



THE
**FIRESMART
PLAYBOOK:**

**Developing
Community
Resilience
at the
Wildlands-
Urban
Interface**



THE FIRESMART PLAYBOOK:

Developing Community Resilience at the Wildlands-Urban Interface

THE TEAM:

ROBERT GOULD

Senior Facilitator at Ag Innovations

ADRIANA STAGNARO

M.S. Environmental Science and
Management, California Polytechnic
State University San Luis Obispo,
Outreach and Project Manager at Gold
Ridge Resource Conservation District

BRIDGET LOWRY

Editing Support

Project Manager at Ag Innovations

GENEVIEVE TAYLOR

Strategic Guidance

Executive Director | Managing Facilitator
at Ag Innovations

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01.

+ INTRODUCTION

WHY THIS PLAYBOOK? WHAT IS IT AND WHO IS IT FOR?

This Playbook is for professionals and community leaders responsible for or concerned about community-wide wildfire preparedness and risk mitigation, especially those where there is a significant wildlands-urban interface (WUI). While fire districts are increasingly leading wildfire preparedness and resilience efforts, County governments (Planning, Parks and Open Space, Resource Conservation Districts (RCD's), water agencies, Fire Safe Councils (local neighborhood or groups), Tribes, agricultural and other business interests, land owners, non-profits, and community groups are also stepping up to address the broad-scale risks that wildfire poses.

Once communities start to address wildfire risks and resilience, seemingly straightforward actions like “vegetation management” or creating “defensible space” can get complex and challenging very quickly as one discovers how energy intensive mobilizing a whole community and how interconnected many issues are. This Playbook is geared to leaders and practitioners seeing the need to better engage, coordinate and collaborate with numbers of partners, to address these issues effectively to improve on-the-ground conditions. It will also help to build community capacity for the long haul given the need to mitigate and reverse decades of ecological impacts and adapt to rapidly evolving and increasingly unpredictable climate risks.



Over 11 million people live in the wildlands-urban interface (WUI) in California. All face risks and most will require some degree of change. Educating and mobilizing them and reimagining firesmart communities is a massive undertaking.



EFFECTIVE WUI WORK REQUIRES SUBSTANTIAL COLLABORATION

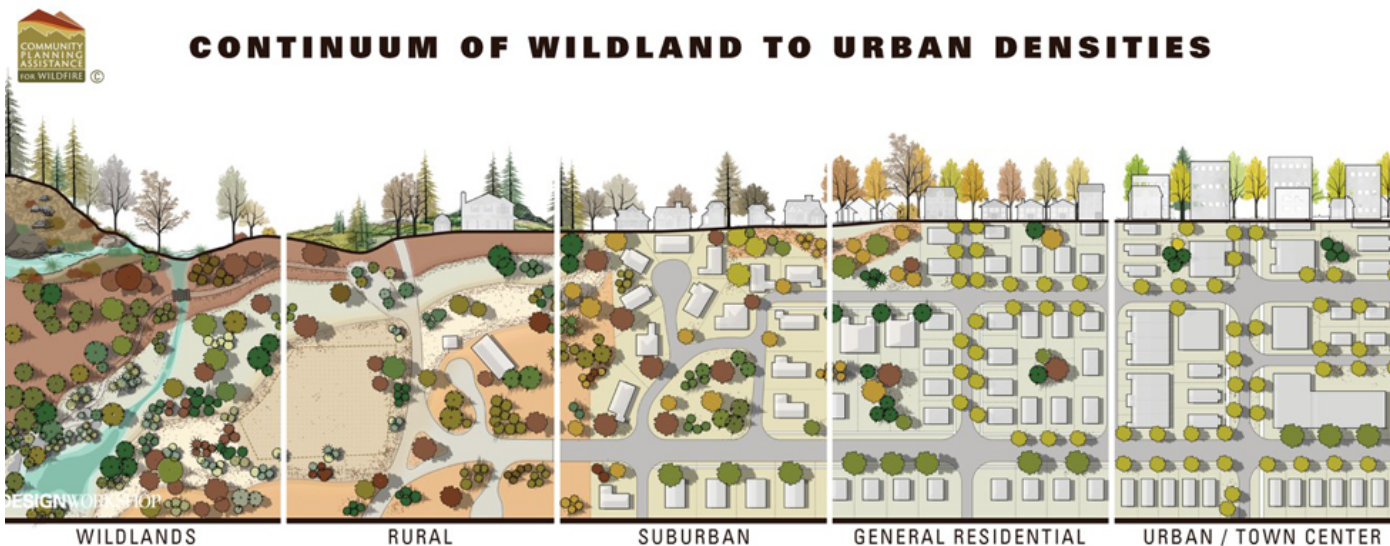
Given the focus of this Playbook on communities with a significant WUI element, this Playbook outlines the rationale for a **collaborative approach**, and even what some practitioners refer to as collective action, and introduces some ways to think about, organize, and facilitate that work. Many efforts to build community-wide wildfire resilience require either working with diverse partners and disciplines and/or significant numbers of stakeholders, including residents. Landscape-scale efforts in the WUI involve complex and diverse ecological and social needs. More advanced and explicit needs assessments, decision-support tools, planning and collaboration, and community engagement are needed to guide hundreds to tens of thousands of stakeholders and residents that reside in WUI communities.

Per the illustration from the Community Planning Assistance for Wildfire effort, this Playbook focuses on those communities with a wildlands-urban interface that typically includes a range of landscape types, from wildlands and rural to suburban and residential and more urban areas. Each one has unique characteristics and risk profiles, and their proximity to one another increases complexity and the range of response strategies. The challenge for “WUI Communities” is that there are significant numbers of people, structures and

infrastructure, and differing needs making the stakes much higher and the responses multi-dimensional.

As was expressed by many engaged in this work, resources and funds remain largely insufficient to the challenges communities face, and are often episodic coming in the form of competitive grants. This is all the more reason why community members must work together to become as effective and efficient as possible, and to engage as much of the community as possible to share the load. Despite the State and Federal government providing much more funding than even a year or two ago, community members will still need to be smart with resources to make the most of both projects that directly reduce wildfire risk and those that build organizational and collective capacity to respond, adapt, and evolve.

We will further explore the benefits of and ways to enable appropriate levels of and effective collaboration in different contexts. While technical knowledge and competence are growing daily in communities throughout the state, and are fundamental to effective action, the social and community elements often receive insufficient attention. For this reason, this Playbook is heavily focused on the **people** and **community** aspects of fire resilience and risk reduction, more so than the technical, regulatory, or logistical aspects.



PLAYBOOK FOCUS

This Playbook will examine some current practices and resources to highlight what is working, as well as potential areas for improvement and enhancement, so that communities can move faster and more effectively and reduce the tensions between parties in what are often already stressful situations to have more positive outcomes. Just like major climate and ecological changes that are taking place at the local level - like shifts to clean energy, smart cities, water stewardship, landscape scale restoration - wildfire mitigation and resilience requires large-scale change since it involves and impacts all aspects of a community, as well as systems and stakeholders beyond its jurisdictional boundaries. So while there are straightforward, operational and well-defined aspects of wildfire work, there are also more complex, strategic and deeply-human ones.

