Strategic Alignment of Available Technology, Insurance Actuarial Methods, and Public Policy to Reduce Property Loss from Wildfire

Overview

The purpose of this White Paper is to offer a strategic roadmap for alignment of existing technology, insurance actuarial methods, and public policy to reduce property loss from wildfire and stabilize insurance markets. This paper summarizes the efforts of CalChiefs' WUI Task Force as of April 2022 and includes the important caveat that work on the issues identified below is ongoing and future updates will be incorporated on a periodic basis.

By any measure, property losses related to wildfire in the Western United States are growing and doing so rapidly. While the fire service will continue the important work of improving our ability to suppress fires after they have started, there is a role to be played in the pre-fire space as we work to make our communities safer and in doing so, make access to property insurance more predictable. Major stakeholders in the effort to address this ongoing issue are the State Fire Marshal/CALFIRE, CalChiefs, the American Property Casualty Insurance Association, Insurance Institute for Business and Home Safety (IBHS), and the California Department of Insurance (CDI).

When viewing the ongoing wildfire problem from the public safety sector perspective, too often the discussion is dominated by details focused on suppression and a fire’s aftermath using metrics such as suppression costs, structures lost, and acres burned. During a well-represented interdisciplinary tour of the Camp Fire, discussion centered around a century long accumulation of risks (urban-density expansion into the WUI, longer fire seasons, fuel accumulation, dying forests, aquifer depletion from population growth/use) that were now combining to produce “the sum of all fears in the WUI”. Left un-mitigated, the environment lacks the ability to self-stabilize and we are now experiencing the leading edge of a new-normal with increased wildfire activity year after year. Recent fire loss throughout the West strongly supports this position and suggests that other areas are already experiencing these phenomena. “These results suggest a possibility that in the future climate will play a considerably stronger role in driving global fire trends, outweighing direct human influence on fire (both ignition and suppression), a reversal from the situation during the last two centuries”1

When viewing the California WUI problem from the private insurance perspective, especially the reinsurance2 perspective, the issue is perceived less as an unmanageable or unacceptable risk, and more as an inability to let market forces, including risk mitigation, self-stabilize to balance the situation. “Significant improvements in the area of mitigation and firefighting could help keep more properties insurable and tamp down the rates that would otherwise be necessary.”3 This position is consistent with the global analysis of the WUI problem, “While insurers remain firmly

2 Reinsurance is essentially a way for primary insurers to protect themselves from unusually high losses by insuring the combined risks that they carry with another insurer.
3 See “California Does Not Have an Insurance Crisis.” https://www.insurancejournal.com/blogs/right-street/2019/05/29/527737.htm?comments#comment-4980806
in position to handle the volume of claims in the aftermath of recent [wildfire] events, these heightened losses put a further spotlight on the growing risk of the peril [WUI] around the world. The growth of exposure into known fire locations and the prospect of more weather and climate-driven effects will require continued focus on mitigation initiatives. However, losses cannot be sustained over time and the fires of 2017 and 2018 alone are reported to have wiped out twice the combined premium profit of the previous 26 years. Early stage programs such as the Wildfire Prepared Home from IBHS represent progress towards the goal of providing consistent messaging and data collection, however in their current form, capacity is limited and not applicable beyond the parcel level.

When viewing the WUI problem from a regulatory perspective, CDI has continued its engagement with the recently issued Safer From Wildfire Framework which built upon previous work included in a 2018 report titled, The Availability and Affordability of Coverage for Wildfire Loss in Residential Property Insurance in the Wildland-Urban Interface and Other High-Risk Areas of California: CDI Summary and Proposed Solutions.

As part of CDI’s participation in the Governor’s Tree Mortality Task Force (TMTF) Insurance Subgroup, stakeholders have expressed concern that wildfire-risk models (used by insurers to underwrite and rate residential properties) are not accurate and do not take into account mitigation done by the homeowner or the community. The major insurance trade groups, responding on behalf of their members in a September 25, 2017 letter to the TMTF, cited various reasons why there isn’t much likelihood of insurers changing the current course of market contraction.

