Policy Recommendations to Reduce Home and Community Loss from Wildfire: Report on Outthink Wildfire Summit

September 2022
Preface

To stem the trend in wildfire-caused human and property losses, the U.S. must make significant policy changes at all levels of government. The National Fire Protection Association® (NFPA®) launched Outthink Wildfire™ in 2021. It is a comprehensive strategy that pushes for transformation that, over time, will significantly reduce risk to communities. The strategy is rooted in two realities – wildfires are going to happen, and the fire service will not be able to extinguish these fires at a pace to save people and property in their path.

In preparation for a future with more wildfire activity, Outthink Wildfire is a call to action for collaboration across many U.S. organizations and disciplines to develop and implement policies to better protect vulnerable neighborhoods, citizens, and first responders. The five tenets of Outthink Wildfire must be supported by all levels of government:

• Require all homes and business in the wildland urban interface (WUI) to be more resistant to ignition from wildfire embers and flames
• Current codes and standards, as well as sound land use practices must be in use and enforced for new development and rebuilding in wildfire-prone areas
• Fire departments for communities in the WUI must be prepared to respond safely and effectively to wildfire
• Government must increase resources for vegetative fuel management on public land
• The public must understand its role and act to reduce wildfire risk

Among its efforts to advance these goals, NFPA hosted a summit in Sacramento, CA, in May 2022, bringing together more than 50 representatives (see page 4 for the full list) to focus on the complex problem of wildfire risk to existing properties and communities. Summit participants collaboratively worked to identify the most critically important areas needing national focus and recommendations for addressing them. NFPA plans to use these recommendations, which are detailed in this report, as guidance for moving forward, incorporating them when and where appropriate.

To learn more about Outthink Wildfire, visit www.nfpa.org/outthinkwildfire
Meeting Participants

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Introduction

As the past several years have vividly illustrated, the wildfire crisis in the United States is a significant danger to the people, homes, and communities on and near wildfire-prone landscapes. At the same time, the knowledge and understanding of ways to lower the risk of ignition for structures in the wildland urban interface (WUI) has become more robust.

Critically, community-wide resilience of the built environment to wildfires is best accomplished by mitigation measures applied both at the individual structure and parcel level, and at the community level by mitigating adjacent properties.

Despite this knowledge, uptake of these methods is generally piece-meal and inconsistent in areas with measurable risk.

In May 2022, the National Fire Protection Association (NFPA) convened a one-and-a-half day summit in Sacramento, California, to develop ideas and recommendations that would facilitate the implementation of property mitigation measures at a scale commensurate with the scope of the risk to the residential sectors of communities on or near wildfire-prone landscapes in the United States. The meeting participants, who represented a diverse set of backgrounds, knowledge, and expertise, discussed the challenges faced by individual property owners, communities, and policymakers at each level of government and identified actions needed to overcome those challenges.

The participants identified the following six key areas for national focus:

1. Education;
2. Social and Cultural Challenges;
3. Financing Mitigation;
4. Workforce Development;
5. Silos and Planning; and
6. Codes, Data, and Materials.

Working in groups, participants developed recommendations to increase the pace and scale of home retrofits and other mitigation measures that will improve the resiliency of communities to wildfire. Across the groups, there were multiple instances of convergence toward similar ideas and recommendations. This report summarizes the groups’ discussions and resulting recommendations, synthesizing some of those convergent ideas in the final section.

There is a long road ahead to reach a future where all communities are prepared for wildfire and the risk to people and homes is significantly lower than it is today. Working together to expand on and implement the ideas developed through this summit and building on the ongoing efforts of wildfire stakeholders will move communities closer to that goal.

Acknowledgments:

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Executive Summary

FPA brought together more than 50 representatives of nearly 40 organizations to focus on policy-driven solutions to the complex problem of property destruction and community devastation by wildfire. The goal was to develop recommendations that could dramatically increase the scale and the pace of needed changes to prevent these wildfire losses. Workgroups at the one-and-a-half day summit organized around six topic areas: Education; Social and Cultural Challenges; Financing Mitigation; Workforce Development; Silos and Planning; and Codes, Data, and Materials.

Challenges:
• Education
• Social and Cultural
• Financing Mitigation
• Workforce Development
• Silos and Planning
• Codes
• Data
• Risk Understanding

Similar ideas emerged from multiple workgroups, including the need for policy coordination, common definitions, actionable educational messaging, inclusivity, program access, and capacity building. These are explored in more detail in the final section of the report and point to prioritized areas of need for stakeholder engagement.

Continued development in the wildland urban interface (WUI) underscores the needs for all jurisdictions in wildfire-prone areas to adhere to a WUI building code for new construction. However, as the numbers on the previous page illustrate, existing homes and communities, most of which were not designed and built with the protective benefit of current codes and standards, are the crux of the wildfire disaster problem. This is not only due to the vulnerabilities of individual homes, but the fact that those homes can become fuel, helping to spread the disaster to neighboring properties, quickly outpacing local fire departments. In NFPA’s Fifth Needs Assessment of the U.S. Fire Service, 71 percent of fire departments reported their response capacity would be overwhelmed in a wildfire incident affecting 20 or more structures. Most departments also report that though they have wildland and WUI firefighting responsibilities, they lack both the requisite training and personal protective gear for all their members. Failure to reduce the vulnerabilities of structures to fire not only leads to high losses, but it also endangers firefighters who have been called to respond.

