings about recovery and community rebuilding are more likely to be retired or have professional employment compared to those working less flexible, hourly-based jobs.

The challenges are enormous, and fire survivors are stepping up. They are organizing themselves into community groups and collectives to help each other recover and rebuild, individually and collectively. Dozens of community groups have sprung up to address community needs in innovative ways, founded by survivors who dedicate countless hours to their community. This is often on top of a full-time job and the equivalent of a full-time job spent navigating the complicated and time intensive recovery process at an individual level.

Common goals expressed by community members and groups include rebuilding in a way that balances urgency, safety, affordability, and sustainability. At the same time, tensions between the goals can occur. For example, mandates to improve safety can also add on to a long list of requirements for homeowners hoping to rebuild. Finding the right balance is critical.

"There is a tension between building back better and building back fast. But the real question is how do we do it right?" – Palisades resident

Residents also seek better balance with nature, as part of innovative ideas and bold, nuanced visions for their community's future. They are envisioning sustainable and connected communities, for example, with more sidewalks, safe places to bike, and green spaces to come together.

"The disaster creates a golden opportunity to build a green belt with indigenous plants."
– Malibu resident

Improving Trust in Government and Preparing for Rapid, Profound Change

Community trust in government is a topline concern that impacts other concerns and priorities. UCLA researchers heard a push and pull: Residents want the government to do more to support their

recovery; yet, many are deeply distrustful of county or city institutions and want more community control and accountable representation. Trust in local institutions was impacted by communication and coordination with the public during and following the fire.

Foundationally, residents want local government leaders to acknowledge that current systems and services did not protect them and that under climate change, disasters will become more frequent and severe. They are calling for not only improved services and emergency response (see the following paragraph), but also fundamental changes in how government systems operate in order to more quickly learn from and adapt to changing community needs and climate conditions.

“The science says climate is worsening exponentially. Our [local government institutions] need to prepare for exponential change, with regular assessment and strategic corrections as time goes on.”

– Altadena resident

Ensuring Security and Services to Avoid and Respond to Disasters, and Support Community-led Recovery

Many residents are quick to express frustration and even dismay about inadequate coordination across all stages of management. Specifically, frustration is expressed about the government’s coordination around brush management before the fires, emergency response during the fires, and the steps required and services available for rebuilding after the fires.

Multiple communities noted that brush management seems to be irregular, with the public not aware of specific plans for preventative fire mitigation measures. Post-fire, communities were immediately confronted with unclear messaging and lack of transparency from governing bodies over debris removal, soil testing and clean-up, and confusing permitting processes. Residents are also very concerned about theft and thus want more security, with a heightened and more proactive police presence.

Perhaps most deeply felt is community concern about emergency response, including a lack of coordination around evacuation notices during the fires. In Altadena, some residents received a delayed evacuation order while others, especially in western Altadena, did not ever receive alerts or orders, contributing to tragic loss of life. In Palisades, poor cell coverage in certain areas combined with inaccurate evacuation alerts, meant some residents did not receive alerts or were mistakenly given alerts to evacuate. The evacuation process itself was traumatizing as the narrow streets and lack of exit points combined with minimal guidance from the City meant traffic was backed up for hours. Many residents left their cars and made their way by foot.

As natural disasters become more frequent and severe due to climate change, residents are calling for the improvement of emergency response capabilities as a critical investment in community resilience and public safety that can drive long-term economic development. Specifically, residents are urging local government agencies to adopt methods and approaches to protect lives, property, and essential infrastructure. This would involve improving alert and communication infrastructure, such as engaged coordination between multiple emergency service providers and community-based early warning networks with citizen participation. There are also calls to use technology for more advanced wildfire detection, monitoring, and firefighting abilities.

“We survivors who experienced inadequate emergency response, delayed rescue operations, and stress filled recovery tasks might make the rational decision not to return or rebuild.” – Altadena resident

Addressing Soil Contamination and Labor Protections

Community members are very worried about the presence of highly toxic contaminants such as asbestos, carcinogens, and harmful metals like lead and cadmium in the soil. As such, residents are concerned over the long-term public and environmental health consequences if the soil is not properly remediated. Compounding these concerns is the lack of testing being conducted by local, state, and federal governing agencies, meaning residents are having to shoulder the financial burden of soil testing and data gathering on their own.

