‘WILDFIRE RISK’: UNDERSTANDING HOW COMMUNITIES REBUILD AFTER WILDFIRE AND POLICY IMPLICATIONS FOR BUILDING MALADAPTIVELY.

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Executive Summary

84% of all wildfires in the United States are caused by human ignition, and 97% threaten homes in the WUI (Balch et al., 2017). However, whether a wildfire is started by an intentional or unintentional human act, or by a force of nature such as a lightning strike, firestorms are being fueled and exacerbated by the effects of a warmer climate on our landscape. Climate change is producing an unmanageable terrain of vegetation that is both dry and bountiful, quietly waiting to be disturbed. We can no longer depend on the traditional fire season, which for decades has informed us of our relationship with fire. Wildfires are occurring with more frequency and ferocity and forcing us to reevaluate where we live, and how we can defend ourselves not only from a burning home, but from potential death. Despite the destruction and increase in fatalities, humans continue to encroach on this deadly landscape, trying to equip themselves with stronger and smarter fortifications and defenses. However, as communities seek to rebuild and reestablish themselves in the same footprint– some with a perception that another event may not occur for another 30 years - the dearth of insurance coverage is sobering, the cost to rebuild is higher, and the tab to suppress fires continues to be borne by all taxpayers, not just those impacted – all of which is unsustainable.

Each wildfire event results in novel or renewed efforts at the federal, state, and local levels to increase awareness, strengthen protections, revive stricken communities, and prioritize making victims whole again. Likewise, each event presents an opportunity for learning and adapting to increasing wildfire threats – or not. Despite an influx of regulatory requirements, local ordinances, updated fire hazard maps, and education and awareness campaigns, implementation is mixed; variation between counties impacts how, if, and when adoption, enforcement, or adherence to policies occurs.

This policy report examines whether communities rebuild adaptively after wildfire or maladaptively in ways that perpetuate risk. Using a gauging research approach grounded in a practical ideal type framework (Shields, 2013), I evaluate local policies, land-use decisions, safety planning, vegetation management efforts, and adherence to state regulations. I review and assess six counties — Mono, Lake, Butte, Santa Barbara, and Los Angeles (including Altadena and Pacific Palisades) — scoring each on a vulnerability scale from minimal to severe (V1–V5) based on how well they align with identified ideal practices for wildfire adaptation. The data was collected via informal interviews and substantive research of public websites.

Wildfire events have different impacts – an entire housing development may go up in flames while other areas remain untouched. Or, as occurred in the City of Paradise in 2018, an entire town can be decimated by a deadly firestorm. All communities must gain an understanding and knowledge about how to adapt to wildfire before the next event occurs. For communities affected time and again, they have vital information that could be passed on about planning, lessons learned, and how communities rebuild post-wildfire. Disaster recovery in general augments the importance of preparation and planning; however, the same must be true for wildfire recovery and resilience.

I. Introduction:

Occurring with more frequency and ferocity, wildfires have become an annual occurrence in California, consuming more lives, polluting air quality, reversing significant emissions reduction gains, and costing taxpayers more to suppress and recover from. In 2021 alone, the state battled 8,786 active wildfires that burned approximately 2,568,941 acres (about the area of Connecticut) of land, destroyed 3,629 structures, and killed three California citizens (CBS News Sacramento, 2020). In 2018, the Camp Fire destroyed the entire town of Paradise in Butte County and resulted in 85 civilian fatalities (Matt, 2024, para.5). Most recently, in January of 2025, Los Angeles County experienced an onslaught of unprecedented firestorms; fourteen wildfires ravaged the Southern California area, the largest being the Eaton and Pacific Palisades fires. These two fires alone have surpassed other destructive fires and now top the list as the second and third most destructive wildfires in California history, respectively. Combined, they killed over two dozen people and destroyed more than 16,000 structures (Greene, Kambhampati, Shalby, & Haggerty, 2025).

Historically, California's fire season has aligned with the time of year. Fires typically began in the spring, peaked during the hot summer and windy fall weather, and wound down before winter. The impacts of climate change, however, have created an atmosphere and landscape ripe for fueling wildfire activity year-round. The typical fire season now begins roughly fifty days earlier and ends later each year – extending into the cooler months (Western Fire Chiefs Association, 2022). Climate change has resulted in California experiencing longer hot and wet periods. Frequent and more intense atmospheric rivers have spurred vegetation growth, and the longer, hotter dry periods create a tinderbox of fuel for wildfires. These conditions have helped fuel many of the state's wildfires, with twenty of the

most destructive wildfires having occurred in a relatively short time period – within the last eight years - between 2017 and 2025 (Darling-Hammond, D'Souza, & Gregory, 2025). Ironically, although Southern California experienced severe fire, death, and destruction this January, the current 2025 fire season has been consistent with traditional fire patterns. Climate scientists estimate that heavy shower storms and anticipated rainfall this winter will staunch the risk of wildfires, at least for now. While this may seem like good news, Californians cannot afford to lose interest or divert attention from advancing preventative measures and home hardening to protect their communities. Communities should remain on high alert. (Mellen, R., & Livingston, I., 2025).

Although wildfires can occur anywhere, communities located in the Wildland Urban Interface (WUI) experience frequent events due to unmanaged, highly dense wildland and undeveloped vegetation, which fuels wildfires. The WUI is the zone where humans and housing development connect or intermingle with this wildland (U.S. Fire Administration. (n.d.). Studies indicate that urban wildfires release higher levels of toxins than natural wildfires (Parshall, 2025). Wildfires that burn in the WUI are deadlier because of their proximity to people and because of the direct damage done to nearby cities and towns. These fires not only engulf the wildland vegetation within their natural surroundings, but the fire spills over into populated urban centers, destroying vehicles, heavy metals, plastics, and homes that are filled with materials made from rubber, foam, paints, and other chemicals that emit potentially more toxic chemicals than wildfires that burn leaves, trees, grass, and forest needles.

There are several reasons individuals choose to live in the WUI: open space, better air quality, and a desire to live away from busy urban centers. The lack of affordable housing also

pushes people out of metropolitan areas and into cheaper, undeveloped rural areas. Nonetheless, climate change has exacerbated the problem and will continue to increase the frequency and ferocity of wildfire events over time. Despite the risk of living in dangerous high-fire severity zones, academic research in this space confirms that communities continue to rebuild, build back bigger, and expand deeper into the WUI. However, research indicates several contributing factors lead to rebuilding efforts – both individually and community-wide (FitzPatrick, 2025). Building back does not depend solely on one's financial status or insurance coverage. The decision is complex and highly emotional. Homeowners, developers, and local officials must assess the geographical landscape and destruction of supportive infrastructure, such as sewers and roads. If an entire housing development is leveled, impacted communities may bond and find solace, support, and resilience in each other (Murphy, 2019). This sense of community is powerful since neighbors can work together to advocate for faster streamlining or local support. The same may not be true for renters.

Renters are typically bound to rental agreements that last for a specified amount of time and are not guaranteed to be renewed. The median length of tenancy is three years (Tenants Together, 2009). Renters are at greater risk of being evicted for falling behind on payments, whereas homeowners don't have to worry about foreclosure, at least in the short term. Adding insult to injury, when disaster strikes, renters who are already struggling to make ends meet are not only displaced but also face price-gouging rents from unscrupulous landlords who take advantage of emergencies and raise rents above the pre-emergency prices (Martin et al., 2023).