Due to lack of alignment between the major stakeholders, a homeowner in the West can pass a defensible space/home ignition zone inspection from a local fire protection organization yet have their property insurance non-renewed due to a carrier’s proprietary assessment of high fire risk. Uncertainty and conflicting messages reinforce the status quo bias and result in many homeowners resisting voluntary defensible space/home ignition zone fuel mitigation and home hardening measures. Recent advances in the fire science surrounding home ignitions included in NIST Technical Note 2205 offer a potential pathway to agreed upon mitigations that matter, however action will be required to adopt these findings. In the absence of alignment, we remove powerful economic incentives which could be used to encourage beneficial fire safety/fire risk outcomes through a thoughtful choice architecture.

The fire community knows its traditional tools for both prevention and suppression have been found wanting based on recent contacts with the new normal. While technologies for leveraging scarce resources through the efficient application of units available are rapidly emerging, they

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5 See *Wildfire Catastrophe Models Could Spark the Changes California Needs.* https://assets.milliman.com/ektron/Wildfire_catastrophe_models_could_spark_the_changes_California_needs.pdf
6 See *IBHS’s Wildfire Prepared Home* for program information
7 See *Wildfire Mitigation Partnership Summary Document (ca.gov)* for program information
9 See https://nvlpubs.nist.gov/nistpubs/TechnicalNotes/NIST.TN.2205.pdf
lack the regulatory consensus to affect the pre-fire space. The private Insurance community believes risk-based premiums are the best answer, but acknowledge the need for better models to accurately price parcel and community level risk. The Regulatory community seeks recognition of homeowner mitigations in the policy writing process and sees additional regulation as the primary path forward to achieve that end, yet understands that it must also acknowledge basic investment principles. Property owners in the WUI want to be protected from fire loss and have assurance of predictable access to stable insurance markets.

The traditional government approach to an increasing, widespread, and persistent public safety crisis is reactive symptom-driven legislation, associated public policy, and inconsistent execution through a patchwork of local enforcement of codes and ordinances defining a minimum acceptable intervention in the hope of achieving a maximum improved outcome. In cases where the policy space is separated from market forces, this government-centric approach can be quite effective (e.g., domestic terrorism). However, once market forces are involved, intended policy outcomes are more elusive (e.g., public health). This is because the consumer’s options and product/services provider choices influence the effectiveness of public policy since they (consumers and producers) are, quite literally, the public.

Since public policy success is reliant on public support/compliance with the policy, there must be a clear nexus between policy compliance (i.e., desired behavior), and personal benefit (or at least an absence of personal detriment). In this case, there must be an understandable alignment of non-moral economic incentives\(^{10}\) (access to insurance) with repeatable and well understood steps to be taken at the parcel and community level to achieve positive outcomes at the appropriate scale. We have tried telling residents of the WUI that defensible space and home hardening is the “right thing to do” and “good for you and your community” with limited effect. To speed adoption, we need incentives and the increased certainty associated with stakeholder alignment.

**Problem Statement**

Until there is strategic alignment of available technology, insurance actuarial methods, and public policy to coordinate pre-fire actions and insurability, homeowners are unlikely to perform or maintain essential WUI mitigations. Insurers will not accept unmitigated risk, and emergency response resources will lack the necessary time and weight of attack to save lives and properties in the face of more frequent and higher intensity fires.