Continued development in the wildland urban interface (WUI) underscores the needs for all jurisdictions in wildfire-prone areas to adhere to a WUI building code for new construction. However, as the numbers above illustrate, existing homes and communities, most of which were not designed and built with the protective benefit of current codes and standards, are the crux of the wildfire disaster problem. This research has highlighted the role embers play in the home ignition process and the critical need to clear combustible material away from the structure. During a wildfire, winds may drive millions of embers several miles ahead of the fire front, showering homes and igniting combustible material, like mulch and debris, where they land, spreading flames.

Study of these scenarios, and many others, has led to new guidance from the National Institute of Standards and Technology (NIST) and the Insurance Institute for Business and Home Safety (IBHS) on the best methods to assess vulnerability and protect structures during a wildfire event.

NIST Technical Note 2205 Structure/Parcel/Community Fire Hazard Mitigation Methodology presents a vigorous methodology for homeowners and communities to assess and address vulnerabilities and consider how the density of neighborhoods impacts the type and degree of mitigation required for improved performance. IBHS’s Wildfire Prepared Home is a designation now available for California homeowners that meet the program’s requirements for roofs, protected building features, and property maintenance. Putting this guidance into practice will reduce the number of homes damaged or destroyed in wildfires.

The recommendations in this report, summarized below, provide strategies for reaching this objective. These recommendations, developed by work groups over the course of the one-and-a-half day summit, focus on six topic areas—Education; Social and Cultural Challenges; Financing Mitigation; Workforce Development; Silos and Planning; and Codes, Data, and Risk Understanding. Similar ideas emerged from multiple workgroups, including the need for common definitions, actionable educational messaging, inclusivity, program access, policy coordination, and capacity building. These are explored in more detail in the final section of the report and point to prioritized areas of need for stakeholder engagement.
Improving Education

Education is one of the first steps to implementation. For two decades, NFPA’s Firewise USA® program has demonstrated the value of wildfire safety education and community engagement. Effective education can also enable voluntary compliance with guidance and formal regulations. While there are a variety of educational materials available, there is no standardized, nationwide campaign to deliver the message to the millions of people whose homes are at risk from wildfire.

As described in this report, clear, consistent, tested messaging that instructs property owners on specific steps needed to lower their risk will help overcome impressions that the risk cannot be managed. A model education campaign will also help overcome complacency with specific instructions for property owners, strategies for engagement in different settings, and recognition for individuals, neighborhoods, and communities. Given the importance of collective action in reducing risk on adjacent properties, the campaign must leverage and promote communication and cooperation between neighbors.

Addressing Social and Cultural Challenges

Independent action by individuals is critical to expanding the number of properties and residents prepared for wildfire risk. Investing in hazard notification signage, clear messaging from influential members of the public, and institutionalizing risk education are means to support this. However, unassisted, independent action is not possible for every person in the WUI. Realizing significant reductions in risk will require efforts to reach people where they are—be it with financial assistance, tailored outreach, or accommodations for disability. This report provides ideas to ensure this outreach is meaningful and effective. Finally, reluctance still exists even among those property owners with sufficient means and capacity to undertake mitigation unassisted. Reviewing the abundant social science research on promoting behavioral change may offer strategies to confront this challenge. Beyond that, identifying influencers and community “spark plugs” and seeking regulatory changes to compel action are other means to counter complacency.

Funding for Retrofit and Mitigation for Existing Homes

The bulk of federal funding for wildfire has focused on fire and land management, even as the number of homes lost to wildfire has increased dramatically. Given the evidence supporting the effectiveness of mitigation, it is appropriate to steer funding to assist even private property owners with the implementation of effective mitigation strategies. Unfortunately, not only is there insufficient funding for these actions, but the funding that is available is often too burdensome to effectively access. There should be programmatic support available specifically to support wildfire mitigation for existing homes. In addition, existing Federal Emergency Management Agency (FEMA) hazard mitigation programs should be analyzed to identify barriers to access, and policies amended to address them. Wildfire mitigation should also be integrated into other relevant programs like those at the Department of Energy (DOE) and the Department of Housing and Urban Development (HUD).

Developing a Wildfire Mitigation Workforce

As interest in mitigation grows, more trained workers will be needed in the public and private sectors to evaluate wildfire risks to property and to carry out mitigation actions. To address this need, there should be consistent, nationwide training standards and certifications available for wildfire risk assessments, home retrofits, and the creation and maintenance of defensible space.

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Breaking Silos and Planning for an Integrated Future

Wildfire policy and funding is highly siloed, with funding focused heavily on suppression. Furthermore, program policies and objectives often do not align. Land use planning, particularly at the local level, is often frustrated by inconsistent requirements and lack of data. The U.S. Fire Administration (USFA) should take a coordinating role within the federal government to help address these challenges, ensuring programs to assist communities in wildfire mitigation are accessible and consistent, and that communities have data related to risk and loss to help them plan. In addition, attention and investment in local and regional planning capacity will help promote alignment in general plans, hazard mitigation plans, and community wildfire protection plans, leading to a greater chance of success for the implementation of wildfire mitigation plans.

Advancing Codes, Data, and Risk Understanding

While there has been significant progress on understanding wildfire risk to structures, there are still gaps to be addressed.

To help fill these gaps, there should be a federal coordinating entity to both disseminate research related to reducing wildfire risk to structures, and to develop research strategies to build on existing knowledge. In addition, terminology and data for wildfire risk to communities lacks standardization.

