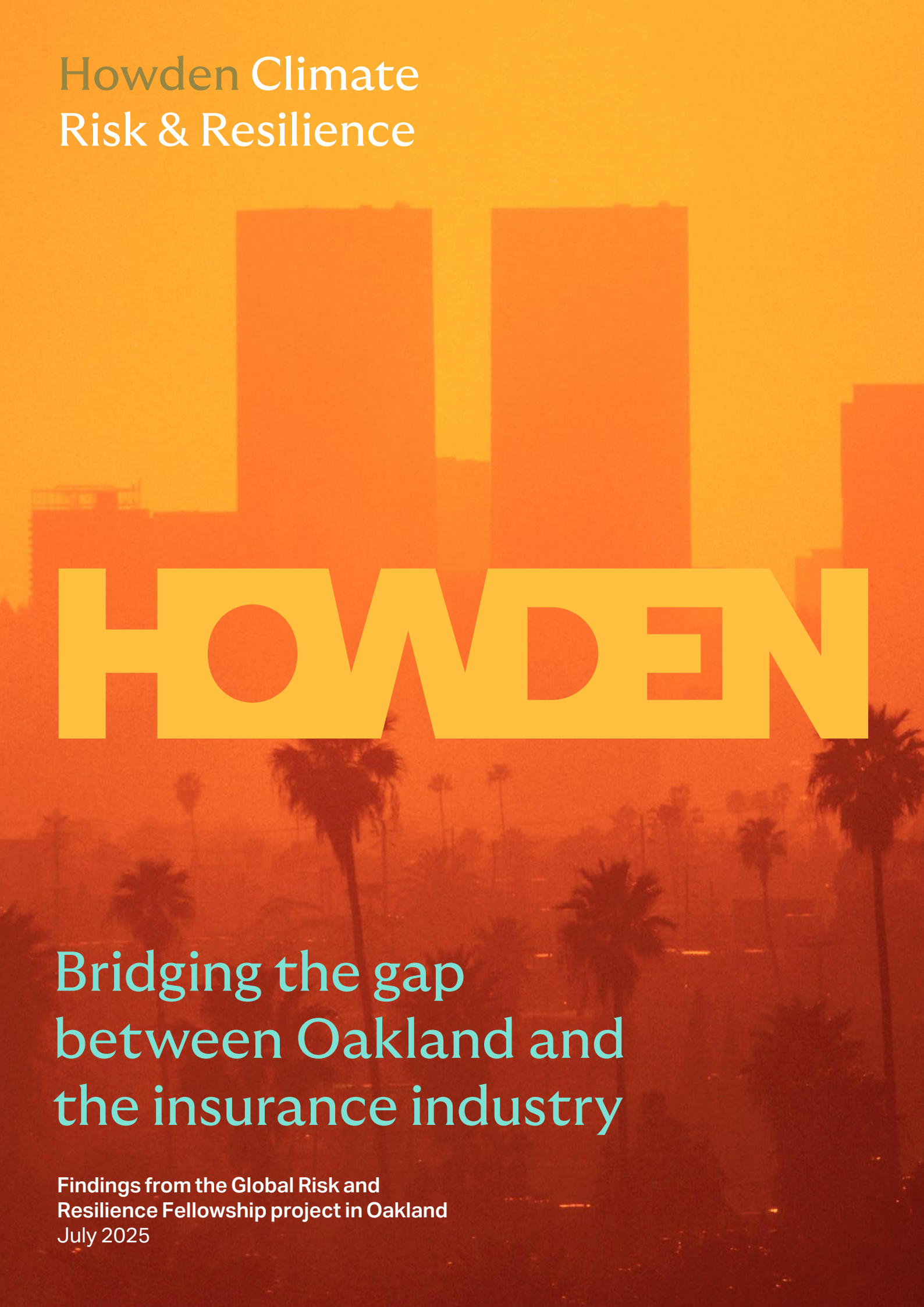
Howden Climate
Risk & Resilience



Bridging the gap between Oakland and the insurance industry

Findings from the Global Risk and Resilience Fellowship project in Oakland
July 2025

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What is the Fellowship

The Global Risk and Resilience Fellowship was established in 2022 through a strategic partnership between Howden, Resilient Cities Network (R-Cities), and the Sustainable Markets Initiative (SMI). The Fellowship is a first of its kind program that connects insurance professionals (the 'Fellows') from Howden and the wider insurance market with city leaders to develop urban resilience solutions that leverage insurance sector data and expertise over a 3–6-month period. The objective of the Fellowship is to support city leaders – across the globe – to understand how they can use insurance as part of their toolkit to manage climate risks.

The ambition is that the Fellowship placements provide city leaders with both advice and connections to private sector professionals focused on climate finance and resilience, and that this knowledge and network building between cities, the insurance market and the wider private sector unlocks practical action after the placement has finished.

Following the successful delivery of the first Fellowship cohort in 2023, in 2024 the Fellowship built on the successes of 2023 by working with five new cities, one of which was Oakland.

City of Oakland's objectives

The City of Oakland was part of the first cohort of 100 Resilient Cities. The City created the Chief Resilience Officer (CRO) position in 2014 and developed a comprehensive Resilient Oakland Playbook in 2016 that provided a detailed roadmap for Oakland to address urban shocks and stresses, adapt to climate change and mitigate against the shocks of disasters such as wildfires.

The City of Oakland has put several mitigation initiatives in place to reduce the homeowners' physical risk exposure to more frequent and severe wildfires (e.g., the Oakland Vegetation Management Plan). However, several factors have resulted in reduced insurance coverage against wildfire risk for Oakland residents: including, rising premiums and deductibles, declarations and non-renewals in coverage, and homeowners' carriers exiting the market with greater frequency[1].

Through the Fellowship project the City was keen to understand what further role it can play in ensuring homeowners can access the additional protection that insurance coverage provides. For example, one focus point was to explore what local level adaptation efforts could make participating communities in the Oakland Hills insurable for wildfire.

[01] Insurance coverage for damage caused by wildfire to homes in California is typically included in standard property or causality insurance policies, rather than as a standalone policy. This is different to flood risks, which tend to be covered through separate flood insurance policies.

Outcome of the Fellowship

Homeowners in the City of Oakland face significant challenges in obtaining wildfire insurance. The number of policies that are non-renewed continues to grow and expand to geographic locations in the City that were previously considered insurable by carriers. The inability of homeowners to access insurance has several negative implications, including the erosion of communities' financial resilience. Without layers of financial protection, the capacity of homeowners to protect themselves against, respond to and recover from wildfire and other disasters is diminished.

The intention of the Fellowship project was to provide Oakland city leaders with practical recommendations and insights to inform the City's strategies for increasing access to and affordability of effective risk transfer products for homeowners[2].

The factors contributing to the lack of homeowners' insurance in Oakland are complex. The findings from the Fellowship project reinforce that increasing access to wildfire insurance depends on a range of variables, which include changes to insurance regulation, increased and sustained mitigation measures, in-depth consumer education, updating local building and planning codes and cross-community collaboration.

The findings from of this Fellowship project have provided City of Oakland stakeholders with:

1

A better understanding of the insurance industry (underwriter and carrier) perspectives, around the challenges associated with homeowners insurance access and affordability.

2

A toolkit to effectively engage with insurance carriers around the factors resulting in a withdrawal of homeowners insurance.

3

A clear understanding of what can realistically be done to reduce the insurance protection gap for homeowners.

[02] While underwriters are beholden to the restrictions set out by the carrier (location, limits, forms, exclusions etc.), they do have the ability to independently assess the risk and make determinations about coverage if they fall within the carrier guidelines.

Scope of work undertaken

The Fellowship project focused on strengthening the City's understanding of the insurance market conditions that have resulted in a lack of homeowners' wildfire insurance coverage and providing practical recommendations for addressing this. The three focus areas of the project scope were:

Developed a profile of wildfire risk and insurance in Oakland:

Inputs from desktop research and engage Oakland city stakeholders, industry experts and community stakeholders were used to develop a profile of wildfire risk, access to and affordability of insurance, and related interventions.

Explored scope for improving insurance access:

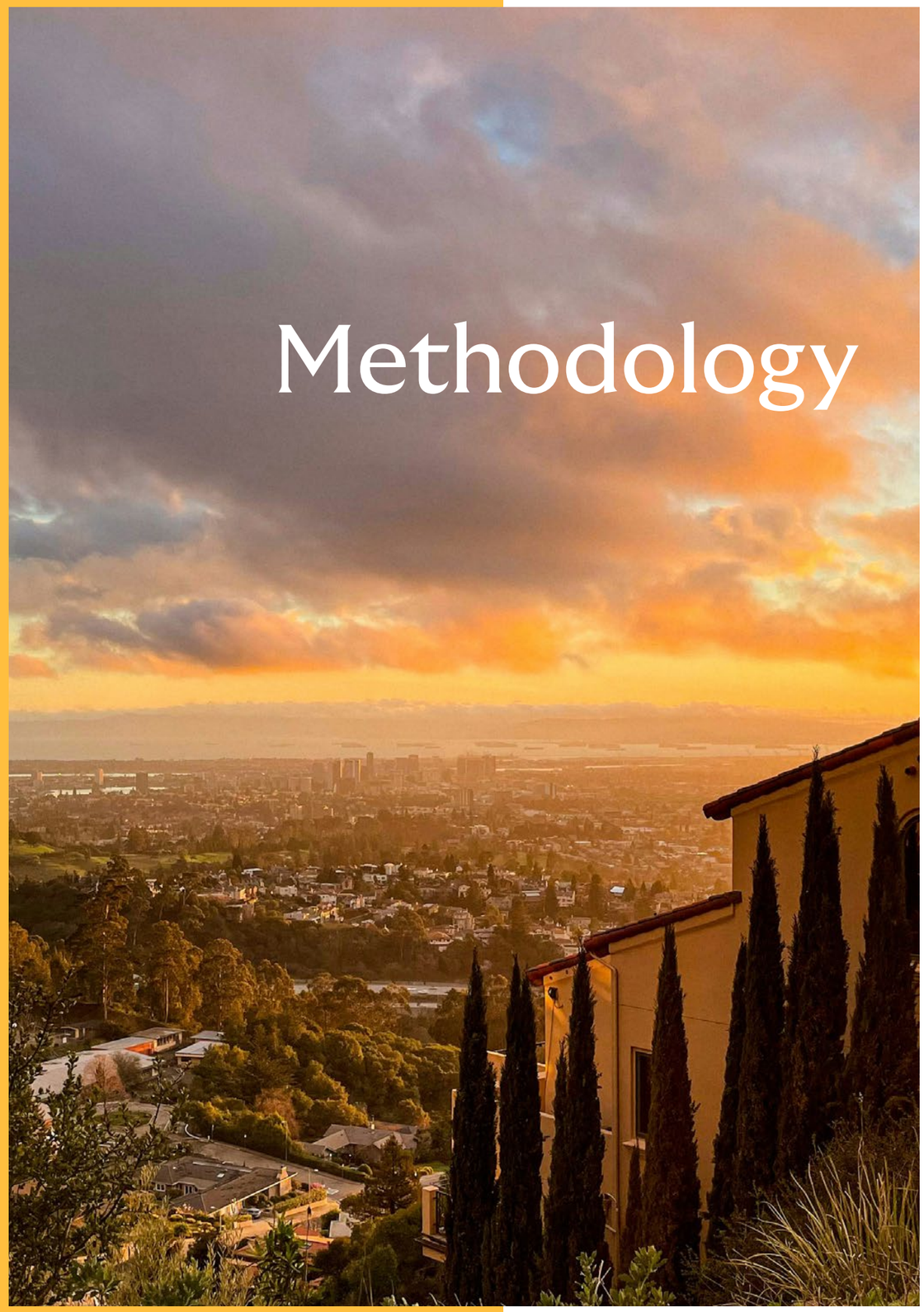
Engaged key players from across the insurance industry to understand the conditions that need to be met for insurance to become more accessible and affordable, and the potential timeframe for these conditions to be met. Considered what actions city officials can realistically take to improve the insurance landscape for homeowners.

Provided actionable recommendations to the City:

Developed a list of practical recommendations for the City, highlighting key areas it can influence to reduce the risk homeowners are facing and improve their ability to access affordable insurance.

This report outlines the findings from this research. It focuses on the necessary actions if homeowners' insurance is to be made more accessible and considers the potential conditions that will result in a return of insurers providing homeowners coverage in Oakland. While affordability remains an important consideration, the report notes that insurance policies will likely only become more affordable when there is more competition in the market because of increased accessibility.

Methodology



Public record and human source research

Between March and October 2024, the Fellowship project team conducted discreet human source inquiries and undertook public record research in English to: (i) identify and analyse the insurance and wildfire risk reduction landscape in Oakland; and (ii) develop recommendations for actions the City can take to reduce wildfire risk for homeowners and make them more insurable to wildfire.

Public record research was focused on topics including:

- The history of wildfires and damages (including insurance losses and economic losses)
- Climate projections of wildfires
- History of insurance coverage (e.g. sources, costs, affordability, claims, exposure, distribution)
- Existing wildfire regulation and levels of compliance
- Planned or anticipated changes to insurance regulation
- Existing resilience practices, such as ecological forestry management and inspection of individual homes

Key stakeholder groups with whom interviews were conducted include:

- Insurance experts
- Oakland City government staff
- Academics, and
- Oakland emergency response workers and homeowners

Findings from these interviews were used to build a picture of Oakland's exposure to wildfire risk, related insurance challenges and the effectiveness of existing mitigation and response efforts from the City

'Stress testing' assumptions and recommendations

To evaluate the soundness of the Fellowship project assumptions, findings and recommendations, the Fellowship project team conducted a 'stress testing process' that involved getting feedback on these areas from a group of five experts with deep wildfire and insurance knowledge. The five experts consulted are detailed in the source list below. This process helped the Fellowship project team to make the revisions required to ensure that the project findings are practical and well-informed.

Sources consulted

The table below identifies the primary individuals that the Fellowship team consulted. Insights provided by these sources informed the analysis in this report. Throughout the report, these sources are referred to by their assigned number (left hand most column).