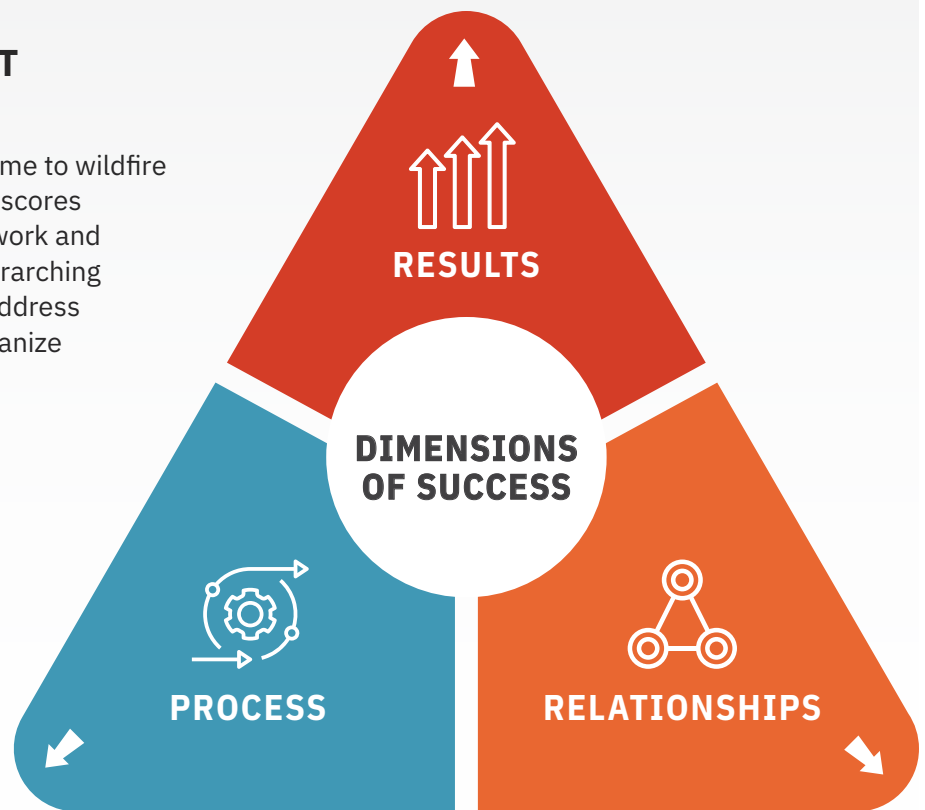
We will address this range of change needed through three fundamental dimensions of success for any change effort, regardless of how you approach change: results, process, and relationship (RPR). Per Curtis Ogden, a lead consultant at Interaction Institute for Social Change, “...any kind of collaborative endeavor is a multi-dimensional affair when it comes to the core determinants and definitions of success... What are we intending to create and/or change? Who do we need to bring together? What boundaries do we need to bridge? How do we bring people together? What are the key conversations we need to have? What structures, resources and roles will support this work?”³

The RPR frame is courtesy of Interaction Associates and the Interaction Institute for Social Change.

³ Ogden, Curtis. “Dimensions of Network Success.” Interaction Institute for Social Change, 29 Apr. 2020. <https://interactioninstitute.org/dimensions-of-network-success/>.

THE FIRESMART FRAMEWORK

We are applying the RPR frame to wildfire community work as it underscores the nature of collaborative work and change. There are three overarching and strategic questions to address and tools that we use to organize this Playbook and that WUI communities can use to address these strategic questions and more.



RESULTS:

In the big picture, what are we trying to create, develop, and maintain in terms of community health and resilience? What are its goals relative to climate mitigation, wildfire resilience and adaptation?

Effective Tool:

Community Capitals (Explained in Section 3.0)



PROCESS:

How do you intentionally develop the core processes, structures, roles, and effective practices to truly create a FireSmart community? What is your approach to or theory of change for making this all possible?

Effective Tool:

The Fire-Adapted Communities Wheel (Explained in Section 4.0)



RELATIONSHIPS:

How do we foster trust and good relationships as you engage with a full range of stakeholders to enable community change at the speed, scale and depth needed? How do you relate to wildfire, the land, and communities differently?

Effective Tools:

The Collaboration Spectrum and Community Change (Explained in Section 4.1)



HOW TO USE THE PLAYBOOK

A primary intent of the Playbook is to help identify and build the social and community capacities that WUI communities need to dramatically improve their resilience and preparedness for wildfires. In this document we capture lessons learned, challenges met, opportunities for improvement, community roles and responsibilities, and the many elements for a strong community and collective action. This is also why we provide a range of questions in the “Components and Activities of Wildfire Resilient Communities” section to stimulate further thought rather than definitive answers.

Because it has taken decades for the problem of massive wildfire risk to get as bad as it has, it will likely take decades to address it adequately and to restore ecosystems around communities back to some degree of health and functionality, all in ways that are socially inclusive and equitable as well as economically viable. This Playbook is meant to be complementary to other existing guidance for addressing wildfire work at the community scale. Communities should use this Playbook in conjunction with more specific tools developed by organizations such as Fire Adapted Communities Network, California Fire Safe Council, FireWise USA, and others. We refer to many of these resources in the Findings section.



It has become clear, amongst enlightened politicians, but as well, fire ecologists, urbanists and developers, that nothing less than a revolution in land management and humankind’s relationship to fire is both a moral responsibility and necessity for survival.

- *California is Burning: Rethinking the Wildland/(Sub)urban Interface*,
- Kelly Shannon and Donielle Kaufman³

³ Shannon, Kelly, and Donielle Kaufman. “California Is Burning: Rethinking the Wildland/ (Sub)Urban Interface.” Landezine, 9 Jan. 2018, <https://landezine.com/california-is-burning-rethinking-the-wildland-suburban-interface/>.

HOW THE PLAYBOOK WAS DEVELOPED

We used a multi-pronged approach in developing this Playbook as the subject matter is complex and is continually evolving. We conducted interviews, supported a new Firesafe Council in Calistoga, CA creating its first Community Wildfire Protection Plan (CWPP), reviewed dozens of fire-resilience articles and webinars, and conducted close analysis of digital and printed guidance and education materials used by fire professionals to inform the public and specific groups about the wildfire-related risks, available resources, and responsibilities of those living and working in areas with substantial threat.

We focused primarily on communities and topics focused on the particular challenges and opportunities in **Wildlands-Urban Interface** as the social, economic, political, and ecological aspects of working in areas with substantial populations, large numbers of structures, and infrastructure and assets all in close proximity, yet with considerable diversity of intermixed landscape types, interests and mean.

01

Interviewed twelve (12) wildfire experts and practitioners working in California, working at local, regional, and State levels and primarily in areas with a substantial Wildlands-Urban Interface element.

02

Drew insights from related fire-wise projects we were involved with: FireSmart Lake Sonoma and Sonoma County's Wildfire Resilience Decision Support Framework.

03

Read dozens of articles, blogs, research papers and reports, all addressing issues Western communities at risk face, from the strategic and visionary to operational and highly practical, addressing a range of scientific (fire ecology to building science), economic, social change and mobilization, climate impacts, and much more. References are cited throughout the Playbook.

04

Conducted close analysis - informed by being a homeowner in a WUI area - of a number of printed and digital materials (handouts, user guides, videos), attended and watched webinars aimed at instructing the public on wildfire preparedness, defensible space and landscaping, and home hardening (making structures less prone to flammability).

After conducting all of the above, we synthesized information, assessed clarity and accessibility, and feasibility of the guidance provided to enable users to be well informed to collaborate effectively, make sound decisions, take action and adapt over time.

Our intent is that this Playbook is a useful, complementary resource to the many technical and thoughtful resources already available, with a strong focus on collaboration and social change.

ACKNOWLEDGEMENTS

We are grateful for the generosity, expertise and leadership of the practitioners and leaders whom we interviewed. All of whom have spent years addressing wildfire risks and building community support often without much funding or support. That is now changing given the harsh realities wildfire has inflicted on the State in recent years. Their grounded, practical and insightful perspectives helped shape the Playbook towards community-centered solutions and actions rather than policy or the technical aspects that are so ably addressed by (wild)fire professionals. They are often underappreciated given their efforts, the stakes and difficult experiences many have already lived through and/or are trying to mitigate in the future. *Those interviewees included:*

- + **Kate Dargan** - Board, California Firesafe Council (former California State Fire Marshal)
- + **Todd Lando** - Battalion Chief, Wildfire Hazard Mitigation Specialist- Central Marin Fire Department
- + **Carol Rice** - Senior Wildland Fire Manager and Ecologist, Wildland Resource Management
- + **Carleon Safford** - Department Analyst - Wildland Fire Grants and Projects at County of Sonoma
- + **Sheryl Landrum** - Executive Director (retired), Resource Conservation District of Greater San Diego County
- + **Mike Palladini** - Stewardship Director, Land Trust of Napa County
- + **Jason Wells** - Forester, Sonoma Resource Conservation District
- + **Indira Lopez-Jones** - Program Director, UpValley Family Centers
- + **Celeste Giunta** - Director, Napa Valley Community Organizations Active in Disaster (COAD)
- + **Ruth Rodriguez** - Latino community activist, Napa County
- + **Carol Kunze** - Private homeowner/neighborhood organizer, Lake Berryessa Estates, Napa County
- + **Chris Thompson** - Chair, Napa County Firewise Foundation (and Volunteer Firefighter)
- + **Cybelle Immitt** - Natural Resources Planning Manager, Humboldt County Public Works, Environmental Services Division; North Coast Resource Partnership
- + **Penny Sirota** - Coordinator, Friends of Mark West Watershed (Sonoma Cty) (aligned with the Upper West Firesafe Council)
- + **Amanda Benton** - Forestry Program Manager, Napa County Resource Conservation District

A special thank you from the Ag Innovations team to Adriana Stagnaro, the Outreach and Project Manager at Gold Ridge Resource Conservation District (Sonoma County), and who earned her Master's Degree in Environmental Science, with a concentration in at California Polytechnic State University-San Luis Obispo while also contributing to this Playbook. Her technical expertise, excellent writing and editing, and positive energy help ensure we stayed true to the realities of the wildfire world.