Efforts to develop this standardization should further lead to the development of an open-access National Fire Incident Reporting System (NFIRS)-type data system for fire incident data collection in support of relevant risk models. Lastly, there is a significant need for research, including full-scale testing, on the fire performance of materials, methods, and systems to better address wildfire spread within built environments. Investments in research and knowledge generation must be sustained to promote continuous improvement of codes and standards that bring research findings into practice.

Improving Education

Living with Wildfire Together: Talk to Your Neighbor and Your Legislator

Background

People become aware of their risk to wildfire in many ways. Whether they directly experience a wildfire threat, know a family member or friend who has been impacted by wildfire damage, endure increased insurance rates, or are ordered to comply with defensible space regulations, people need education about how wildfire can affect them and what they can do to cut their risk of loss. Effective education enables voluntary compliance with guidance and formal regulations that can save lives, property, and communities. Property owners and policymakers alike should be provided with consistent, actionable information to help cut losses. Property owners in wildfire risk areas can feel overwhelmed. Some may feel they have no control over the wildfire threat to their community. Others may feel stymied by complex and conflicting messages from different sources providing recommendations on how to protect their homes. It’s also simply human nature to believe “the unthinkable will never happen to me.” Both the perceived complexity and the propensity for denial can lead to inaction.

Furthermore, while the occurrence of a wildfire creates a window of opportunity for mitigation activity in affected and surrounding communities, experience has demonstrated that this “teachable moment” is very short.

To counter tendencies toward inaction and to take advantage of windows of opportunity, there must be a model education campaign.

This campaign should follow consistent messaging to homeowners but offer sufficient flexibility for states and local communities to customize implementation for neighborhood initiatives and other engagement strategies that encourage residents to act on their property for the benefit of their neighbors and the community at large. This campaign should:

• Develop core messages that are consistent, offer attainable solutions, and whose impacts can be measured; and
• Create and support recognition programs that target and tout individual citizens, neighborhoods, and community successes.
Recommendations and Initial Steps

1. Identify and engage national-level wildfire stakeholders to develop the education campaign targeted toward at-risk communities, with a focus at the neighborhood level.

2. Develop consistent, national messaging that can be customized and adapted at the community level to leverage local opportunities, resources, and conditions. For example:
   a. To address consumer-level confusion and frustration that can lead to inaction, educational messaging should focus on the core retrofit actions that are broadly applicable to all structures.
   b. Messaging should also include multiple tiers of action that will further lower risk for an individual’s home and their neighbors’ homes. As used here, “retrofit” is inclusive of structure hardening and the creation of defensible space that improves the survivability of a home.

3. Develop campaign objectives, which should include:
   a. Helping homeowners understand personal, neighborhood, and community risk;
   b. Pursuing motivational strategies, like property value enhancement, financial impacts to homeowner (including insurability), reduced operational cost of homeownership, and improved life safety; and
   c. Promoting personal and neighborhood-level responsibility for living in areas with wildfire risk.
   d. Educating the public and policymakers on the role that codes and standards play in reducing wildfire risk.

4. Identify and message to actors who can compel or influence community action at the personal property and neighborhood levels [e.g., homeowners’ associations, municipalities, trusted community leaders and influencers, and private-sector stakeholders (homebuilders, realtors, insurance agents, retailers, etc.)].

5. Establish metrics to assess campaign performance, such as change in household mitigation investments over the course of the education campaign. Not only are the metrics helpful in assessing impact of the campaign, but they can also generate data that could be useful for other stakeholders.

6. Identify high-risk communities for the campaign rollout and include other awareness raising activities, such as hazard-related signage.

7. Identify and leverage earned traditional and social media opportunities that support core campaign messages and activities. Plan to invest in paid media (digital, broadcast, print, direct mail, etc.) as well.

Outcomes and Goals

A concerted nationwide campaign will generate greater awareness and acceptance of how people should live in areas of wildfire risk, including the need to work together as neighbors to reduce wildfire risk, improve life safety, increase home survivability, and increase home value and insurability. As more frequent large loss events from wildfire impact whole regions and communities, triggering regulatory action to mitigate private property, this kind of education can enable greater voluntary compliance with sound rules, and support the implementation of key policies. A foundational goal of such an education campaign should be to build engagement at a state level that results in formal institutionalization of the core objectives. In addition, establishing a community baseline through metrics for existing and changing conditions for both hazard and mitigation will enable tracking the performance of the campaign as well as directing other mitigation resources.
Addressing Social and Cultural Challenges

Normalization of the Understanding of Risk; Meeting People Where They Are

**Recommendations and Initial Steps**

1. **Normalize the understanding of wildfire risk.** All members of the community must understand their risk and buy into their role in the risk reduction. Practices to support communities on this journey include:
   a. Providing regular reminders of the wildfire risk to residents. This should include investing in signage that draws from the signage messaging for other hazards, like tornado and flood evacuation routes and tornado shelter designations. Planners should consider ways to ensure the signage and messaging are accessible to all community members. Communities should also provide the public with clear, actionable information on what and what not to do to lower the risk to themselves and the community (evacuation instructions, refuge centers, activities to avoid on Red Flag days, mitigation measures, etc).
   b. Providing residents with specific and actionable messaging, tailored to meet the needs of different populations in the community. Communities may want to consider more direct messaging about the limits of the local fire department in some wildfire events and that suppression should be viewed as the last line of defense.
   c. Institutionalizing the education of wildfire risk in the area, beginning in schools.
   d. Identifying and cultivating influencers to spread the message of risk and risk reduction (community-level and national-scale).
   e. Ensuring the fire department has an active role in risk reduction as well as suppression.