Because of concerns over toxins in the soil and the debris, residents and advocates are highlighting the need for stronger labor protections with an emphasis on immigrant workers. In fire-affected areas, workers are employed for a wide range of post-fire recovery tasks: cleaning homes with smoke damage, removing fire and structure debris, and replacing insulation in standing homes. Residents have witnessed instances of workers entering homes and handling hazardous materials without wearing masks or other personal protective equipment. In response, organizations like the Pasadena Community Job Center are providing personal proper equipment (PPE) and OSHA training to workers. However, the level of support needed for workers is greater than the resources available to meet these needs.

Community members are calling on local elected officials in the City and County of Los Angeles, and the State legislature to reinforce fair labor practices and ensure proper training and allocation of PPE (i.e. respirators, hazmat suits). Financial support is another key request to ensure workers could recover potential wage losses, for example.

“Workers need to be trained and given proper equipment.” – Palisades resident

Making Water and Energy Infrastructure More Resilient

Residents are concerned that the repopulation of the burn scars, increased density, and future fires might cause additional stress on infrastructure severely damaged by the fires. For example, residents in the Palisades and Malibu noted the strain on local water supply, which some residents suggest could be eased by the installation of underground cisterns and the use of recycled water as an emergency water supply. Residents also expressed support for joint trenching and undergrounding projects for multiple utilities.

In Altadena, community members are concerned that septic and sewer systems will undergo changes due to rebuilding efforts. Additionally, residents of standing homes relying on Southern California Edison’s (SCE) emergency power generators are concerned they will not have a stable energy supply as the company plans its efforts to underground infrastructure. Residents have expressed their desire for greater transparency from SCE on the company’s Altadena Rebuild Plan and the specific areas of Altadena that would be impacted by SCE’s infrastructure overhaul. Some residents are also wondering how SCE’s planned projects will affect the community’s rebuilding timeline.

“We have acute awareness that [our electric infrastructure] cannot be built back the same. We need to build back more resiliently, we need to underground [power lines].” – Altadena resident

Combating Land Speculation and Ensuring Community Control

Land speculation is a pressing concern for residents in areas impacted by the Eaton and Palisades Fires, with more pronounced fears in Altadena of permanent displacement and disaster gentrification. Lots in Altadena are being purchased quickly by developers and corporations, and, in some instances, before debris removal is completed. Community members have voiced alarm at the rate of lots being sold while people are still trying to find temporary housing and navigating permitting processes.

Residents of Altadena have expressed concern that renters and those with standing but unlivable homes are not receiving enough assistance from the government. There is also a strong emphasis on preserving Black and Brown homeownership, particularly within Altadena. Community land trusts, local non-profit organizations, and land banks are combating land speculation through their initiatives to purchase land to keep it within the community. These organizations are raising capital and making important progress, but currently not at the scale commensurate with corporate entities purchasing land. Additionally, some community members have expressed hope that there will be greater consideration of and involvement with vulnerable groups, such as elderly populations and renters, in future plans for community land banking and land trusts.

Further compounding concerns over land speculation is the number of residents who will be priced out of the rebuild or overwhelmed by navigating the tangle for government regulations required to rebuild. This has led to calls to provide direct financial assistance such as a subsidy rather than a reimbursement based system. Additionally, clarity and clear messaging over rebuilding to Chapter 7A, proposed Zone 0, or all-electric standards is crucial in helping residents make informed decisions.

“Disasters don’t discriminate, but recovery does.” – Altadena resident

Rebuilding Safely, Sustainably, and Affordably

Community members expressed deep concerns over their ability to finance the reconstruction of their homes. There are multiple reasons as to why residents are unable to rebuild including: being uninsured or underinsured, rising cost of building materials, and SBA loans maxing out at \$500,000. Across Palisades and Altadena, even residents who are insured were frustrated at their respective insurance companies not following through on claims and not getting enough insurance payout to support a full rebuild. Furthermore, they have expressed concern over future affordability and would like more financial support to meet Chapter 7A standards, enabling them to rebuild in a more fire-safe and insurable manner.