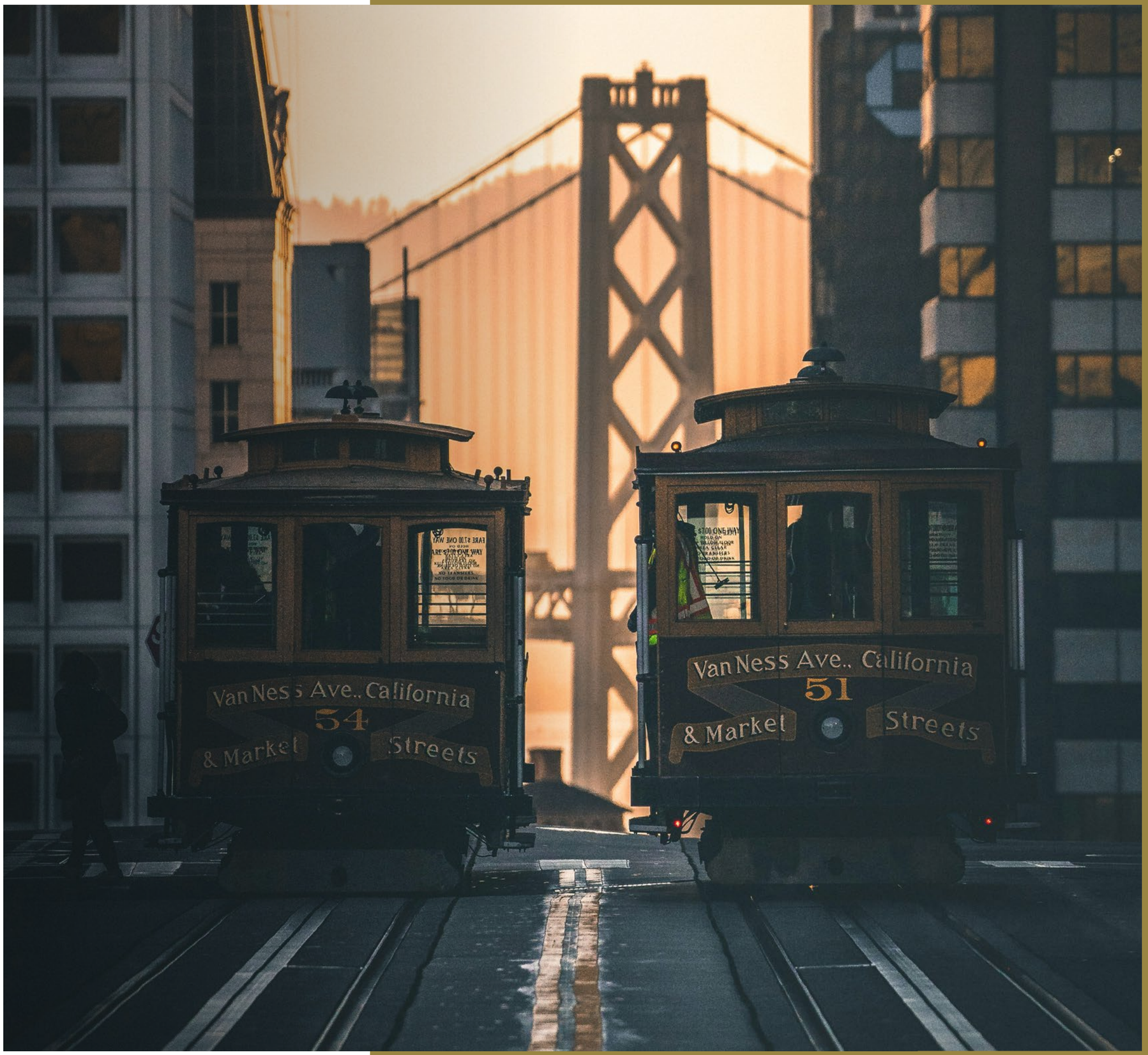
Table 1: Oakland Fellowship Project Source List

Source No.	Source description	Relevance
Insurance and Risk Management		
1	**Carrier underwriter**	A senior and referral underwriter at a US headquartered specialty insurance marketplace with 30 years of insurance industry experience, including programs underwriting. A California resident who is also a volunteer firefighter.
2	**Senior reinsurance broker**	A reinsurance broker at a global reinsurance broker and risk, capital, and strategic advisor with 15 years of insurance market experience covering underwriting, risk analysis and modelling. Insurance specialties include natural hazards and Insurtech.
3	**Senior insurance expert**	A senior leader at one of the largest commercial retail insurance brokerage firms in the US. Experience in all lines of insurance with a focus on public entity and commercial real estate sectors.
4	**Senior risk management expert**	An industry leader in risk management with 15 years of risk management experience at a leading global insurance broker and risk management firm.
5	**Wildfire expert and Risk engineer**	A risk engineering expert with in-depth wildfire and natural hazard analysis expertise.
6	**Physical climate risk and insurance expert**	Expertise in climate analytics, and insurance transactions/advisory role. Deep experience working with clients to create a comprehensive risk management framework.
Academia		
7	**Professor and researcher (specialized in city and regional planning and environmental design)**	A Professor at a top US university in California with deep expertise in climate resilience, adaptation, emergency preparedness and management. Recent research focused on the correlation between collaboration among bordering communities and positive outcomes in resilience.
8	**Climate resilience forester**	Extensive knowledge of the history of wildfire in California and tribal wildfire mitigation practices.
City of Oakland and Public Sector		
9	**Oakland City official**	Deep knowledge of the multifaceted sectors within the city and the way those sectors interact.
10	**Oakland City staff member in the Emergency Service Department**	Thorough knowledge of emergency services, citizen response groups and the City's pre- and post-catastrophe response.
11	**Oakland City risk manager**	Deep understanding of city risk management, including current insurance solutions in place for city property.
12	**Oakland City staff member in the Fire Department**	Extensive understanding of vegetation management and City level fire mitigation outcomes.
13	**Lead Construction official/ retired Fire Chief**	Over 30 years combined experience as head of a town level building department (building code enforcement), planning board member, deputy fire commissioner and construction official.

Reflections on the 2025 Southern California wildfires

In the three weeks from 7-31 January 2025, homes, businesses and critical infrastructure in the Los Angeles Metropolitan Area and San Diego were destroyed by a rapidly spreading series of wildfires – the most destructive in Southern California's recent history[3]. The fires resulted in billions of dollars in losses – both insured and uninsured. Modelling companies have produced varying estimates for insured losses; according to research produced by global reinsurance broker Howden Re, estimates have ranged from US$20 billion to US$45 billion[4]. The same research by Howden Re attributes the scale of the fires and resulting damage to a combination of factors, including below average rainfall, strong seasonal winds, unusually warm temperatures and the large proportion of older homes in the worst hit areas which were built before the enforcement of building codes that reduce wildfire risk.

The Oakland Fellowship project team completed the writing of this report in December 2024, prior to the outbreak of the January fires. However, key learnings from the Southern California wildfires are directly relevant to the Oakland Fellowship project. As a result, we have updated the report to include a reflection on the relevance of the Southern California wildfires to the outcomes of the Oakland Fellowship project. This reflection draws on insights provided by three sources with deep knowledge of the insurance landscape in California and wildfire resilience in the US, all of whom were also interviewed during the Fellowship project[5].



[03] World Resources Institute. 2025. '4 Graphics Explain Los Angeles' Rare and Devastating January Fires.' Access here; and Resources. "After the Los Angeles Fires, Re-examining the Wildfire Crisis in the United States". 2025. Access here

[04] Howden Re. 2025. "A Path Forward". Access here

[05] The three sources that shared views to inform this additional section to the report were consulted throughout the Oakland Fellowship project and have deep expertise spanning insurance, wildfire insurance and wildfire resilience. The profiles of each source are: (i) A senior wildfire risk consultant with deep experience providing clients with advice on how to mitigate and manage wildfire and other risk; (ii) A senior leader at one of the largest commercial retail insurance brokerage firms in the US. Experience in all lines of insurance with a focus on public entity and commercial real estate sectors; and (iii) An industry leader in risk management and strategy deployment with 15 years of risk management experience at a leading global insurance broker and risk management firm.

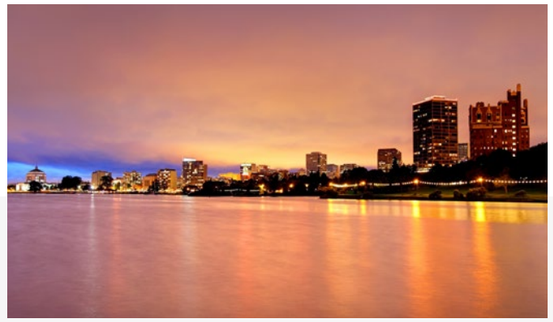
Key learnings

Strengthen local action

A key finding of the Oakland Fellowship project was the importance of local action for strengthening homeowners' wildfire resilience. Given the challenges associated with making homeowners more insurable to wildfire, and the limited scope for accelerating regulation that will increase access to insurance, the Fellowship project emphasized that increasing capacity for and coordination of local action is the most effective measure for local authorities and communities in the interim. City officials have a central role to play in enabling and coordinating local action that strengthens how communities prepare for and reduce their exposure to wildfires[6]. Part of this is ensuring, through good communication and deep engagement, that homeowners in vulnerable communities are aware of the actions they can take to make their homes, belongings and lives safer in the face of wildfire. Remarking on the importance of mitigation, one of the sources we spoke to (the senior wildfire risk consultant) noted the importance of households having detailed emergency response plans for future wildfires, including well-thought-out and rehearsed evacuation plans for people, pets and valuable assets. This is an example of an action local authorities can encourage and support.

Addressing underinsurance in wildfire exposed areas

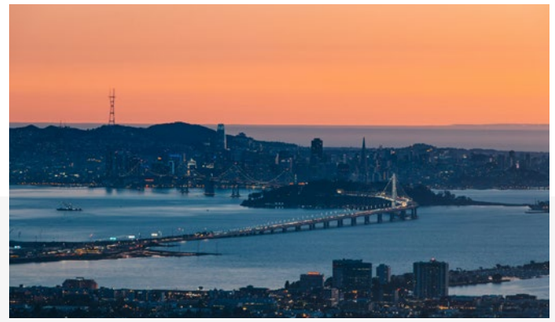
Underinsurance is nearly as big a challenge for homeowners as lack of access to insurance; it is estimated that up to 80% of homes are underinsured in California.[7]. A significant proportion of the survivors of the Southern California wildfires were underinsured, which means that their insurance policies did not adequately cover their losses or the cost of rebuilding[8/9]. The root causes of underinsurance in California are similar to the root causes of the lack of access to coverage in the first place. Both stem – in large part – from the regulatory environment which currently limits insurers from profitably providing coverage. This is a key barrier to closing the insurance gap in California – and perhaps the most challenging issue to address in the near term. Looking forward, ensuring that homeowners with coverage are aware of the extent of losses they are insured for, could help to address underinsurance and enable better informed preparation for future wildfire events.



Non-admitted carriers are likely to become more viable

Non-admitted carriers (or surplus lines insurers) are insurance companies that are not licensed by the California Department of Insurance (CDOI). As a result, they have more freedom to set their insurance rates, and often cover risks that insurers regulated by the CDOI are unable, or unwilling, to underwrite. This report discusses the non-admitted carrier market and its opportunities in depth. The Southern California wildfires have reinforced the report's finding: we expect non-admitted insurers to increasingly become a more viable option for homeowners looking for coverage, even if the market is less regulated and can charge higher prices[10/11].

One reason for this is that the CDOI introduced a year-long moratorium on non-renewals or policy cancellations by insurers following the wildfires[12]. Two of the three sources we consulted expected that while this was an effective short term solution, following its expiration more carriers may consider exiting the market, further reducing the number of regulated insurers homeowners can turn to.



Build back better vs. quickly

Rebuilding homes, infrastructure and in some cases entire neighbourhoods destroyed by the wildfires will be costly and take time – likely several years[13]. Reconstruction efforts need to prioritize resistance to wildfires. However, these efforts are often compromised by the need to build quickly and affordably. Often in post disaster environments there are restrictions on how funds for recovery can be utilized which can complicate the room available to 'build back better'. As reconstruction efforts in Southern California progress, individuals, city officials and the local construction industry will have to make difficult choices about whether to optimize speed or quality. The two are not mutually exclusive[14]. However, it can be challenging to do both. Striking the balance between investing in resilience and quickly restoring services and normality for those impacted by the wildfires will be important.

[06] Examples of the kinds of action city and local officials can support include community engagement and education, vegetation management and enforcement of local building codes

[07] Howden Re. 2025. "A Path Forward". Access here.

[08] San Francisco Chronicle. 2025. "A broken system is keeping California homes underinsured: Millions have no idea they're at risk". Access here.

[09] Howden Re. 2025. "A Path Forward". Access here

[10] Milliman. 2025. "California homeowners insurance: Current state of the market and implications of the Los Angeles wildfires." Access here.

[11] Insurance Business. "California Surplus Lines Market Outlook". Access here.

[12] In January 2025 following the wildfires, California Insurance Commissioner Ricardo Lara issued a mandatory one-year moratorium on policy non-renewals or cancellations by insurance companies providing coverage in areas affected by the fires. See here and here. The one-year protection applies to all residential policyholders who suffered less than a total loss, including those who suffered no loss.

[13] ABC News. "LA fires aftermath: How people are rebuilding after losing almost everything." Access here

[14] Cambridge Centre for Risk Studies and AXA XL. 2020. "Optimizing Disaster Recovery: The Role of Insurance Capital in Improving Economic Resilience". Access here.

Relevance for Oakland Fellowship project findings

Cities are increasingly exploring how adaptation and mitigation efforts can reduce risk, and improve the insurability of their communities. The focus of the Oakland Fellowship project was to bridge the gap between Oakland city officials and the insurance industry, providing the city with actionable recommendations for how to make homeowners more insurable to wildfire. As is outlined in the report, the Fellowship project team quickly learned that the city's ability to make homeowners more insurable through direct action is limited because it requires structural changes at the institutional and regulatory levels, which the city has little control over. Key among these changes is the introduction of regulation that enables insurers to provide homeowners insurance profitably in wildfire exposed areas. As a result, the report focuses on how the city could act to make homeowners insurance more accessible, while also reducing homeowners' exposure to wildfire.