We are also thankful for the sustained and committed efforts of local leaders and experts with whom we engaged on Community Wildfire Protection Planning work in Napa County - including Lucas Patzek and the team at the Napa Resource Conservation District, Napa Community Firewise Foundation, Carol Rice Consulting, Town of Calistoga, City of Calistoga Fire Department and CalFire. We are also appreciative of those practitioners that have generated written and digital resources (articles, reports, blogs, webinars, fact sheets, etc.) which are creating a new knowledge base for this rapidly growing and changing wildfire resilience field.

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02.

+ BECOMING FIRESMART

FIRESMART COMMUNITIES

In the process of developing this guide, the wildfires in California of 2020 and 2021 erupted and generated their own feedback about the changing dynamics and risks in the decades ahead. This significantly reshaped the focus on this Playbook towards supporting larger-scale, collaborative change strategies. The challenge is that the nature and scale of wildfire in California is changing faster than communities have been able to respond. To quote climate strategist [Alex Steffen](#), “we are (still) not prepared for what has already happened.”⁴ The state and certainly WUI communities must build the collective capacity to mobilize and coordinate large numbers of actors in order to address this crisis at the scale required. Yes, we must adapt and find new ways to relate to and address wildfire, but adapt to what exactly?

Our collective responses and language for them are reflected in a number of terms being used to describe a targeted end state: “fire resilient”, “fire adapted”, “fire safe”, “fire wise”, etc. Some of these terms are branded (e.g., Firewise USA), some are used by specific kinds of groups (e.g., Fire Safe Councils).

In this Playbook we use the phrase “FireSmart” as a broad term to describe a range of responses to climate-driven wildfire risks. Like with other climate-related strategies, like “climate smart agriculture”, these responses include **mitigation** (reducing GHG emissions and/or reducing risks due to vegetative overgrowth), **resilience** (rebounding from damaging events, such as a drought or wildfire), and **adaptation** (adjusting how we operate in ways aligned with new conditions).

Together these three climate responses - mitigation, resilience, and adaptation - when managed together can create multiple benefits and synergies that can lead the way to more sustainable and healthy communities as they solve more than one problem at a time (aka “multi-solving”). They seek not just a reduction of risks but an enhancement of community assets and value. We can see that many WUI communities are learning, cultivating new attitudes and behaviors, and planning for and implementing real change. The collective care, intelligence and positive changes by many actors is inspiring and encouraging. We can also see its still relatively early days in creating the change needed and, more fundamentally, the capacities needed to effectively create that change.



“Fire management resembles public health. There is ample money and will for response when the crisis is at hand, but little for the patient labor of prevention, vaccinations, and general wellness. Worse, the cost of emergencies is stripping away all resources for everything else.”

- Stephen Pyne, Environmental Historian³

³ Pyne, Stephen. “Why It’s so Hard to Control Forest Fires.” The Washington Post, 15 Sept. 2003.

⁴ Steffen, Alex. **We’re Not Yet Ready for What’s Already Happened**. The Snap Forward, 18 May 2021. <https://alexsteffen.substack.com/p/were-not-yet-ready-for-whats-already>.



*This time calls us
to sharpen and
share our individual
capabilities while
resisting the tendency
to stay siloed and
take fast action in
familiar ways.*

♦ THE ROLE OF ADAPTATION

Given that the climate is only getting less stable and that fire must be returned, safely, to the landscape, adaptation is critical for a community to become FireSmart. In so doing, they can better adjust to ongoing long-term changes in precipitation, temperature and aridity, ecosystem health and the associated wildfire conditions. One definition of a fire adapted community is that “consisting of informed and prepared citizens collaboratively planning and taking action **to safely coexist with wildland fire.**”⁵ For WUI communities, adaptation can aim to reduce risks, as well as commit to investment in adaptive solutions, like engaging Tribal fire experts in management and turning biomass from fuel thinning operations into new products and services.

As we discuss later, it's clear that restoring fire carefully on the landscape can be vital for FireSmart community health. Many landscapes in California are largely adapted to wildfire and depend on it to thrive.

Again, we humbly suggest that adaptation is only part of the response needed. Together communities have opportunities to mitigate direct risks of wildfire and large-scale emissions, build resilience and adaptation, all while fostering overall community health. All of these together distinguish the FireSmart approach. While it may seem ambitious, what is the viable and desirable alternative for our communities that not only reduces risks but makes them better places to live, work and play?



**“We realized that there
isn’t a line where fire
adapted communities stop and
fire resilient landscapes begin.”**

- Forest Schafer, Director of the Natural Resources Division at California Tahoe Conservancy.⁶

5 “Quadrennial Fire and Fuel Review Report.” Forests And Rangelands.gov, National Interagency Fire Center, 30 June 2005, http://www.forestsandrangelands.gov/documents/strategy/foundational/qfrr_final_report_20050719.pdf.

6 Schafer, Forest. “The Line between Fire Resilient Landscapes and Fire Adapted Communities Isn’t Just Invisible; It Doesn’t Exist at All.” Fire Adapted Communities Learning Network, 2 Dec. 2021, <https://fireadaptednetwork.org/fire-resilient-landscapes/>.

FACING A NEW (AND OLD) REALITY

♦ FIRE SUPPRESSION

Wildfire is a natural part of California's ecosystems; that is nothing new. However, climate change, increased development in the wildlands, and mismanagement of wildland vegetation for more than a century has created a new, intensified fire environment. Prior to European colonization, many Indigenous communities in California managed landscapes with fire, creating ecosystems that relied on some human-administered fire.⁷ Post-colonization, that relationship changed dramatically, setting in motion a new, more dangerous fire environment and a new reality. The prevailing politics guiding wildfire management efforts in the American West since European colonization has been primarily geared towards fire suppression at the exclusion of fuels management. This regime of fire suppression has damaged and interrupted ecological systems for fire-adapted ecosystems, which need fire to function properly to ensure health and resilience. Fires help to reduce woody debris, which acts as fuel for wildfire. As we know, fires can also help to prevent excessive tree growth. This helps ensure that more trees are not competing for limited moisture. As forest ecologists explain, it's like there are three to five times more 'straws' (aka trees) in the landscape soaking up the same or less water as there used to be, making each tree and the landscape drier and vulnerable to fire.⁸

♦ CLIMATE CHANGE IMPACTS

At the same time, climate change is exacerbating drought (limiting water even more) and compounding wildfire risk. As forest health declines due to excessive overgrowth and woody debris pileup, climate change is aggravating impacts. 2021 and 2022 were record-setting drought years^{9,10}, all within a longer "mega drought" that has been occurring for over 1,000 years.¹¹ Climate models are predicting dry regions like California will get drier with more intense - more drought, aridity -, with irregular periods of precipitation.¹² While most know and are seeing and experiencing the impacts of drought and increasing heat and aridity, not all factor into their strategies and planning that the change is more exponential than linear. It is not gradual, but is unfolding in many predicted and unexpected ways as complex ecosystems, and the biosphere itself, are impacted.