Wildfire suppression, vegetation management, and rebuilding after a wildfire are critical matters of public policy because these efforts directly and indirectly impact Californians,

particularly in terms of the costs borne by every Californian. Billions of dollars are spent every year on wildfire suppression and the subsequent damage caused by firestorms. However, other costs may be difficult to quantify, including ecological damage, adverse health impacts on communities, decreased tax revenue, property values, and the loss of life. According to the literature, no uniform method exists to measure or track the total economic impact that results from wildfire. Wildfires are not isolated events; their impacts are deep and widespread. One study estimated that California's 2018 wildfire season alone cost the nation almost 150 billion dollars (Wang et al., 2021).

Home hardening and other preventative measures can reduce the taxpayer burden. According to CalFire, home hardening includes the use of fire-resistant building materials and adopting defensible landscaping practices and preventative vegetation management (California Department of Forestry and Fire Protection, n.d.) For example, the area that contains fuels - natural plants, trees, or synthetic building materials - within 100 feet of a structure is known as the Home Ignition Zone (HIZ). The maintenance and management of this zone is key to whether a property will survive or avoid damage (Wilkin, Benterou, & Stasiewicz, 2025). Home hardening techniques can be highly effective; however, they are neither guaranteed nor foolproof. Wildfire risk exists at different levels in different communities; therefore, home hardening efforts should not be considered a one-size-fits-all approach; some communities may need broader protection due to their proximity to the WUI.

My research question explores whether communities rebuild adaptively to mitigate the impact of future wildfire events or if new communities emerge maladaptively. In this policy report, I explored potential gaps, barriers, or strengths within existing frameworks and governance that discourage or encourage rebuilding. To better understand if and how rebuilt

communities adapt to wildfire events, I used a gauging research approach which utilizes a *practical ideal type* conceptual framework and normative logic-of-rating (Shields, 2013). My research aims to measure and rate a local government's success or failure in adhering to criteria and standards that support wildfire adaptation.

After a careful review of the literature, I presented the "ideal" components of wildfire adaptation to determine if locals are measuring up – using the best or ideal practices to mitigate wildfire impact. Moreover, by examining current practices, I use normative judgment to determine if locals should do more. The findings present a learning opportunity for organizations to improve weaknesses and model strengths for others. It is essential for policymakers at all levels of government to understand how communities do or do not adapt to wildfire threats so they can develop new policies or strengthen existing policies to reduce the incidence of structural destruction and death.

II. Background:

Adaptive post-wildfire rebuilding includes a combination of individual and community-based efforts to learn to live with wildfire by adopting and adhering to federal, state, and local policies and ordinances such as building and zoning codes; wildfire fuel mitigation projects; evacuation plans; smaller home building; use of fire-resistant materials in homes; and effective land-use policies, to name a few. Many contributing factors explain why certain communities rebuild faster than others after wildfire. Financial resources are important, but are not the leading determinant –many wealthier areas are not able to rebuild again due to the lack of infrastructure and the geographical landscape of their home (Dillon, Poston, Smith, & Garrison, 2025).

Land-use planning, for example, can prohibit home rebuilding in high-risk fire zones and can structure the housing landscape to reduce the threat to homes. However, the academic research on wildfire mitigation focuses heavily on fuel reduction and fire suppression and less on land-use planning as a management tool. Yet, as wildfires increase, suppression costs increase. In 2021, California spent more than one billion dollars to combat wildfires (Jung, 2021). The literature reveals a consistent theory - known as the wildland-urban interface (WUI) cost escalation theory - which posits that the increase in homebuilding and acreage burned significantly increases the amount of money spent on fire suppression costs. This is problematic because taxpayers incur part of the cost (Gude, 2013). Despite being an effective guardrail, the federal government does not mandate land-use planning, and the tool is rarely used by local jurisdictions (Mockrin, 2020).

The literature presents a wildfire mitigation framework that involves a collaboration of federal, state, and local actors with varying responsibilities (Kocher & Butsic, 2017). The federal government is responsible for managing its respective national forests and providing funding to states and local governments for fire reduction projects and federal disaster assistance. However, the federal government's role across the nation, and in California, is limited; there is almost no direct role for local land-use planning (Figure 2). The federal government certainly influences land-use planning at the local level by providing states with affordable housing and transportation grants, and by setting national policies that impact where housing is developed. For example, the federal Coastal Zone Management Act, passed in 1972, protects the nation's coastline and shapes where coastal development can occur (Lipiec, 2025). However, the federal government does not regulate housing development directly. Local governments receive support and planning guidance from the state via grants,

enacted laws, CEQA exemptions, and enforcement regulations that impact local zoning (Wicks, 2025).

The state imposes rules and regulations regarding building and zoning codes and evacuation preparedness, which make it costlier to rebuild in high-fire severity zones; however, there are no restrictions for building in the WUI. For example, the Bates Bill (CA Government Code 51175, 2022) requires the state to identify "very high fire hazard severity zones" in every county to develop a model ordinance for use by local governments. Despite receiving guidance, recommendations, and planning standards from Cal Fire and the State Board of Forestry on how to zone in and around high fire severity zones, local governments can refuse to adopt recommendations without fear of penalty (Kocher & Butsic, 2017).

Local governments have “police powers” and the authority to design their safety element plans and landscape outcomes. Local officials may choose to scale back housing production in the WUI or encourage development to sustain property tax funding. The academic research reveals a tendency by local governments, federal and state agencies, residents, and elected officials to adhere to a “build back better” (Miller et al., 2025, page 26) narrative, which encourages building while limiting crucial input and understanding about how best to adapt to wildfires (Kocher & Butsic, 2017). After the devastating 2017 Tubbs fire in Santa Rosa, which destroyed over 5,600 structures, the county moved to rebuild quickly and responded by adopting several urgency ordinances and creating centers of support – ‘Sonoma County Recovers’ and ‘Resilient City Permit Center’ – to support impacted residents, and to streamline development, expedite design permits, waive fees, and increase higher density home construction; the county even successfully passed a sales tax increase to support rebuilding efforts (Miller et al., 2025, page 10). As a result, the number of new

housing units surpassed the structures that had been destroyed in the Tubbs fire, and more units were erected in fire-affected areas. For example, 6 out of 7 Santa Rosa City Council members voted to rezone and build over 200 new housing units in a high-fire hazard severity zone (Miller et al., 2025). Moreover, homeowners were not required to adhere to strict building and defensible space requirements adopted by the State in 2008 and enforced by the city in 2020 - California Building Code Section 7A's regulations, which require homes to use ignition-resistant materials. (BrandGuard Vents, n.d.) Similarly, homeowners who lost their homes in the 2025 Altadena wildfire in Los Angeles County were not required to satisfy these stringent requirements; they were merely encouraged to do so (Miller et al., 2025, page 19 and 23). Like Santa Rosa, Altadena will also increase its housing density, however, in stark contrast to Santa Rosa's recovery efforts, the City of Los Angeles implemented the *West San Gabriel Valley Area Plan,* which will restrict new construction in high-risk fire zones – areas that encompass the foothills and nearby WUI (Sommer, 2025).