Research shows that investing in mitigation and risk reduction reduces the likelihood and size of losses post-disaster[15]. There is also a case to be made that alongside regulatory reform, it could contribute to improving access to insurance for homeowners. The Southern California wildfires were a stark reminder of the very real risk that cities and communities face. The event also re-enforced the important question posed by the City of Oakland for the Fellowship project. The combined learnings from the Southern California wildfires and the Oakland Fellowship project highlight the value of local level risk mitigation and of investing in prevention – even if this does not eliminate risk entirely.

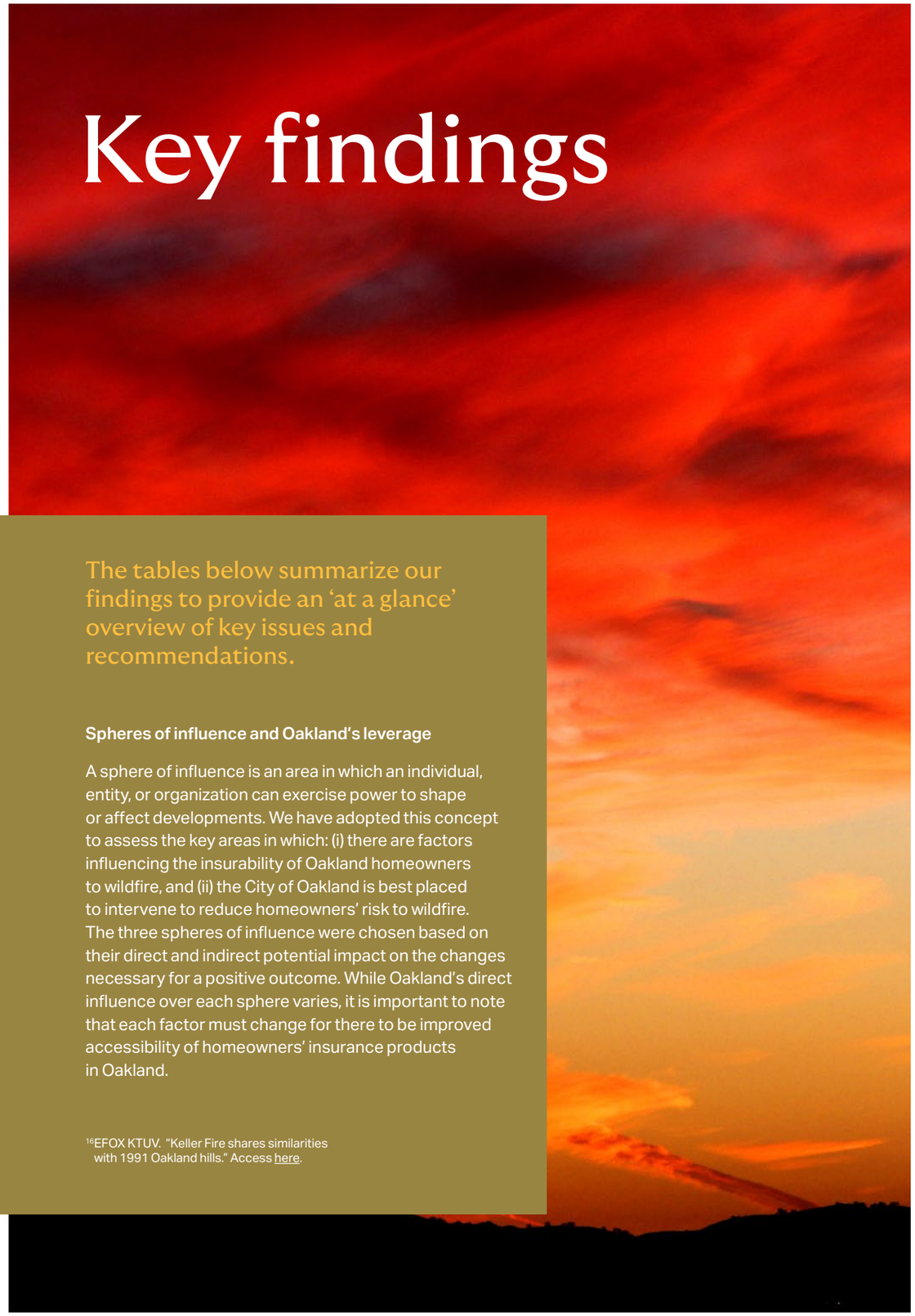
The Southern California wildfires and findings from our research in Oakland demonstrate that the current insurance landscape in California does not adequately protect homeowners from more severe and frequent wildfires. Addressing this inadequacy requires the revision of a complex regulatory framework which currently limits the ability of insurers to offer coverage profitably. At the regulatory level, it is also important to consider the most effective role for government in enabling access to affordable and sufficient insurance coverage for homeowners. This will be determined by the extent to which State level insurance regulation can be revised to enable insurers to price and calculate risk accurately, even if this results in higher premiums in the short term.

The recommendations from this report are relevant for city leaders across US cities with high wildfire exposure. While the policy landscapes across these cities might differ, the lessons from the Oakland Fellowship project – such as ensuring that local building codes are up to standard and enforced – are worth highlighting as a focus for city officials interested in strengthening mitigation and reinforcing their communities' resilience to wildfires. In Southern California, policy makers and city leaders can work to ensure that local building codes are enforced - especially for the construction of new homes and other buildings erected as part of the rebuild effort - to demonstrate how local regulation can support and enable more resilient post-disaster infrastructure.

Stronger building codes and effective local-level adaptation lead to safer, more resilient structures, reducing the risk of damage from disasters like wildfires. This in turn should lower insurance claims, allowing insurers to offer lower premiums over the longer term. Collaboration between policymakers, builders, insurers, and communities is key to initiating this cycle of benefit, ensuring widespread adoption and lasting positive impact.

[15]Ibid.

Key findings



The tables below summarize our findings to provide an ‘at a glance’ overview of key issues and recommendations.

Spheres of influence and Oakland’s leverage

A sphere of influence is an area in which an individual, entity, or organization can exercise power to shape or affect developments. We have adopted this concept to assess the key areas in which: (i) there are factors influencing the insurability of Oakland homeowners to wildfire, and (ii) the City of Oakland is best placed to intervene to reduce homeowners’ risk to wildfire. The three spheres of influence were chosen based on their direct and indirect potential impact on the changes necessary for a positive outcome. While Oakland’s direct influence over each sphere varies, it is important to note that each factor must change for there to be improved accessibility of homeowners’ insurance products in Oakland.

[16]EFOX KTUV. “Keller Fire shares similarities with 1991 Oakland hills.” Access here.

Summary of key findings

Sphere of influence	Finding	Relevance for Oakland’s objectives	Likelihood for change	Rationale for likelihood rating
Policy and regulation	Insurance regulation at the State level is the most significant structural barrier to the existence of an insurance market that can meet the needs of both insurers and consumers.	Oakland has limited control and direct influence over State regulation, which currently limits the capacity of insurers to adequately price risk. Expected regulatory reforms – particularly California’s Sustainable Insurance Strategy – would modernize insurance regulation and increase access over time. The California Department of Insurance and Commissioner Ricardo Lara met the expected timeframe for the implementation of these reforms as of December 30th, 2024.	**Moderate**	As regulations evolve, market mechanisms – such as supply and demand – are expected to improve accessibility and affordability. However, the changes required are at the State level, allowing Oakland only limited control over the outcome, making it only a moderate likelihood for change.
Local action	• The City of Oakland is well-placed to influence meaningful action at the local and community levels. • Key potential interventions include updating building codes, and driving more collaboration, engagement and education across the community, corporations, and the private sector.	• The City of Oakland cannot directly and unilaterally influence the insurance market or regulatory developments that would make insurance more accessible and/or affordable for homeowners. • However, the city is very well placed to continue improving existing interventions at the local level to reduce homeowners’ exposure to wildfire risk. These actions are vital for strengthening community resilience and enhancing awareness of wildfire prevention.	**High**	• The recent (October 2024) Keller fire is a real-world example of Oakland’s successful wildfire response, and the benefits of robust mitigation and cross community engagement practices for reducing the potential destruction caused by a wildfire. • Increased and sustained mitigation efforts will offer even more protection[16].
Insurance market	• Regulatory reform will be the central driver of insurers returning to the market. The City of Oakland has little leverage to incentivize insurers to increase access to and affordability of homeowner’s coverage. • Despite this, the insurance market must be considered as an important future sphere of influence; as insurance becomes more available and affordable, it will be important for City stakeholders to understand how insurers include granular risk assessments and mitigation measures in their pricing.	• Homeowners and city officials would benefit from understanding the extent to which insurance companies might offer mitigation discounts based on granular risk assessments in the medium to long term, once availability of insurance increases.	**Moderate**	• We expect insurance companies to respond to regulatory reforms by gradually returning to the market and resuming the provision of homeowners coverage. However, in the immediate term, the cost of premiums will likely be notably high.

Overview of recommendations

Table 3: Overview of recommendations to City of Oakland

Recommendation	Related sphere of influence	Rationale/ expected outcome	Likely impact on risk reduction	Likely impact on near term increased insurance accessibility
Increase mitigation and ecological forestry	Local	A continued focus on mitigation will reduce severity and frequency of wildfire. The decreased hazard will result in greater accessibility to property coverage as carriers recognize the benefits of such practices.	**High**	**Low**
Monitor and respond to regulatory changes	Policy and regulation	When carriers can get an adequate rate and utilize more accurate claims prediction, there will be better availability of highly rated insurers.	**Moderate**	**High**
Support efforts to have electricity utilities moved underground	Local	One of the most effective ways to prevent wildfires caused by power lines is to utilize horizontal/ directional drilling to move power lines underground. This would also clear some of the routes for evacuation which are very narrow in much of Oakland, resulting in greater accessibility.	**High**	**Low**
Educate consumers on insurance and mitigation	Local	Consumer education on insurance and mitigation will increase awareness and empower residents to better protect their properties.	**High**	**Low**
Educate insurers on mitigation and outcomes	Local	Oakland should commission modelling showing positive outcomes of mitigation which would show carriers a lower frequency and severity of wildfires and result in better accessibility of insurance products for homeowners.	**Moderate**	**Moderate**
Reinforce local building and planning codes with wildfire standards	Local	Home hardening construction and renovation guidance should be addressed on a local level. If effectively implemented this would result in less risk.	**High**	**Moderate**
Increase mitigation funding from private sector, government and non-profits	Local	Increased funding would result in better and sustained mitigation, resulting in less risk.	**High**	**Moderate**
Drive efforts to increase transparency between government, consumers and insurers	Crosscutting	More collaboration and increased transparency would result in reciprocal relationships helping to determine how to lower risk, resulting in more affordability.	**High**	**Moderate**
Compulsory wildfire liability insurance for at-risk entities[17]	Local	Require property owners, utilities and other at-risk entities to provide evidence of insurance or ability to self-insure, which is a form of mitigation for financial risk to the city and citizens. Collectively residents now have less financial risk for losses caused by entities, resulting in more affordability for homeowners' insurance products.	**High**	**Moderate**

[17]Examples of mandatory insurance in the United States include, workers compensation, auto liability and professional liability (some professions/some states.) New Jersey also requires businesses to carry liability insurance due to legislation passed in 2022 (NJ law S1368). A certificate of insurance must be provided to local government.

Insurance access and affordability

Accessibility

There are three primary channels through which homeowners in Oakland can access insurance (these also apply to California more broadly). These are:[18]

Admitted insurance market:

The admitted insurance market in California consists of insurance companies that are licensed by the California Department of Insurance (CDI) and required to comply with the State's insurance regulations. Once an admitted insurance company files its rates, it cannot change them without authorization from the CDI. Admitted carriers are required to participate in the California Insurance Guarantee Association (CIGA). All admitted insurance companies will be bailed out by the State's insurance fund (CIGA), which can make payments on claims where this is required. If an admitted insurance company declares bankruptcy or depletes its reserve of funds, CIGA will step in to settle outstanding claims up to the specified amount of US$ 500,000[19].

Non-admitted insurance market:

Non-admitted insurance companies – usually referred to as surplus lines insurers – are not licensed by the State. However, they are permitted to provide insurance coverage for perils that admitted insurers decline. These insurance companies operate under less stringent guidelines and tend to specialize in high-risk or bespoke insurance needs[20]. Non-admitted carriers are currently the only insurers that can get rates that are commercially viable because they are not subject to rate approval by the CDI. As a result, they are more likely to offer coverage in high severity wildfire zones[21/22]. In any market, non-admitted carriers tend to be more expensive, but more flexible and accessible than admitted carriers because they are less regulated (Note: Both admitted and non-admitted carriers are subject to State audit and financial review)[23].

Fair Access to Insurance Requirements (FAIR) Plan:

The FAIR Plan is California's risk pool. It offers coverage for homeowners in areas at high-risk of climate related or human driven perils at higher rates than would be offered by a private insurance company. It is resourced through contributions from all admitted insurers operating in the State. Each carrier takes on a percentage of risk within the plan, based on their share of the admitted market across the State. Notably, FAIR Plan coverage requires individuals to also hold a separate policy for differences in conditions (DIC) or a policy to cover perils excluded (e.g. liability) from the FAIR Plan. All admitted insurers are required to participate in the FAIR Plan.

[18] Yanjun Laio et. al. 2022. "Insurance Availability and Affordability under Increasing Wildfire Risk in California." Resources for the Future. Access here.