Among Altadena residents, there is some confusion about the rebuild requirements, such as whether natural gas is allowed under Chapter 7A and whether solar panel installations are required for home rebuilds. Others who are aware that state requirements for solar panels have not been waived, are concerned about the cost, some calling for waivers and others calling for rebates and other financial incentives to meet such requirements. There is support for all-electric rebuilds for sustainability and resilience reasons, if financial assistance such as subsidies are available. Community organizers are currently looking into bulk buying efforts to lower costs on a number of items, including energy efficient

windows, refrigerators, etc. Several non-profit organizations are stepping in to cover the insurance gap and are assisting dozens of homeowners financially. In addition, residents are asking the County to consider waiving permit fees.

In Palisades, a coordinated effort to purchase building materials is underway to reduce supply-chain chokeholds and to reduce cost. While the Palisades is a relatively affluent community, it is heterogeneous, and includes seniors on fixed incomes and trailer park residents. Many homeowners have expressed financial limitations because the SBA loan max of \$500,000 is not enough to rebuild, especially for those who were uninsured or on the Fair Plan. They would like to see more support from the state or city in rebuilding all-electric and/or to Chapter 7A standards.

“We need explicit direct assistance for low-income residents to rebuild with fire-resistant, electrified homes.” – Altadena resident

Balancing Land Use Considerations: Finding the Right Level of Density, Mixed-use Development, Lot Splitting, and Housing Availability

Fire-impacted communities are considering questions surrounding density, mixed-use development, and housing availability. Many express interest in finding a balance to address the housing needs of renters and other displaced residents, while not making radical changes to density levels. Specifically, there is interest in commercial corridors having mixed-use development that includes new housing.

Palisades residents have proposed more mixed-use development in the Palisades Village, which could provide relatively affordable rental housing to seniors and the employees of local schools and businesses. In residential areas, however, Palisades residents predominantly want to maintain single family housing. There is also mixed support for SB 9, a state law that allows the construction of ADUs and lot-splitting. While SB 9 could be used as an option to help homeowners finance their rebuild, there are concerns over what increased density would mean for the character of the Palisades, risk management, and evaluation route congestion.

In Altadena, the West San Gabriel Valley Area Plan (a plan that has been in development before the fires) recently passed by the Board of Supervisors. This plan limits development in the foothills while directing future development to areas near major transit corridors. Altadena residents are supportive of more affordable housing, “but do not want to be the solution to LA County’s housing crisis,” in the words of one Altadena resident. Altadena residents would also like to maintain single family housing, while being open to ADUs (which were popular pre-fire) and lot-splitting as means for homeowners to afford to rebuild and avoid selling their land to a developer. However, many homeowners are unaware that lot-splitting is an option and education was cited as a concern.

“We need a variety of people, and a variety of housing for different people.” – Palisades resident

Increasing Fire Resilience with Defensible Spaces

Residents are voicing their interest in community-wide strategies to increase fire resilience. Specifically, there is interest in the Commission’s proposal for a Fire Control District that could finance and coordinate with public land owners on fire mitigation projects such as green buffer zones and fuel

reduction through brush clearance. There is a desire for the government to be held accountable by impacted communities for brush maintenance along with tailored, local decision-making that takes into account local conditions.

Residents have noted concern with what is perceived as the state's "one-size-fits-all" approach to defensible space. Specifically, there is concern that an urban area, such as the Palisades that is surrounded by chaparral vegetation, would be treated similarly or equivalent to a rural setting in a coniferous forest. Some residents are advocating for Zone 0 regulations to take into account scientific data that supports the retention of healthy, well-irrigated trees and other vegetation near homes at the wildland-urban interface.

"Nature-based land strategies are critical for equitable, long-term recovery."

