Wildfire Mitigation and Resiliency Standards Work Group

Post-meeting questions to presenters

Overview

After each work group meeting, questions from work group members were gathered by survey and shared with presenters. This document includes responses from the following presenters:

- July 1 Meeting: Dr. Lars Powell
- July 8 Meeting: Guy Gifford; and Megan Fitzgerald-McGowan
- July 15 Meeting: JulieAnna Anastassatos; Bryan Rehor; and Karen Collins
- July 22 Meeting: Joanne Pearson

July 1, 2025 Meeting - Dr. Lars Powell

"Please submit any questions you may have regarding the presentation by Dr. Lars Powell (University of Alabama)."

- 1) For homes that were damaged in the hurricane (Wind & fallen trees) and did have adequate roofing installed, were the homes rebuilt with the same roofing materials? How many residents rebuilt and stayed in the same location vs. selling, or not rebuilding at all?
 - For the homes in our study area, the supplemental building code requires that roofs be rebuilt to the FORTIFIED standard. Any roof that was damaged by Hurricane Sally should have been replaced with a FORTIFIED roof. I do not have information about rebuilding vs. relocating. It is an interesting question.
- 2) How has the insurance marketplace reacted to the AL efforts to fortify structures? What has happened from both an availability and pricing perspective? Has there been any research done on CA's wildfire-related building codes and their effectiveness? What lessons learned can be extrapolated?
 - We have not completed analysis on performance of the market in Alabama. Anecdotally, it seems that insurance is more affordable and available in Alabama than in Mississippi, Louisiana, or Texas. We are looking for valid comparisons with more rigor. To my knowledge, research on CA wildfire codes is prospective. In other words, the models and engineering specifications indicate that they will reduce the cost of wildfires. The lesson

that can potentially be extrapolated is that our analysis was consistent with output from models and engineering specifications.

- 3) 1. With regards to your statement of ... "None of these are insurance problems. The insurance mechanism across the country, when allowed to, works very, very well. It is very competitive. What we have are: 1. A how you build your house problem, and 2. A where you build your house problem." Do you have a recommendation of where people should build? I agree with you that, if people lived in areas that had absolutely zero risk, we'd probably not be having this conversation today, I'm just not sure where that somewhere is? And I could be wrong, but I'm thinking that is the very reason the insurance industry was born? And as far as how people are building their houses, I don't know about Alabama, but here in Washington our building codes are only getting more and more stringent. WA is one of the costliest states in the nation to build a house, and yet, what I keep hearing is they still aren't "good enough". The reality is that these measures are pricing people out of homes. Less home owners results in less people to insure, which I'm thinking no one in the insurance industry wants? Reality says there will be fires, earthquakes, hurricanes, etc. and people will choose to assume the risk of encountering one or more of those in choosing where to live, and insurance companies will either follow them or not based upon the level of risk they want to assume. I think recommending construction solutions to harden homes against risk is good as long as home owners see positive performance in the aftermath of these events and their insurance premiums are reduced to reflect the investment they put in up front to fortify their home. the additional cost to the baseline code minimum to put on a Fortified Roof? 3. What is the additional cost to the baseline code minimum to put on a Fortified Gold?
 - 2. The additional cost of Fortified Roof is about 5% of the cost of replacing a roof to the 2021 IRC.
 - 3. Our volume builders at the coast say that Fortified Gold increases the cost of new construction by about 1%, but this differs in areas where the underlying code is less stringent. I believe IBHS.org has more general information on the additional cost of Fortified.
- 4) Mr. Powell said that the Strengthen Alabama Homes has disbursed \$86 million for 8,700 retrofit grants. How much funding would be needed to retrofit 50% of the homes in Alabama? How much funding would be needed to retrofit all the homes in Alabama? Can Alabama provide additional funding to quickly scale up this program?
 - There are approximately 1.5 million single-family homes in Alabama. At \$10,000 each it would be \$15 billion-ish. Alabama's total budget for fiscal year 2026 is \$13.6 billion, suggesting it would take quite a while for the state to retrofit all of the houses and maintain other state functions.
 - o The average roof lasts 25 to 40 years, with most homeowners postponing replacement until 40 years unless the roof is damaged by a storm or other event. Without state funding, we would see just over 2.5% of roofs replaced annually. The purpose of the grant program is to accelerate the rate of turnover. It also helped to create a market for stronger roofs, by incentivizing contractors to learn the resilient roofing methods. About 51,000 of the 210,000 houses in Alabama's two coastal counties are currently FORTIFIED.

July 8, 2025 Meeting – Megan Fitzgerald-McGowan

"Please submit any questions you may have regarding the presentation by Megan Fitzgerald, McGowan- Program Manager, Firewise USA, National Fire Protection Association."

1. How have other governmental entities successfully supported Firewise USA programs? What are best practices in helping communities consider this designation? Are there any things the NFPA recommends avoid or that has not worked for them in the past?

The Firewise USA Program has been supported by various organizations at the state and local level across the U.S. We have found that have the state agency that houses the State Forester to be the best partner (we have tried others) unless the state agency specifically says they need help and nominate a partner (Georgia). While that agency is the lead, it should coordinate with others for supporting and information sharing (emergency management, fire marshal, conservation commission). At the local level we find a combination of local state offices, fire departments, conservation districts, fire safe councils, RCDs, to be the best facilitators and it really depends on the community who the message should come from. We see success (including in Washing) in counties where there are established work groups that bring these organizations together so they can communicate and share.

Once that support network is in place it is all about building up the community base – finding your spark plugs, block captains, ambassadors...whatever name or approach works. While Washington is just now implementing an ambassador program, other areas have used this to push forward wildfire preparedness and mitigation efforts, including Firewise USA.

As the program is voluntary, it works best for those who want to participate and do the work. For a practitioner – be open to working with all but don't have the effort be one-sided...if you are doing all the work for a community that is a sign to move on, they aren't ready. Practitioners are there to offer support and expertise, not to lead and do everything. You only have so much time and capacity. Also, to a comment made on 7/22, this is a private property issue. The program is trying to help individuals and neighborhoods rally together, but as there isn't in anything in Washington that compels or forces someone to take specific actions, it is their choice to accept the risk that exists or to take action.

Communities that have HOAs in place can be a good ally (not always). They have structure, process that can allow for required actions, and sometimes funding that can help with the work. For those HOA's – please don't put things in CC&Rs, those are really difficult to change down the road. Architectural committees are often a good fit.