♦ CONTINUED DEVELOPMENT IN WUI AREAS

These factors together dramatically increase wildfire risk, during a period in which humans have continued to build their homes and residences in more-and-more remote locations. The growth in these undeveloped areas (commonly referred to as the "wildland-urban interface," or "WUI") has put those homes, the people who live in them, their neighbors, and the broader community at risk. Homes in WUI areas have become liabilities as they themselves are sources of ignition, and as the structures and people need significant protection from firefighters and other emergency personnel during emergency events.¹³ The risks are so high and the liabilities are so great that insurance companies are significantly raising premiums or not renewing or providing insurance policies at all.¹⁴

7 Adlam, Christopher, and Deniss Martinez. "Project Firehawk: Decolonizing Prescribed Fire." Fire Adapted Communities Learning Network, 30 Mar. 2021, <https://fireadaptednetwork.org/project-firehawk-decolonizing-prescribed-fire/>.

8 "3 Reasons Wildfires Are Getting More Dangerous." The Wilderness Society, 21 May 2019, https://www.wilderness.org/articles/blog/3-reasons-wildfires-are-getting-more-dangerous-and-3-ways-make-things-better?gclid=Cj0KCQjwufn8BRCwARIsAKzP694F8CLQEz5nICP0j3UN0J_RvmvMeAYmNmpJrayzYscwPJDUtQqX5qMaAgs7EALw_wcB.

9 Anaya-Morga, Laura. "California Records Driest Year in a Century." Los Angeles Times, 18 Oct. 2021.

10 "Annual 2022 Drought Report." NOAA, National Centers for Environmental Information (NCEI), 2022, <https://www.ncei.noaa.gov/access/monitoring/monthly-report/drought/202213>.

11 Harvey, Chelsea. "Western 'Megadrought' Is the Worst in 1,200 Years." Scientific American, 15 Feb. 2022, <https://www.scientificamerican.com/article/western-megadrought-is-the-worst-in-1-200-years/>.

12 "The Future of Extreme Precipitation in California." Institute of the Environment and Sustainability at UCLA, 29 July 2022, <https://www.ioes.ucla.edu/project/future-extreme-precipitation-california/>.

13 Knapp, Eric, et al. "Housing Arrangement and Vegetation Factors Associated with Single-Family Home Survival in the 2018 Camp Fire, California." Fire Ecology, vol. 17, no. 1, 2021, <https://doi.org/10.1186/s42408-021-00117-0>.

14 "Virtual Homeowners' Insurance Investigatory Hearing." CA Department of Insurance, <https://www.insurance.ca.gov/01-consumers/200-wrr/Virtual-H03-Investigatory-Hearing>.

♦ BOUNDARIES ARE FLUID

Furthermore, lines between a wildland area ends and development begins can be blurry since many homes exist and/or are built in areas with mature vegetation and close to or in natural and heavily-treed areas. Wildfires do not recognize these or most other boundaries imposed on the landscape. Mature landscaping and other structures can provide as much fuel as wildland areas. Fire will go where the winds and fuels enable them. This is true also as it relates to assessing wildfire dynamics for a range of moderate to heavy weather conditions (e.g., heavy winds) when determining appropriate buffers, fire roads, protective measures like shaded fuel breaks. Those practices can work well sometimes, but in increasingly extreme weather events they can be insufficient. These extreme firestorms behave in ways not previously seen and generate their own high winds, and can blow embers up to a mile or more, easily “jumping” or overwhelming these barriers. Wildfire experts and leaders must guard against believing they know exactly how wildfires will behave and whether or not protections are truly adequate in an increasingly unpredictable world.

♦ COMPOUNDING DYNAMICS REQUIRE NEW ORIENTATION

Due to these factors, we know that we must adapt to a new reality. Our understanding of the nature of wildfire and its role in maintaining healthy ecosystems, and our role in living with it, is changing. Thanks to a growing understanding of fire’s

nature, and an acknowledgement of the deep knowledge held by Indigenous communities, the model of “fire suppression at all costs” is being challenged and giving way to a renewed understanding and relationship with place. We are forming a new set of strategies for managing wildfire in the modern American fire environment. Policies and attitudes are becoming more nuanced, integrating fire adaptive planning (e.g. restricting development in fire-prone areas), fire prevention (e.g. reducing the flammability of the built environment), fire tolerance (e.g. letting wildfires burn where they are safe and appropriate to do so), and proactive fire application (e.g. prescribed burning to safely and strategically re-introduce fire to the landscape).

This time calls us to sharpen and share our individual capabilities while resisting the tendency to stay siloed and take fast action in familiar ways. Our success, then, will be measured by how well we are able to (1) learn from the current science - including wildfire, ecology, climate, and building fields as well as traditional ecological knowledge from Indigenous peoples, (2) see opportunities for change, and (3) act intelligently, collaboratively and boldly to adapt at the speed and scale needed.

Given the complex, dynamic and interdependent nature of the factors issues at hand ongoing and skillful collaboration is essential as multiple experts, practitioners, organizations, and sectors are needed to make sense of what’s happening and to develop and implement solutions effectively.



"It's not just more firefighters," he said. "It's not just more aircraft. It's not just fuel reduction project work. It's not just defensible space or home hardening. It's absolutely every one of those things. We need every piece of the system to be raised to meet the challenge that the changing climate is giving us."

-Thom Porter, CAL FIRE Director¹⁵

¹⁵ Porter, Thom. News Conference. Sept. 2020.



03.

+ MATCHING PACE AND SCALE WITH MULTIPLE CAPACITIES

The scale of our responses must match the scale of our fire problems. It's important to note that, due to climate change, challenges are not growing linearly, but growing exponentially. In order to achieve the pace and scale that is required of us, it is essential that the solutions to our wildfire problems not be entrusted to a single institution or entity, but be integrated across society, and, at the local level, across a community. Communities will need multiple capacities and cross-jurisdictional, cross-functional collaboration to address wildfire risks and opportunities at the scale needed. At a fundamental level, communities need to articulate what they ultimately want to achieve, create and/or protect. And, with that, what is their collective theory of change that will get them there, especially in the face of a rapidly changing climate.

There are already very good frameworks for communities to understand, articulate, and

manage the resources that make a community healthy and resilient. These resources are often referred to as "capital" -- something that holds or generates value -- and in social terms can be seen as capacities that are being intentionally developed or depleted (i.e., social capital). As outlined by Allison Jolley in her article, *We're Gonna Need a Bigger Boat: What is Capacity and How Do You Actually Build It?*, we recommend using the seven primary capitals framework which communities should seek to protect, enhance and develop as they address wildfire preparedness. Jolley equates "capitals" with "capacities" in that they are embodied in people and social structures and, therefore, can be cultivated and developed community-wide to both increase their value, quality of life, and ability to be resilient and adapt over time.¹⁶ Nonetheless, for the sake of consistency, we will use the term "capital."

¹⁶ Jolley, Allison. "We're Gonna Need a Bigger Boat: What Is Capacity and How Do You Actually Build It?" Fire Adapted Communities Learning Network, 1 Mar. 2022, <https://fireadaptednetwork.org/were-gonna-need-a-bigger-boat-what-is-capacity-and-how-do-you-actually-build-it/>.



Addressing these

complex challenges with meaningful investments and support systems requires an unprecedented level of collaboration among citizens, governments, and the private sector—one that the public sector [with NGO partners] is uniquely positioned to lead.

- Accelerate a Resilient LA (ARLA)



A handful of fire and planning professionals and non-profit allies cannot and should not do all that is needed to be done; many leaders and organizations must be involved to bring solutions and change to a community.

More importantly, based upon what we have heard and learned in developing this Playbook and through related projects, we suggest that communities will have a hard time being resilient and adaptive without intentionally developing these capitals simply because wildfire is influenced by and impacts so many aspects of natural and social systems, and can move so easily across a landscape without regard to boundaries, that a holistic approach that articulates and manages these capitals is required. Do these increase the complexity of wildfire risk reduction work? Yes, in most cases they will. This is the complexity that communities, not just fire professionals, must address or risk insufficient progress or unintended consequences.

We will dive into the social and collaborative elements of community change in Section 4.2 in far greater depth, but we are introducing the capitals framework here as a coherent way to see and talk about the many and varied dimensions of community and how to protect and even enhance those dimensions through FireSmart practices. The need to foster shared values among wildfire, ecosystem, watershed, and social health groups and share data between organizations about those intersecting values is also reflected in the *Regional Forest and Fire Capacity 2020 Report* as the top two needs.¹⁷ The capitals frame can be a good way to organize and consciously manage these community values and the data needed to support them.