In addition to fuel mitigation and fire suppression activities, the research indicates that effective land-use planning is key for building resilient, safe, and adaptive fire-safe communities (Mockrin, 2020). Nonetheless, despite state and federal laws, incentives, or regulations, local jurisdictions hold a significant amount of power in their respective jurisdictions to dictate how their communities rebuild after wildfire.

III. Literature Review:

Several key themes emerged from the literature on adaptive wildfire rebuilding. For example, housing in the WUI has grown significantly despite the negative impacts and risks to people's lives and the environment. A study of California wildfires found that 60% of destroyed buildings were rebuilt within the first three to six years, and 94% of structures emerged

thirteen to twenty-five years after a wildfire (Kramer et al., 2021). Another nationwide study found housing increased 97% compared to 2% of WUI growth (Radeloff, 2018). This study revealed that despite the rise in housing, the available data does not support whether WUI growth is a result of housing or vegetation growth. For example, increased housing may result in the introduction of new non-native plants and soil disruption in the WUI. This study revealed that granular research is needed to better ascertain WUI growth and WUI patterns to understand how vegetation changes impact wildfire spread. Also, it is difficult to compare the available data on housing and WUI growth because of different time periods of study, datasets, and WUI definitions. Again, the research indicates that fire suppression and wildfire mitigation tactics dominate policies for preventing wildfire. However, an increase in housing development increases the risk of human-caused ignitions and the introduction of new vegetation in the WUI, which compounds the problem and will continue to contribute to devastating wildfires, deaths, poor air quality, and environmental impacts.

Much research has been done regarding the type of vegetation that exists within the WUI, however, there is a gap in experimental and quantitative research. More research needs to be done to explore how different types of vegetation impact fire risk by examining the structural components of vegetation, such as organizational structure, age, moisture, oil content, and their reaction relative to fire. For example, the research indicates a low fire risk in the type of vegetation found in Native forests (Calviño-Cancela et al., 2016). Vegetation management is certainly an effective and highly sought-after technique for clearing forest waste, overgrowth, and dead debris; however, the practice must be repeated and requires a skilled and trained workforce to reduce risk and maximize results effectively (California Assembly Bill No. 338, 2023). By conducting more vegetation experiments focused on the

anatomy and makeup of vegetation, we will identify alternatives and supportive strategies and techniques that may prove less invasive, low-cost, and that can work alongside existing vegetation management methods.

Another recurring theme in the literature emphasizes communities, particularly an individual's inability to adapt to wildfire due to risk perception. One study found that risk perception is subjective; individual homeowners may perceive a greater threat from wildfire to the wider landscape versus a threat to their respective home (Mockrin et al., 2015). Another study found that after experiencing frequent fire events, communities were less inclined to adopt mitigation policies because it was a waste of time (Mockrin et al., 2018). We can assume, using logic and common sense, that those impacted by a devastating wildfire would increase their risk perception and act swiftly to reduce their exposure to another event. However, the literature highlights that there are different understandings of risk and the probability of experiencing another event, which are undergirded by feelings, experiences, and perceptions (McCaffrey, 2008). The literature highlights that responses to other natural disasters – not just wildfires - show that individuals' actions are not consistent with our assumption that individuals act quickly to reduce risk (McCaffrey, 2008). It is important to note, however, that communities that are new to wildfire events, and that have strong local support, leaders, and external support and funding, react and adapt differently than communities that have experienced a history of wildfires and have less local resources and no external support (Mockrin et al., 2018).

In addition, while some individuals may choose to relocate away from the WUI, new WUI residents are unaware of the significant threat and lack first-hand knowledge of devastating wildfires (Martin, 2009). Perceived risk fluctuates based on an individual's direct

and personal experience with a wildfire event (losing a home, being evacuated, losing a loved one) versus an individual with the potential for experiencing a wildfire in the future. Weinstein 1989 posits that those who have direct knowledge are more motivated to engage in mitigation efforts to protect themselves. However, despite an increase in an individual's perceived risk directly after a fire event, that risk diminishes over time (Weinstein, 1989). This finding indicates a significant increase in housing and rebuilt communities over time, in the same high-risk wildfire footprint that was previously destroyed.

Also, the resurgence of rebuilt communities may result from a lack of knowledge about the landscape and vegetation that fuels wildfires or the perception that wildfire risk is lower after a fire due to reduced vegetation in the landscape. There is sufficient research indicating residents, including developers, have a general sense of the vegetation that surrounds them; yet they know little about the fire risk it presents, including the type of burn-resistant vegetation and landscaping that protect homes. For example, one study surveyed residents' parcel and property risk in a WUI community and found that residents placed more attention on factors out of their control, such as overgrown vegetation not directly located on their property, and less attention on factors they could control, such as the plants and trees in their yard (Meldrum et al. 2015). There is also a perception by individuals that wildfires are caused by an external force, not something their individual parcel contributed to (Cohn, Williams, & Carroll, 2007). Thus, this "parcel-level" perception impacts their attitudes and willingness to harden their homes or redesign their landscapes to prioritize aesthetics (Meldrum et al., 2015, page 2). Moreover, scientific research suggests that using proactive measures such as managed prescribed burns to reduce wildland vegetation significantly decreases the impact of wildfire intensity by 16%, and smoke pollution by 14% (Jordan, 2025, page 1). Despite this

finding, there is little quantifiable research to support exactly how prescribed burns work and their effectiveness. For example, research may reveal how much pollution is reduced, how often, where, and when the tactic should be applied. This strategy still emits pollutants into the air, which remains a valid concern and therefore would require public support. Moreover, prescribed burns seem to do better in areas outside of the WUI, not in it. Controlled burns within the WUI only reduced intensity by 8.5%, whereas burns outside of the WUI had a higher impact at 20% (Jordan, 2025, page 1). Given that some of the most devastating wildfires have occurred in communities located close to the WUI, more research will highlight this strategy's strengths and weaknesses (Jordan, 2025).

Despite a strained insurance market and a severe lack of comprehensive insurance coverage, homeowners and developers continue to rebuild in high fire severity zones, even in previously impacted areas. By simply living near or in a high-fire hazard zone, many private insurers refuse to provide fire coverage outright or unless the homeowner has instituted strict mitigation efforts, which reduces the liability risk for insurers (Fan Munch, 2025). Homeowners unable to comply with costly and insurmountable upgrades seek relief under a state option. The California Fair Plan provides basic fire insurance to homeowners as a last resort when they are unable to secure coverage through the traditional marketplace (California FAIR Plan Association, n.d.). The program, however, was never intended to provide full comprehensive fire or disaster coverage – it simply provides supplemental coverage. The Fair plan is underfunded and ill-equipped to play a standalone primary role in the insurance market, yet it remains overprescribed. To make itself whole, the state must assess the wider insurance market, which means higher premiums for rate payers and increased financial instability as the state experiences more frequent firestorms due to the changing climate

(Munce, 2025). To compound matters, following the most recent Los Angeles firestorms, many homeowners discovered they were grossly uninsured or underinsured - as many as 67% of homeowners lack the financial resources needed to rebuild their homes (Lazar, 2025).