2. Has there been discussion/consideration of aligned codes/standards across mitigation programs and states? For example, zones 1, 2 and 3 vs. 1 and 2, and zoning definitions?

Yes and no. There is always a desire for shared language and consensus but then states or organizations move forward based on a timeline or need they have to meet.

We have definitions in NFPA 1140, Standard for Wildland Fire Protection. This standard managed by a technical committee of outside subject matter experts, its development and updates are done by consensus. Throughout its update cycle anyone can provide comment during open comment periods. https://www.nfpa.org/codes-and-standards/nfpa-1140-standard-development/1140. NFPA does participate in working groups with ICC and other standards organizations, we also work closely with IBHS.

NFPA focuses on The Home Ignition Zone, originally coined by Jack Cohen, USFS (retired) rather than defensible space. The Home Ignition Zone (HIZ) concept states that a home's construction materials and immediate surroundings, usually out to 100', sometimes 200' feet if the home is on a hillside, dictate its ignitability. What happens here is critical to structure survival and there are things we can do to prevent home ignition. The idea is that by taking all the recommended actions in this area, a home can stand alone during a fire. If firefighting resources are available, they can safely position and take action, but their needed efforts are minimal.

3. My questions are all around integrating what is already working for NFPA/Firewise and adding precise, verifiable and repeatable mitigation (year over year) actions.

A reminder that Firewise USA is a voluntary recognition program and is really a framework for bringing neighbors together. Participating sites have annual reporting requirements, however we do collect individual parcel details. Entries included in annual renewal applications are gathered by the resident leader, some choose to provide entries for each community member they hear from, others provide an aggregate. The goal of the risk assessment and action plan is to help communities see that living with wildfire is a commitment with annual work needed. The ultimate desire is to get individuals to have their own specific property evaluated so they have a detailed plan to work towards, but again this is a voluntary process, and they pick and choose which actions they take.

NFPA does not conduct on the ground inspections to verify action has been taken, nor do we ask our partners to do that. Having an inspection program with precise, verifiable details is a very different type of program that requires a standard to be inspected against, trained workforce, a place to store the data, and liabilities to be addressed.

I can say – there are communities who have shared that their actions have made a difference when faced with wildfire. Some communities had success, others were mixed and that was based on levels of participation and what actions had been taken. The work should start with the home and immediate 5 feet, then out, however funding and resources are most often available for fuels treatments or vegetation treatment further out from the home. While communities or individuals could meet match requirements by doing the home/5-foot work, that isn't always the case.

- https://www.nfpa.org/news-blogs-and-articles/nfpa-journal/2022/03/29/grizzly
- 4. 1. You shared a picture of a home "during" and "after" the Palisades Fire in your presentation. In the "during" photo it appears that then entire hillside is on fire beyond the home, but in the "after" photo none of the vegetation appears touched? As we hear about

how we need to clear away most, if not all, vegetation from around our homes because the embers most certainly will catch it on fire, how is it that we keep seeing photos like this in the aftermath of these fires (usually the home has been reduced to white ash) and yet the trees/shrubs - this vegetated hillside, is left untouched? We experienced this first hand with our family's property that burned in the Gray Fire. Embers were declared to be the culprit, but somehow those embers carried in extreme winds through large stands of Ponderosa Pine (not burning the needles from the trees) to burn (to white ash) cabins made of brick masonry with metal roofs, leaving the adjacent vegetation intact? Your NFPA Wildfire Safety Work slide also had a picture demonstrating this point. Vegetation intact, houses burned to white ash.

Yes – large, mature vegetation that is further out from the house, not right against it often survives. Jack Cohen, retired US Forest Service Researcher, has conducted many post fire investigations where burned out homes were surrounded by trees that survived, but were scorched from the house. The embers from trees/vegetation further away are carried to the home where they find smaller plants/grass to carry surface fire to the house; piles of leave or other debris in corners, against the foundation, in places in the roof where things meet, they smolder around and eventually catch; or they land on our "things" that are on our deck or on our patios (chairs, potted plants, other things that burn or that catch leaves, needles, and other debris). Or, they get into the house through vents or other holes. What the science is pointing to is the first 0-5 feet, that's all that needs to be combustible free, we are not saying clear all vegetation everywhere, and that homes need to be in good repair so embers cannot get in.

https://www.nfpa.org/en/education-and-research/wildfire/preparing-homes-for-wildfire

What we often see is that individuals do not start their preparedness efforts with their home and first 5 feet, rather they go further out.

NFPA has <u>done many videos with Jack Cohen</u>, but they are longer that what most people on this working group have time for. Here's a quick one that he did in 2014 with the National Building Museum, it helps to frame the issue and is still quite relevant. https://youtu.be/ubybKQ6ligY?si=CF61VCiF2LzfX909

5. How do we expand Firewise and other similar programs in the state, and how do we empower insurance companies to provide discounts or some level of commitment to keeping structures that are improved insured long-term?

This question is tough – DNR, fire departments, conservation districts, and other partners have been carrying the message and trying to engage Washington residents for decades. After the 2014/2015 fires there was a big push...but organizations can only do so much, people have to be willing to accept the message and to start doing the work. Something that has stuck with me since that time (I worked for DNR back then) was hearing a state senator say they didn't think it was their job to support codes, standards, or ordinances that told people how or where to build their homes...and that right there is also part of the problem. If leadership and decisions makers don't support better land use policies or construction techniques, why would their constituents.

Having leadership publicly demonstrate that they support these efforts, calling out residents as part of the wildfire solution is one way to encourage growth. Fire suppression, forest management, fuels projects all have a role to play and are important but work still needs to be done on private properties.

Now – the agencies and organizations I called out would benefit from continued and additional funding to help grow Firewise USA participation or WRN or any other types of efforts. These programs require people to run them and to do the outreach and engagement with individuals and communities. As much as we have embraced technology, in this space in-person meetings are more impactful. In addition to staff, flexibility in funding for supporting different projects is key. I'm not saying running a full roof-replacement program, but allowing for some flexibility around vents or screening, materials that help create a fuel free 0–5-foot space, labor to help those who are older or physically unable to do the work.

Director Bigelow made some excellent points during his presentation and Q&A time on 7/29. Prioritization of location and what projects funding can support is key. What are the true vulnerabilities in Washington State.

Regarding insurance – we have heard through different presentations/meeting days that insurers want to do business. But they need to see more effort. Firewise USA is the framework to bring people together but then pairing that with resources that focus on that structure and 0-5 feet is key. And the work that is done needs to be meaningful, people need to chip away at their full list of recommendations from the home assessment, not just a task here or there. Participating in the program can help reinforce annual work and maintenance.