¹⁷ Jane Davis, Emily, et al. "Investment Opportunities for Increasing Forest and Fire Management Capacity in California." Regional Forest and Fire Capacity Report, 2020, https://static1.squarespace.com/static/5d7fbfd7fed606396f41e20/t/5e384e18be55567743848f37/1580748323320/RFFC_CapacityNeeds_web.pdf.

PROTECTING AND BUILDING COMMUNITY CAPITAL

Our research has shown the “multiplier effect” of successful FireSmart initiatives. For example, a successful fire safe council can build social connection (networking), increase public awareness (education), reduce physical fire hazards (manage defensible space and forest vegetation), protect financial assets (homes), enhance natural resources (improved forest health), and bring funds to the community (grant money) to continue the work into the future (jobs creator). As with virtually all initiatives and change efforts that involve natural processes and ecosystems, if done well, these initiatives can yield significant co-benefits that enhance community capital. Thinning forests can yield benefits of reduced wildfire risk, as well as improved habitat and water quantity and quality, which can further yield financial benefits, and even promote civic engagement and human health benefits.

It is important to note that not all initiatives have this effect on communities. If done poorly, initiatives can erode community capital by stretching people thin, wasting time, or wasting money. Single-outcome initiatives sometimes fall into this category, as they can be more expensive and miss the opportunity to benefit multiple capitals. The bottom line is that wildfire work can impact a community in many ways beyond just addressing fire and landscape management values.

Below, we provide a list of the community health and resilience capitals accompanied by a set of questions to stimulate reflection on wildfire connections to these capitals. These are what you might call “leading questions” because they lead the reader to make new mental connections and relevant resources. These are all adapted from The Community Capitals Framework published by Purdue University.¹⁸

SOURCE: CHART DEVELOPED BY THE PURDUE CENTER FOR REGIONAL DEVELOPMENT



¹⁸ Beaulieu, Lionel J. Promoting Community Vitality and Sustainability: The Community Capitals Framework. Purdue University, 2014. <https://pcrd.purdue.edu/wp-content/uploads/2020/09/Community-Capitals-Framework-Writeup-Oct-2014.pdf>.

Below we outline how these capitals correspond to wildfire mitigation and resilience. They can be and are used more broadly for community health and development planning, but we focus specifically on their intersection with wildfire and how they relate to the big picture of intentionally generating outcomes and co-benefits that serve the whole community. Some fire professionals may think these larger concerns are not theirs to address, and that they should just focus on things like defensible space or vegetation management. Missing the connections and the opportunities will likely mean less support and fewer resources for this work. These questions are meant to serve as thought starters, generating new answers and new questions. The following focuses on overall outcomes for healthy and resilient communities, while subsequent sections will look at effective firesmart practices and challenges in more detail.



Natural Capital

The environment, resources and ecosystem services and value they provide, including forested and fire-dependent landscapes, watersheds and water bodies, healthy and stable soils and biodiversity.

- 1. Breaking Past Cycles, Creating Better Ones.** How can communities better understand their area's fire ecology to restore fire back to their natural lands' in healthy ways and without undue risk? How can they break vicious cycles and create virtuous ones?
- 2. Reducing Climate Impacts.** Wildfires emit enormous amounts of greenhouse gasses, surpassing emissions reductions from all other sectors combined. Some wildfire prevention activities release modest amounts of GHGs (e.g., conducting controlled burns). How can communities ensure and show that their work generates a net reduction in GHG emissions?
- 3. Protecting Water Bodies and Supply.** How do communities protect water resources (groundwater, springs, streams, lakes and reservoirs) and whole watersheds while addressing wildfire risks?
- 4. Working with Diverse Land Owners to Address Landscape-scale Stewardship.** How can communities engage not just large acreage rural properties, but all properties in holistic, FireSmart ways at the landscape scale?
- 5. Facilitating and Coordinating Decision Support.** There are many risks, potential solutions and practices, and factors, across a community's landscape to be considered to make FireSmart decisions. What tools can communities use to do this effectively and efficiently?
- 6. Turning Waste into Resources.** How can communities utilize the vegetative debris that results from wildfire mitigation projects (such as forest thinning) and prevent it from becoming a wildfire hazard or an excessive cost? How can communities or regions encourage entrepreneurs, businesses, and resource economists turn byproducts into new products - mass timber, mulches/ composts, biochar, livestock, energy feedstocks - and help pay for the work needed?



Human Capital

Human capital refers to the social, emotional, technical, or intellectual skills held by individuals. These generally contribute to the civic health of a community. These skills can be strengthened through education, on-the-job training, and more.

1. **Professional Education and Resources.** How do communities support leaders, staff, and partners involved in wildfire work to build capacity, stay current on best practices and insights?
2. **Shared Data, Knowledge, and Platforms.** How do communities support collaborative efforts to share expertise, knowledge, data so that professionals don't "have to be an expert on everything" and can share mapping, data, and resources?
3. **Nimble Workforce Development.** How do communities build the workforce, including attracting, developing, and retaining talent, that's needed to achieve fire adaptation?
4. **Addressing Equity through Workforce Development.** Can workforce development programs provide transformative opportunities to disadvantaged or at-risk populations that enable meaningful employment and opportunities to grow and develop?



Social Capital

Social capital refers to interpersonal networks. This represents the "glue" that holds a community together and whose presence can spur the type of connection and opportunities that brings benefits to the entire community.

1. **Collaborative Strategies and Capacity Building.** How can communities engage key stakeholders in targeted and timely ways to tap the community for input, ideas, resources, support? How can they generate the "all hands on deck" engagement that is needed?
2. **Collaborative Structures for Better and Long-term Outcomes.** How can organizations create effective methods and structures to better and consistently communicate and engage over time to foster better community-wide outcomes?
3. **Community-Wide Wildfire Awareness and Preparation.** How can communities increase the wildfire literacy of all community members, including those that are resource challenged or who speak English as a second language? How do you help them prepare for wildfire and smoke?
4. **Commitment to Equity and Empowerment.** How can communities better protect disadvantaged and vulnerable populations and see them as active allies rather than passive "beneficiaries"? How can communities best communicate with and engage these populations?



Political and Financial Capital

Political capital refers to access to influence in a community. It includes both those individuals in positions of power, as well as those “movers and shakers” who have access to people in power. Financial capital represents the resources needed to fund the provision, construction, and implementation of a variety of programs, projects, and assets.

1. **Building a Shared Vision.** How can leaders work together to create a compelling vision and/or bold goals for wildfire preparedness?
2. **Building Political Will to Do What’s Needed.** How can elected officials and leaders stay committed to bold wildfire solutions and real community support? How ready and able are they to use crises to illustrate the need for change?
3. **Sustainable Funding.** How can communities generate adequate long-term fire management funding without relying so heavily on competitive, episodic grant funding?
4. **Enabling and Incentivizing Change.** How can permitting and regulations be streamlined and incentives be designed to make it easier and cheaper to treat landscapes and properties?



Cultural Capital

The concept of culture provides a frame of reference for understanding the fabric of community life. It refers to the values, norms, beliefs and traditions that people inherit from the family, school and community. These can relate to other forms of capital, including social and political.

1. **Changing Minds and Culture.** How can community culture change, in appropriate ways, to overcome ‘fire suppression’ mindsets and actions to accelerate ecologically sound change?
2. **(Re-)Integrating Indigenous Culture.** How can communities acknowledge and elevate the traditional ecological knowledge of Tribes and partner with Tribes towards a just future?
3. **Work with Different Perspectives.** How do communications strategies work with the local culture and varied perceptions of risks and attitudes of wildfire that exist in a community?
4. **Foster Learning and Innovation.** How can communities maintain an attitude of inquiry, learning, innovation and determination long-term, even in the face of climate- and fire-fatigue?



Built Capital

Built capital (also referred to as the built environment) is the man-made infrastructure that supports human society. It refers to our roads, bridges, airports, water storage and treatment facilities, buildings (factories, schools, offices, stores), communication technologies, and public places.