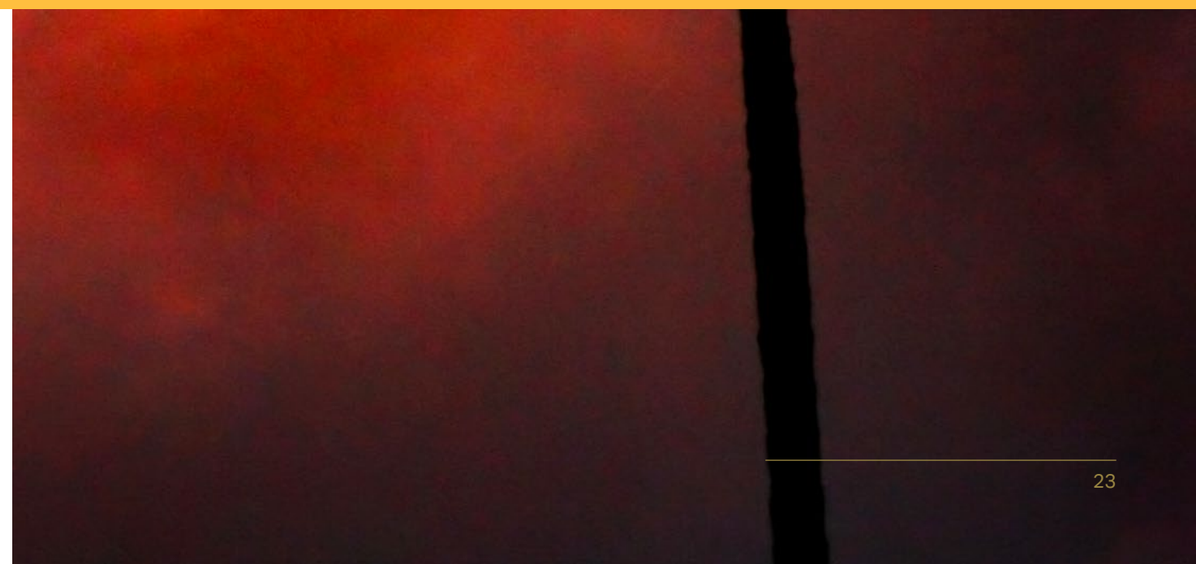
[19] Admitted vs. Non-Admitted Insurance Companies of California. Access here

[20] Lockton. 2024. "Understanding the Nuances: Admitted vs. Non-Admitted Personal Insurance Carriers". Access here.

[21] Rate adequacy refers to the regulatory requirement that the premiums charged by an insurer are set at a suitable level to ensure that insurance companies can over their operating expenses, claims and generate a profit.

[22] KPBS. 2024. "Cost of homeowner's insurance going way up for some in California". Access here

[23] Admitted vs. Non-Admitted Carriers: What's the Difference? Access here



The table on the right shows the flexibility that carriers in the Surplus Lines market have, which allows them to provide more coverage options for residents. According to insurance broker Risk Strategies, more carriers are likely to use non-admitted options/products in California (these are also known as excess and surplus (E&S) lines). This will allow these carriers to shift non-admitted rates more quickly and easily as required, based on losses[38].

According to consumer financial services company Bankrate, brokers are taking clients to the surplus lines (non-admitted) market, where more buyers are now getting coverage[39]. As of mid-2024, homeowners' insurance transactions (number of policies) in California's surplus lines had gone up by around 70% for 2024, doubling the total volume of transactions 10 years ago. Much of this increase has taken place since 2023, when there was a step increase in the number of transactions in the surplus lines insurance market[40]. In addition, the Insurance Journal found that as of June 2024, the FAIR Plan's total exposure was US$393 billion, reflecting a 38.3% increase since September 2023 (fiscal year-end)[41]. Admitted and non-admitted carriers are equally subject to financial review by the State and having both options balances the market.

Table 4: Comparison of primary insurance options in Oakland, California

Coverage feature	118 Admitted carriers	132 Non-admitted carriers	1 FAIR Plan (non-admitted) [24]
Can be applied for by any individual	**Yes** ✓	**Yes** ✓	**No**[25] ✗
Must adhere to CDI regulations	**Yes** ✓	**No**[26] ✗	**Yes** ✓
Licensed in California	**Yes** ✓	**No**[27] ✗	**Yes**[28] ✓
Subject to State financial audit [29]	**Yes** ✓	**Yes** ✓	**Yes** ✓
Covered by California Insurance Guarantee Association (CIGA) [30]	**Yes** ✓	**No** ✗	**No**[31] ✗
Requires separate policy for non-wildfire coverage [32]	**Sometimes** –	**Sometimes** –	**Yes** ✓
Requires State approval to change insurance rates	**Yes** ✓	**No** ✗	**No**[33] ✗
More flexibility to determine rate and premium	**No** ✗	**Yes** ✓	**No** ✗
Approved to do business in the State	**Yes** ✓	**Yes** ✓	**Yes** ✓
Subject to financial rating by AM Best[34]	**Yes** ✓	**Yes** ✓	**No** ✗
Surplus Lines (SL) taxes and fees added to premium	**No** ✗ No broker fees are added	**Yes** ✓	**No** ✗ No broker fees are added
Typical cost for US$300,000 in dwelling coverage on CA (as of October 2024)	**US$1,480**[35] (Oakland US$1,169)	No estimates found online.	**US$3,200**[37] plus the cost of DIC policy

[24] California Fair Plan Update February 2024 – Access Here.

[25] Must prove you cannot get coverage in the admitted market, attempt to get coverage from the non-admitted market and meet certain building standards for the FAIR plan. Both admitted and non-admitted have their own basis for excluding properties including zip code, year built etc.,

[26] Eligible Carriers – See here

[27] Non- admitted carriers Must be licensed in domiciled State.

[28] All admitted carriers have individual licenses.

[29] Non admitted carriers must have a minimum of USD45M in capital: Access here

[30] CIGA is a not-for-profit organization that pays claims to insurance policy holders on behalf of insurance companies that have gone bankrupt. Admitted carriers are covered by State guarantee for coverage for claims in case of insolvency. However, non-admitted carriers must also post a bond (Section 1616 sufficient to secure payment of any final judgment).

[31] Insurance companies will be required to cover half the cost of losses of up to USD2 billion in total claims — USD1 billion for residential and USD1 billion for commercial. Access Here

[32] A difference in conditions (DIC) policy covers perils excluded from a standard policy. Coverage gaps may include perils such as flood, earthquake, landslide, sinkholes, wildfire, rain and liability. The FAIR plan covers named perils, such as wildfire only.

[33] Rates must be actuarially sound: Access Here.

[34] AM Best is the largest rating agency in the world specializing in assessing the credit worthiness of insurance companies. See here.

[35] Average Cost of Homeowners Insurance in California (2024) Access here

[36] We did not find an online source that breaks down and compares the average premium for admitted vs. non-admitted insurance policies of similar size. Additionally, non-admitted carriers are not required to release this information. Access here

[37] The cost of DIC policy will differ widely based on coverages selected (landslide, earthquake, flood, liability etc.), topography, location, limits and deductibles.

[38] California's Proposed Insurance Reforms for 2024: Access here

[39] The cost of DIC policy will differ widely based on coverages selected (landslide, earthquake, flood, liability etc.), topography, location, limits and deductibles.

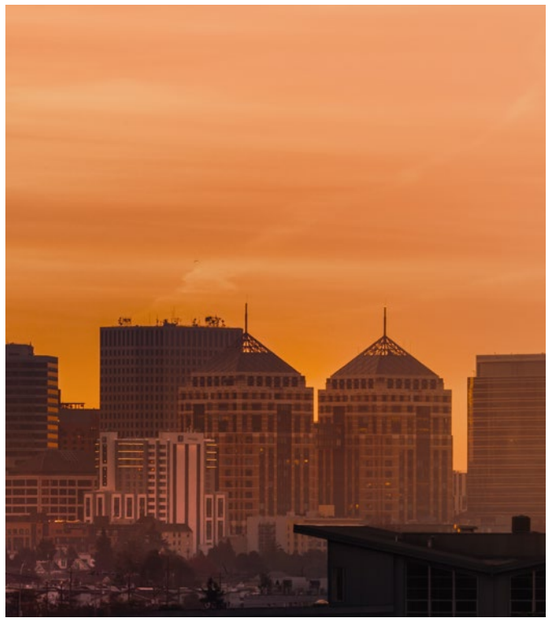
[40] How California's Homeowners Insurance Crisis Is Affecting Brokers: Access here

[41] Key Statistics & Data – Access here

Affordability

The average cost of homeowners insurance in California has risen steadily since 2015. This upward trend has become more pronounced since 2017[42]. While insurance premium rates in California continue to rise over time, compared to other states in the US, California is not among the top five states with the highest home insurance rates. According to an online source, as of October 2024, California's homeowners' insurance premium for US$300,000 in dwelling coverage averages US$1,480, which is US$806 less than the national average[43]. Similarly, within California, Oakland is not within the top five cities in California with the highest home insurance rates[44/45].

It is important to note that affordability is a relative term and should be considered in relation to individual variance in income and other contextual factors at the city and State levels. Despite the variance in premium rates highlighted above, within the context of the City of Oakland, the cost of insurance is a significant challenge and is unaffordable for many. At present, in the California market non-admitted policies and the FAIR plan remain the most accessible options. However, neither option can be described as affordable (see table above comparing available insurance options in California).



[42] The San Francisco Chronicle, 2024

[43] Bankrate. 2024. "Homeowners insurance rates by state For October 2024". Access here.

[44] Insurance.com. 2024. "Average homeowners insurance rates by state in 2024". Access here.

[45] According to Insurance.com, the Oklahoma, Kansas, Nebraska, Florida and Colorado are the states with the highest home insurance rates respectively. In California, the states with the highest home insurance rates are Los Angeles, San Diego, San Jose, San Francisco and Fresno respectively.

[46] Researchers reveal a hidden factor in California's insurance crisis: The 'winner's curse'. Access here.

[47] Ibid.

Relationship between accessibility and affordability

The City of Oakland is interested in homeowners insurance becoming both more accessible and affordable in the context of growing frequency and severity of wildfire risk in the city. The relationship between accessibility and affordability of homeowners insurance is complex. Findings from human and open-source research suggest that – all things being equal – the cost of homeowners insurance will decrease over time as more insurers re-enter the market and competition grows. Additional admitted carriers will likely enter the market when insurers can charge adequate rates (including the cost of reinsurance), catastrophe models (forward looking rather than historical) can be used, and the benefits of adaptation and mitigation are quantified and clear to insurers.

However, we expect that in the immediate future there will be a substantial increase in premiums as the market levels off and insurers update the data that they are using to calculate an adequate rate. This view was shared by Meredith Fowlie, a professor in Berkely's Department of Agricultural & Resource Economics who notes that a key driver of the lack of access to affordable insurance is the underpricing of historical climate risk. Fowlie highlights that perhaps **"steep premium increases are a necessary — albeit unpleasant — adjustment to accurately reflect escalating climate risk."** Kara Manke, science writer at the University of California, Berkeley also shares this view. In an article published in UC Berkely News in July 2024, Manke notes that. **"[...] the reality is that, as the climate changes, insurance premiums are going to have to rise to reflect escalating risks. I think the entire State is reckoning with the extent to which we are exposed to wildfire risk, and what adapting to this rising risk will involve. Some of these costs will come in the form of higher insurance prices in high-risk areas.**

Context

Lack of access to affordable insurance in California has worsened in parallel to the insurance access and affordability challenges in other parts of the U.S. As the size and frequency of claims resulting from climate related disasters has increased, so have the non-renewals as carriers exit the market or shrink their coverage area. Wildfire is a secondary peril, a peril that occurs more frequently but generally with less severity. These types of perils are becoming more difficult to insure as climate change increases both the severity and frequency of such disasters.

The mass exodus of carriers from the California market is not simply a result of the size and frequency of wildfires, but also the increased building cost, including law and ordinance coverage. Claims are not only becoming more frequent, but more expensive due to the increase in cost of both building materials and contractors, while the additional materials to become compliant with local ordinances (e.g. replacing single pane with double pane windows) are also becoming significantly more expensive.

Regulatory landscape for insurance

Status quo

The California Department of Insurance (CDI) is responsible for regulating the insurance industry across the State. The CDI is currently led by Insurance Commissioner Ricardo Lara, who has been in the role since 2019.

California's prevailing insurance legislation gives insurance companies considerable flexibility to decide the kinds of policies they write, the geographic areas where insurance is provided, and the types of risk or perils covered [48]. At the same time, State legislation includes several notable restrictions on how insurers can price homeowners' insurance. These restrictions directly impact the ability of property insurers to get an adequate rate even as loss costs (amount needed to cover a claim) and reinsurance rates (insurance coverage for insurance carriers) increase.

The most restrictive regulations on the property insurance market have included:

(i) Proposition 103 – a piece of legislation voted into law by California voters in 1988 that requires insurance companies to get permission from the CDI before they can raise their rates. The CDI requires all regulated insurance companies to submit proposed rates for review and approval. It can deny any rates it views as unjustifiably high or low.

(ii) Restrictions that previously required insurance companies to use historical data to price risk, rather than current risk or forward-looking catastrophe models. This restriction was removed with the introduction of the Sustainable Insurance Strategy in December 2024.

(iii) Restrictions on insurance companies considering their own reinsurance costs when setting premium rates – this restriction was also removed with the introduction of the Sustainable Insurance Strategy [49/50]. While rates are regulated, underwriting is not regulated or transparent, making it difficult for consumers to understand the factors that contribute to higher premiums or non-renewals.

As a direct result of these restrictions, property insurers have either paused or stopped their coverage. According to the CDI, since 2022 seven of the top 12 insurance carriers in California have either cut existing homeowners policies, or stopped providing coverage altogether, despite rate increases approved or pending with the CDI [51].

The impact of lack of access to insurance can be clearly seen in the real estate market. The Insurance Journal reports that 13% of home sales fell out of escrow due to an inability to find insurance, nearly one third of agents said buyers had difficulty finding insurance and one in five said clients ended up in the FAIR plan [52].

[48] NBC. 2024. "Insurers keep dropping California homeowners. Changes are in the works to try to stop their cherry-picking". Access here.

[49] CalMatters.2023. "Four things California can do as home insurers retreat". Access here.

[50] Catastrophe models use a variety of data sources to calculate the impact of extreme events – in this case climate events – on the assets of an organization.

[51] NBC. 2024. "Insurers keep dropping California homeowners. Changes are in the works to try to stop their cherry-picking". Access here.

[52] Insurance Journal. 2024. "Survey Shows California's Insurance Crisis Is Impacting Home Sales." Access here.