NFPA is working directly with IBHS to encourage more home in Firewise USA sites to pursue the Wildfire Prepared Home designation (currently in CA and OR) and are identifying potential pilot sites for the Wildfire Prepared Neighborhood program. We are also working with California and Oregon to identify pathways to get Firewise sites from where they are now to be eligible for the Neighborhood designation (it's a lot of work), and if they can't reach that full designation due to proximity or other things beyond their control, how do we get them to level up. This higher level of mitigation or meeting a standard is what will encourage insurance companies.

Reflecting on some of the other questions brought up

- Rural communities the home ignition zone principals can apply to any home or structure.
 For more rural communities, Firewise USA might not be the right fit as houses/properties are spread out, but they should still be focusing on the condition of the home and immediate areas. If they are in a farming or ranching community, the same actions can be applied to barns and other buildings.
 - https://www.nfpa.org/en/education-and-research/wildfire/preparing-homes-forwildfire

July 8, 2025 Meeting – Guy Gifford

"Please submit any questions you may have regarding the presentation by Guy Gifford, Assistant Division Manager, Community Resilience Program, Department of Natural Resources"

1. Where have you seen the grants been the most effective? Has there been any follow ups done with grant recipients to see how the program was successful and are there follow ups to ensure that mitigation work that needs to be done on a regular basis is supported in following years? What are the best ways to set standards for these programs?

The various grant programs that are being used have been effective at reaching each grant purpose/goal. Each grant focuses on typically a different part of reducing structure loss. All programs have shown effectiveness in engaging individual's and reducing structure loss.

The various grant programs are designed to be synergetic to each other. The grant programs have various focus and can be broken into the following:

- 1) Direct Mitigation work around structures and in communities
- 2) Public education Giving presentation, writing articles, Tabeling at events to share information
- 3) Training This is training agency staff and training volunteer community leaders
- 4) Sharing of knowledge This is the Washington State Fire Adapted Community Learning Network.

Follow up is not currently happening to ensure mitigation maintenance is being done in a formal process on a regular basis. There may be occasionally a survey done immediately or after a certain time has past to see if homeowners are continuing the work. But these post surveys are voluntarily completed. Firewise USA sites do report how much work is being completed annually in their community. This program has the best follow-up on what is being maintained on a regular basis. This reporting is done at what did the community do as an aggregate.

Outside of Firewise USA sites, informally there has been feedback and observation on maintenance being done, but the actual percentage of maintenance being done is not known.

On Standards: Standards on actions homeowners should take is based on various research by NFPA, IBH and Universities.

While the question is about grants, funding in general should be considered. A lot of work may not be grant funded but direct funds by taxpayers. For example, DNR may get some funds from the legislature, fire districts and local agencies may also get some funds from their jurisdictions. Conservation Commission may get direct funds to the legislature.

So this should consider how to fund this work including the grant program.

Below I share about each of the grant "programs" and go in a little more detail on there effectiveness.

Current grant types

Grants to Individuals -

- **Forest Health/Fuel Reduction grants** This program focus is on Zone 3, which is typically 30 + feet from the structure, the area that is not improved property like yard/gardens.
 - o **Goal of work**: Reduce the intensity of the Wildfire and increase the health of the forest.
 - How accomplished: Typically this is thinning small trees, chipping/masticating the material and limbing up the trees to reduce ladder fuels.
 - Effectiveness Currently WA-DNR has established a survey after a treatment has burned in a wildfire to go out and rate the effectiveness of the treatment. This has been done for a couple of years now. These survey's have shown this work is being effective in reducing fire intensity around structures.
 - Follow up to ensure maintenance There is no formal follow-up to ensure maintenance. In Eastern Washington generally once the work is completed little to no maintenance is needed for 10 years. In Western Washington once the work is completed it is projected the work will be good for 3- 5 years before maintenance is needed. Informal follow-up has shown this to be true in most areas.
 - Set Standards This program has been around for a long time and the standards of tree spacing and limbing are well established.
- **Home Hardening, Zone1 grants** These grants focus on making the home plus HIZ zone 1 (0-5) around structures ember resistant. So if an ember lands in this area it won't start something on fire.
 - o **Goal** Have an ember ignition resistant home and 5' perimeter around the home.
 - How accomplished Homeowners hire contractors to replace roofs and decks with material that will reduce embers from igniting them. Landscaping within 5 feet of the home is replaced with non-flammable mulch, and fire resistant plants.
 - Effectiveness There has been a lot of research (some shared at the OIC mtgs) about how creating ember ignition resistant structures and landscaping is effective in reducing home ignition. No studies/surveys in Washington on the effectiveness of these type of grants. Not a lot of homes have received grants in the state of Washington so no testing done by an actual wildfire.
 - Set Standards Currently recommendations are coming from NFPA in cooperation with IBHS
- **Zone 2 grants 5 to 30 feet** Currently there is no grant program targeting this area.

Neighborhood/Community Grants – These grants focus on neighborhood/community and encourage them to impellent projects that can benefit the neighborhood/community.

- **Goal** Encourage neighborhood/community projects and engagement.
- **How accomplished** Focus is on Firewise USA sites but non Firewise USA sites participate. The neighborhood/community typically have an action plan they are trying to implement to reduce.

- **Effectiveness** This has been an annual program for the last three years and the awards are small in size and have been very effective in getting people to take action within their community. There is annual follow up with the neighborhood/community since they receive the award annually.
- **Set Standards** Firewise USA sites are implanting an action plan, the action items are based on science typically from NFPA/IBH and Universities.

Public Education: This focus is getting individuals to take action to reduce the chance of their home being lost in a wildfire.

- **Goal:** Engage people in preparing for wildfire.
- **How accomplished:** Various organizations have trained staff, that give presentations, table at events to encourage people to take actions around their home to reduce fire loss. One specific item is providing for free a "wildfire" expert to come and walk their property.
- **Effectiveness:** This has been very effective in reducing structure loss. People want to do the right thing but there is a lot of information out there and this program helps people know what is the most important action to take first to reduce structure lost. No formal survey has been done on what people do. But informally people have called and thank the "wildfire" expert for the advice they received via a presentation or a visit to their home.
- Set Standards are based on research typically from NFPA/IBH and Universities.

Training – To implement a program to reduce home loss trained leaders are needed. These leaders could be fire fighters, natural resources professionals or other partners. This training also extends to local community volunteers.