1. **Protecting Built Capital, Smartly.** How do we best protect the built environment in ways that are smart, affordable, and enhance values?
2. **Developing New Infrastructure.** How do communities build the additional infrastructure needed to support fire adaptation (e.g., timber mills, distributed water tanks, biomass facilities)?
3. **Developing in New Ways.** How can land use planning guide FireSmart urban development so that the built environment is less vulnerable to wildfire?

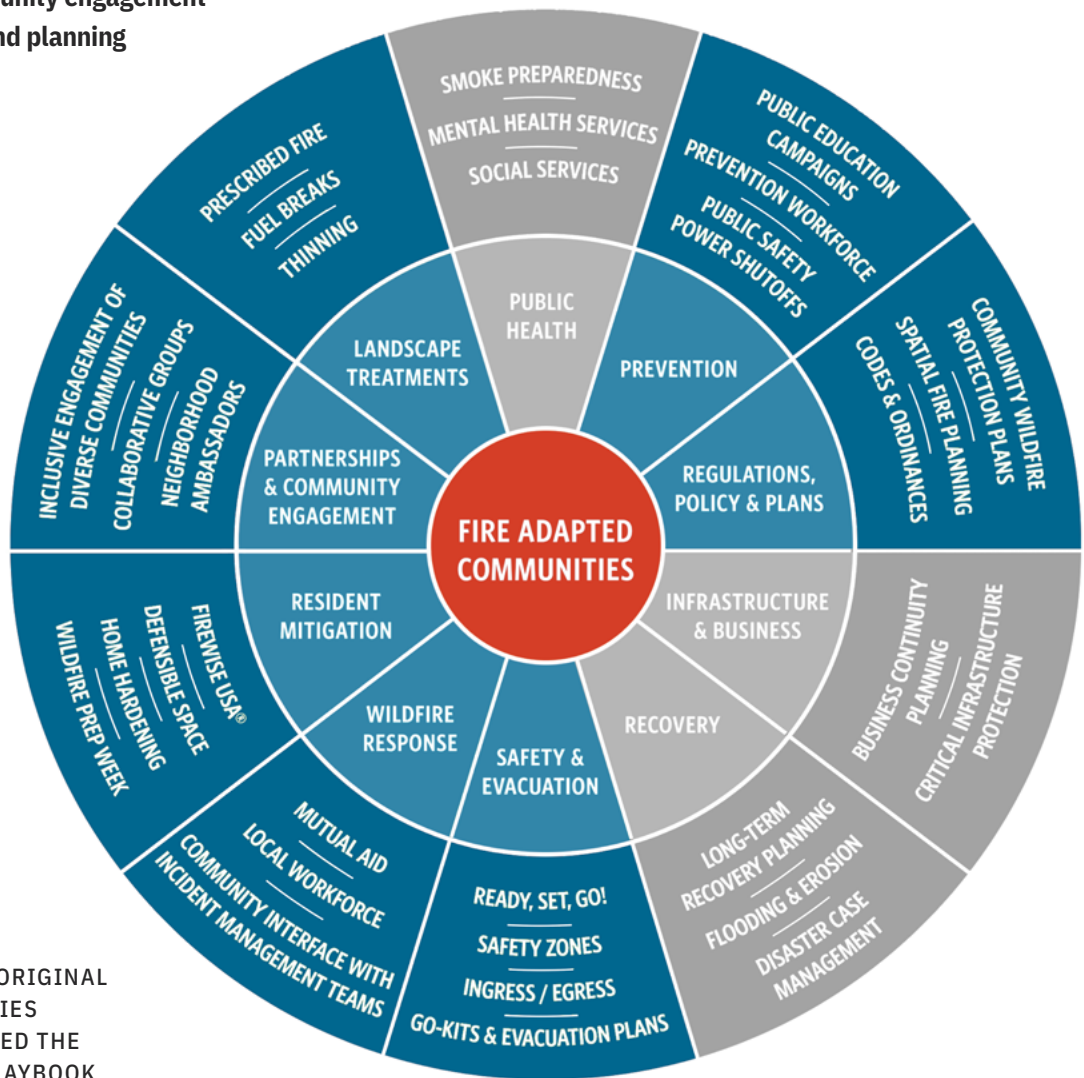


04.

+ COMPONENTS AND ACTIVITIES OF WILDFIRE RESILIENT COMMUNITIES

Drawing from resources such as the [Fire Adapted Communities \(FAC\) framework](#) (a product of the FAC Learning Network),¹⁹ we have analyzed seven components of fire-adapted communities:

1. Partnerships and community engagement
2. Regulations, policies, and planning
3. Prevention education
4. Residential mitigation
5. Landscape treatments
6. Prevention workforce
7. Emergency readiness



OUR ADAPTATION OF THE ORIGINAL FIRE ADAPTED COMMUNITIES FRAMEWORK THAT INSPIRED THE ORGANIZATION OF OUR PLAYBOOK.

¹⁹ "Fire Adapted Communities Graphic and Facilitator's Guide." Fire Adapted Communities Learning Network. 3 June 2022. <https://fireadaptednetwork.org/resource/fire-adapted-communities-graphic-and-facilitators-guide/>.

In each section, we provide an introduction which includes some introductory materials, important for orienting the wide-range of individuals and groups involved in this work, insight to successes, and challenges and resources for further learning.

While the Fire Adapted Communities framework organizes ten components in its original wheel (Figure 1), this project scope focuses only on those components that need to be effectively addressed to build capacity and enable change in communities *before* a wildfire event. Given the magnitude of our current crises, it would be challenging to attempt to address all components of wildfires, including response and recovery, in one playbook. We encourage you to look to the original Fire Adapted Communities Framework for more information about sections not covered here.

- 1. Partnerships & Community Engagement:** This component and set of activities is core to our research and the guidance provided throughout this Playbook. We see this aspect as foundational to achieving and/or enhancing all other aspects of the framework, as well as offer ideas and resources to help ensure success.
- 2. Regulation, Policy, & Planning:** This component involves the strategic plans that direct work from the federal to the local level, policies that support those goals, and the regulations that enforce them. We discuss Community Wildfire Protection Plans (CWPP's) for neighborhoods, as well as more complex versions of County-based CWPP's and their revisions, which can involve considerable collaboration. We also look at code enforcement and engagement strategies that promote or hinder residential mitigation.
- 3. Prevention Education:** This component addresses ways to prevent destructive wildfires from occurring by engaging and educating the public. Education can promote sound practices (i.e., Do's and Don'ts), correct misunderstandings, and provide all with a sense of responsibility.
- 4. Prevention Workforce:** This component addresses the roles of professional workers that support a FireSmart community--from urban planners to foresters to building construction contractors. It also discusses some successful approaches to building and retaining the FireSmart workforce.
- 5. Residential Mitigation:** This component discusses common practices for reducing the flammability of the residence, primarily home hardening and defensible space. It involves a considerable amount of communication, outreach, education, on-site inspection and guidance to help property owners adopt defensible space and home hardening measures, especially in the WUI. There are many parties, resources, and factors that converge on what at first may seem like straightforward activities. This is perhaps one of the more important and challenging components of FireSmart work.
- 6. Landscape Treatments:** This component addresses landscape treatment practices that support fire resilience in the wildlands surrounding communities. It covers both ecosystem restoration and rural infrastructure protection, since these often compliment each other. Landscape treatments require significant funding, careful planning, permitting, skillful implementation, and ongoing maintenance. Many agencies and landowners may be involved in a single project, making partner coordination especially important.
- 7. Emergency Readiness:** With this component we focus primarily on the alerts and warnings issued before and during evacuation and the best practices for preparing homes for quick ingress and egress in an emergency. Challenges exist with notifying and communicating with vulnerable populations (English second language, elderly or disabled individuals, limited access to communication technology) in a wildfire emergency.



4.1 PARTNERSHIP & COMMUNITY ENGAGEMENT

COLLABORATIVE LEADERSHIP: ENABLING COMMUNITY-WIDE CHANGE

1. OVERVIEW

The social or “people” dimensions of the change required to shift mindsets, culture, behaviors and practices to more holistic ways of managing wildfire risks are often overlooked components of wildfire preparedness. They can be time-consuming, messy, and unpredictable. Yet, these social dimensions are fundamental to scaling up community response and capacity; this social change undergirds and catalyzes many if not most resiliency efforts. As mentioned at the beginning of the Playbook, many stakeholders and allies must be engaged, mobilized, coordinated, and collaborated with for communities to be successful in creating the large-scale change needed. This topic must be elevated in order for communities to succeed; collaboration and collaborative leadership is the enabling fabric of community-wide change.