Regulatory reform –
California's Sustainable Insurance Strategy

The California Sustainable Insurance Strategy is an initiative introduced by Commissioner Lara in late 2023, aimed at reforming California's insurance regulations. Its main objective is to stabilize the State's insurance market with a view to making it more attractive for insurers to return and operate[53]. According to the CDI, the strategy seeks to "enhance insurance access, fairness, and resilience" for both the market and consumers. On December 30, 2024, Commissioner Lara introduced the Net Cost of Reinsurance in Ratemaking Regulation, as an initial rule to require insurers to provide coverage in high-risk areas. The regulation permits insurers to include the cost of reinsurance in their rates[54].

The proposed changes to regulation are expected to provide many benefits to consumers and encourage continued efforts, including more reliable rates, greater availability of coverage as insurance companies can better anticipate future losses, stronger oversight over modelling, and better integration of mitigation efforts by different stakeholders into catastrophe models[55]. However, the impacts of the Sustainable Insurance Strategy on premium rates for homeowners in California remains to be seen. While it is expected that rates will change, whether insurance becomes cheaper or more expensive in the near term will depend on which insurers agree to resume offering coverage, and the broader implications of this for competition[56].

Core to the strategy is increasing insurance availability and access by seeking a commitment from insurers to "write a minimum of 85% of their statewide market share in wildfire distressed areas" within two years of being able to use forward looking catastrophe modelling – regulation for which will be introduced to make coverage and rates more sustainable[57]. However, Oakland is not yet considered a wildfire distressed area and, as a result, this requirement would not apply. Shortening rate review and approval timelines is another component of the strategy. Although quicker rate change approval would likely contribute to improving the availability of insurance in Oakland, this would likely be at a higher cost driven by the inclusion of reinsurance costs in rate setting, and a more accurate assessment of future wildfire risk based on the use of forward looking catastrophe models.

Although the introduction of catastrophe modelling regulation will ensure the sustainability of coverage and rates, it will also likely be expensive for insurers to introduce and may contribute to an initial rise in admitted carriers' insurance rates. Additionally, carriers may use a range of different models, which could lead to a great variance in rates based on diverse predictive modelling. Consumers may be unable to understand why their properties are being assessed as high risk, but carriers will want to protect their expensive intellectual property from both consumers and competitors. Ultimately, the use of catastrophe modelling may introduce challenges around transparency and fairness for consumers.

[53] Robins Kaplan. 2024. "California's Sustainable Insurance Strategy: Balancing Innovation with Industry Challenges." Access here.

[54] "Commissioner Lara issues landmark regulation to expand insurance access for Californians amid growing climate risks" access here.

[55] Commissioner Lara announces next phase of Sustainable Insurance Strategy to safeguard Californians' access to insurance. News: 2024 Press Release: Access here. For Release: March 14, 2024

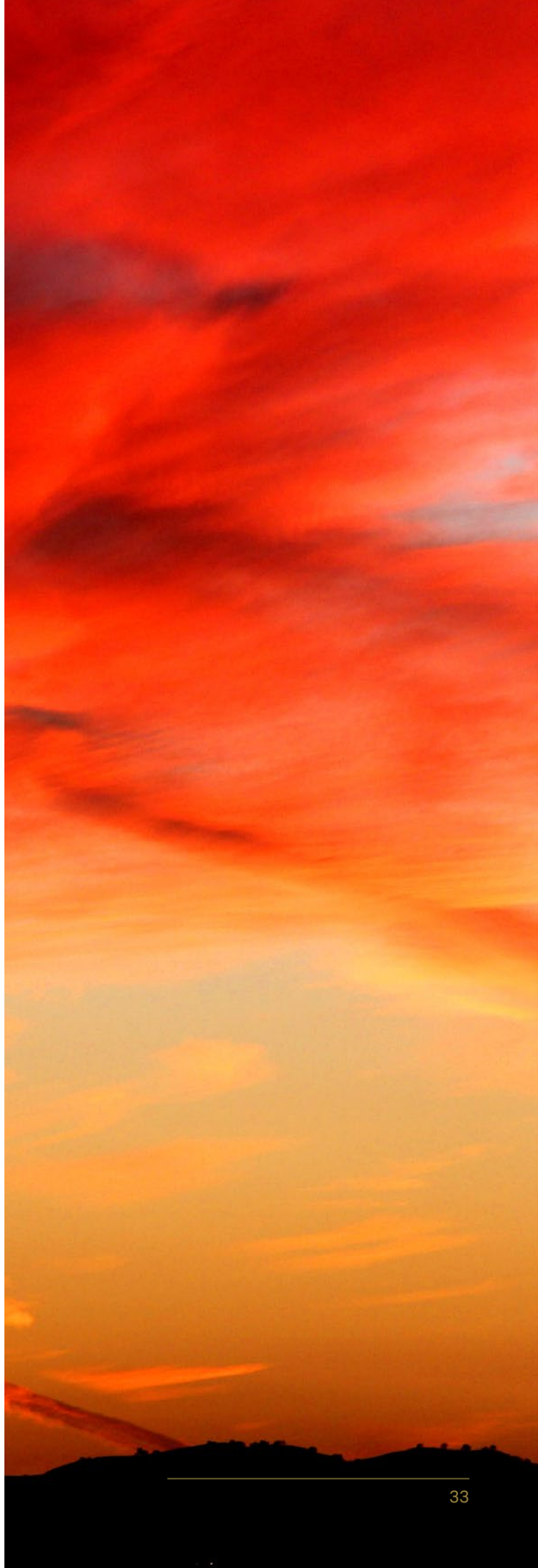
[56] Bankrate. 2024. "California's Sustainable Insurance Strategy: What the most extensive insurance overhaul in 30 years means for homeowners." Access here.

[57] California's Sustainable Insurance Strategy. Access here.

[58] Is this the solution to California's soaring insurance prices due to wildfire risk? Access here

The introduction of catastrophe modelling will allow carriers to better determine and predict the impact of future wildfires on their potential books of business. While this will likely increase rates – and as a result premium – in the near term, it is necessary to balance the market. Historical data does not accurately predict future claim probability, especially in reference to secondary perils such as wildfire. These types of claims are also greatly affected by rising reconstruction costs and social inflation – the rising cost of insurance claims above the economic inflation average due to an increase in operational costs resulting from litigation.

Catastrophe modelling should be done by property, not by zip code or another arbitrary boundary, to contribute to a fair market and be accurate. While catastrophe modelling has not yet been used in setting rates (in California), it has been used to non-renew policies[58]. Zip codes for which there is a history of high non-renewal rates will likely be most affected by higher rates when catastrophe modelling can be considered in setting rates because modelling will indicate that they are in high-risk areas. Alternatively, areas that do not have a history of non-renewals may benefit from lower rates because they will not immediately come up as high-risk areas in the models. In general, rates will be higher, but they will also be more stable.



Views from the insurance sector

Carriers will not write in the State at lower rates and be able to maintain claims payments. Rates must be financially feasible for carriers, or they will not stay in business. Because carriers have the required technology to understand both current and future risks relatively well, they are particularly uncomfortable with current California Insurance regulations, and they are trying to get California to soften regulation so they can continue to operate effectively.

Overall, we expect that the insurance market will respond favourably to changes in regulation that enable the provision of homeowners insurance to be profitable. This was certainly suggested by American insurance company Allstate, which was reported to have noted in April 2024 "[once] home insurance rates fully reflect the cost of providing protection to consumers, we'll be able to offer home insurance policies to more Californians with timely rate approvals. As soon as we can use catastrophe modelling and incorporate the net cost of reinsurance into our rates, we will be open to business in nearly every part of California[59]."

Property underwriting takes many factors into consideration, including the age of a home, the building materials used for its construction, property updates and renovations, and the property's proximity to emergency services and fire hydrants. In California, property underwriting is less likely to consider traditional property features due to the regulatory restrictions that prevent carriers from setting an adequate rate.

At present, the market for homeowners insurance in California is a sellers' market – otherwise referred to as a hard market. This is primarily due to the combination of larger and more frequent claims as well as the regulatory restrictions on charging an adequate rate. Hard markets allow carriers to be more selective about the insurance policy terms, enabling them to exclude more coverage and charge higher rates.

A soft market may materialize as regulations allow carriers to take a more realistic approach to risk. Carrier recognition of mitigation and adjustments to regulation should theoretically lead to a softer market overtime – otherwise referred to as a buyers' market. We view it as likely that mitigation measures that reduce the wildfire exposure of homes are more likely to be recognized and considered by carriers when they are allowed to include the cost of reinsurance in their rate and use catastrophe modelling to account for the probability of future losses.

In our discussions with Source 1 (a firefighter and carrier referral underwriter), he provided an overview of how carrier hesitancy to provide coverage is informed by the extreme risk of wildfire in the wildland- urban interface (WUI) due to specific environmental conditions. The source noted that as of July 2024, significant parts of California are classified as Red Flag Warning areas due to their high temperatures, very low humidity, and expected stronger winds – all of which greatly increase the risk of wildfire. These conditions – which are expected to worsen over time – paint a picture of the State-wide environmental risk profile that has resulted in carriers exiting the local market for homeowners insurance.

The source highlighted that other insurance lines – such as auto liability – are still profitable in the State. He recommended that to increase coverage for wildfire, carriers should be required to write more than one line of insurance to continue doing business in the State. He also suggested an emergency fund for cities to address mitigation, perhaps from a special tax. While he did not go into specifics of how it could work, he did point out that the assessment has been collected and distributed by various municipalities in the country through similar systems. He was of the view that while the fund itself may not immediately influence the appetite of carriers to provide coverage, it may be useful for supporting Oakland to quickly respond and recover when wildfires occur.

[59] Allstate says it is considering return to California homeowners' insurance market. April 2024. Access here.

Historic Context: Wildfires in Oakland and efforts to make homeowners more resilient

Lessons learned from previous fires

Historic catastrophic wildfires in Oakland are the result of several intersecting factors. In 1992, Firewise – a program that teaches people how to adapt to living with wildfire – published a paper on wildfire in Oakland/Berkely Hills in which it detailed the events leading to and surrounding the 1991 Tunnel fire[60]. The paper includes several recommendations on mitigating the chances of a similar fire in the area. It clarifies that a combination of the weather (e.g. previous drought and freeze, winds, low humidity), dried vegetation (most of it non-native), construction choices (e.g. use of wood decks, wood roof shingles, and single paned windows), inadequate evacuation routes (narrow roads - some blocked by abandoned cars or fallen utility lines) all led to the severity and catastrophic results of the fire. The report notes how emergency response mishaps (e.g. mismatched firehose adapters, inadequate or failing water supply, poor centralized communications, and lack of appropriate training for mutual aid) contributed to the severity of the fire.

Another factor that limited the response to the fire is the prohibition of controlled and "cleansing fires" that were historically used prior to such extensive settlement in California. Indigenous tribes had carried out mitigation measures, including controlled burns or small planned and controlled vegetation fires. Practices varied from tribe to tribe but are generally thought to have been effective. Source 8, a climate resilience forester experienced in forest health program monitoring and indigenous wildfire resilience grants, explained the process of indigenous mitigation in detail and was of the view that a return to those practices would be a big factor in stronger and more effective mitigation practices statewide.

Unlike prior fires in the area, (e.g. in 1923, 1970, 1980), after which little action towards future prevention of wildfire was taken, Oakland and surrounding areas analysed, learned from and actioned many of the recommended measures after the Tunnel Fire of 1991 due to the severity of its impact. In fact, many (if not all) of the recommendations raised in the 1992 Firewise report have been extensively and carefully addressed by Oakland. Key among these are recommendations around: regularly scheduled cross training for mutual aid, vegetation management, better communications systems, legislators adopting a pre-recovery approach to addressing emergencies, authorities and planners adopting enhanced building standards, more than one ingress-egress on evacuation routes, and public responsibility to take necessary precautions.

On October 19th, 2024, almost exactly 33 years after the Tunnel fire, the Keller fire started in Oakland and was fully under control within 48 hours. It has been reported as a good example of the effectiveness of Oakland's proactive mitigation efforts. Improved communications, including timely emergency alerts, worked as expected and effectively[61]. According to Oakland Fire, the conditions of both fires were said to be very similar, including ignition area, wind and other environmental conditions. However, the outcomes were very different; the Kellar fire damaged only a few structures while the Tunnel fire destroyed over 3,000 structures and took the lives of 25 people, injuring 150 others.

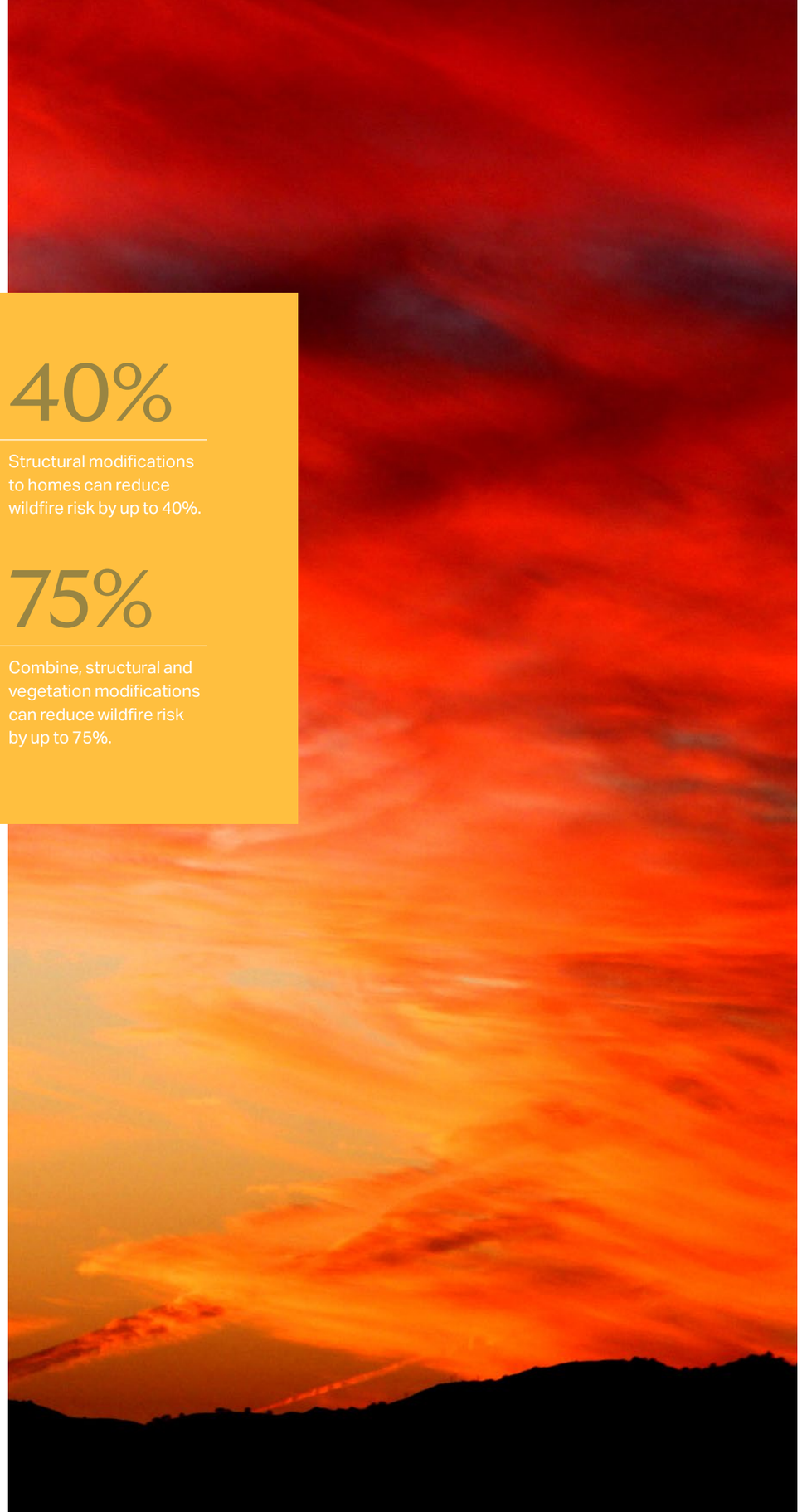
The Tunnel fire burned about 1,520 acres while the Keller fire burned 15 acres. Although it may take some time to analyse all the data in comparing the fire conditions, mitigation and outcomes, what is immediately clear is that anticipatory efforts to more effectively coordinate emergency services worked, the communication and alerts kept residents safe from immediate danger. The overall outcome of the Keller fire was – in all aspects – much less severe[62].