- **Goal** Trained workforce and community volunteer leadership on effective techniques to reduce damage from wildfire to homes and communities.
- **How Accomplished** Workshops are put on to train staff. Wildfire Ambassador program implemented to train volunteers.
- **Effectiveness** Effective in training staff.
- **Set Standards** Training may be from NFPA, or other agencies.

Sharing of Knowledge

- **Goal** Professionals and the public learn from each other on how to more effectively engage individuals and communities in wildfire.
- How Accomplished WAFACLN Washington Fire Adapted Communities Learning Network which is ran by WRCD – Washington Resource Conservation and Development organization. This group receives grants to implement WAFACLN.
- **Effectiveness** This program has been very effective. Success has been measured in how long someone participates and the impact they have had on their communities. There has been a lot of follow-up with people on what they have learned and how they use it to help their communities prepare for wildfire.

• **Set Standards** – Not applicable.

July 15, 2025 Meeting – JulieAnna Anastassatos

1. Would fuel breaks near communities impact a risk score under the modeling? If so, what type or size of fuel break would be required to have a significant impact on lowering a risk score for a community or property?

FireLine analyzes fuels – including location, density and combustibility, among other aspects – at the property and up to a quarter mile from a designated address. In general, fuel breaks located within a quarter mile of the structure will likely reduce the FireLine score. Additionally, clearing brush immediately surrounding the structure and out to a 100' from the structure will generally result in a decrease in the FireLine score.

2. Does Verisk work with any government entities to identify high risk communities? Once a community/individual has implemented a mitigation program, do you have any success stories of an insurer allowing a risk that was once non renewed?

To respond to our clients' needs, Verisk developed FireLine to help assess the risk as it currently exists. FireLine is capable of identifying high risk communities. When a community/individual has implemented mitigation strategies that, in fact, reduce the risk, then FireLine scores generally reflect the reduction in the risk. Significantly, Verisk's clients determine what FireLine scores are acceptable risks, given the client's own unique risk appetite and portfolio concentration, among many other factors. As such, we would suggest that APCIA or another insurance trade association may be able to answer questions related to whether the implementation of mitigation has resulted in a carrier accepting a risk it may not have accepted prior to the mitigation being undertaken.

3. What percentage of information for FireLine's Wildfire Hazard Score is gathered via aerial methods? What safeguards are in place to protect consumers, ensure that the information is accurate, and to enable consumers to challenge inaccurate information?

Verisk has long had in place a process whereby an insurance consumer who would like to revisit their FireLine score and/or the data supporting it can make a request through their insurance carrier to have the score reviewed. Verisk's FireLine team will evaluate the score and the underlying data, including any new or different information the insurer may offer regarding relevant data, and will make an adjustment as warranted.

4. a. You stated that your college [sic] said these are not true wildfires but rather are "fires that have gone wild". Can you elaborate on that statement.

The fires I referred to are "urban conflagrations" where the fuel for the fire is comprised of the structures or homes in the neighborhood versus a true "wildland fire" where the fuel for the fire is comprised of vegetative fuels, such as trees, shrubs and grasses. My point was to distinguish between what we have traditionally called "wildfires" and the fires we have seen more pervasively in the past decade, where hundreds or thousands of homes are destroyed in a single event.

b. In what ways are you seeing these fires as different from fires in the past?

These fires are generally more destructive to the built environment than wildland fires that burn in sparsely populated areas. While these urban conflagrations may start in the wildlands, when they spread into the adjacent built environment in the wildland urban interface (WUI), especially under high wind conditions, they often become faster, hotter and more destructive.

2. Is there any current research being done into the nature of these fires, vs. our traditional understanding of fire in the past? What temperatures they burn at, what elements /materials are actually burning vs. what we typically expect to burn, etc.?

Our research team stays abreast of the research environment, including existing and emerging studies on the impact of these fires on the built environment. Furthermore, our team conducts its own post-event damage surveys following major events, such as the Palisades and Eaton fires, to better understand how the fire spreads and which structures survived and why, among other objectives related to validating, enhancing and updating our models. In addition to that, Verisk has two research scientists who serve on the Research Council at the Insurance Institute for Business and Home Safety (IBHS); IBHS continues to conduct hands-on research to better understand the effects of wind-driven fires on different types of structures, composed of different materials and spaced at different distances, among other variables, in order to explain and quantify the impact of building with resilient versus non-resilient materials. Finally, Verisk's research scientists, many with PhDs in various related disciplines, remain connected to pre-eminent academic institutions and government research organizations whose research also informs the science around urban conflagration risk that ultimately supports our models.

5. If vegetative fuels is the most important factor used in determining the wildfire hazard, is this the best area for us to focus on?

Vegetative fuels remain one of the most important factors in evaluating wildfire risk because they remain one of the biggest drivers of the risk. When the fire transitions to the built environment and the fire is fueled by a combination of vegetative fuels and structures, the fire very often spreads differently than in the wildlands. FireLine and Verisk's Wildfire Catastrophe Model for the United States both account for the change in fire spread in these urban conflagrations. More research and development is underway to help ensure Verisk's models incorporate the latest understanding of fire spread in order to best assess the risk for our insurance industry clients.

6. Why don't you ask us what our capabilities are? I have about 20 points that you could grade our capabilities on. But you ignore our capabilities? Why? [NOTE from Lauren: re: 'capabilities' - this question is from a fire district respondent for context]

Both FireLine and the Verisk Wildfire Catastrophe Model for the United States account for the likelihood that a particular structure will be visited by fire protection professionals, however the evaluation for

these models is separate from Verisk/ISO's Public Protection Classification grading index, which measures a community's ability to respond to a single structure fire. Research is ongoing (both within Verisk and amongst many fire services organizations) to better understand and quantify which fire services "capabilities" are most useful to predicting how well-equipped a fire district is to combat and suppress an urban conflagration like those that have caused the highest insured losses. If you have data that could help inform Verisk's ongoing study of this issue, we would welcome a discussion that focuses on urban conflagration suppression.

7. How do we get the information provided to insurance companies to consumers so they can mitigate for hazards before it becomes an insurance accessibility issue?

Using tools like FireLine, an insurance carrier can evaluate whether a particular address that the carrier might deem "unacceptable" can become "acceptable" if mitigations are undertaken. It is incumbent upon the carrier to determine its own risk appetite and then to convey to the homeowner whether it will insure the given property if mitigation is implemented.