Each time a wildfire occurs, there is a window of opportunity for learning and for prescribing adaptive land-use practices and effective mitigation efforts. However, as events fade, new vegetation grows, risk perception diminishes, and communities are rebuilt - some even expanded deeper into the WUI (Kramer et al., 2021). Coupled with the perception of community resilience and an overarching narrative to build back better and stronger, insurance and disaster relief payments spur rebuilding efforts and help mitigate risk during the restoration phase after a wildfire event. One of the main reasons this occurs is that housing development translates to property tax revenue for local jurisdictions. In addition, state and federal dollars - also known as taxpayer dollars - pay the bulk of response and recovery costs. A significant amount (94%) of local spending on firefighting efforts is reimbursed by the federal government to local agencies (E. Guerin, 2025). This cyclical process - development – wildfire – recovery funds – development - may explain why single-family homes receive more disaster aid and public policy attention at the local, state, and federal levels. A 2006 Office of the Inspector General Report posits that state and local governments would be able to mitigate risk if they were more financially responsible. Also, this article reported that nearly 1 million new houses in California could be built in high-fire severity zones before 2050. Housing developers, local elected officials, and fire departments are, by design, feeding this cycle of destruction (Office of the Inspector General, 2006).

Section IV. Methodology

My research methodology for this report measured and rated a local government's success or failure in adhering to criteria and standards that support wildfire adaptation. I selected six counties and developed criteria to assess local governments' involvement and commitment to post-wildfire adaptation. Unfortunately, most of the fifty-eight California counties contain areas designated by CalFire as having a high fire severity threat (Office of the State Fire Marshal, n.d.). The counties in this sample met that designation. In choosing these counties, I applied a geographic and socioeconomic equity lens to highlight that wildfire affects all Californians. And lastly, I included counties that were new to wildfire events and those with a history of wildfire. Lake County is one of the poorest, while Santa Barbara has both extreme affluence and pockets of high poverty. Los Angeles County has the largest population of homeless individuals, second only to other big cities like New York. Despite the shared fire risk among all counties, Butte, Lake, and Los Angeles have experienced the most major and largest destructive wildfires of the six; the destruction in these regions is due to their proximity to the WUI (GovTech staff, 2024).

1) ***Does the County have a Community Wildfire Protection Plan (CWPP)?***
2) ***Is the County a Designated Firewise Council Community***
3) ***Incentives to Mitigate - Does the county participate in wildfire mitigation pilot projects or offer incentives to mitigate wildfire hazard?***
4) ***Is the County keeping pace with new legislative changes? How?***
5) ***Has the County incorporated the Zero Ember Resistant Zone? If so, does the County have a defensible space inspection program?***

I used the criteria above to review local zoning and building codes; land-use planning processes; incentives to mitigate, such as participation in pilot projects to reduce wildfire risk; resolutions or ordinances that declare an intent to adopt wildfire preparedness activities and strategies, and which demonstrate a priority and commitment to wildfire mitigation and adaptive rebuilding. I researched publicly available documents on state, federal, and local government websites, such as local general plans and safety elements, meeting notes from participation in Firewise councils, state agency-led roundtables, and community public comment forums.

With the information I found, I assessed each county's strengths and weaknesses in adapting to wildfire resilience. I then rated their vulnerability to wildfire risk on a scale from 1 to 5 **(V1: Minimal vulnerability, V2: Low vulnerability, V3: Moderate vulnerability, V4: High vulnerability, V5: Severe vulnerability**). The rating tool used in this method is appropriate for this type of research because ratings reflect how programs and processes work; a high or low rating could inspire actors to maintain the status quo, change, or push them to achieve higher ratings to improve programs that produce better outcomes.

I focused on counties with a high percentage of land designated by CalFire as moderate or high-fire hazard severity zones. I then identified all relevant stakeholders, including local government officials, land-use planners, Cal Fire officials, Office of Emergency Service officials, fire-safe community council leaders, grant writers, HOA community members, and land and resource conservation groups who work on fuel mitigation projects.

I examined each county's website to gather evidence and interpret it. I provide a snapshot of the data collected by concentrating on six counties; however, the framework can be used to study all fifty-eight California counties. This approach differs from other research

methods (explanation, description), which use quantitative techniques and statistics to prove a hypothesis (Shields, 2013). For this research, I applied a gauging method, which lends itself to qualitative evidence; therefore, this method is not precise or operationalized. The evidence collected can vary, and flexibility is required.

I applied critical thinking and analytical skills to my research, and I used my experience as a legislative aide to apply a public policy lens. I researched with the perspective that this information will be used to inform lawmakers, to understand their communities' needs better, and to create or strengthen policies that move communities towards an ideal framework of post-fire wildfire adaptation strategies.

Type of Analysis

To better understand whether and how rebuilt communities adapt to wildfire events, I employed a gauging research approach that utilizes a practical "ideal-type" conceptual framework and normative logic-of-rating. A gauging research approach outlines the ideal or most effective framework, model, or version of what a successful program or process ought to look like. The framework creates an intentionally developed standard or desired "ideal" distilled from best practices and processes. The "ideal" type is then used as the benchmark or starting point in comparing findings. (Shields, 2013).

For example, if I judge how well or how successful a local jurisdiction has adapted to wildfire risk, I would first create the perfect model or "ideal type" of a local jurisdiction that met or exceeded specific adaptive standards. A perfect ideal model for this report would be scored as VI or minimal vulnerability and would exhibit strengths across wildfire education, training, and awareness. A successful program would demonstrate knowledge, awareness, and application of new or updated building codes and defensible space requirements. Other

indicators would include equitable wildfire planning across income and housing types, and intentional land management efforts that utilize grazing and prescribed burning.

In addition, communities would be active participants in vegetation mitigation efforts, demonstrating adherence to defensible space requirements and fuel management practices – such as participating in Residential Woodchipper programs (Woodside Fire Protection District, n.d.) Public-facing websites would be user-friendly and have the most up-to-date information regarding state building design standards, codes, and regulations. The local safety element would outline safety strategies, exit routes, parcel maps in fire zones, and offer defensible space inspections. The Safety Element within a local jurisdiction's General plan would be updated within the last eight years as required by California law (Cal. Gov. Code § 65302).

Lastly, counties' Local Hazard Mitigation Plans (LHMP), which equip communities with mitigation strategies for dealing with natural disaster hazards, including wildfire education and suppression plans, would need to be approved and updated. Scoring would also increase for counties that sought federal grant funding for hazard planning and if they had an updated LHMP as required (FEMA, n.d.). A high-achieving county would have a Community Wildfire Protection Plan (CWPP), which is a comprehensive community plan that receives input from various key stakeholders and members of the public, including emergency management leaders who collaborate and work together to identify hazards, gaps, and strategies for creating a safe and informed community (Butte County, n.d.).

The County of Sonoma demonstrates all the factors outlined above and is leading the way in wildfire risk adaptation (Sonoma County Department of Emergency Management, n.d.). For this report, Sonoma County serves as the gold standard to compare the six counties.

I rated local communities as having *minimal vulnerability* if they met the following criteria: updated the public about new laws in a timely and responsive manner; implemented and adhered to new laws by passing ordinances and resolutions codifying regulations; active participation in pilot projects to learn how to adapt to wildfire risk, active participation in state and federal programs that teach communities about fuel mitigation; having updated and current safety elements and protection plans which reflect a commitment to wildfire preparedness, awareness, and mitigation.

Counties were rated as having *severe vulnerability* if they demonstrated the following: having outdated public information portals that lacked information about new state regulations, and no participation in roundtable groups or state and federal programs that equip communities with wildfire preparedness tips and safety strategies for adapting to wildfire risk. In addition, I considered the absence of resources such as capacity, knowledgeable staff, and the lack of technical assistance needed to successfully apply for wildfire grant funding, and a lack of enforcement tools or staff that are integral for communities to keep up with myriad regulation changes.