– Palisades resident

COMMUNITY ENGAGEMENT MEETINGS

UCLA and the Department of Angels organized five meetings that brought together community leaders with Commissioners to learn from one another. This section summarizes key take-aways from those meetings, starting with a focus group that explored the challenges and benefits of all-electric homes (All-Electric Home Building Focus Group) as well as meetings that were held separately with Altadena, Malibu, Palisades, and Sunset Mesa residents to recognize the following jurisdictional distinctions:

- Altadena is an unincorporated community in Los Angeles County, adjacent to but separate from the incorporated city of Pasadena. As an unincorporated community, Altadena does not have an elected city council or mayor.
- Malibu is an incorporated city, jurisdictionally separate from the city of Los Angeles.
- Palisades is part of the city of Los Angeles.
- Sunset Mesa is also an unincorporated community, in between Malibu and the Pacific Palisades. As an unincorporated community, Sunset Mesa does not have an elected city council or mayor.

Post-fire All-Electric Home Building Focus Group

Organized by the Department of Angels, a focus group on April 17 brought together fire survivors and Commissioners to explore the challenges and benefits of all-electric home rebuilding. There was strong interest among survivors in all-electric rebuilds. At the same time, survivors raised concerns about switching from gas to electric appliances, with particular hesitation around adopting induction stoves; the cost and feasibility of undergrounding power lines; and the impact of seismic activity on the reliability of the electric grid. Participants stressed the need for authentic community engagement and education on electrification and its benefits such as zero emissions and cost savings over time for residents; the potential for microgrids and other community resilience systems; and the need for policies and programs to give survivors the financial incentives to rebuild all-electric.

Malibu City Council Presentation

On April 24, Commissioners presented their recommendations for water system resilience and safety at Malibu's City Council Work Session. Commissioners attended to discuss Malibu's unique water and sewer concerns (e.g. the high cost of moving from septic to a sewer system for homes on the Pacific Coast Highway, or PCH), and to encourage the Malibu's City Council to establish a 60-day Wastewater Taskforce with representatives from local water districts, community members, and outside experts.

The Commission's recommendations for water quality and sewer infrastructure received support from the Work Session group, which included council members and city staff. The Malibu Councilmembers noted that infrastructure projects have long timelines, and there should be consideration for the current and future needs of PCH residents once construction is underway. There was consensus on the importance of sewer connections, "but we've got to make sure that we're not penalizing the homeowners on the beach because we want to clean it up," in the words of a council member. The Commissioners emphasized how a Wastewater Taskforce could hone in on Malibu's topline concerns

(e.g. affordability, rebuild timelines) and enable future coordination for sewer infrastructure with local water districts and other key stakeholders.

(Following this presentation, Malibu's City Council decided to explore the option to connect PCH properties to the Hyperion Water Reclamation Facility. The Council approved the formation of a Sewer Ad Hoc Committee, including two appointed councilmembers, to provide input and guidance on plans for the potential new sewer system. On May 21, the Council approved expanding the City's existing engineering contract with Woodard and Curran to design a preliminary report for a new wastewater collection system along the PCH to Hyperion, along with exploring alternative options.)

Palisades Fire Community Engagement Meeting

On May 5, 19 community leaders from the Pacific Palisades (also referred interchangeably as Palisadians and fire survivors) participated in a facilitated discussion centered around two of the Commissioners' policy recommendations: the proposed Resilient Rebuilding Authority and the Fire Control District. To organize the meeting in a way that drew on community expertise, UCLA partnered with the Department of Angels to bring together a Citizen Advisory Committee. These community leaders advised UCLA on the meeting agenda, facilitation, location, and the invitation list.

Palisadians at this meeting expressed general support for the concept of the Commissioner's proposal for a Resilient Rebuilding Authority as a means to provide much needed coordination and funding for community priorities. Survivors favored separate Authorities for the Palisades Fire and Eaton Fire areas due to jurisdictional and governance differences among the fire-impacted communities. They were also supportive of a hybrid decision-making model for the Authority that would combine government and community leadership to ensure trust and accountability. Some Palisadians raised concerns about how the Authority would raise revenue and voiced opposition to any new taxes. Others noted their openness to tax increment financing if local revenues would remain for community benefit. In addition, Proposition 4 funds were raised as a viable funding source for the proposed Authority.