Given the importance of effective mitigation for reducing wildfire risk, insurance carriers would benefit from an analysis – produced by the City of Oakland with support from local universities – of both what went wrong during the Tunnel fire and how it will be prevented in the future as well as the more positive outcome of the Keller fire. The intention of this analysis would be to highlight the quantitative impact of effective mitigation practices that are in place, and how these will likely reduce the risk of severe wildfires and large losses in Oakland in the future.

[60] This report has been prepared by the National Fire Protection Association (NFPA) in cooperation with the Oakland and Berkeley, California Fire Departments and the California State Fire Marshal's Office. Access here

[61] How well did emergency alert system work during Oakland's Keller Fire? Here's what we found. Access here

[62] Oakland firestorm. Access here



40%

Structural modifications to homes can reduce wildfire risk by up to 40%.

75%

Combine, structural and vegetation modifications can reduce wildfire risk by up to 75%.

Building codes and standards

The use and enforcement of State building codes, especially those designed for wildfire-exposed areas, is a key factor in reducing the potential for wildfire disasters. According to the Center for Insurance Policy and Research, structural modifications can reduce wildfire risk by up to 40%, and structural and vegetation modifications combined can reduce wildfire risk by up to 75%[63]. Codes specifically related to wildfire are referred to as wildland-urban interface (WUI) codes and enforced statewide in WUI areas[64].The Insurance Institute for Business and Home Safety (IBHS), an independent non-profit scientific research and communications organization that conducts safety research for homes and businesses has demonstrated how building codes can practically make homes safer and more resilient to wildfire.

Notably, we were informed by a senior decision maker at IBHS that IBHS is currently developing the IBHS Wildfire Prepared Neighbourhood Standard, focused initially on California. The standard is intended to provide mitigation requirements at the neighbourhood community scale based on the characteristics of surrounding fuel sources and the designated neighbourhood itself. The intention is to build on previous building codes to make more homes defensible against the spread of wildfire. Although the concept is still in its early stages, we expect that as it develops, part of its review will involve a consultation process with local communities and relevant government authorities.

Although California is one of the few states with enhanced building codes, the City of Oakland could further update local building codes and construction guidance. Potential areas where this would be relevant include in relation to allowable material for roofing, windows, vents, fence, deck and the distances between structures.

Source 13, who has over 30 years combined experience as head of a town level building department (building code enforcement) and is a retired fire chief, underscored the importance of effective building codes for mitigating wildfire risk. The source informed us about the speed with which certain types of structures burn and enhance the chance of fire spread, including those constructed from wood and homes that are too close to one another. The source explained that many building and planning codes have been updated after catastrophic fires such as the Great Chicago Fire and the Paterson, NJ fire[65/66].

He reiterated that although California has strong building standards and regulations at the State level, it is important that they also be addressed at the county and local level since there can be great variance in the implementation of appropriate codes across these administrative levels and by location. Important variables to consider for the adoption of fit for purpose standards include topography, distance to the wildland, distance to water sources and appropriate building materials based on environmental conditions.

[63] Application of Wildfire Mitigation to Insured Property Exposure. 2020. Center for Insurance Policy and Research. Access here.

[64] Living With Wildfire Vulnerabilities and Readiness Across the Western United States. Access here

[65] Great Chicago Fire. Access here

[66] The Great Paterson Fire. Access here

Emergency services and vegetation management

Oakland has done extensive work in emergency services, and our research during the Fellowship project found that emergency services, vegetation management and the residents of Oakland work closely together to address the frequency and spread of wildfire. Describing this collaboration in detail, Source 10, an Oakland City official in the Emergency Services Department, noted that over twelve events that brought together the Oakland community have taken place in recent years. These have included outreach, community organizing, training, emergency scenarios exercises and certifications. There are at least thirty-six Community Emergency Response Teams (CERTS) with training taking place during Oakland's community outreach workshops. The workshops bring the community together, in part to train for emergencies, including basic response skills.

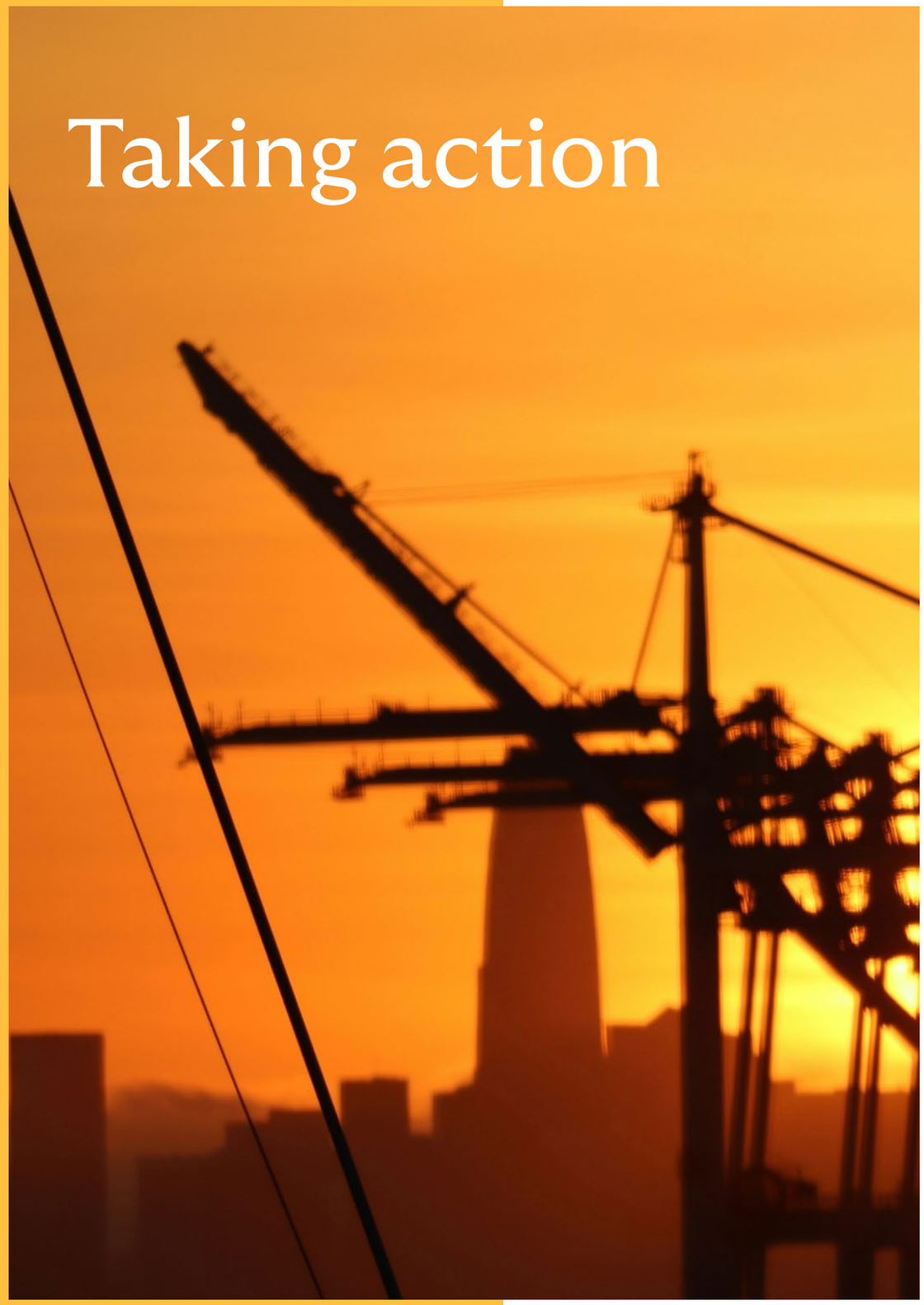
Vegetation management is extensive and effective in the City of Oakland. Source 12, a City of Oakland Official in the Fire Department noted that interventions such as goat grazing have proven to be bio-friendly, highly effective and less expensive than other means of management. The source said that goats grazing might not always be suitable, because in some locations goats might eat the bark on trees. However, overall, the cost of mitigation per acre by goat is approximately US$600 while the cost per acre by contractor can range from US$800 to US$20,000. Ultimately, the most impactful interventions combine a range of approaches e.g. goat grazing, efforts of contractors and property owners in the area, and wildfire mitigation inspections.

An official at the City of Oakland (Source 9) provided an overview of how wildfire safety inspections are conducted in Oakland. He noted that over six weeks annually, beginning in late spring, 11 fire departments conduct inspections across the city. By the end of inspection season (early summer), Oakland – including the utility companies that own land in the city – has a 98% inspection compliance rate. The source reiterated that utility companies in Oakland are very compliant and cooperative with prescribed corrections following inspections. He explained that while there are an average of seven fires in the hills each year, when including arson (i.e., the intentional burning of stolen vehicles), spread has been more easily contained due to these efforts.

It was clear to the Fellowship project team, from the discussions had with city officials and the time spent in wildfire affected communities, that Oakland is committed to robust and sustained mitigation efforts that are proving effective. However, there are gaps in the degree to which the city can mitigate the factors causing wildfire risk. For example, Oakland has around 6,000 acres of parks that fall under various jurisdictions (city versus county administration). As a result, they are managed differently depending on the authority in charge. This points to a need for stronger collaboration and the centralization of responses between authorities responsible for parks and forests. Mitigation should continue to address the multifaceted causes of wildfire spread and the effects of climate change on wildfire to fully address the problem.

The City of Oakland Risk Manager we spoke to (Source 11) noted that wildfire risk is heightened by the burning of fires near or on city property by unsheltered people. The source was of the view that wildfire mitigation strategies should address fires that are accidentally started on city property by the homeless. Lastly – although controversial – based on conversations with residents, the contribution of non-native vegetation (including fast-burning Eucalyptus trees) to wildfire risk should be addressed.

Taking action



A theory of change for Oakland

There are various elements and actions that will clear the path to better accessibility and affordability to homeowners' insurance for the residents of Oakland. Collaboration on all elements and actions is critical.

Using insights gathered through the human and open-source inquiries conducted during the Fellowship project, the Fellowship project team developed the theory of change outlined below to capture the action pathways that the City of Oakland might consider as it works to pro actively address lack of access to affordable insurance for homeowners. The theory of change considers the various structural issues that have made it challenging for homeowners to access insurance at all, or at an affordable rate. It points to the action areas where the City is best placed to influence change quickly, as well as the areas that may be more difficult for the City to directly influence effectively.

The key considerations and assumptions that have informed the theory of change (TOC) are:

- Homeowners in Oakland and across the Pacific Coast region are facing significant challenges in obtaining wildfire insurance due to rapidly increasing rates and the growing trend of insurers exiting the market. This has triggered a series of negative impacts, including decreased financial stability, and the exposure of homes and assets to greater risk.
- As insurance becomes increasingly inaccessible, community resilience is weakening, with more property owners being left uninsured or underinsured. This lack of coverage leaves homeowners vulnerable to disaster, as they are unable to rebuild or recover in the event of property damage or loss. Insurance plays a key role in holistic resilience of a community.
- The regulatory regime for insurance in Oakland is the main structural barrier resulting in insurers exiting the market. It is also an issue that the City of Oakland has limited means to directly influence. While it is important for the City to do all it can to hasten the regulatory reform process, this must be combined with other quick-win actions in relation to engaging the insurance sector and strengthening existing mitigation and risk reduction efforts.

Summary: Intended outcomes and TOC diagram

We have structured the recommended actions and expected outcomes around the three 'Spheres of Influence' presented earlier in the report. These are

(i) Policy and Regulation
(ii) the Insurance Industry and
(iii) Local Communities

Apex outcome: The overarching outcome around which the theory of change is structured is: **Insurance becomes more accessible to homeowners and homeowners' risk to wildfire is reduced.**

Each sphere of influence has a specific intended outcome. Our view is that the combination of the outcomes per sphere of influence will contribute to the achievement of the overarching outcome. The diagram below is a visual representation of the theory of change. It is followed by a section outlining the rationale and key assumptions underpinning it.