Which Data Sources and Why?

Current research studies adaptation to climate change and natural hazards and disasters such as flooding and hurricanes; however, there is little research on the *rebuilding process* post-wildfire (Schumann, Mockrin, Binder, & Greer, 2022). When disaster strikes, there is a concerted effort at all levels of government to respond and assist in recovery, especially when a local government's capacity is limited. However, allocated funding can be delayed, and as new events emerge that distract or require attention elsewhere, support wanes. Rebuilding is a long-term process that is most directly felt and led by the impacted community. Decisions to

rebuild maladaptively or adaptively occur at the local level, where local governments hold and exercise great power and authority over how their communities adapt and recover.

For this reason, I highlighted state and federal support but focused on the strengths and weaknesses of policies at the local level by examining how local governments demonstrate their level of adaptation to wildfire risk. This analysis considered communities' general plans and safety elements, strategic planning documents, land-use planning efforts, wildfire mitigation activities, adherence to building and zoning regulations, partnerships with state and federal agencies, and lessons learned from previous wildfire events.

For example, the state provides a strong regulatory framework for local jurisdictions to address wildfires. California Government Code Section 65302 requires each county to create a general plan that provides structure and organization to the polis. Various elements of the general plan address sufficient housing, land use policies, safety hazards, and ensure local officials are accountable and that public facilities and resources are distributed equitably and efficiently (Cal. Gov. Code § 65302). The Safety Element specifically includes wildfire resilience, risk assessment, planning, and mitigation strategies (California Senate Bill 1241, 2012).

In addition, various building and fire code laws have been enacted to protect communities from wildfires. For example, the state produces and updates fire maps, which identify moderate, high, or very high fire zones that local governments can use to know where to apply specific building code requirements. California Building Code Chapter 7A requires that buildings and housing units be constructed using fire-resistant materials in areas designated (State Responsibility Areas – SRA) as high-fire severity zones (California Department of Housing and Community Development, 2010). Public Resources Code Section

4291 sets minimum defensible space requirements on residential properties to protect structures from ignitions within 100 feet of the home (Cal. Pub. Res. Code § 4291).

Most recently, AB 1455 and AB 1457 (Bryan), Statutes of 2025, addressed the importance of defining defensible space and training professionals to ensure homes comply. AB 1455 created Zone 0, an ember-resistant zone within 0 to 5 feet of a building or structure, which requires the immediate removal or elimination of flammable materials located within this zone (California Assembly Bill 1455, 2025). Finally, California Residential Code, Chapter R337 focuses specifically on structures built and located in the WUI (Town of Los Altos Hills, 2021). The requirements under Chapter R337 are standard and expected to be applied statewide where applicable; however, jurisdictions can certainly adopt stricter rules for their respective jurisdictions.

Despite the myriad state and local efforts to mitigate wildfire risk, counties are geographically different, and regulatory implementation and adoption vary. Counties have diverse landscapes, fire histories, and fire hazards, which impact the perceived urgency of wildfire threats and responses. Also, development patterns may vary. For example, local governments are required by law to identify and build a certain percentage of affordable housing units to meet their regional housing needs allocation (RHNA) requirements; however, building within a wildfire hazard zone is not considered in this requirement (Weil, 2020). For example, even if a local jurisdiction has 80% of land designated as being in a wildfire hazard zone, RHNA law does not allow a city to deduct a percentage of housing units from those dangerous areas. Local governments must still meet housing requirements, even if a development is in a high wildfire severity zone. Their options include creating more infill housing or implementing fire mitigation measures (Senate Committee on Housing, 2021).

Local jurisdictions are allowed, however, to identify "environmental constraints" for excluding certain sites that may not be appropriate for future housing growth. Finally, despite legislation, implementation guidance, and fire safety recommendations, counties have varying degrees of capacity, understanding, and awareness of codes, laws, and regulations. In 2019 alone, 22 measures addressing wildfire mitigation, response, and preparedness were enacted into law. Therefore, I examined and identified supporting documentation to see if and how local governments took initiative to implement policies, pass ordinances, and build communities with an adaptive lens for living with wildfire risk.

Section IV: Results

The six counties in my sample received the following scores: Butte and Santa Barbara Counties received a V2 - low vulnerability score. Lake and Mono Counties received a V3 - moderate vulnerability rating. And the two cities located in Los Angeles County received the worst score, V4 - high vulnerability.

In my sample, all six counties appeared to have a process for assessing defensible space and available staff to administer inspections. Most counties had completed and updated or were in the process of adopting a Community Wildfire Preparation Plan (CWPP). Moreover, all had up-to-date building code and defensible space zone information. They also had information on flame-resistant materials required for homes located in the WUI or areas designated as high-fire severity zones. Rural areas with a history of wildfire presented a more robust, user-friendly interface with videos of lessons learned, direct contact numbers for staff assistance, and numerous quick links to relevant state and local resources.

All counties had an updated Safety Element within their General Plans. The Safety Element is used to plan for disasters, including wildfire preparedness and risk. Four counties

have Community Wildfire Protection Plans (CWPP) (Butte, Lake, Mono, Santa Barbara), which enable communities to plan how they will reduce the risk of wildfire. The plan identifies high-risk areas and applies strategic fuel reduction methods across the landscape. The plan provides communities with a roadmap of action items to address the wildfire threat. Interestingly, Pacific Palisades and the unincorporated town of Altadena, both in Los Angeles County, do not have a CWPP. Both plans are in progress and are slated to be completed by the end of 2025. There is an ongoing effort to gather input from Altadena residents for the CWPP Action Plan, with surveys and workshops happening through November 30, 2025. This finding was somewhat concerning, given the most recent wildfire disaster experienced in both areas. Butte County had the most up-to-date CWPP (2025); however, Mono and Santa Barbara Counties were outdated by four or more years. All counties except for Mono County were designated as Firewise Council Communities. The designation is important because Firewise USA is a federal program and part of California's efforts to ensure communities are prepared against wildfire. CALFIRE helps communities receive this designation. The program provides a collaborative framework to help neighbors in a geographic area get organized, find direction, and take action to increase the ignition resistance of their homes and community and to reduce wildfire risks at the local level.

All counties appeared to be keeping pace with new legislative changes. For example, in 2023, CalFire and the Board of Forestry approved comprehensive updates to the Minimum Fire Safe Regulations (MFSR). Mono County updated its regulation accordingly, and changes included 30-foot setback requirements for all parcels regardless of land use designation and parcel size in an effort to reduce structure-to-structure ignitions (Mono County, California, n.d.). However, Butte County Supervisors pushed back on the state's defensible space mandate,

arguing for more local control and citing the financial strain on residents to revamp properties to meet new requirements. The County also highlighted the difficulty of securing wildfire insurance coverage and that the new state requirements do not align with existing defensible space requirements covered by insurance companies (KRCR TV, 2025).