2. **Meet people where they are.** Not everyone in the community will have the resources, capacity, or control over their property to undertake mitigation activities on an entirely independent basis. Strategies for mitigation must help those without means, those with various types of disabilities, and those with limited control over their dwelling (e.g., renters). Similarly, safety planning and execution needs to target everyone in the community, and not leave anyone out—people with disabilities, those without vehicles, non-English speakers, or any other marginalized group. Strategies to meet people where they are must:
   a. Practice early engagement that ensures multi-directional communication.
   b. Tailor messaging to different populations, communicating the types of actions people must take and the support available for taking those actions.
   c. Invest in and build community support programs for mitigation services and wildfire safety. These programs should consider funding for both formal and informal service providers and messengers.
   d. Remember that the process of identifying people who need services is ongoing—it cannot be a one-time effort.
   e. Ensure that any request/application for services or support is accessible (technologically and through other means). Mitigation-related programs should include service navigators.
   f. Establish mechanisms to ensure all property, including rental properties, meet retrofit and defensible space requirements. Do not leave rental housing out of programs to support home retrofitting and mitigation.
   g. Ensure infrastructure for evacuation is safe/accessible for everyone and that warning systems are accessible and meet the needs of everyone in the community (people who are deaf can’t hear sirens; people without a computer can’t visit a website).
   h. Think outside the box—consider investing windfalls in community capacity rather than capital expenditures.
   i. Enabling creative/flexible economic solutions for those in need (elderly, disable, low-income).

**Background**

There is a lack of normalization of understanding of wildfire risk. Unlike other natural hazards, like tornadoes, floods, etc., there is generally a lower level of awareness of wildfire risk in places where this risk is endemic.

**Improving people’s understanding of the wildfire risk in their area and educating them on the actions they can and should take to protect their homes is vitally important.**

However, relying solely on unassisted actions, or “personal responsibility,” fails to meet many people where they are and may leave many homes and communities unprotected. Policymakers, program specialists, and others in this space must understand what people need to achieve risk reduction and safety goals and provide support for those needs.

Resistance to change is also a barrier to the adoption of mitigation measures. Some people with few financial barriers or challenges for safety hold, and accept the changes needed to understand how wildfire threatens other values or other reasons private property rights, aesthetic preferences, privacy, complacency, notions of liberty and resistance can be seated in the desire for to protect their homes and communities.

Wildfire risk reduction, communities should fund, feed, compensate, and offer transportation to community members for whom the planning process is otherwise inaccessible. One strategy for communities to consider is reorienting planning funds toward ensuring greater participation rather than using those funds solely to employ consultants.

As communities build awareness and develop risk reduction strategies, they should work to ensure the people who are most impacted are centered in these plans and discussions. In fact, communities should consider giving these individuals leadership roles and ensuring they are part of both higher-level policy meetings, as well as strategy and implementation sessions. Critically, not everyone who is impacted has the same means and resources available to them to fully participate. To increase access to the policy and planning process for community wildfire risk reduction, communities should fund, feed, compensate, and offer transportation to community members for whom the planning process is otherwise inaccessible. One strategy for communities to consider is reorienting planning funds toward ensuring greater participation rather than using those funds solely to employ consultants.

Communities may want to:

(a) Ensure the fire department has an active role in risk reduction as well as suppression.

(b) Provide regular reminders of the wildfire risk to residents. This should include investing in signage that draws from the signage messaging for other hazards, like tornado and flood evacuation routes and tornado shelter designations.

(c) Provide residents with specific and actionable messaging, tailored to meet the needs of different populations in the community. Communities may want to consider more direct messaging about the limits of the local fire department in some wildfire events and that suppression should be viewed as the last line of defense.

(d) Institutionalize the education of wildfire risk in the area, beginning in schools.

(e) Identify and cultivate influencers to spread the message of risk and risk reduction (community-level and national-scale).

(f) Ensure the fire department has an active role in risk reduction as well as suppression.

(g) Provide residents with specific and actionable messaging, tailored to meet the needs of different populations in the community. Communities may want to consider more direct messaging about the limits of the local fire department in some wildfire events and that suppression should be viewed as the last line of defense.

(h) Institutionalize the education of wildfire risk in the area, beginning in schools.

(i) Identify and cultivate influencers to spread the message of risk and risk reduction (community-level and national-scale).

(j) Ensure the fire department has an active role in risk reduction as well as suppression.
3 Overcome resistance to change.

Promoting behavioral change is challenging and complex. Efforts to do so should include the following actions:

a. Review existing social science research on promoting behavioral change in communities, direct funding to better understand this issue in the wildfire context and develop ways to apply social science findings on methods to motivate people to act.

b. Identify high-profile influencers to address underlying barriers, like concerns about aesthetics.

c. Continue to promote “community spark plugs” and consider ways to recruit more people to these roles.

d. Lower the statutory and other legal barriers to creating special assessment districts (like homeowner’s associations or California’s Mello-Roos). While generally more common for new developments, special assessment districts could be a mechanism for existing communities—particularly those in the riskiest areas—to help fund community mitigation efforts. The funding could also help support those who may not be able to afford the necessary parcel level mitigation. Regular assessments can socialize the cost of living in risky areas and can regularly attend to maintenance needs.

e. Take steps to reduce risk through regulatory action and fund education and enforcement robustly.