Increasingly greater levels of engagement and involvement are and will be needed for communities to move at the speed, scale, and depths needed to address this crisis. A handful of fire and planning professionals and non-profit allies cannot and should not do all that is needed to be done; many leaders and organizations must be involved to bring solutions and change to a community. Wildfire resilience and preparedness for a community requires real, large-scale change. This change requires lots of work with people, groups, organizations and whole communities as much as it involves the technical, scientific, bureaucratic and management of wildfire work.



“If you
want to
go fast, go
alone. If
you want to
go far, go
together.”

- Proverb

+ WILDFIRE WORK IS PEOPLE WORK

While perhaps counterintuitive, much community-level wildfire work in a WUI context involves working with many people and groups of all kinds to change landscapes and those who own them, neighborhoods, and governance structures for the better. While the FAC wheel identifies functions and some of the activities that have a significant social dimension - outreach, education, preparedness, community planning, etc. - it does not fully articulate or contemplate how to engage, develop, and mobilize the abilities and resources of the range and number of stakeholders and community members needed to effectively build FireSmart capacity.

People must be informed and educated, hearts and minds must be won, and proven and innovative practices must be implemented. The people side of things, or the social change dimension, of wildfire work is not as obvious and certainly not easy for most as it has not historically been part of the “job description,” whether it’s working collaboratively across silos and boundaries, or engaging and mobilizing the public en masse, and/or enabling better coordination and collaboration among key stakeholders.

The need to build more capacity around collaboration and partnerships is reflected in the RFFC Capacity-Building report, released in 2022. The top two needs identified in this report relate to fostering shared values and sharing data from those intersecting values. Elsewhere in the report, wildfire professionals also indicated that they needed many more resources to meet the challenges they face.²⁰ Many practitioners have good instincts and abilities to work together, yet, as with other fields, they also can have gaps or blind spots.

Further, they very often lack the resources to meet the challenges they are facing, whether its resources to conduct landscape-scale vegetation management or to foster high levels of engagement and collaboration.

Additionally, per FEMA’s *Wildland Urban Interface: A Look at Issues and Resolutions* report, one of the top challenges includes “limited funding for local wildfire coordination and communication. Without adequate support, community outreach and education are inadequate.”²¹ FEMA recommendations involve hiring specialists to build community capacity, two-way communications with stakeholders, communications infrastructure, and communications professionals to ensure effective messaging. We will focus on a select few collaborative resources that can help those specialists, as well as leaders, organizations, and whole communities to more effectively engage, mobilize and facilitate change as they seek to build capacity.

When we discuss outreach and engagement, we are not only talking about educational events for topics like defensible space, or getting input from targeted stakeholder groups occasionally. Those are important and have their place, yet are often insufficient to build genuine support or to enable real sustainable change.

We also want to be crystal clear that broad or deep collaboration is not appropriate in every situation or for every decision. Professionals and the public are increasingly busy, if not overloaded with responsibilities, collaboration is not needed all the time and their expertise and time should be respected. Collaboration needs to be a tool applied thoughtfully to be effective and efficient for all involved.

20 Jane Davis, Emily, et al. “Investment Opportunities for Increasing Forest and Fire Management Capacity in California.” Regional Forest and Fire Capacity Report, 2020. https://static1.squarespace.com/static/5d7fbfd7fed606396f41e20/t/5e384e18be55567743848f37/1580748323320/RFFC_CapacityNeeds_web.pdf.

21 “Wildland Urban Interface: A Look at Issues and Resolutions.” Fema.gov, U.S. Fire Administration, June 2022. <https://www.usfa.fema.gov/downloads/pdf/publications/wui-issues-resolutions-report.pdf>.

2. EFFECTIVE PRACTICES

Decision makers and leaders should seek clarity on the outcomes they want and need to build capacity and enable change, as well as weigh the pros and cons for different levels of collaboration and partnership. As previously stated, collaboration needs to be an approach applied thoughtfully to be effective and efficient for all involved. Two key frameworks can be very helpful in determining what the options for or degrees of collaboration are and how to create the change needed:

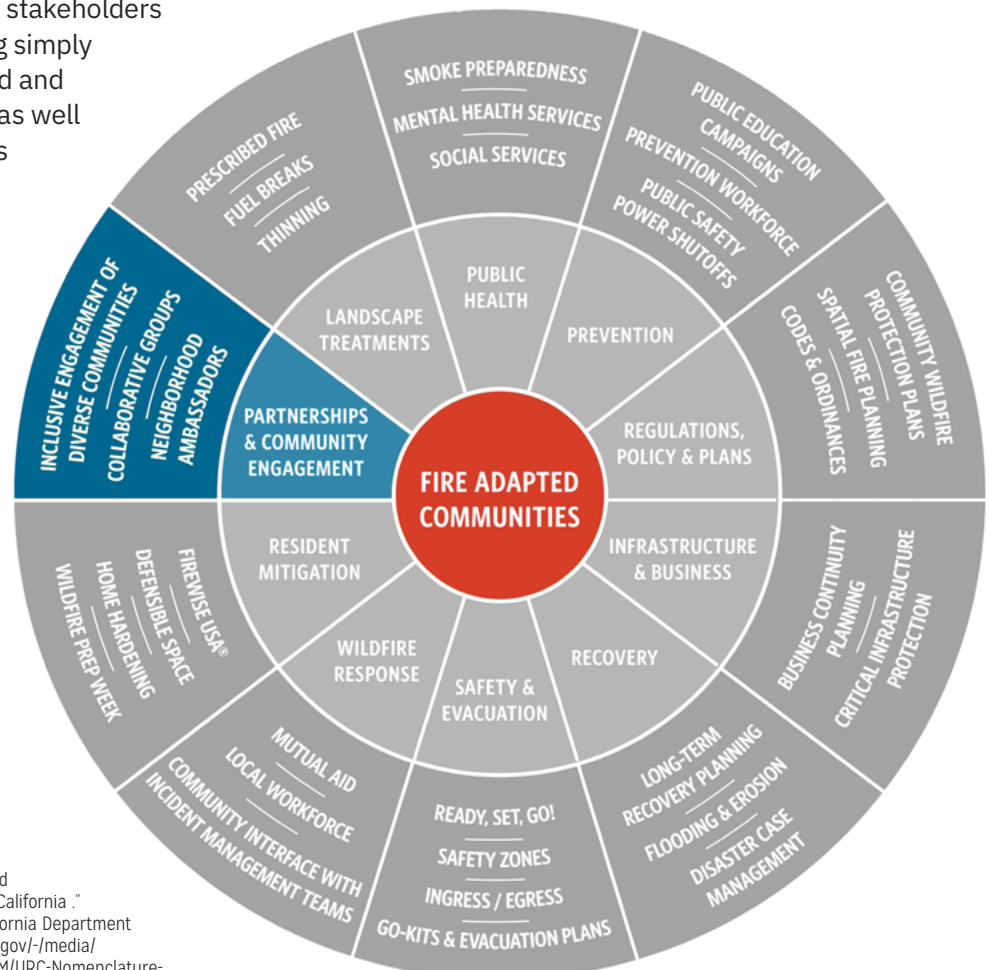
- 1) The Collaboration Spectrum
- 2) Five Interconnected Practices for Community Change

By **stakeholder** we mean any individual or entity that is impacted positively or negatively by a decision and/or action taken, as well as those that can support and legitimize your effort or can resist and undermine it. Many will conceive of stakeholders as their beneficiaries, constituents, customers, partners and/or allies.