The *Safer from Wildfires* regulation is intended to provide discounts to homeowners and the companies that insure them if homeowners harden their homes (California Department of Insurance, 2023). The regulation proposed by Commissioner Ricardo Lara, within the California Department of Insurance, however, can be considered a double-edged sword. While the program aims to incentivize discounts for home hardening, the program does not prevent insurance companies from leaving the marketplace; it widens the equity gap since not all homeowners have the financial resources to harden their homes, and while protective upgrades can be very costly, there is no guarantee the discounts will be large (Fors, 2025). As is evidenced by homes that were virtually untouched during a scorching wildfire, home hardening and defensible space work to protect homes from wildfire spread and damage; however, there is no real incentive for homeowners to make their homes safer. The problem is due to California's broken insurance system and regulatory rate suppression, which means that insurance companies are not setting prices based on real risk because rate regulation is controlled by the state, and rates are kept artificially low. For example, in 2021, the Fair Plan, California's last resort option for wildfire insurance, received a 16% rate increase to cover fire victims, even though the actual need to cover risk was 70% (Fors, 2025). This discrepancy does not incentivize home hardening.

Even still, most counties demonstrated efforts to participate in wildfire mitigation projects and home hardening. For example, CalFire recommends and has a list of fire-resistant

construction materials for rebuilding and retrofitting. Lake County received a $22.2 million FEMA grant to harden a 500-unit housing development, including defensible space improvements over three years. Santa Barbara also received a grant from the Coastal Conservancy to maintain defensible space, improve fire access roads, increase vegetation management, address invasive species removal, native plant restoration, fuel load reduction in at-risk areas, and community outreach and education around fuels management. In addition, Santa Barbara is considering offering incentives for property owners to transfer development rights from the High Fire Hazard Area to the High-Density residential land use designations. Similarly, Mono County received grant funding for vegetation mitigation projects.

A common theme among the sample was that counties differed in their implementation of laws and rules for prescribing wildfire mitigation. For example, different zones exist to identify flammable vegetation too close to a structure, and these zones create defensible space intended to protect a home or other structure. Zone 1 prohibits vegetation within 30 feet of structures, and Zone 2 prohibits vegetation within 100 feet of structures. AB 3074 of 2020 established the Zero Zone or Ember Resistant Zone, which became law and took effect in January of 2021. The law prohibits any vegetation within 0 to 5 feet of a residential structure, unless the vegetation is highly fire-resistant, well-spaced out, and meets certain height requirements. Despite the establishment of a Zero Zone in 2021, which ostensibly created safer rules, the law has not been fully implemented. State rulemaking for implementation is not required to be completed until December 2025 (Board of Forestry and Fire Protection, n.d.). .

It is important to note that four years later, in 2025, legislation was enacted AB 1455 (Bryan) to require the enforcement of Zone 0 provisions and the adoption of emergency regulations for the immediate removal or elimination of flammable materials located within this

zone (California Assembly Bill 1455, 2025). This legislation was introduced and enacted into law as a response to the devastating 2025 wildfires in Los Angeles County. Counties can certainly implement or develop stricter regulations at the local level before final rulemaking is finalized; however, counties vary in their implementation, and while some have taken the initiative to adopt Zero Zone defensible spaces, others have not. I use this example to explain that I scored a county differently if they implemented a Zero Zone, or a stricter regulation, as opposed to a county that was still waiting for the state regulations to be completed.

For example, several communities have implemented various defensible space laws, such as Humboldt and Laguna Hills; Napa County restricts vegetation within the first 30 feet if fire-tolerant vegetation is used. The city of Paradise is going even further by requiring all homes to have a Class A certification to demonstrate they have fire-resistant roofs, ember-resistant gutters, and screens. Since the town of Paradise, in Butte County, was leveled in the 2018 wildfire, it can implement the provisions of a Zero Zone more easily due to the lack of new growth and a reduced mature landscape (Rauch, 2022). The rating framework I used reflects adherence to a minimum standard, and ratings increased when actions were taken to move closer to or beyond the practical ideal type (Shields, 2023).

Despite these findings, challenges existed in adopting and implementing sustainability practices in rural and urban areas such as the broken insurance market and lack of insurance companies in the marketplace. Factors out of local jurisdictions' control exacerbated the rebuilding process. Most importantly, counties have no state master plan to guide the recovery and rebuilding process

EXTERNAL FACTORS

Lack of Workforce Housing

For example, in rural areas, a major challenge to rebuilding was the shortage of skilled, trained construction workers and contractors. This was also true for communities that aimed to harden communities with wildfire mitigation strategies and fuel reduction management. For example, efforts in Butte County were made to support a fleet of mobile homes or recreational vehicles to support a temporary workforce (RVs) while also reducing workers' carbon footprint and vehicle miles traveled (Drabble, 2018). A shortage of skilled and trained workers prevents proactive land management and preventative work such as residential chipping, fuel and firebreaks, and reducing forest fuels (Assemblymember Cecilia Aguiar-Curry, 2022). Hiring out-of-state contractors and construction workers may seem like a viable option; however, these relationships are fraught with licensing and consumer protection challenges, and can result in substandard, defective work due to an unskilled workforce (Contractors State License Board, 2025).

Challenges to Adaptation

Development in high-risk areas post-wildfire continues to increase, and many local jurisdictions are incorporating new or existing policies to mitigate fire risk; however, adaptation across California is mixed and varied, not widespread. Areas with wildfire history tended to have stricter building code policies than state minimum requirements, and many had Offices of Planning and Resilience dedicated to community-focused response and recovery efforts. However, while one jurisdiction increased its resiliency standards, another county relaxed its requirements. Differences are especially evident for individual homes, since building code requirements differ for newly constructed homes or upgrades, while older or existing structures

are eligible for exemptions. Moreover, despite state mandates, local governments exercise local control and adopt, interpret, or implement new mandates as they see fit. Thus, research indicates there is little adaptation to wildfire risk (Kramer, 2021).

Capacity

After a wildfire, opportunities exist in a community to unlearn old behaviors and adopt new ones. Counties with sufficient resources, such as available staff, capacity, and the knowledge and skills needed to apply for available state and federal grant funding, are better equipped to establish and maintain sustainability practices related to adaptive wildfire resilience. These strengths also foster citizen involvement and build positive relationships with local community members who seek trust and transparency and can hold their local officials accountable (Wang et al., 2012, p. 845). For example, the County of Los Angeles demonstrated its capacity by streamlining permitting processes and using prefabricated housing designs to accelerate building (Peters, 2025). However, the cheaper, easily constructed, cookie-cutter designs must still meet the proper defensible space and fire-resistant codes. Urban areas like Los Angeles have an advantage over rural recovery due to their topography; the flatter, less complex terrain allows for easier housing construction that mirrors previous tract homes. Rural areas tend to have more custom homes and less restrictive zoning laws (True Built Home, 2024).

In addition, wildfire events in rural, isolated, and geographically challenged, resource-deficient counties are problematic because these counties generally lack sufficient resources and capacity to keep pace with new and evolving regulations and laws. Counties like Los Angeles have greater capacity than rural areas like Lake County simply because of their strong relationships and proximity to officials and stakeholders, their economic vitality, diversity, and

efficient processes for streamlining permits. In stark contrast, Lake County is severely short-staffed, and rebuilding takes years due to backlogged building permits (Lewis, 2017). Moreover, less affluent and educated counties with a higher percentage of low-income residents and dilapidated support infrastructure are already at a disadvantage relative to wealthier neighborhoods. Research shows that race and wealth are significant factors in the disproportionate delivery of resources and rescue efforts (Society for Risk Analysis, 2024).