Greater awareness of risk is the first step to motivating action toward retrofitting and related measures. Communities with more indicators of risk awareness should also have more properties that meet mitigation best practices. In addition, increased resources and support for marginalized people to assist with risk reduction activities and wildfire safety initiatives, low-to-no-barriers to access for programs and support, and greater representation by these people in both policy- and community-level meetings will indicate how well policymakers are doing to meet people where they are.

Funding for Retrofit and Mitigation for Existing Homes

Outcomes and Goals

Greater awareness of risk is the first step to motivating action toward retrofitting and related measures. Communities with more indicators of risk awareness should also have more properties that meet mitigation best practices. In addition, increased resources and support for marginalized people to assist with risk reduction activities and wildfire safety initiatives, low-to-no-barriers to access for programs and support, and greater representation by these people in both policy- and community-level meetings will indicate how well policymakers are doing to meet people where they are.

Funding for Retrofit and Mitigation for Existing Homes

Improving Access to Funding and Performance of Programs

Background

The traditional governmental focus on the natural resources impact of wildfire has obscured the significant problem of home destruction by wildfire. Furthermore, federal and state agencies traditionally engaged in wildfire suppression and prevention have limited statutory mandates to engage in wildfire mitigation addressing home- and community-level preparedness and mitigation. And while there is sound science and technical knowledge for home mitigation—including positive results for homes built to California’s WUI building code—there are limited resources available to apply this knowledge. Despite what we have learned, and despite the vast scope of community and home vulnerability, it is very difficult today to secure and apply funding and technical resources to solve the problem. Funding sources from federal agencies are stove piped within narrow statutory and regulatory limits that make it nearly impossible to obtain and use these dollars for the mitigation of private homes. The “strings attached” to specific funding streams are a significant barrier to implementation, often conflicting with each other as well as with state rules or processes.

There is no coordinated national strategy for funding home retrofits/mitigation and community protection. In addition, there is no clear state or local leader for technical assistance. This need tends to get assigned by default to local fire departments, who are seldom funded or mandated to provide such services.

Wildfires are increasing as a result of climate change and are expected to continue to dis-proportionately impact vulnerable populations. Climate resilience efforts should include robust work to make the built environment less vulnerable to wildfire. Community-wide reduction in the vulnerability of the built environment to wildfires cannot be accomplished without mitigation applied at the individual structure and parcel level, and across adjacent properties. Vulnerable populations living in wildfire risk areas have little to no support, funding, nor technical assistance to enable these urgent home safety measures.

The situation calls for dramatic change.

To support this change, there should be clear wildfire mitigation leaders at all levels of government, from federal and state to local, and especially at the county level.

The recent growth in Congressionally approved funding for mitigation and infrastructure is important. However, solving this problem will also need the establishment of a reliable, transparent, predictable, easy-to-access strategy for obtaining those funds and implementing community-wide solutions. It also must be a long term, sustained investment with permanent funding streams.
Funding for Retrofit and Mitigation for Existing Homes

Recommendations and Initial Steps

1. Develop a baseline, consensus definition of home retrofit/mitigation. This common understanding will help with sustained investment and will enable federal and state agencies to address property-level wildfire mitigation in a consistent manner.

2. Develop and publish an analysis of existing federal and state programs and funding applicable or relevant to mitigation and identify aspects that support effectiveness, those that create barriers, and opportunities to apply them to property-level wildfire mitigation.

3. Create and publish an inventory of retrofit and mitigation activity occurring at the local and county levels as a guide for other communities and a catalog of best practices.

4. Brief members of Congress to highlight current federal funding roadblocks for property-level wildfire mitigation and propose solutions to overcome these barriers. Solutions include restructuring programs to allow states to manage funds directly, and easing burdens that effectively preclude accessing funds, like those that apply the same National Environmental Policy Act (NEPA) review process for small retrofit projects that typically apply to larger projects or cost-benefit analysis that make home safety and wildfire mitigation projects for moderate and low-income housing untenable.

5. Convene a meeting with all Federal Emergency Management Agency (FEMA) region leaders to discuss FEMA-specific issues, particularly the inconsistency of regulatory interpretation among regions.

6. Develop and support programs, funding, and legislation specifically to address home retrofits for wildfire risk reduction. In the short-term, provide testimony and letters of support for HR 5689 (aka Resilient America Bill) as it makes its way through the Senate.

7. Integrate wildfire risk reduction measures into existing programs run by the U.S. Department of Housing and Urban Development and the U.S. Department of Energy, as well as into other mechanisms like insurance policies.

8. Find a willing state agency or county that could pilot an incentive program for contractors (homebuilder or landscaper) to enable them to market bundled home contracting services (i.e., combining wildfire retrofits with energy efficiency improvements).

9. Develop a detailed analysis for a “diversified incentive portfolio” for a home retrofit funding package of incentives. Development of this portfolio should include tax incentives, low-cost financing, insurance requirements, and other related mechanisms.

10. Create an umbrella structure to manage and coordinate these activities going forward. This structure could grow from existing organizations or through new coalitions focusing on structural ignitability and the vulnerability of the built environment.