[67] Although we have designated three distinct spheres of influence, we recognize that all three spheres are closely related and mutually reinforcing. The insurance industry relies on both regulation and the actions in the local communities to make determinations about coverage offerings. In turn, regulations and community actions directly impact a carrier's decision on whether to offer coverage, rate, forms, exclusions and conditions and other underwriting decisions.

Figure 1: A theory of change for making City of Oakland homeowners more insurance for wildfire

Apex outcome: Homeowners can access insurance and their risk to wildfire is reduced

Sphere of influence	Desired outcomes	Recommended actions			Target stakeholder groups
Policy and regulation	**Policy and regulation is more responsive** to urgency of improving access to insurance and supportive of addressing homeowners' wildfire risk.	**Engage the bureau of building codes** to ensure that current and future building codes reflect national/international best practice for wildfire migration (e.g. upcoming IBHS standards).	**Estbalish a working group** of senior city officials (e.g. mayor, insurance commissioner) in the Greater Bay Area/California the objective of which is to organise around and advocate for faster reform of insurance regulatioms.	**Participate in public consultation around IBHS wildfire community resilience standard –** focused initially on California.	• State and local government regulators and policy makers
Insurance industry	City leaders and insurance stakeholders have **deeper understanding of alignments/ misalignments in approaches and data used to manage and price risk,** respectively.	**Convene a roundtable** involving key city stakeholders and a selection of the insurance and other experts interviewed in the Fellowship. Direct engagement with the insurance sector may enable city officials to clarify specific questions and deepen understanding of insurance stakeholders' priorities.	**Continue bilateral engagement with insurance industry stakeholders** (including the Fellow) to strengthen long-term relationships and fill knowledge gaps.		• Insurance industry stakeholders • City of Oakland officials
Local action	Community action results in **substantive reductions to homeowners' wildfire risks.**	**Increase wildfire mitigation efforts** encompassing vegetation management, controlled burns and home hardening (reference building codes above).	**Strengthen coordination among key community stakeholders and first responders** (e.g. fire departments) involved in leading wildfire mitigation and response activities.	**Increase funding** to help facilitate protection against wildfire risks using available grants.	• Civil society groups, private sector, community organisations • Local government stakeholders
Collaboration	Strengthen collaboration to improve **wildfire risk and defensibility of Oakland.**	**Convene a roundtable** between keen stakeholders and the selection of insurance professionals and other experts interviewed for this report. This will allow city stakeholders to have direct engagement with insurance sector experts.	**Share information and data** that can be used to benefit the City of Oakland.		• All parties

In-depth: Rationale behind recommended actions and intended outcomes

The section below is a supplement to the diagram above. For each sphere of influence, it provides detail around

(i) The intended outcome the City of Oakland should seek

(ii) The key stakeholders that hold influence and must be engaged with

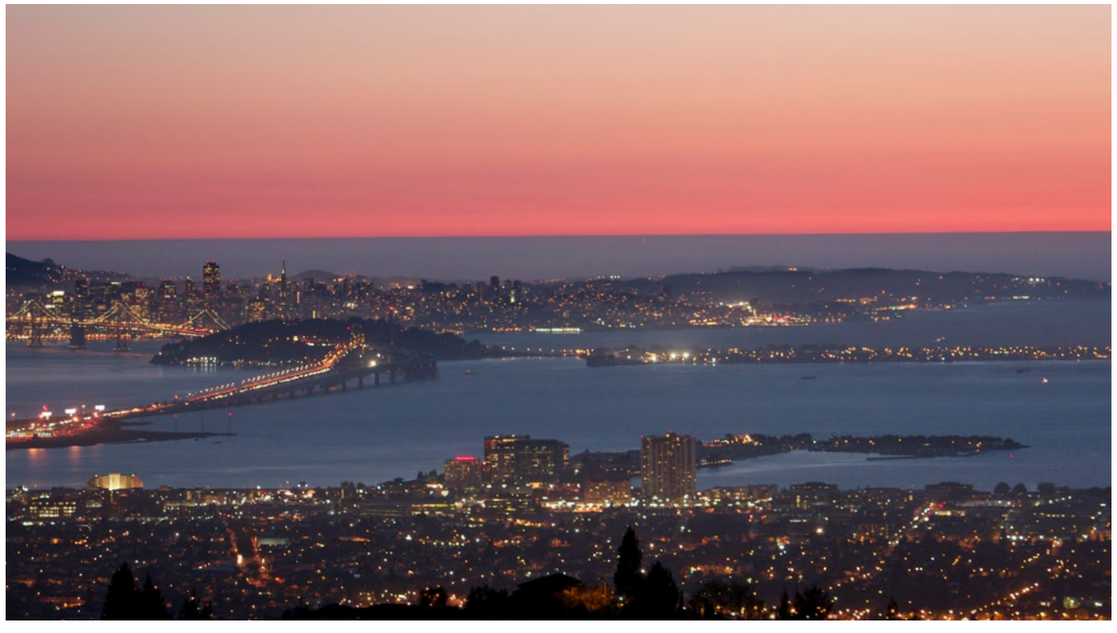
(iii) A set of recommended actions for advancing the intended outcome.

Sphere 1: Policy and regulation

Intended outcome	The policy and regulatory landscape for insurance in California becomes responsive to wildfire risk and the lack of available insurance for homeowners is overcome.
Key stakeholders	California and City of Oakland policy makers and politicians
Key assumptions	Regulators and policy makers are directly involved in setting and influencing insurance regulation and can be engaged around the urgency of accelerating the timeframes for regulatory reform.
Recommended action for the City of Oakland	**1.** Establish a working group of senior city officials, the insurance commissioner, and key stakeholders of the insurance industry within the greater Bay Area/California. The objective of the working group would be to advocate for faster regulatory reform. **2.** Actively monitor progress around the IBHS Wildfire Prepared Neighbourhood Standard that the IBHS is in the process of developing. The Standard would outline building materials and practices that would minimize fire risk for individual structures. In addition, this group could engage in the public the consultation around the Standard. **3.** Update local building and planning codes to reflect best practices for wildfire mitigation

[68] https://ibhs.org/guidance/wildfire/

[69] Allowable credits and debits refer to the pricing adjustments that insurers apply to the base premium. Credits (e.g. making a home more fire resistant) typically lower the premium, while debits (e.g. having a home in a high-risk area) raise the premium.

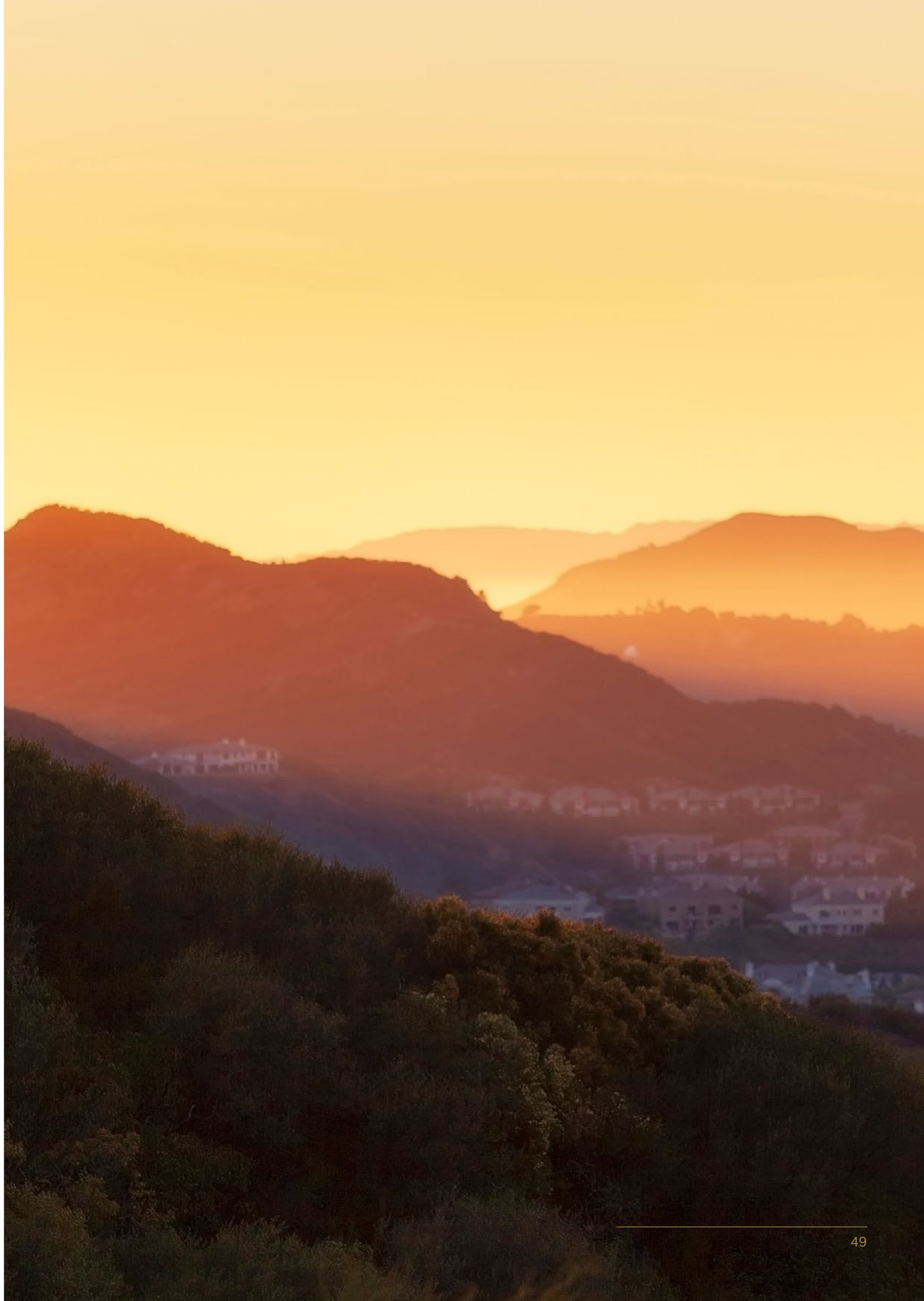


Sphere 2: Insurance industry

Intended outcome	Foster increased understanding of both alignment and misalignment between the approaches and data the City uses for wildfire management and what insurers use to price or exclude risk (e.g. using zip codes versus CalFire fire severity zone maps or individual risk assessment)
Key stakeholders	Local government and insurance industry stakeholders
Key assumptions	**1.** Both City stakeholders and insurance industry decision makers would benefit from increased dialogue while the regulatory reform process advances. **2.** Oakland City stakeholders would benefit from further efforts to de-mystify the insurance sector.
Recommended action for the City of Oakland	**1.** Continue bilateral engagement with the Lead Fellow for the Fellowship project in Oakland once the Fellowship project is completed to strengthen relationships and fill knowledge gaps. This relationship can be leveraged to start building wider relationships between the Oakland Resilience Office and insurance sector stakeholders involved in structuring wildfire and homeowners insurance in Oakland, California more broadly, and throughout the Pacific Coast Collaborative.

Sphere 3: Local community

Intended outcome	Wildfire risk is actively reduced, and more homes are insurable
Key stakeholders	Local communities, households, civil society and city/statewide emergency responders
Key assumptions	**1.** This is the sphere that the City of Oakland has the most direct influence over. **2.** There is value in continuing to make sure that the ecosystem for mitigation measures for homeowners is strengthened. The resulting reduction in the wildfire risk that homeowners face will make communities safer, more resilient and well placed to benefit from the insurance market when it softens.
Recommended action for the City of Oakland	**Education** **1.** For consumers/homeowners: Develop a curriculum (or work with partners) for City of Oakland residents focused on raising awareness about how the insurance industry works. Examples of relevant topics to cover include carrier financial ratings, surplus lines, exclusions and endorsements. Ensure the public are familiar with the factors underwriters consider when assessing risk. Consider making insurance education a requirement at house sale closings in Oakland. Additionally, consider compiling a list of allowable credits and debits by carrier and making it public. These factors greatly influence the rate a consumer pays; making the list public would therefore allow consumers to knowingly utilize mitigation that results in the best rate. **2.** For carriers: Engage carriers to demonstrate how mitigation is working to prevent the frequency and spread of wildfires. Independently model this by demonstrating how previous fires have spread, versus more recent fires (Keller Fire October 2024) that have been more easily contained because of Oakland's mitigation efforts. Academics, including those from Berkely, may already have this information compiled but not yet published. **Coordination** **1.** Extend coordination and collaboration across the City and park boundaries. Leverage the existing foundation for collaboration – which is already strong and brings together residents, local agencies, non-profits, and fire management professionals – to enhance safety and resilience. **Funding** **1.** Seek out grants and other funding (potential sources include private sector, non-profits, utilities) for mitigation activities such as hardening houses. **Sustained mitigation** **1.** Continue to strengthen and build on existing mitigation efforts. Oakland's current mitigation efforts reflect a proactive and comprehensive approach to wildfire risk reduction, encompassing vegetation management, controlled burns, updated building codes, community engagement, and emergency planning. As these mitigation efforts continue to evolve and expand, they will play a crucial role in shaping a more resilient community in the face of growing wildfire threats. Mitigation efforts must avoid the wildfire paradox – the idea that more effective fire suppression can lead to more severe wildfires in the future – and incorporate indigenous wildfire mitigation methods that have been proven to be effective in the area. Vegetation management and mitigation must account for more than property boundaries. For example, mulch, wooden fences etc. on the property line that is close to a structure on neighbouring property.



Conclusion

Research for the Fellowship project in Oakland – which focused on how to make Oakland homeowners more insurable for wildfire – produced several findings that were expected, as well as several others that were less obvious at the outset. Lack of access to affordable insurance for Oakland's homeowners has worsened gradually, driven by several factors: restrictive state insurance regulations limiting adequate rate-setting, the increasing severity of wildfires due to climate change, and rising claims costs and frequencies. These pressures have prompted many insurers to exit the market.

In conclusion, while a solution to lack of access to affordable insurance relies heavily on changes to State regulation, the City of Oakland and its counterparts should continue their mitigation and education efforts with a view to ensuring homeowners can reduce their risk exposure as much as possible. In addition to preventing the start and spread of wildfires, mitigation efforts will also encourage carriers to begin or continue to write policies in Oakland. Educating the public about mitigation and insurance matters will also help them to make more informed decisions in a timely manner, helping to avoid any lapses in coverage.