Socioeconomic Disparities

A notable distinction about the ability of communities to rebuild adaptively includes the individuals who make up the impacted community. While some can afford to move back, others cannot. Before and most definitely after a disaster, the distinction between the haves and have-nots is glaringly clear (Lambrou, 2025). For example, low-income renters have fewer resources simply because of their housing status. According to the literature, renters are more vulnerable after a natural disaster. Unlike homeowners, renters receive less disaster recovery assistance, and public policies tend to focus on single-family homeowners. Researchers are exploring how tenants and landlords can be better served in programs across the public disaster management system. More assistance is needed for renters, especially low-income renters, because renters account for over one-third of U.S. households, and funding and programming across all disaster stages disproportionately serve single-family homeowners (Martin et.al., 2023). One case study, which focused on recovery efforts after the 2018 Camp Fire in the town of Paradise, California, further highlighted this disparity and argued that “disaster recovery gentrification” occurs when there is an unequal distribution of resources in which some are advantaged and able to rebuild more seamlessly than others (Lambrou, 2025, page 19). I considered the equity gap in my scoring of counties in this report. Butte County scored low on this measure compared to

Sonoma County, which is the perfect ideal-type example of a community learning and applying adaptive rebuilding, including equitable planning (County of Sonoma, 2024, page 11).

Equitable planning that includes all members of a community should be a central pillar of rebuilding. Vulnerable populations, which include immigrants, renters, older adults, low-income individuals, women and children, and communities of color, are harder pressed to build back, and are thus pushed out as private, federal, state, and local assistance and resources help but end up deepening the divide (Hamideh, Sen, & Fischer, 2021). For example, in 2021, the Cache Fire in Lake County burned portions of one mobile home park and destroyed another, displacing its senior and low-income residents. (Villalon & KTVU Staff, 2021). Residents who own their mobile homes but live on leased land are at the mercy of private mobile home park owners who may decide not to rebuild. Without disaster aid, there is no incentive for park owners to reestablish their park community if they cannot recoup the costs of rebuilding. Under California law, residents have the right to return to their mobile homes; however, owners may also increase rents to help their expenses pencil out (Mello, 2025). Communities that reflect input from all stakeholders and residents can work together to rebuild in safer areas.

Land Use Planning

Finally, there is a lack of land-use restrictions inconsistent with other disaster recovery efforts. Regarding high-fire severity zones, there are no restrictions prohibiting development in wildfire-prone areas. Similarly, regarding flood zones, local governments have an incentive to save money by relying on federal funding to support flood protection measures by simply reinforcing existing levee structures or building new barriers instead of implementing land-use policies that would prevent development in high-risk flood zones. These decisions are made at

the local level in response to market forces and to weigh cheaper options, even if they are not the smartest choices.

Therefore, if willing buyers, developers, and city officials decide to rebuild in a disaster-prone area, there are no mandates restricting them from doing so. In stark contrast, in response to the most recent Los Angeles fires in Altadena and Pacific Palisades, environmental review processes required by law under the California Environmental Quality Act (CEQA) and the California Coastal Act were waived to speed up rebuilding (Lim, 2025). In addition, local elected officials in Los Angeles streamlined rebuilding, allowed structures to be built as they existed prior, and waived certain energy-efficient requirements for new homes (Bendix & Chow, 2025). There is a relentless fervor amongst state and local elected officials to respond immediately to their constituencies and to speed the recovery and response effort necessary to return to normalcy. However, experts are concerned that such waivers result in maladaptive rebuilding (Lim, 2025). Certainly, hardening homes and adopting effective wildfire mitigation policies post-wildfire adds to communities' resiliency; however, weakening existing laws to accelerate housing development may be counterproductive if protections meant to keep communities safe are waived. Opportunities to implement comprehensive land use changes and long-term planning are lost in the rush to reestablish communities.

Section V: Policy Recommendations

More Time and Research Needed

Experts have decades of research and experience learning from and responding to disasters such as earthquakes and hurricanes. For example, engineers can simulate the structural damage caused by an earthquake and thereby create an infrastructure to withstand the impact (Bendix & Chow, 2025). Wildfires are fueled by a host of factors that warrant a holistic

approach to study and understanding: the expansive array of vegetation, how topography increases or decreases risk, weather events that exacerbate drought conditions, and wind cycles, and dense forests that breed pests such as the bark beetle, which kills trees and creates more tinder for wildfires (Western Exterminator, n.d.). More time and research are needed to unpack and study the myriad and complex factors surrounding wildfires.

Workforce Housing

In conjunction with strategic wildfire planning and adaptive rebuilding, local governments should consider transitional or temporary workforce housing to support wildfire vegetation management before or rebuilding after a wildfire. Again, while some jurisdictions have the resources to mobilize and are better equipped to rebuild after a wildfire with the support of philanthropists, businesses, and faith organizations, no master plan exists to guide the recovery and rebuilding process. Therefore, adaptive rebuilding differs across the state.

Wildfire Resilience Strategic Planning

For communities to rebuild in adaptive and resilient ways, they must understand that the rebuilding process is complex and can take years; communities cannot simply rebuild after a few or even several months. Local governments should be equipped with a rebuilding strategy or master plan that outlines a process unique to their respective jurisdictions. For example, in the County of San Mateo, Stanford University partnered with local leaders to propose a residential development for faculty and community members in the Town of Portola. The housing development – located on an existing fire hazard zone - considers, complements, and builds upon the natural terrain, topography, and vegetation that exist in the area. University experts created a ***Wildfire Resilience Vegetation Management Plan and Strategy*** to ensure the community is designed to combat the threat of wildfire by reducing sources of ignition,

creating smart landscapes and defensible space, home hardening, designing denser housing (clustered development), and placing them in locations that provide a safe defense against flames that are made destructive due to heat and wind patterns. The project ensures the availability of a sufficient water source for fire suppression, emergency and evacuation exits, and accessible roads, and recommends that the local government work to underground exposed powerlines and utility infrastructure (Stanford University, n.d.). Fire experts identified the surrounding vegetation – Chaparral and Oak Woodland – and developed an initial and ongoing maintenance treatment plan to address the extreme fire behavior exhibited by this type of fuel (Portola Valley Stanford Faculty Housing VMP, n.d.). Experts modeled and identified various flame lengths in conjunction with vegetation removal and maintenance, and found that by reducing the fuel load, fires are likely to remain on the ground and less likely to spread up towards the tree canopy. By gaining knowledge of vegetation and understanding the unique characteristics of the landscape, experts increase and sharpen their skills for adaptive rebuilding. They can advance adaptive techniques to improve the safety of the entire community and other at-risk areas throughout the state.

Prescribed Burning

Researchers, scientists, and policy experts agree that one of the best vegetation management tools to combat wildfire is prescribed fire, also known as indigenous burning; however, they also agree that the practice is severely underutilized as a wildfire mitigation strategy (Kolden, 2019). The benefits of controlled burns are widespread. They reduce biomass waste, enhance carbon sequestration, maintain healthy, resilient forests and grasslands, and even aid plant growth. Indigenous tribes across the United States burned with intention and frequency to tame the landscape, which allowed them to hunt, travel, forage, and sustain their

environment. However, for decades, this tactic was wholly abandoned as logging for wood and paper products emerged, and the use of fire was negatively associated with being primitive or unsafe (Kolden, 2019). In addition to social barriers, federal funding tends to be earmarked for and spent on fire suppression rather than prevention efforts. One study found that controlled burns are widely used and prescribed in Southern states more than in Western states. Florida has declared its use as a public good, allowing landowners to use the technique as needed (Kolden, 2019). The rugged terrain and vast acreage of national forest land in the West certainly differ from those of Southern states, but given that experts agree that intentional burns are a highly valuable tool for wildfire mitigation, more research and testing are warranted.