11. Establish funding to support county-level technical assistance to property owners.

Outcomes and Goals

Following the recommendations on the previous page should lead to streamlined funding mechanisms which will yield measurable risk reduction action at the local level in terms of documented home retrofits and parcel-level mitigation actions. There will also be a significant growth of professionals seeking accreditation and training in wildfire mitigation specialties (home retrofits, management, tree services) and increased capacity for technical assistance among county and state government agencies. Increasing home retrofit activity will also spur the development and/or refinement of home and parcel level mitigation techniques, materials, and designs from a number of industry interests (builders, contractors, installers, architects, manufacturers, etc.).
Developing a Wildfire Risk Mitigation Workforce

Ensuring the Work Gets Done

Background

As more funding becomes available for mitigation projects, and interest in mitigation grows, the lack of trained personnel within both government agencies and industry will create barriers to implementing the property assessment programs, home retrofits, and defensible space creation and maintenance needed to reduce wildfire risk to communities. In addition to addressing workforce challenges, developing data sharing approaches between the insurance industry and others in the public and private sectors has great potential to increase the efficiency and effectiveness of mitigation programs. Addressing these issues to support growth in assessments, home retrofits, and defensible space creation and maintenance will require:

- Educating policymakers, agency officials and staff, nongovernmental organizations, trade organizations, the business sector, and the public on the importance of risk reduction strategies to reduce wildfire damage;
- Developing job training programs to grow the needed workforce;
- Creating mechanisms to attract businesses, job opportunities, and employees into wildfire risk reduction areas (home retrofitting, construction in accordance with wildfire safety codes and standards, and vegetation and fuels management in all settings, including grazing); and
- Information sharing and collaboration between the public sector and the insurance industry built on a common understanding of risk reduction standards.

Recommendations and Initial Steps

1. Develop consistent, nationwide training standards, and certifications as applicable, for assessments, home retrofits, and defensible space creation and maintenance. These standards should be based on the latest research and be developed with input from academic and relevant non-governmental organizations, as well as fire, planning, and building agency officials; construction, landscaping services, nursery, and hardware industry representatives; homeowners’ associations; state licensing agencies; elected officials; and members of the public.

2. Foster and support opportunities to expand labor pools for home retrofitting, defensible space creation and maintenance, and wildland fuels treatment projects by:
   a. Creating more opportunities for contractors within these fields;
   b. Collaborating with existing building and trade associations, including those that represent minority business owners, and encouraging their growth in these fields;
   c. Providing training and support for inexperienced business owners; and
   d. Supporting job training for wildfire risk reduction fields, including for minorities and other marginalized communities.

3. Increase the collaboration and information sharing between the insurance industry, agencies, and other parties in the mitigation sector through:
   a. Improved understanding on the potential for retrofitting to impact homeowner policies;
   b. Insurance industry recognition of trained professionals capable of implementing mitigation measures to meet insurance standards; and
   c. Agency recognition of inspection efforts by the insurance industry.

Outcomes and Goals

Pursuit of the recommendations above, particularly developing nationwide training and certification programs for home retrofits, defensible space creation and maintenance, and fuel treatment, as well as supporting the development of business and job opportunities, will grow the workforce to serve the risk reduction needs of the public. The growth in collaborative relationships between academic and nongovernmental organizations, public agencies, the insurance industry, and multiple other business sectors will also help this sector grow. In addition to the workforce benefits, the recommendations above will help build a common understanding among all parties of effective home retrofitting and defensible space needs to reduce wildfire vulnerability. Creating the common understanding will better guide the public on actions they must take to reduce risk.
Breaking Silos and Planning for an Integrated Future

Working Across Government to Align Policy for Wildfire Risk Reduction

**Background**

Silos in planning and governance hinder efforts to bring wildfire structural retrofit and community mitigation actions to scale.

For example, federal and state agencies continue to significantly under-invest in wildfire hazard mitigation compared to fire response and suppression.

Neither wildfire mitigation nor suppression activities receive the same cost-share and reimbursement benefits provided for other hazards like floods and wind events. In addition, different arms of government (and private entities), from the federal to the local level, responsible for some aspect of wildfire or community safety often work independently, fragmenting planning, implementation, and evaluation efforts. For example, the range of planning documents at the local level (General Local Hazard Mitigation Plans, Community Wildfire Protection Plans, etc.) often use different underlying data and have contradictory objectives. Additionally, not all communities have the same capacity for planning and are further stymied by incompatible regulations, inconsistent or unclear metrics, and the quality of available data—including those for wildfire risk. The application processes, eligibility requirements, and project timelines associated with hazard mitigation and disaster recovery funds overwhelm the communities and individuals who need them most.

Progress to address these issues will involve:

- Ensuring wildfire mitigation, including home retrofitting and community efforts, is prioritized across multiple agencies and levels of government and has access to sustainable funding.
- Creating a central, federal authority to coordinate policies, programs, and data for wildfire mitigation to improve efficiency and implementation.
- Assisting local capacity for wildfire mitigation planning through coordination and investment.
- Overcoming the reluctance of people and institutions to change.

**Recommendations and Initial Steps**

### Investment in prevention, preparedness, response, and recovery—in that order.

There should be a shift in public spending on wildfire toward greater investment in the prevention of damage. To promote this shift, administrators for federal and state hazard mitigation funds must ensure wildfire mitigation and recovery projects, including those focused on existing housing stock, are fully eligible and competitive for these grants. One strategy policymakers should explore is allowing consideration for the full range of benefits wildfire mitigation projects offer. Rather than relying mainly on traditional cost/benefit analysis, evaluators should employ holistic criteria, including protection of natural and working lands, reduced public health impacts from smoke exposure, and avoided debris removal costs (which are generally higher than for other hazards). Further, evaluators must consider community vulnerability—looking at the extent of hazard exposure, as well as factors like income, health, economic opportunity, and educational attainment.