July 15, 2025 Meeting – Karen Collins

Karen Collins Responses to Questions following July 15, 2025 presentation

(Insurer view: Wildfire Cat Models)

1. What recommendations do you have for the group considering APCIA's work in California? What actions have had the most positive impact for property owners?

Response:

Washington can benefit from California's experience in wildfire resilience. The most impactful actions for property owners have centered around a comprehensive, multi-program approach that integrates home hardening, defensible space, and community-level standards.

A. Focus on the Home Ignition Zone

California's efforts emphasize the importance of protecting the home and the immediate 0–5 foot zone around it. Key measures include:

 Home Hardening: Replacing combustible roofs with Class A fire-rated materials, installing ember-resistant attic and foundation vents, using double-paned or tempered glass windows, and enclosing eaves. • **Defensible Space**: Removing flammable vegetation, mulch, and fencing materials within the first 5 feet of the home. This zone is critical in preventing ember intrusion and direct flame contact.

These actions are supported by research from the Insurance Institute for Business & Home Safety (IBHS), whose Wildfire Prepared Home Program provides a science-based framework for reducing wildfire risk.

B. Statewide Standards and Community-Level Action

Individual property improvements are most effective when paired with community-wide efforts. California has taken steps to:

- Develop a statewide home hardening initiative through Cal OES and CAL FIRE, targeting highrisk and socially vulnerable communities.
- Provide financial assistance to low- and moderate-income households for retrofitting homes with fire-resistant materials and creating defensible space.

Washington could adopt a similar statewide wildfire mitigation standard, grounded in science and modeled after IBHS guidelines, to ensure consistency and clarity for homeowners and local governments.

C. Policy and Regulatory Tools

Key areas of opportunities for states to focus attention is addressing 'where and how' we build and related consumer education, which can help lead to more mitigation. This in turn may positively impact insurance in wildfire prone regions.

California has implemented several policy mechanisms that Washington could consider:

- **Wildfire Hazard Maps**: California is updating its Wildfire Hazard Severity Zone maps, which offer parcel-level risk data to guide mitigation and planning.
- **Building Codes and Ordinances**: California has adopted codes requiring wildfire-resilient materials and landscaping standards in high-risk zones.
- **Real Estate Transaction Requirements**: Under CA 2019 <u>AB 38</u>, sellers of homes in high fire-risk areas must disclose wildfire hazards and demonstrate compliance with defensible space regulations before closing escrow. (defensible space <u>inspection</u>)

These tools help embed resilience into the housing market and land-use planning.

D. Financial Incentives to Spur Action

To encourage homeowner participation, California and other states have explored a range of incentives:

- Grants and Rebates: Cost-share programs for retrofitting homes, often supported by public-private partnerships.
- **Low-Interest Loans**: Revolving funds or mortgage-integrated financing options to spread costs over time.
- **Fee Reductions**: Waivers or rebates for building permits or inspection fees tied to resilience upgrades.
- **Tax Credits**: Income, sales, or property tax credits for qualifying retrofits or resilience designations (e.g., IBHS FORTIFIED or Wildfire Prepared Home).
- **Return on Investment**: Promoting benefits such as increased property value, improved insurability, and reduced disaster recovery costs.

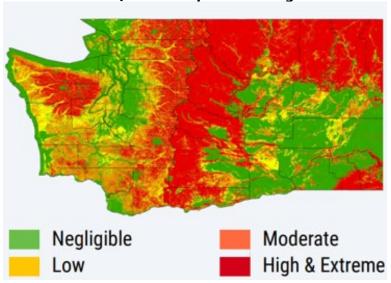
Summary California has taken an integrated approach—combining science-based standards, targeted financial support, and regulatory tools—to help reduce wildfire risk for property owners. Washington can build on these lessons by adopting similar strategies tailored to its landscape, communities, and policy environment.

2. Can you describe the "risk pool" for Washington State? How is risk assessed for various vegetation types and fuel loads in the risk score models? Does tree proximity score higher compared to grass for example? Is WA DNR suppression response statistics factored into suppression response models? 95% of wildfires are suppressed before they reach 10 acres in WA State. That's a goal/target we've achieved for several years.

Response:

According to Verisk's <u>2024 Wildfire Risk Report</u>, about 10% of Washington's structures are exposed to moderate to extreme wildfire risk, with Ferry, Pend Oreille, Stevens, Kittitas, and Chelan counties showing the highest concentrations. These findings align with USDA's fireshed mapping, which identifies areas—primarily along the Cascade Range—where wildfires are likely to ignite and potentially impact communities. <u>Firesheds</u> also help visualize where federal investments in forest and fuel management intersect with historical and projected fire activity.

Verisk 2024 Wildfire Risk Report: Washington



Fireshed Map

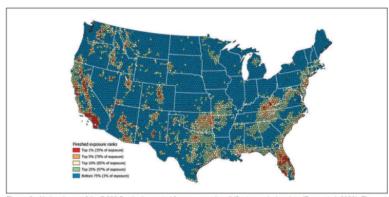


Figure 2—National map of the 7,688 firesheds created from community wildfire transmission data (Evers et al. 2020). The fireshed boundaries were created with a process that delineates hotspots of fire transmission to buildings in adjacent or nearby communities. See the Methods section for details on delineating firesheds.

Wildfire risk models assess vegetation types and fuel loads by classifying fuels based on flammability, moisture content, and burn behavior. Tree proximity often scores higher than grass due to the potential for crown fires, especially when ladder fuels are present. Though, grass fires, while typically lower in intensity, can spread rapidly and overwhelm suppression efforts—typically leading to the costliest loss events for property insurers. Risk segmentation models also consider topography, weather, building materials, and defensible space zones (e.g., 0–5 ft, 0–30 ft, and 30–100+ ft) to evaluate ignition potential and loss severity.

Fire suppression capabilities are a key consideration in risk modeling. Insurers may use ISO's Public Protection Class (PPC) scores to evaluate structural fire response, which includes emergency communications, fire department capacity, and water supply. However, PPC scores are primarily designed for structural fires, not wildfires. Research is underway to develop wildfire-specific scoring systems that assess fire department readiness under extreme conditions, such as high wind events or multi-jurisdictional coordination needs.