[70] SGA Research Group. Access here

[71] Marin Wildfire Prevention Authority. Access here

Regulation and mitigation

Addressing lack of access to affordable insurance will take time, but recent regulatory changes are set to speed up access to wildfire insurance coverage in Oakland in the short term and statewide in the medium to long term. Enhancing building codes is also crucial to strengthening regulations for mitigation, ensuring alignment with top-tier building materials and techniques. The Fellowship project's assessment of wildfire risk in Oakland clearly demonstrated the strength and effectiveness of the City's mitigation efforts. However, comparing the outcomes of the Tunnel Fire in 1991 and the Keller Fire in 2024 highlights a stark disconnect between Oakland's wildfire risk reduction and the declining availability of insurance.

Despite this progress, our research found that cross community mitigation remains a challenge, and there is room for further improvements. Source 7, a professor at a top US university in California with deep expertise in climate resilience, adaptation, emergency preparedness and management, noted that collaboration for mitigation, prevention and response must extend beyond city borders emphasizing that collaboration across jurisdictions – including sharing resources, knowledge and mitigation practices – leads to greater cohesion and improved resilience[70/71]. Source 1, a senior referral underwriter at a US headquartered specialty insurance marketplace with 30 years of insurance industry experience, also stressed the importance of the insurance industry perspective being better translated for the consumer. They noted one avenue for achieving this would be a partnership between the insurance industry and non-profits. There is extensive research on this, including the assessment Source 7 undertook – which we reference above – to assess the impact of cross-community collaboration. There is appetite for this collaboration; several stakeholders expressed an interest in coalition building and highlighted the culture of collaboration already building in Oakland.

Utility companies and other property owners in the area comply with vegetation management practices put in place by the City. This was reiterated by Source 12, an Oakland City employee, during a discussion around mitigation. However, one of the most efficient ways to prevent wildfire caused by power lines is to utilize horizontal/directional drilling to move power lines underground. This may also clear paths for evacuation routes which are currently very narrow in much of Oakland. Source 9, an Oakland City official, said that utility companies are reluctant to implement this solution due to logistical challenges and cost implications. However, making this shift could decrease the financial tail risk that utility companies currently face. Most carriers in California require a wildfire liability exclusion to be attached to liability policies for utility companies and others at risk of causing wildfires. This exclusion can leave utility companies underinsured and directly financially liable for wildfires found to be caused by their equipment. Underground power lines would reduce the likelihood of utility equipment sparking fires, which could encourage insurers to drop the requirement for wildfire liability exclusions. Quantifying this financial risk reduction may help secure the necessary upfront investment for transitioning to underground power lines.

One way Oakland could engage utilities to improve insurance availability for homeowners is by requiring proof of insurance limits for utilities and other commercial property owners or evidence of their ability to self-insure. This could take the form of a bond or quarterly financial reviews. According to Source 1, a carrier underwriter, requiring proof of local utilities' liability insurance or ability to self-insure would positively impact the appetite of homeowners' insurance carriers to underwrite in the area.

Broader spheres for action

There are a variety of groups and individuals working to improve insurance access and affordability. Stakeholders are variously focused on mitigation, education efforts and collaboration. Collectively these approaches have resulted in tangible improvements to community-level resilience and asset protection. However, there are also approaches to addressing lack of access to affordable insurance that require action from stakeholders outside the spheres of influence on which the project focused.

[72] Burying power lines could help prevent California wildfires. Who should pay for it? Access here

[73] The California FAIR Plan is a state-mandated program that provides basic property insurance to Californians who cannot obtain it through traditional insurance companies

There are some coverage options with varying accessibility

There are innovative, 'outside-the-box' solutions for insurance coverage, such as forced placement. Forced placement, also known as lender-placed insurance, occurs when a lender or lienholder purchases insurance on behalf of a property owner who has failed to secure their own coverage. While forced placement is usually more expensive than insurance traditionally obtained through agents, it could potentially be cheaper than the FAIR plan. In most cases, forced placement only covers the limits owed to the lienholder, but for property owners unable to obtain insurance by any other means, it may be a more impactful and cost-effective option compared to the FAIR plan. However, surplus lines (non-admitted) coverage appears to be the best current option—at least until admitted carriers can secure adequate rates, making them more accessible.

Wildfire, among other shocks and stresses facing Oakland, is generating a perilous gap in financial protection for residents. In a rising trend across the USA, insurance is inaccessible and unaffordable for an increasing number of homeowners across income demographics. This poses major threats to current and future homeowners, and for the housing market. The purpose of the Fellowship project was to approach a complex challenge from a new angle, one that brings the public and private sector together and one in which the insurance sector offers its perspectives for potential solutions to the accessibility and affordability challenges facing homeowners in California.

With support from a diverse source list, the Fellowship has examined the current state of the challenge and developed a holistic understanding of the actions needed to build financial protection and resilience for homeowners in Oakland. This report consolidates research and source insights to provide practical recommendations for the City of Oakland. It finds that Oakland and local stakeholders are actively engaged in collaborative solution-building and that resilience and mitigation efforts have increased protection for residents—though further work remains. The report highlights key stakeholders who should play a role in strengthening resilience efforts. These stakeholders have both the ability and responsibility to influence the trajectory of insurance accessibility and affordability within Oakland and across California.

Acknowledgements

The Fellowship project team is extremely grateful to everyone who took the time to support our efforts. Your insights have been invaluable to the project and the City of Oakland. We hope the relationships we've built will continue to grow as we work toward a more resilient Oakland.

Appendices

Appendix 1: Glossary of insurance terms

Note: The following insurance terms have been used in this report. The definitions below are provided in the context of this report.

Accessibility: Availability of homeowners insurance products to most or all homeowners within Oakland. Availability would encompass more than one insurance product, allowing consumers a diversity of choices of insurance products, coverage, carrier and premium band.

Adequate rate: Rates that are ample enough to cover claims and operating cost of an insurer, while still allowing reasonable profit.

Admitted: A carrier that is licensed by the State in which they are operating and subject to claims handling rules, marketing, cancellation and non-renewal and financial standing regulations of that State. Admitted carriers may offer more coverage than required by the State, depending on their forms, but they cannot offer less than what is regulated. Admitted carriers are also covered by the state's Guarantee Association should they become insolvent and unable to pay claims. However, the Guarantee Association may not pay full limits and is capped on payments for each line.

Affordability: It is difficult to define for rate and premium. When compared to other states, California has lower homeowners' insurance rates. However, those rates are expected to increase when new regulations are approved. When considering affordability for California Homeowners insurance, one must account for mitigating factors such as increased frequency and severity of wildfires. In essence, affordability would be considered fair pricing.

AM Best: A rating agency. AM Best regularly reviews the financial standings of carriers and will downgrade the carrier if their financial standings have declined. It is important to be sure that the correct company for affiliates as many companies' breakout into multiple subsidiaries that may have different financial ratings. For example, State Farms California Homeowners subsidiary has been downgraded while other State Farm subsidiaries remain financially strong. Learn more here.

Carrier: While brokers and agents sell insurance policies, carriers determine the underwriting guidelines used. For example, carriers determine applicable exclusions and other forms, cancellation, non-renewal and policy extension rules, locations of risks covered or excluded, types of risks covered or excluded (subject to State regulation). The underwriter selling the policy may offer less coverage allowed by the carrier but not more.

Catastrophe modelling: Computer based modelling that attempts to predict potential losses from a catastrophe. In general, these models do not take historical losses into account because of the quick and extensive environmental variances from climate change which has resulted in changing risk profiles and claims outcomes. Historical losses are no longer a good predictor of future losses for certain perils, such as wildfire and other climate-related disasters.

Difference in Conditions (DIC) policy: Covers perils excluded from a standard policy. Coverage gaps may include perils such as flood, earthquake, landslide, sinkholes, wildfire, rain and liability.

Fair Access to Insurance Requirements (FAIR) plan: A conglomerate (pool) of admitted California insurance carriers that offer basic coverage for dwellings for the specific perils of earthquake or wildfire. The FAIR plan is available to consumers only after agents have conducted a diligent search for other options, including non-admitted and tends to be very expensive. Member carriers share in profit, expenses and losses. The plan is meant to be a temporary solution but has taken on extensive risk as carriers have exited the State.

Forced Placement: A lienholder places coverage for a property owner involuntarily. Lienholders have access to a myriad of insurers, but coverage is often expensive and may only cover the amount of the lien. The coverage may not protect the insureds' assets over any lien amount, but they are required to pay the premium.

Hard Market: In the insurance market it is a time of higher premiums, more restrictions, and less capacity. It is a sellers' market.

Horizontal directional drilling: Drilling a tunnel underground to bury utilities underground using trenchless methods.

Insurance Institute for Business & Home Safety: The Insurance Institute for Business & Home Safety (IBHS) is an independent, 501(c)(3) nonprofit scientific research and communications organization supported by property insurers, reinsurers, and affiliated companies. IBHS's building safety research leads to real-world solutions for home and business owners, helping to create more resilient communities. Learn more here.

Law and ordinance coverage: insurance coverage, usually via endorsement, which helps insurers cover the cost rebuilding to meet current building code.

Lienholder: a lender or someone with financial interest in a property.

Loss costs: the total amount an insurer pays for a claim including any overhead such as attorney fees, investigation and administration for that claim.

Marin Wildfire Prevention Authority (MWPA): A credit ratings service that also offers modelling and analytics tools, risk analysis and research. See more here.

Non admitted (Surplus lines (SL)or Excess and Surplus lines (E&S)): An insurer that is not licensed or regulated by the state in which they are doing business. They offer more coverage options for hard-to-place risk and have more flexibility than admitted carriers on forms and rates. They are not covered by the state's guarantee fund and claims may go unpaid in the event if insolvency. However, in the State of California the Surplus Lines market is regulated by the SLA (Surplus Lines Association of California) and the California Department of insurance, including periodic audits. In addition, their financial standing can be reviewed in the same manner that admitted carriers can on AM Best and other rating models. The State maintains the LASLI (List of Approved Surplus Line Insurers) which includes a requirement of minimum capital and other eligibility requirements.

Peril: An event that causes a loss or property damage. Common perils include theft, fire, flood, and wind.

Premium: The price an insurance company charges for a specific type and amount of coverage over a set period. It is the total price of the policy.

Rate: The cost of insurance per unit of coverage.

Reinsurance: Insurance for insurance carriers. It is a transfer of a percentage of risk.

Smoky the bear paradox (Wildfire Paradox): The idea that aggressive suppression of wildfires in the past, may have been one of the main drivers of larger and more aggressive wildfires.

Social inflation: Increased litigation in the insurance industry has led to significantly higher claims cost for insurers. Nuclear verdicts (generally considered to be those over 10m), have become much more common. Social inflation has become a larger consideration in insurance rate than it previously had been.

Soft market: A buyers' market in which rates are low, there are a variety of coverage options and carriers and less exclusions in coverage.

Subrogate: The right of insurance carriers to legally pursue a responsible third party. However, some insurance policies contain a waiver of subrogation (usually commercial policies) which prohibits the insurer from holding the third party legally or financially liable and instead hold the carrier liable for the loss and leaves the carrier unable to recover the claims payment.

Surplus Line Association of California (SLA). The Association serves as the statutory surplus line advisory organization to the California Department of Insurance (CDI).

Working with its members and the CDI (California Department of insurance), the Association assists its members' compliance with California laws and regulations; helps maintain a healthy, fair, and competitive surplus line marketplace in California; and strives to protect the interests of California insurance consumers." See more here.

Wildfire exclusion: An exclusion added to insurance policies that can be set at an area of less than an acre. When the exclusion utilizes a wildfire definition of such a small area, it excludes coverage for very small fires, essentially eliminating wildfire coverage all together. These exclusions are often attached to dwelling coverage but also to commercial liability policies, such as those obtained by utility companies.

Wildland-urban interface: The place at which an urban area (human developed) and Forrest intersect.

Appendix 2: Additional resources

Note: The list of resources provided below were either used as references in the research for the Fellowship project or recommended by sources the Fellowship project team engaged with. They are intended to be useful complements to the analysis provided in the report.

Native Land Management

1. Karuk Tribe's (leading cultural burners in northern California) Good Fire Report about cultural burning. The Karuk Tribe's Good Fire II Report describes current barriers to the expansion of cultural burning and prescribed fire in the United States and recommended solutions. Access here.
2. A good summary of cultural burning in northern California. Access here.
3. Native land management activists in the Bay Area Homepage - The Sogorea Te Land Trust. – Access here.
4. We Are the Land a Native American rejoinder to Richard White and Jesse Amble White's California Exposures."— Kirkus Reviews Rewriting the history of California as Indigenous. Access here.
5. The big book on traditional land management in California. Access here

Resilience and Insurance

6. National Science Foundation Grant for Smart & Connected Communities – Access here.
7. Designing Smart, Sustainable Risk Reduction in Hazard-Prone Communities: Modelling Risk Across Scales of Time and Space – Access here.
8. "Climate Change and Insurance." Special issue of Economy and Society (with Rebecca Elliot and Turo-Kimmo Lehtonen). – Access here.
9. "Governing Urban Resilience: Insurance and the 'Problematization' of Climate Change" (with Savannah Cox). Economy and Society 50, 2. Climate Change, Urban Resilience, and Emergency Government

California wildfire and Regulations

1. Californians are protecting themselves from wildfire. Why is there still an insurance crisis? – Access here.
2. California Sees Two More Property Insurers Exit From Market – Access here.
3. CEO Viewpoints: On Michigan, California and Litigation 'Leeches' – Access here.
4. California Wildfires Continue to Drive Carriers Out – Access here.
5. Wildfire Risk Rises as Western States Dry Out Amid Ongoing Heat Wave – Access here.
6. Deaths, Injuries, Billions of Dollars Are Costs of Extreme Heat in California – Access here.
7. Shaping the Future of Wildfire Insurance in California: New Insights from the Most Comprehensive Wildfire Risk Model in the Market – Access here.
8. Jolee Crosby, CEO of Swiss Re Canada, describes in her blog the positive impact of mitigation – Access here

One Creechurch Place, London, EC3A 5AF

+44 (0)20 7623 3806
info@howdenre.com

howdengroup.com