**Policy and data coordination.**

**a.** The U.S. Fire Administration (USFA) should take a coordinating role on wildfire retrofit issues within the federal government. Multiple federal agencies currently provide funds for resilience and recovery projects, often with different policy goals and project evaluation criteria. A task force should oversee and coordinate the planning, implementation, and evaluation of wildfire mitigation efforts for homes and communities.

One priority for this task force should be helping to ease the burden for communities and individuals who are overwhelmed by the requirements to access mitigation and recovery funds.

Similarly, there should be a one-stop shop for grant applications available to local governments and the public for wildfire hazard mitigation. More broadly, USFA can bring public safety leadership to the natural resource management field.

**b.** USFA should expand its current role of hosting, maintaining, and coordinating data on structural fire to include data on wildfire risks and losses. This would provide a central source for data and risk modeling related to wildfire risks and losses. USFA should also lead efforts to address the lack of future-looking wildfire risk models that include climate change related variables. Having these tools available at a central source will aid planning, as well as efforts to assess the impact of mitigation investments.

**Local and regional planning alignment, coordination, and investment.**

Alignment, coordination, and investment in local and regional planning capacity will enable communities to better assess and address wildfire vulnerabilities. Local and regional authorities should seek maximum alignment in general plans, hazard mitigation plans, community wildfire protection plans, and all other planning documents that address wildfire risk, mitigation, and public safety. Federal and state authorities and policies should assist this effort to help communities better identify their wildfire vulnerabilities, determine wildfire resilience priorities, and prepare for funding when it becomes available. Policies should target incompatible regulations, available data sources, and metrics that create uncertainties and raise barriers to funding.

**Outcomes and Goals**

Making progress on the recommendations outlined above will enable better access to funding and support better coordination and alignment of responsibilities within and across agencies. With USFA in an elevated coordination role, it will be easier to track progress and change policies and programs to improve their effectiveness in achieving community risk reduction.
Advancing Codes, Data, and Risk Understanding

Advancing Science

Background

Funding, research, and programmatic efforts for wildfire have generally targeted land management and fire suppression over issues related to community and structural protection. Thus, there are still significant gaps in knowledge for understanding and developing risk profiles for different communities where the risk of structure-to-structure fire spread is high. Practitioners in both the research and mitigation space also struggle with the lack of standardized vocabulary, including the definitions of wildfire and WUI, risk, and risk profiles, that address the range of hazard, occupancy, and vulnerable populations. The lack of available data hinders the development of tools and algorithms for research, modeling, and decision making. For instance, there are no publicly available consistent standards for the development of risk models. In addition, the current fire test methods are generally insufficient for understanding and verifying the performance of building elements and systems in wildfire incidents.

As new knowledge is generated, it should be applied via codes and standards, which are scarcely used in many wildfire-prone areas today.

In order to better include the built environment in wildfire planning and coordination at the national level, there should be:

- A federally coordinated effort to develop and promote initiatives to address structural risk from wildfires and the needs of the built environment with a focus on communities.
- An effort to standardize vocabulary, including the definitions of wildfire and WUI, risk, and risk profiles, addressing the range of hazard, occupancy, and vulnerable populations.
- Greater open-access data to support tools and algorithm development.
- Research on the fire performance of materials, methods, and systems to better address wildfire spread into and across the built environment.
- A methodology to continuously develop and implement existing and future approaches and solutions as applied to different risk profiles such as rural, semi-urban, suburban, and urban environments, as well as critical infrastructure.

Recommendations and Initial Steps

1. Facilitate national coordination of WUI risk management. There should be a federally coordinated effort to disseminate research and related efforts that address hazard mitigation for the built environment in the WUI, and to coordinate research strategies to close knowledge gaps. The Wildland Fire Commission appointed in the Infrastructure Investment and Jobs Act should take the lead on identifying the best home and structure for a permanent national coordination group focused on promoting public safety in the WUI. As part of this effort, the Commission should review the model used for the Office of Federal Coordination on Meteorology (OFCM).

2. Establish standardization in risk profile areas and data. Part of the national coordination effort should include the standardization of vocabulary, risk profiles, and data. Characterizing and developing common definitions of risk should consider the following:
   a. Vulnerability
   b. Hazard
   c. Occupancy including socioeconomic vulnerabilities
   d. Critical infrastructure
   i. Power
   ii. Water
   iii. Transportation
   e. Geography
   f. Topography
   g. Meteorology
   h. Spatial dimension
   i. Material usage
   j. Land-use planning
   k. Building separation
   l. Smoke effects

   The first step of this standardization effort should be on the collection and archiving of hazard and loss data. This should include a research project examining the latest advances in Big Data, AI, and other technologies that can efficiently collect and analyze data. Work to define data structure should take advantage of the latest technologies to the greatest extent possible.

3. Create an open-access data source. The efforts described in the recommendation above should move toward the creation of an open-access data source. One such model could be a NFIRS-type of data system for fire incident data collection in support of evolving risk models, which may include ground-level understanding of building stock pre and post incident. The development of any such system would require consistency of the syntax and common use of terminology. No consistent models or databases are publicly available for development of risk models. A research project on Big Data, AI, and other technologies to efficiently collect and analyze data would also aid this effort to create an open-access data source.