Washington's strong suppression record—successfully containing 95% of wildfires under 10 acres—is a critical factor in risk mitigation. However, decades of aggressive fire suppression (across the U.S.) have disrupted natural fire cycles, especially in fire-adapted ecosystems. This has led to fuel accumulation, overcrowded forests, and degraded forest health, increasing vulnerability to high-intensity wildfires. Climate change compounds these risks, particularly in historically wet west-side forests, which are now experiencing longer fire seasons, reduced snowpack, and more frequent droughts, as noted in a 2021 report from the U.S. Forest Service Pacific Northwest Research Station, entitled: *A "New Normal" for West-Side Fire.*

3. Can you quantify the costs to insurance companies of providing consumers with their wildfire risk scores? The burden of proof should be on insurance companies to prove, beyond any doubt, that the burden is too high, before that claim is accepted by anyone.

Response:

The California Department of Insurance (CDI) regulation under Title 10, Section 2644.9 requires insurers to provide consumers with their wildfire risk score or classification, along with an explanation and actionable guidance on how to reduce that risk. A costs analysis provided by the CDI suggested that this requirement should not impose excessive costs on insurers, citing the availability of remote verification technologies such as satellite imagery, drone photos, and consumer-submitted documentation.

However, insurers expressed skepticism about the accuracy of the Department's cost assumptions. While remote verification is technically feasible, operationalizing this requirement still demands investment in technology, staffing, and data infrastructure. These costs will vary significantly by carrier depending on their scale, existing systems, and ability to integrate new workflows. Smaller or regional insurers may face higher per-policy costs compared to larger carriers with more robust infrastructure. Additionally, insurers raised concerns about the potential erosion of actuarial soundness if they are required to offer premium discounts without corresponding rate adjustments to reflect the true cost of wildfire risk

A 2023 <u>analysis</u> from Milliman noted Regulation 2644.9 reshaped California's property insurance market by pressuring rate adequacy and operational models. Insurers initially responded in three distinct ways:

- i. some offered mitigation discounts without sufficient data, risking short-term revenue loss and delayed rate recovery due to CDI's slow approval process;
- ii. others removed wildfire risk from rating plans and tightening underwriting to low-risk properties, potentially raising costs for remaining policyholders; and
- iii. a third group exited the California market entirely, exacerbating the state's insurance availability crisis.

Collectively, these responses signal increased costs, volatility and reduced consumer access. Recent data from 2025 reveals that while remote technologies like drone imagery and satellite data are helping insurers comply with California's wildfire risk score disclosure requirements, operational costs have been

significant due to capital needed for advanced modeling tools, staffing, infrastructure, consumer notifications and appeals processes.

4. 1. You touched upon the fact that many insurance companies are facing insolvency in the wake of recent wildfire events. You also claimed that the models have been proven to be quite accurate. If the models have been proven quite accurate, why the high rate of insolvency? Where do you think the disconnect lies?

Response:

The insolvency challenges facing insurers in the wake of recent wildfires—particularly in California—are not necessarily due to inaccurate risk models, but rather to regulatory constraints that limit insurers' ability to respond to evolving risk. California's regulatory framework, established over 35 years ago, restricts the use of catastrophe models in ratemaking and imposes lengthy delays in approving rate adjustments. As a result, even when models accurately forecast increased wildfire risk, insurers have been unable to adjust premiums or underwriting strategies in time to remain solvent.

The California Department of Insurance is now working to modernize this framework, including allowing the use of catastrophe models and streamlining the rate approval process. However, these reforms were not in place prior to major events like the 2018 Camp Fire—which led to one insolvency—and the 2025 Los Angeles fires, leaving insurers exposed to losses they could not adequately price for or mitigate. The disconnect lies not in the predictive power of the models, but in the lag between risk recognition and regulatory permission to act on it.

2. You stated that the grass fires are worse than the wildfires in treed areas due to the grass fires being "fast fires". Do you have some data you can share regarding this? If it is due to the high winds, are the trees then actually slowing the wind/ember spread and thus slowing down the fires? I've always thought/heard that is was the other way around (the worst fires were in heavily treed areas), but do you think the wind is causing this paradigm shift?

Response:

While heavily forested wildfires often dominate public perception, recent data shows that grassland fires—especially under high wind conditions—can be more destructive due to their speed. According to the Insurance Institute for Business & Home Safety (IBHS), conflagration-scale loss events occur when the <u>speed of fire spread</u> overwhelms suppression capacity, leaving communities vulnerable Fast-moving fires, often driven by wind, can launch embers miles ahead of the flame front, igniting spot fires and outpacing emergency response. Only properties with effective mitigation—particularly in the home ignition zone—can slow this progression

IBHS: https://ibhs.org/wp-content/uploads/Suburban Wildfire Conflagration WhitePaper.pdf



A landmark study published in Science analyzed over 60,000 U.S. wildfires from 2001–2020 and found that "fast fires"—those growing over 4,003 acres per day—accounted for 88% of homes destroyed despite representing just 2.7% of total fires. Many of the fastest-growing fires occurred in grassland-dominated ecosystems, including the 2021 Marshall Fire in Colorado and the 2023 Lahaina Fire in Hawaii, both of which originated in grasslands and spread rapidly into communities 2. In California, wildfire growth rates increased by 398% over two decades, with foothill and coastal grasslands contributing to rapid fire spread.

While trees can slow wind and ember movement to some extent, they also introduce ladder fuels and canopy fire risks. Grass fires, by contrast, burn quickly and at lower intensity but can be more dangerous due to their rate of spread, especially when paired with dry conditions and wind. This shift in fire behavior—toward faster, wind-driven grassland fires—represents a paradigm change in wildfire risk, demanding new mitigation strategies and public awareness.

Expanded report insights: "The fastest-growing and most destructive fires in the US (2001 to 2020)"

Data shows a 250% increase in the average maximum growth rate of the fastest fires over the last two decades in the Western U.S.

- Researchers harnessed Earth observations and remote sensing data to learn about fire growth across the nation in a systematic manner.
- The researchers used satellite data to analyze the growth rates of 60,012 fires in the contiguous U.S. from 2001-2020. Using a cutting-edge algorithm, which involves applying a set of calculations to each satellite pixel, they identified and recorded the perimeter of each fire for each day it was active.

- The team used the fire perimeter maps to calculate the growth rate of each fire as it progressed. They then zoomed in on the fastest fires, which grew more than 4,003 acres (16.2 square kilometers) in a single day, and probed how the highest growth rates changed over time.
- To evaluate the impacts of fast fires on people and infrastructure, the researchers compared the growth rates of the fastest fires to information recorded in incident reports about the number of structures damaged or destroyed per fire event.