Rebuilding in High-Risk Areas

Certainly, we can fortify areas like the Pacific Palisades and even the Town of Paradise to withstand another scorching fire, but at what cost? Rebuilding outright or adding upgrades can be very expensive. Not all homes can afford smart remote-controlled roof-top sprinkler systems, especially if they have lost everything and are recovering. Companies with an interest in making a profit from novel technologies and smart gadgets that are not foolproof but add layers of protection, subscribe to a narrative akin to the argument that posits - guns protect you from guns – don't avoid fire, live safely alongside it (Frontline Wildfire Defense, 2025). However, if adaptive building is occurring in some jurisdictions and not others, or if there are inconsistencies in the application of rules and regulations meant to mitigate wildfire risk, the result is gaps that compromise the entire development or community. Homeowners can equip themselves with fancy firefighting tools and private firefighting crews; however, the underlying factors that fuel destructive wildfires have not changed. Geography, vegetation type, 100-mile-

per-hour winds, and the increasingly damaging effects of climate change will continue to pose a risk to structures and lives (Wharton & Iñiguez Elebee, 2025).

Balancing Speed and Safety

California is experiencing a severe housing crisis that will require millions of housing units and decades to recover from; however, in the interim, as communities look to rebuild as soon as possible, experts have proposed some not-so-efficient strategies for living alongside the WUI. For example, large properties such as agricultural plots, large parking lots, or golf courses can act as buffers between the WUI and homes (Wharton & Iñiguez Elebee, 2025). Abandoned strip malls, also known as cement holes, could offer a line of defense for first responders or a gathering place for fleeing fire victims (The Center for Land Use Interpretation, 2003).

In stark contrast, some homeowners want to rebuild using natural, bio-friendly fire-resistant materials, such as clay, sand, and hemp. Unfortunately, as attractive as they sound, these materials are not included in existing building codes because they have not been properly evaluated or tested. Structural engineers interested in rebuilding with earthen materials fear that appropriately testing, evaluating, and updating building codes could be very costly and take as long as 20 years to approve, and that does not include the time it will take to scale these materials for the wider housing market (Seidman, 2025). One interesting opportunity for fire or disaster victims would allow them to pull out of the WUI completely. Passed by voters in 2020, Proposition 19 provides property tax savings by allowing property owners to transfer their tax rate from their damaged property to a new home anywhere in California. By incentivizing lower property taxes on a new home, this law nudges individuals to move out of the WUI into safer, lower-risk areas (San Joaquin County Assessor-Recorder, n.d.). We know that fires are primarily the result of human ignition, yet people continue to live

in and around danger zones; this simply creates a ticking time bomb. Experts also proposed creating a fund - by raising property insurance premiums - to purchase and conserve land, essentially making it impossible to build housing in the WUI. Instead of pushing people out and making decisions for them, these alternatives provide more options for homeowners who will ultimately make the final decisions that impact their lives.

Finally, wildfires create displacement and exacerbate the existing housing crisis. Whether homeowners decide to leave or rebuild on the same scorched footprint, not all community members will be able to return. Therefore, policies that incentivize relocation, raise funds, provide financial support, create new housing designs, or enhance home hardening strategies must include individuals of lower means, renters, and multifamily housing developments. (Public Policy Institute of California, 2021).

The deadly and devastating Los Angeles fires destroyed entire communities and displaced residents, homeowners, and renters alike. The dense urban cores of San Francisco and Los Angeles have the greatest number of renters in California -these metropolitan areas are as prone to earthquakes, drought, and wildfires as their northern neighbors. 2022 Census data reflect that 45% of Californians are tenants. Of these, 75% are single women with children, and almost 56% of renters are Latinx, and 64% are African American. 83% have a high school degree or higher. The median income for homeowners is 103,870, and 56,975 for renters (Tenants Together, 2009). Low-income households and students make up a community's low-wage service sector workforce, and because of their low-income status, they tend to live in affordable housing or are renters as opposed to homeowners. 47% of renters have six or more people living in the same household (Tenants Together, 2009). There is a stark difference in income between these two groups, which speaks volumes about their overall financial stability.

The median net worth of renters is $10,400 compared to $400,000 for homeowners, mostly due to having established home equity.

According to the literature, renters are more vulnerable after a natural disaster (Martin, et.al., 2023). Unlike homeowners, renters receive less disaster recovery assistance, and public policies tend to focus on single-family homeowners. Researchers are exploring how tenants and landlords can be better served in programs across the public disaster management system. More assistance is needed for renters, especially low-income renters, because renters account for over one-third of U.S. households, and funding and programming across all disaster stages disproportionately serve single-family homeowners.

If renters cannot build back after a disaster, they cannot help their communities (small businesses, restaurants) regain their economic vitality and become resilient again. Studies suggest that households and businesses are mutually dependent, and the successful reopening of businesses influences the return of households. After a disaster strikes and destroys most of a town or city, state and local policies must ensure that all individuals can stay to help rebuild and revitalize the community.

Section VI: Conclusion

My analysis of six California counties reveals that some are making progress while others face numerous challenges in adapting to wildfire. Ostensibly, local jurisdictions appear knowledgeable, resourced, and aware of the apparent vulnerability and risk associated with wildfire. Several communities have adopted various defensible space strategies, wildfire planning, and adherence to updated building codes. Nonetheless, homeowners still struggle to secure adequate coverage in a broken insurance market that does not reward homeowners for hardening their homes.

The lack of a statewide master plan leaves locals to use their own judgment and agency to implement policies, rebuild, and adapt to wildfire resilience in ways that work for their communities. Local governments with limited revenues have an incentive to encourage economic growth and development to support and sustain their communities, and they have significant control over authorizing new development in the WUI and do little to restrict rebuilding. Therefore, there is an emphasis on building back quickly, in the same footprint, and as close to the original blueprints as possible – where possible.

Unfortunately, relocating homes altogether out of the danger zone is unpalatable (Bendix & Chow, 2025). Housing continues to grow at a significant rate in the WUI, and communities overall are simply not adapting to wildfire risk. There is evidence that maladaptive land-use planning dominates the building process, and the layout and placement of structures remain the same.

As with any other catastrophic disaster, wildfire events are focusing events that rise to the top of the agenda, generating immediate attention, resources, and support. Thus, a window of opportunity opens (Kramer 2021), and experts agree it's the best time to learn how best to reconfigure development beyond revamping aesthetics or using fire-resistant materials. However, as attention wanes, critical knowledge and documentation on how best to adapt may be lost. In addition, state and federal agencies tend to respond to disasters in the short term to address immediate recovery, rescue, and response; however, impacted communities require assistance and understanding from agencies over the long term. Lastly, Californians and policymakers must balance speed and safety in the rebuilding process. As we wait for the insurance industry to find the right balance with regulators and the marketplace, vulnerable populations must be part of wildfire resilience planning.

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