4. Develop focused research on materials, methods, and systems. There is a considerable need for research on the fire performance of materials, methods, and systems in order to address wildfire spread across communities. Research and development must also include improving test methods and fire performance evaluations on systems and building elements. The first step is to take advantage of full-scale testing by expanding the scope of existing initiatives. Urgently needed is a multi-hazard fire facility that can handle testing of one or more buildings exposed to wind, structural loads, and ember exposure. This type of research facility will aid in better understanding fire spread in building clusters. Investments in wildfire-related research should increase not only for facilities but also to support the development of more researchers in this area.
Encourage continuous use of best available standards and data. Investments in knowledge generation should be sustained. As gaps in understanding are filled, these findings must be brought into practice via the use of current codes and standards. These codes and standards must consider and apply to different risk profiles, such as those present in rural, semi-urban, suburban, and urban environments, as well as those for critical infrastructure.

There should be a national communication strategy for encouraging nationwide use of these codes and standards.

Outcomes and Goals

Coordinating a national approach to wildfire risk to structures and communities—from research to mitigation efforts—will advance a consistent level of safety for all Americans regardless of geographical location, establishing minimum standards of care at all levels of government. It will also focus efforts and available information in a manner that would be more readily available and usable by all stakeholders and advance knowledge that will help reduce losses. Establishing common nomenclature and definitions will facilitate the consolidation of inputs into data and models, and the development of advanced tools to inform decision-making. In addition, a national-level open-access platform for wildfire risk profiling will support communities in assessing their current risk and future changes to that risk as climate conditions change. Sharing and integrating data on this platform will support the creation of these risk profiles, and it will promote uniform and improved understanding of risk and risk management in the WUI across stakeholder groups. More robust open access data sets, risk analysis tools, and consensus risk management, may also support data-driven changes in firefighting strategies, tactics, and equipment. Improved research planning, coordination, and funding for research on wildfire risks to structures and communities will promote greater understanding of building system performance at a singular level as well as at the community level. This will guide and inform material usage, spatial separation of buildings and types of buildings, vulnerability based on age of structures, fire suppression response needs, support for vulnerable populations, land-use planning practices, and other considerations.

Urging the use of current codes and standards will bring the implementation of solutions based on risk profiles to all levels of government activity for community wildfire risk reduction.

Summary and Next Steps

The threat of wildfire to the well-being of millions of Americans is real and growing. The number of structures at high risk from wildfire reaches into the tens of millions. With a growing body of research now demonstrating successful wildfire mitigation strategies for homes, it is imperative that this knowledge be put into practice.

To generate a community-wide reduction in the vulnerability of the built environment to wildfires, mitigation must be applied at the individual structure and parcel level, and to adjacent properties as well. Achieving the mitigation pace and scale necessary for significant wildfire risk reduction calls for collaborative change to policy at every level of government.

Similar ideas arose across the groups working on each separate topic area at the May 2022 summit. Some of these include:

- Developing common definitions, terminology, and data practices. Property owners, local officials, and policymakers alike can be frustrated by differing mitigation recommendations from different sources. Reaching a consensus on what should constitute mitigation and retrofitting will not only help education efforts, but it will also support the implementation and tracking of programs that provide funding and technical assistance for property- and community-level mitigation. Moreover, common definitions, terminology, and data structures will assist research efforts and the development of models and other tools.

- Providing people in the WUI clear, actionable messaging. Stakeholders must also work to identify the right messengers and identify mechanisms that will motivate people to act.

- Messaging, initiatives, and programs must be inclusive. Reaching community-wide mitigation will require funding programs to help those who cannot undertake these activities entirely independently. It also requires that educational campaigns and other initiatives are designed to reach everybody.

- Easing access to mitigation programs. Conflicting, burdensome, or overly narrow requirements restrict the potential for current programs to support individual and community-wide mitigation. Removing these obstacles will provide needed funding and support to communities.

- Fixing uncoordinated policy. From aligning policies that impact wildfire mitigation to overseeing research, data collection, and knowledge dissemination, a central authority with the mandate to coordinate wildfire mitigation activities would improve efficiency and effectiveness.

- Building capacity from the individual to community level. Education programs and planning initiatives need to involve the people they impact and rely on neighbors teaching neighbors about wildfire risk and mitigation. Beyond supporting leadership at the individual level, local governments need technical assistance and regions need a mitigation workforce to bring community wildfire risk reduction up to scale.

- Reaching a consensus on what should constitute mitigation and retrofitting will not only help education efforts, but it will also support the implementation and tracking of programs that provide funding and technical assistance for property- and community-level mitigation. Moreover, common definitions, terminology, and data structures will assist research efforts and the development of models and other tools.
Building on these common themes and the recommendations in this report, potential next steps for stakeholder action include:

• Convening a working group to develop a national educational campaign, including developing consensus around mitigation and related terminology. Explore potential state-level pilots to help tie education to voluntary compliance with policy, such as California’s new 5-foot zone rule, or Oregon’s updated risk mapping.

• Analyzing federal and state programs that support mitigation (or related property interventions, like energy efficiency) to better understand barriers to property- and community-level mitigation, developing recommendations to expand their access for wildfire mitigation activities, and providing those recommendations to policymakers.

• Developing a strategy to promote coordination for wildfire mitigation activities.

• Developing and publishing a data and research needs document for wildfire and the built environment.

The growing burden of wildfire on thousands of American communities brings with it a window of opportunity to advocate for solutions to wildfire disasters.

With continued engagement and collaboration among stakeholders, the needs identified through this summit can be tackled and lead to the change needed to reduce the vulnerability of these communities to destruction by wildfire.