Fast fires— defined in the study as wildfires that burn more than 4,003 acres per day — were responsible for nearly 90% of fire-related damages despite being relatively rare in the United States between 2001-2020.

- Fast fires accounted for 88% of the homes destroyed between 2001 and 2020 despite only representing 2.7% of fires in the record.
- Fires that damaged or destroyed more than 100 structures exhibited peak fire growth rates of more than 21,000 acres (85 square kilometers) in a single day.
- "Fast fires," which thrust embers into the air ahead of rapidly advancing flames, can ignite homes before emergency responders are able to intervene.
- 2025 LA fires A historic windstorm acted as a catalyst for the rapid spread of these fires. Gusts reached up to 90 mph, doubling the Palisades Fire's size in just a few hours. These winds made aerial firefighting efforts impossible, further exacerbating the crisis.

Fires are moving more quickly in California versus other regions in the West.

- Between 2001 and 2020, wildfire growth rates increased by 249% across the Western U.S. —
 defined as a group of 11 Western states but 398% in California alone.
- Mountainous regions of Southern California were found to have the largest increase in daily wildfire growth rates in the two-decade span.
- Numerous large California fires in August 2020 were considered fast fires, including the LNU
 Complex (Lake, Napa, Sonoma, Solano, and Yolo counties), CZU Complex (Santa Cruz and San
 Mateo counties), SCU Complex (Santa Clara, San Joaquin, Contra Costa, Alameda and Stanislaus
 counties) and the North Complex (Plumas and Butte counties).
- Several of these fires occurred in lower elevation, grassland-dominated areas, and they blew up very quickly. All of them had substantial structure losses. Both LNU and North (complexes) also had fatalities.
- Example, the 2018 Camp Fire burned through nearly 55,000 acres in less than 12 hours, while the 2020 August Complex Fire was the fastest-growing California fire, as the cluster grew by 115,000 acres in a day at its fastest and remains the state's largest wildfire on record.
- However, the fastest growing fires were grassland blazes in Oklahoma and Kansas in 2017, which grew by 520,000 acres in a day at its peak.

The fastest fires identified in the study were in grassland-dominated ecosystems.

- Grasslands are abundant throughout California... this is the California foothills. The Coast Range, the foothills of the Sierra Nevada, all through the Central Valley. This is the region where you really have fires being carried by that grass understory.
- Sixteen of the 20 fastest-growing fires across the continental U.S. between 2001 and 2020 burned in primarily grassland ecosystems.
- In almost every year since 1990, grass and shrub fires burned more land in the U.S. than forest fires did, and destroyed more homes.
- The 2021 Colorado Marshall Fire took less than a hour to leap to a town 3 miles away, due to a combination of dry conditions and high winds, prompting the immediate evacuation of over 10,000 residents. The fire originated in grasslands before destroying more than 1,000 homes in Boulder County, Colorado despite the fact the fire burned less than 6,100 acres (24.7 square kilometers).
- The 2023 Lahaina fire originated in grasslands and spread into the community. It was briefly
 contained then rekindled and quickly spread during high winds, destroying over 2000 structures
 and killing over 100 people.
- 5. What are the actual benefits of providing the wildfire score to the consumer? Are the publicly available hazard maps used by policymakers helpful?

Response:

Publicly available hazard maps are valuable tools for long-term public policy planning, typically developed with a 5-, 10-, or 20-year horizon. These maps are most effective when used to inform where and how we build in high-risk regions (e.g., land use planning and building code adoption). Also, real estate disclosures—such as during new home purchases or ownership transfers—where buyers can be made aware that a property is situated in a high fire risk region. Lenders can also leverage these maps to enforce defensible space requirements or promote resilient construction practices. In general, the insurance transaction should not be the first point at which consumers learn about wildfire risk.

Separately, APCIA has consistently raised concerns in other states about the challenges of providing wildfire risk scores directly to consumers. These concerns generally include complexity and cost to operationalize, as well as how consumers may interpret the information. For example, wildfire risk models are built on sophisticated algorithms that incorporate numerous variables—vegetation types, topography, wind patterns, and more. Translating these into consumer-facing scores requires significant investment in model adaptation, consumer education, and regulatory oversight. Additionally, consumers may misinterpret scores without understanding the underlying factors, especially when those factors are beyond their control, such as wind conditions and slope. APCIA has advocated for limiting disclosures to actionable elements that property owners can mitigate, to ensure the information is both meaningful and empowering.

6. Why to you skip the initial attack of fire district capabilities and jump right to catastrophes?

Response:

That's a great question—and it highlights a key tension in how wildfire risk is assessed and communicated. Initial attack capabilities of local fire districts are absolutely critical to wildfire response, especially in states like Washington where 95% of fires are suppressed before reaching 10 acres. However, when evaluating risk from an insurance or modeling perspective, the focus often shifts to catastrophic scenarios because those are the events that drive the largest losses.

Wildfire risk models are designed to capture the full spectrum of fire behavior, but they prioritize high-impact, low-frequency events—those that overwhelm suppression resources, spread rapidly under extreme conditions, and result in significant property damage. This is not to discount the importance of initial attack; rather, it reflects the reality that catastrophic fires are what challenge the financial solvency of insurers and the resilience of communities, and have led to tragic loss of life. Additionally, data on initial attack success rates is not always standardized or available at the granular level needed for modeling, whereas catastrophe data is more robust and widely reported. That said, there is growing interest in incorporating local suppression capacity into risk models, especially as new scoring systems emerge to evaluate wildfire-specific response capabilities under extreme conditions.

7. Is there any reform from the state side that needs to occur to ensure more accessibility to insurance? For instance, are there regulatory hurdles we should be thinking about reforming for the needs of today?

Response:

Washington has an opportunity to proactively shape a more resilient and accessible insurance market by focusing on mitigation, transparency, and interagency coordination. The following reforms (consistent with responses identified under Question 1) can help reduce wildfire risk, protect homeowners, and ensure long-term insurance sustainability.

A. Support Mitigation Through Incentives and Standards

Washington can strengthen its wildfire resilience by expanding support for property-level mitigation. Key actions include:

- **Codifying wildfire mitigation standards** for defensible space and home hardening, aligned with nationally recognized frameworks such as the IBHS Wildfire Prepared Home Program.
- **Creating financial incentives**—including grants, rebates, low-interest loans, and tax credits—to help homeowners, especially those with low or moderate incomes, afford retrofits like fire-resistant roofing, ember-resistant vents, and vegetation clearance.
- **Encouraging local governments** to integrate resilience into land-use planning and building codes, particularly in the wildland-urban interface. These efforts can reduce wildfire risk and help stabilize insurance availability by making homes more insurable.