The Commissioners' recommendation for a Fire Control District also received support from Palisadians concerned with inconsistent brush clearance on public land. One Palisadian shared that her street may have been spared from the fire due to recent brush clearance on adjacent public land that happened only after she made multiple calls to government agencies to demand the maintenance take place. There was interest in having a centralized entity like the District to pool resources and ensure more regularly planned and coordinated vegetation management and other fire mitigation measures such as vegetated buffer zones. The survivors also noted the need for local water recharge systems such as cisterns to support the proposed green buffer zones. Similar to the Resilient Rebuilding Authority, some residents were strongly opposed to any new tax as a source of funding for the proposed District while others conveyed their support for a county-wide parcel tax.

Eaton Fire Community Engagement Meeting

On May 10, 28 invited community leaders from Altadena (also referred interchangeably as residents and survivors) participated in a facilitated discussion about the Commissioners' policy recommendations. In particular, the discussion centered on the proposed Resilient Rebuilding Authority and the Fire Control District. In partnership with the Department of Angels, UCLA invited selected community leaders to advise UCLA organizers on the meeting agenda, facilitation, location, and invitation list.

Many of the Altadena residents who attended the meeting on May 10 expressed strong interest in the proposed Resilient Rebuilding Authority as a means to scale funding for already existing community-led land banking initiatives. There was a sense of urgency for this type of action because of the fear of losing community control of land due to the high number of lots being quickly bought up by corporate entities. Survivors want Altadena lands to remain in Altadena hands.

At the same time, some survivors expressed concern about a government entity wading into what local, Black-led organizations are already doing to acquire and steward land in Altadena. To quell concerns and raise confidence, residents highlighted the need for community control of the Authority. Specific suggestions for community representation included having the Authority partner with local non-profits and creating an oversight board with the majority of seats going to community members.

In addition, residents expressed the need for the proposed Fire Control District, as a way to ensure the government takes coordinated measures to reduce the risk of future fires on public lands. There were also concerns raised about accountability and funding. Survivors noted that the proposed District would require prolonged community engagement and could not merely be a top down endeavor without coordination and accountability to Altadena residents. Several residents opposed using a new parcel tax to fund the District. If any taxes are to be added, survivors expressed the need for transparency over how the parcel tax would be spent.

Sunset Mesa Community Engagement Meeting

On May 21, 10 community leaders from Sunset Mesa (also referred interchangeably as residents/survivors) participated in a discussion with Commissioners. Residents expressed deep concern about the future of their small, unincorporated community. Specifically, survivors shared that community-led, group rebuild efforts face limited interest due to fears of future fire risk and lack of trust in government to help them recover and rebuild for long-term safety. As a precondition to rebuilding, residents stated the need for:

- Adequate fire prevention and response services, paid for by existing taxes. More specifically they asked for brush clearance around the perimeter of Sunset Mesa with year-round maintenance; upgraded water infrastructure and hydrants; and enhanced firefighting services that employ high-tech early detection and rapid response infrastructure.
- Security to ensure public safety and the protection of building sites and materials. They called for County-supported security around the clock for the duration of the rebuild period.
- Improved government coordination during the permitting and rebuilding process. Residents asked for a partnership with LA County that includes real-time coordination with residents to identify and fix bottlenecks, inconsistencies, and delays.

Residents expressed interest in the proposed Resilient Rebuilding Authority as a way to scale and streamline procurement of materials and supplies as well as manage logistics for rebuilding. Concerns about the unpredictability of costs—due to shortages, tariffs, and market demand—were raised as a reason for coordinated, bulk purchasing to reduce costs of rebuilding materials. Survivors also raised the need to manage rebuild logistics, including transportation infrastructure for construction workers and material delivery. Additionally, residents supported the idea of localized water infrastructure like cisterns to be used for firefighting, and the creation of fire-safe

buffer zones on public land. However, residents again expressed that they should not be asked to pay additional taxes to accomplish anything that the Commission is recommending.

REPRESENTATIVE QUOTES



Calls for Government to Better Prevent, Respond to, and Support Recovery from Disaster

“As natural disasters become more frequent and severe due to climate change, local government agencies must adopt methods and approaches to protect lives, property, and essential infrastructure.”