**Background**

Beginning in 2017 it became clear that the insurance industry was struggling to adapt to the new normal of fire loss. This became clear in conversations with representatives from Verisk regarding ISO’s Fireline product. In 2018 a future member of the WUI Taskforce attended the WFCA Wildfire Summit and successfully lobbied for the inclusion of WUI insurability as one of the Wildfire Policy Committee’s five areas of emphasis. Later that year, early collaboration

\(^{10}\) This strategy expands the existing individual decision framework, adding economic benefit to an existing moral appeal for doing the right thing. The approach borrows from choice architecture theory (see: Thaler, Richard H.; Sunstein, Cass R. (2008). Nudge: Improving Decisions about Health, Wealth, and Happiness. Yale University Press. ISBN 978-0-14-311526-7.).
efforts began with NIST. Following the Camp Fire, in January 2019, a tour of the site by key stakeholders was organized through the WFCA and its Wildfire Policy Committee. Following this event, early meetings were held with the lobbying arm of the California Insurance Industry where discussions regarding the inadequacy of current maps were reviewed at length.

In 2020 a future member of the WUI Taskforce was nominated to serve as CalChief's State Director to the WFCA. In 2021 the Taskforce was formed with the addition of a second member. In September 2021, members of the Taskforce convened the Wildfire Risk Stakeholder Alignment meeting and advanced work to recognize the need for actuarial use of parcel level mitigations. In September 2021 members of the Taskforce provided comments to CDI during public workshops regarding rate setting. In November 2021 a third member was added to the Taskforce. In 2022 members have participated in United Policy Holder's WRAP meetings, provided feedback to CDI on the Safer From Wildfires Framework, assisted the Institute for Business and Home Safety with community mitigation analysis, and worked with State Fire Training to field a standardized Defensible Space/Home Ignition Zone FSTEP course.

**Solution**

The underwriting process recognizes that mitigation at the parcel level reduces risk, but there is a floor below which no meaningful reduction of risk is plausible as fire line intensity and flame length may exceed the available space between property line and structure. Further, mitigations are synergistic rather than additive and their combined effect to reduce risk is greater than the sum of the individual components. As a result, the loss of one mitigation due to poor maintenance may cause a disproportional increase in risk. Thus, fire risk reduction achieved through mitigation work done on single parcel is greatly enhanced or degraded by the presence or absence of equally mitigated risk on adjacent parcels, influenced by parcel density and structure separation distance.

For a mitigation to be meaningful in evaluating the objective contribution to risk reduction, there must be a minimum set of characteristics amenable to actuarial analysis. This analysis will most likely be qualitative and have statistical limits at the ordinal level of data collection. It is worth noting; the WUI Taskforce takes no position on the specific recommended mitigations that matter and defers to other stakeholders to advance science-based measures.

To support the development of these mitigations that matter, the Taskforce will continue ongoing work with the Casualty Actuarial Society to support their work to develop the characteristics a given mitigation must have to be objectively used in the actuarial process. This effort will conclude with the development of a working set of guidelines to review potential mitigations for actuarial use.

The Taskforce will continue engagement with key stakeholders in the form of CDI, the Personal Insurance Federation of California, and the California State Fire Marshal's Office to form consensus support for science based minimum mitigations to be applied in and around WUI structures and throughout a community. With a defined and agreed upon set of mitigations that matter, grant scopes of work (SOW) for can be written to support them, reducing the financial barriers that can be significant in heavier fuel types, and the physical barriers to completion for individuals lacking the capability or equipment to perform parcel mitigations.
This work comes with the critical disclaimer that parcel level mitigations, no matter how comprehensive, cannot fully remove the static and variable hazards represented by the surrounding landscape. Specifically, the impact of topography, weather inclusive of prevailing winds, vegetation, and adjacent parcels. In these cases, it will be appropriate to identify and prioritize landscape level treatments to reduce external risk to the parcel.

**Conclusion**

Wildfire will continue to represent a major threat to communities in the WUI and local government is on the front lines of addressing fire in both the prevention and suppression space. The Taskforce charter is to facilitate information sharing and to develop stakeholder consensus amongst the varied interest groups engaged in wildfire loss prevention and the restoration of stable insurance markets. This role is best executed as a non-partisan facilitator committed to bringing others together in collaborative settings. There is much work to be done, however, progress made to date suggests the appetite for solutions exists and existing structures are capable of adaptation.