B. Strengthen Coordination Across Agencies

Washington's Wildfire Mitigation and Resiliency Standards Work Group is already exploring ways to align with national standards and expand mitigation support. Continued collaboration between state agencies, insurers, and local governments will be key to:

- Identifying high-risk areas and prioritizing mitigation investments
- Developing community-wide resilience strategies
- Ensuring consistent implementation of mitigation standards across jurisdictions
- **C.** Improve Consumer Education and Transparency

Many homeowners are unaware of their wildfire risk or the steps they can take to reduce it. Washington could:

- **Enhance wildfire hazard disclosures** during real estate transactions to ensure buyers are informed early.
- Launch public education campaigns to promote awareness of mitigation benefits.

July 15, 2025 Meeting – Bryan Rehor

1) How has ZestyAI used the legislative district-specific information? How would they recommend using relating to this grant program?

Response: ZestyAl can incorporate legislative districts or any other zoning-based shapefiles to perform geospatial risk analytics. In past projects, district-level data has been used to generate aggregated wildfire risk assessments—reporting on the number of properties at risk, their estimated value, and relative hazard exposure. For this grant program, ZestyAl recommends leveraging similar district-level risk analysis to identify high-need areas, prioritize resource allocation, and support mitigation planning.

2) Has Zesty AI partnered with state agencies or non-profits on producing hazard/risk maps? If so, what could that look like in Washington State recognizing funding challenges exist.

Yes, ZestyAI has partnered with state agencies to develop hazard and risk maps. These efforts have focused on identifying high-risk regions to inform mitigation initiatives, allocate aid, or conduct deeper risk evaluations. Once high-priority zones are identified, ZestyAI can deliver structure-level risk assessments to support targeted interventions. Deliverables typically include interactive HTML-based maps, compatible with standard web browsers, along with the supporting data files for transparency and integration into existing workflows.

3) Does Zesty work with any government entities to identify high risk communities? Once a community/individual has implemented a mitigation program, do you have any success stories of an insurer allowing a risk that was once non renewed?

ZestyAl has collaborated with government entities to locate and assess the highest-risk areas within a region, enabling focused mitigation at both the community and property level. The Z-FIRE model can quantify the impact of specific mitigation actions by calculating a reduction in wildfire risk. However, while Z-FIRE provides insurers with updated scores reflecting reduced risk, the recognition of mitigation and any underwriting decisions are determined solely by each insurer's policies and practices.

In 2021, <u>The Wall Street Journal</u> reported that a major national carrier using Z-FIRE was able to provide insurance coverage for 30,000 previously uninsurable homes in California.

4) Again, what percentage of information is gathered via aerial methods? What safeguards are in place to protect consumers, ensure that the information is accurate, and to enable consumers to challenge inaccurate information?

Response: ZestyAl uses 16 input variables to generate Level 1 and Level 2 scores, five of which are derived from aerial imagery. To safeguard consumers, the models exclude socio-economic data and are designed for transparency, enabling insurers to share risk scores and key drivers with policyholders. Aerial imagery inputs are sourced from high-quality vendors and updated up to four times per year to maintain accuracy. ZestyAl employs rigorous validation methods to ensure that imagery-derived inputs are accurate. If consumers believe the information is inaccurate, insurers can use an appeals feature to test alternative inputs and override scores to reflect updated or corrected property conditions, or to simulate various mitigation strategies.

5) What would risk-based pricing look like? Is it related to building materials used? If there is a surcharge for certain exposures, would there be discounts available?

Response: In a risk-based pricing framework, Z-FIRE would be used by insurers to align premiums more closely with a property's wildfire risk, as determined by ZestyAl's Z-FIRE Level 1 and Level 2 scores, splitting risks into 100 granular segments. Z-FIRE provides community and property-specific risk scores based on factors such as vegetation density, topography, historical wildfire activity, and building characteristics and materials, such as the roof material.

In practice, higher-risk properties as identified by Z-FIRE receive a higher rating factor. Conversely, lower-risk properties, especially those that demonstrate effective wildfire mitigation (e.g., defensible space, vegetation clearance, fire-resistant roofing) receive a lower rating factor, translating into premium discounts. Ultimately, Z-FIRE enables insurers to implement a more granular and actuarially justified pricing structure, rewarding mitigation and better aligning rates with the true underlying risk, which contributes to a well-functioning insurance market.

6) Is there a consumer product available?

Response: While there is no consumer-facing product available, ZestyAI automatically provides the top drivers of each property's risk score to subscribing insurers, who may then communicate this information directly to their insureds.

July 22, 2025 Meeting – Joanne Pearson

Please submit any questions you may have regarding the presentation by Joanne Pearson, State Geographic Information Officer, Washington Technology Solutions.

1. Do you see any integration and/or intersections between the public GIS models and private wildfire scoring models?

I think the previous speaker would be better able to address if they can technically integrate. From a data sharing perspective, I would expect both model results (or the data used for the models) to be able to be shared on the WaTech Enterprise Data Platform/ GeoPortal section and could be compared there.

2. You said it's hard to quantify mitigation efforts and build them into our statistical model. Nevertheless, what mitigation efforts would be most helpful to incorporate?

I think this also might have been for a previous speaker as I didn't address statistical modelling. Any mitigation efforts could be shared on the WaTech Enterprise Data Platform/ GeoPortal section if it includes a geographic aspect. We currently have mitigation data being shared including wildland urban interface data and many other environmental datasets that can be used to assess risk as well as potential mitigation strategies. The GeoPortal framework was developed specifically to allow agencies to share sensitive data regarding hazard mitigation, such as tsunami, landslide, wildfire and other natural hazards and important to this discussion the insurance coverage for our residents as we look at economic resilience after hazards have occurred.

3. Is there a way to utilize GIS mapping when DNR's wildfire risk mapping is completed?

DNR uses GIS extensively before, during and after wildfires. They even bring trailers and equipment into the field to allow near realtime mapping of the wildfires to help with response and evacuation plans. All of that data can be shared via the data sharing platforms at WaTech. WaTech often provides facilitation with the Emergency Management Division to ensure that data is available to the State Emergency Management Center including data from DNR and others. GIS is currently even helping with the safety and logistical planning for the FIFA world cup event to be held in Seattle in 2026! The platforms are flexible and able to meet a variety of different agency needs.