– Altadena resident

“Regional entities should be preparing for a fire that is 3, 5, or 10 times worse than what happened. We need to keep one foot in addressing challenges and opportunities of today while also preparing for the very different challenges and opportunities of the future.”

– Altadena resident

“We survivors who experienced inadequate emergency response, delayed rescue operations, and stress filled recovery tasks might make the rational decision not to return or rebuild.”

– Altadena resident

“The evacuation from our neighborhood was chaotic. Sunset Boulevard, our primary evacuation route, was gridlocked while smoke from the fire rapidly advanced toward westbound traffic.”

– Palisades resident

“We need a reliable foundation of fire prevention and response services. They are baseline requirements for community safety and a precondition for rebuilding.”

– Sunset Mesa resident who goes on to write...

“We are in the middle of three jurisdictions and there is no coordination.”

– Sunset Mesa resident



Recognizing Community Leadership in Recovery While Asking For Help

“We feel like we are doing this ourselves.”

– Palisades resident

“Many of us are uninsured and all of us are underinsured. We need help with permit fees.”

– Palisades resident

“Communities should be empowered to lead recovery and resilience efforts.”

– Altadena resident

“We need organizing...We have to bring all of our groups together...to hold the County and everyone else accountable.”

– Altadena resident



Shared Goals and Tensions for Resilient Rebuilding

“There is a tension between building back better and building back fast.”

– Palisades resident

“We want to rebuild stronger, safer, and smarter — but we can’t do it without [the County’s] active partnership.”

– Sunset Mesa resident



Visions for a More Sustainable Community

"The disaster creates a golden opportunity to build a green belt with indigenous plants."

– Malibu resident

"This is an opportunity to rebuild a more walkable, bikeable community with more sidewalks."

– Altadena resident



Combating Land Speculation and Ensuring Community Control

"Disasters don't discriminate, but recovery does."

– Altadena resident

"We are losing our community."

– Altadena resident



Addressing Soil Contamination and Labor Protections

"Workers need to be trained and given proper equipment."

– Palisades resident

"This is the first wildfire after which the government did not do systematic soil testing. We demand both systematic testing and remediation. Otherwise, how can we know it's safe to return?"

– Altadena resident



Making Water and Energy Infrastructure More Resilient

“We have acute awareness that [our electric infrastructure] cannot be built back the same. We need to build back more resiliently, we need to underground [power lines].”

– Altadena resident

“We need upgraded water infrastructure— hydrants that work and a water system with sufficient pressure and capacity to support home sprinkler systems.”

– Sunset Mesa resident



Increasing Fire Resilience with Defensible Spaces

“We need more neighborhood pocket parks that provide multiple benefits: act as Temporary Refuge Areas, collect storm water with underground storage, promote habitats, create shade, sequester carbon and importantly provide open space and fire breaks.”

– Altadena resident

“Nature-based land strategies are critical for equitable, long-term recovery.”

– Palisades resident

“Statewide implementation of [Zone 0] guidelines does not help us... in an urban setting where houses are so close together. We're not a rural forest - we're in a tract of homes.”

– Palisades resident



Rebuilding Safely, Sustainably, and Affordability

“We need explicit direct assistance for low-income residents to rebuild with fire-resistant, electrified homes.”

– Altadena resident

“If we are more fire, wind, and flood effective, then we will get cheaper rates in insurance because we built for the future.”

– Altadena resident



Balancing Land Use Considerations

“We need a variety of people, and a variety of housing for different people.”

– Palisades resident

“We do not want to be the solution to LA County’s housing crisis.”

– Altadena resident

Acronyms and Abbreviations

3CDC – Cincinnati Center City Development Corporation

ADU – Accessory Dwelling Unit

AFN – Access and Functional Needs

AIA – American Institute of Architects

AI – Artificial Intelligence

BMP – Best Management Practice

BOS – Los Angeles County Board of Supervisors

CAL FIRE – California Department of Forestry and Fire Protection

CalOES – California’s Governor’s Office of Emergency Services

Cal/OSHA – State Division of Occupational Safety and Health

Caltrans – California Department of Transportation

CalWARN – California Water/Wastewater Agency Response Network

CBO – Community-Based Organization

CDBG – Community Development Block Grant

CDBG-DR – Community Development Block Grant Disaster Recovery

CDFI – Community Development Financial Institution

CDI – California Department of Insurance

CEC – California Energy Commission

CEO – Chief Executive Officer

CEQA – California Environmental Quality Act

CPUC – California Public Utilities Commission

CRA – Community Redevelopment Agency

CRD – Climate Resilience District

CSD – Community Standards District

CWPP – Community Wildfire Protection Plan

DEO – Los Angeles County Department of Economic Opportunity

DERs – Distributed Energy Resources

DMH – Los Angeles County Department of Mental Health

DROPS – Drought Response Outreach Program for Schools

EBB – California Earthquake Brace + Bolt program

EDB – Ethylene Dibromide

EIFD – Enhanced Infrastructure Financing District

EPA – United States Environmental Protection Agency

EPIC – California Energy Commission’s Electric Program Investment Charge Program

ESD – Empire State Development

EUI – Energy Use Intensity

EV – Electric Vehicle

EWDD – City of Los Angeles Economic and Workforce Development Department

FAIR Plan – California Fair Access to Insurance Requirements Plan

FEMA – Federal Emergency Management Agency

FHSZ – Fire Hazard Severity Zone

GHG – Greenhouse Gas

HCD – California Department of Housing and Community Development

HVAC – Heating, Ventilation and Air Conditioning

IBank – California Infrastructure and Economic Development Bank

IBHS – Insurance Institute for Business and Home Safety

IPCC – Intergovernmental Panel on Climate Change

IRC – Interagency Recovery Coordination

JPA – Joint Powers Authority

LA – Los Angeles

LACDPW – Los Angeles County Department of Public Works

LACoFD – Los Angeles County Fire Department

LADWP – Los Angeles Department of Water and Power

LAFD – City of Los Angeles Fire Department

LASAN – City of Los Angeles Bureau of Sanitation and Environment

LAUSD – Los Angeles Unified School District

LCI – Governor’s Office of Land Use and Climate Innovation

LID – Low Impact Development

LiDAR – Light Detection and Ranging

LMDC – Lower Manhattan Development Corporation

LVMWD – Las Virgenes Municipal Water District

MTBE – Methyl Tert-Butyl Ether

MWEL – Model Water Efficient Landscape Ordinance

MWPA – Marin Wildfire Prevention Authority

NAHC – California Native American Heritage Commission

NDRF – National Disaster Recovery Framework

NGO – Nongovernmental Organization

NPDC – Nonprofit Development Corporation

NRDC – Natural Resources Defense Council

OCII – Office of Community Infrastructure and Investment

OWTS – Onsite Wastewater Treatment System

P3 – Public-Private Partnership

PBS WARN – Public Broadcasting Service’s Warning, Alert & Response Network

PCH – Pacific Coast Highway

PG&E – Pacific Gas and Electric Company

PPDR – Private Property Debris Removal program

PPE – Personal Protective Equipment

PSPS – Public Safety Power Shutoff

RCD – Resource Conservation District

RFP – Request for Proposal

RRA – Resilient Rebuilding Authority

RSF – Recovery Support Function

RV – Recreational Vehicle

SBA – United States Small Business Administration

SCE – Southern California Edison Company

SGIP – Self-Generation Incentive Program

SIS – Sustainable Insurance Strategy

SolarAPP+ – Solar Automated Permit Processing

State Water Board – State Water Resources Control Board

TCP – 1,2,3-Trichloropropane

TDR – Transfer of Development Rights

TIF – Tax Increment Financing

TJPA – Transbay Joint Powers Authority

TRAQ – Tree Risk Assessment Qualification

UCLA – University of California, Los Angeles

USACE – United States Army Corps of Engineers

USGBC – U.S. Green Building Council

V2G – Vehicle-To-Grid

V2H – Vehicle-To-Home

VGB – Vegetated Greenspace Buffer

VOC – Volatile Organic Compound

VPP – Virtual Power Plant

WNDRR – Wildfire and Natural Disaster Resiliency Rebuild

WUI – Wildland-Urban Interface