*Note: the word “Stakeholder” itself may not be inclusive or welcoming for all constituents, and in fact may alienate some. We chose to use it here for simplicity due to its widespread usage but encourage organizations to carefully consider the words they use in their outreach processes and tailor their communications for their audience.*²²

Organizations should seek to engage historically underserved populations. This may be a challenge if the organization doesn't have existing relationships with those populations. We suggest approaching this task with respect, self-awareness and a genuine intent to learn. While the following content can help increase your organization's awareness, we also highly suggest forging partnerships with, and drawing on the expertise of, community-based organizations embedded in the underserved community. They have essential insight on how to connect to the people you want to engage. Additionally,

it's important to note that certain stakeholders can find collaboration challenging simply due to the time and costs involved and limited resources to cover them, as well as language, cultural and logistics challenges that make it more difficult and uncomfortable than one might assume. That said, organizations mandated or wanting to engage underserved groups need to rethink outreach strategies and budgets to make it easier and worthwhile to engage with wildfire initiatives. Accommodations should be made for those stakeholders to assist them to participate in decisions and processes that may affect them.



²² Haaland, Oceana, and Pablo Ortiz. "Disadvantaged Communities Nomenclature within the State of California." California Department of Water Resources, California Department of Water Resources, July 2022. <https://water.ca.gov/-/media/DWR-Website/Web-Pages/About/Tribal/Files/IRWM/URC-Nomenclature-Whitepaper.pdf>.



*Collaboration
and collaborative
leadership is the
enabling fabric of
community-wide
change.*

+ ENGAGEMENT BEFORE ENFORCEMENT:

Based upon interviews, conversations with the public, and our work as collaboration professionals, we suggest starting with intentional and well considered engagement strategies before enforcement strategies. Engagement strategies that seek to educate, support, and incentivize can yield very favorable results, even if time consuming. While code enforcement may seem like an efficient practice to, for example, require homeowners and businesses to take action on defensible space and home hardening, it can cause real resistance to taking those actions, and in the process erode trust and social capital local agencies and fire districts may have built. Once lost, trust can be hard (and expensive) to recover. The decision to enforce regulations should be made carefully and strategically, preceded by an engagement strategy, and alternatives should always be considered.

Conversely, there are certainly many instances where enforcement or the prospect of enforcement is an important motivator to foster certain behaviors, just like the possibility of getting a traffic ticket can discourage a driver from driving over the speed limit.

However, unlike managing traffic speeds, many wildfire-related actions for residents are complicated, confusing, and costly making behavior change much harder for all involved. It is important to acknowledge that there are considerable hurdles property owners, and even renters, will need to clear before they can take action on wildfire safety. Taking action is often complicated, guidance is often contradictory or insufficient to make smart decisions (*see Section 4.4 Prevention Education*), the changes are often (prohibitively) expensive and/or disruptive, can be seen as eroding home aesthetics and values, and can be seen as a ‘heavy handed’ government intervention that undermines homeowner agency and freedom. Alternatively, a more collaborative approach to these challenges that is empathetic to the challenges faced by homeowners and renters - and that is service-oriented in order to educate, guide, and support the changes needed - can build trust and win hearts and minds for the long haul as ongoing adaptation and maintenance are needed. This is a decades long if not a “forever” process.

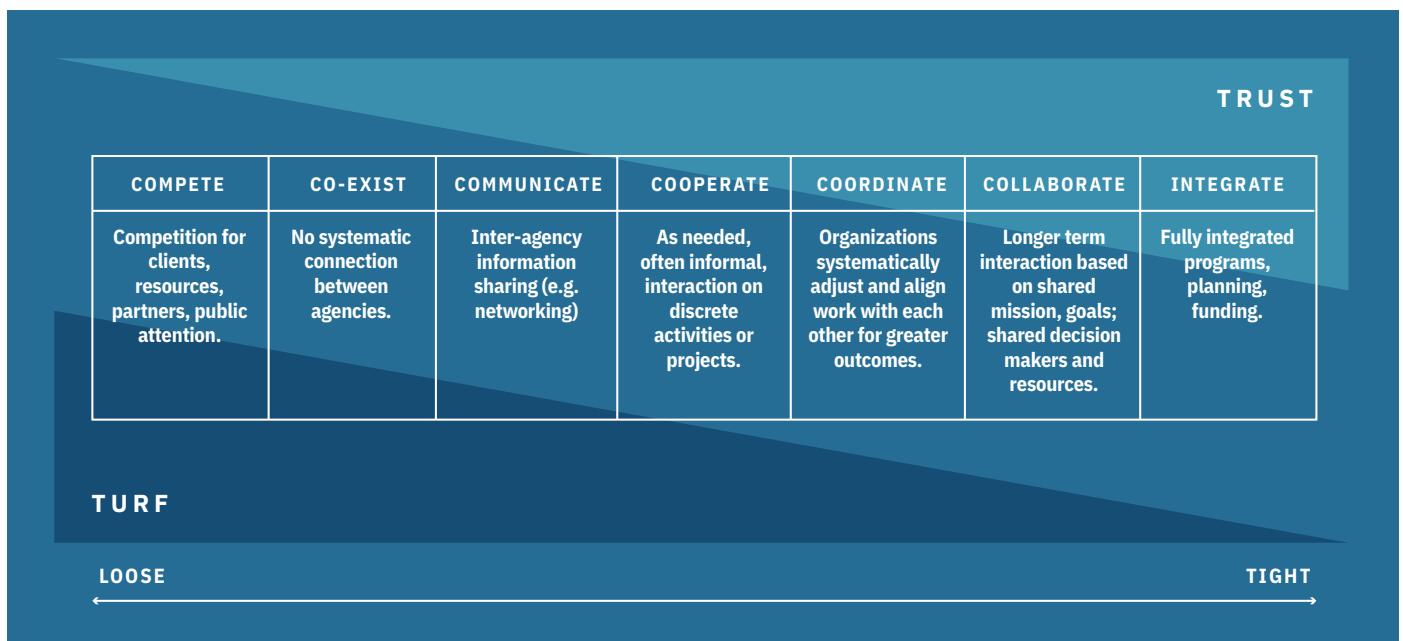
+ THE COLLABORATION SPECTRUM

There are a range of options along “the Collaboration Spectrum” that leaders and organizations can choose from in order to achieve their goals for specific functions and tasks which involve others. There are pros and cons to each level of collaboration, and each level serves different purposes and generates different outcomes. The potential for greater impact and benefits and lasting and transformative change increases significantly the further right on the Collaboration Spectrum you go. As an organization or a whole community seeks higher levels of ambition with bolder goals, its needs address more diverse interests and develop community capacity to “move at the speed and scale” of the threats it faces.

WAYS TO USE THE SPECTRUM:

- **As an Assessment Tool** to gauge where your organization or community is on the spectrum and to what degree that is sufficient to achieve stated goals and meet the scale and speed of the challenges it is truly facing. Matching goals to appropriate levels of collaboration is key.
- **As a Stakeholder Management and Governance Tool** to gauge what level is needed regarding engagement of key stakeholders for a specific project or opportunity. Understanding the interests of key stakeholders, and what level of engagement they are open to, is critical for success.
- **Target Appropriate Levels of Collaboration** - High levels of collaboration does not need to happen with all decisions or projects, or even throughout a project or task. Different stages and decision points will require different degrees of engagement.
- **Start Small and Practice** - It can be prudent to start higher levels of engagement and collaboration modestly and intentionally, testing the waters, practicing and building capacity over time. Wildfire topics can be heated, so to speak. Existential fears and traumas from past wildfire events can mean lots of emotion when engaging residents; be aware and prepare accordingly. The bolder the collaboration, the more important it is to consider using professional communications, engagement, and collaboration experts and facilitators to ensure desired outcomes and minimize breakdowns.

THE COLLABORATION SPECTRUM





3. CHALLENGES AND KEY QUESTIONS ALONG THE COLLABORATION SPECTRUM

+ COMPETITION

We have heard there can be considerable competition among grantees, like NGO's, FireSafe Councils, and landowners, for vegetation management funds, with awards being given to those most able to write winning grants even if they are not the ones with the highest need or benefit. As more and more organizations step into the wildfire field, turf battles for resources, authority, and control have emerged. While in some cases more "fishing lines in the water can catch more fish", uncoordinated efforts can weaken trust and productivity.

Examples:

- Multiple parties are competing for grants for preparedness, vegetation management, planning, and/or capacity building; they can also compete for community turf and distrust each other.
- Different groups promoting differing approaches to defensible space.

↪ KEY QUESTIONS:

- ▶ *How can leaders support healthy competition for the overall health and resilience of your city, county, or region?*
- ▶ *If you have been negatively affected by competition, what could healthy competition look like in your community? What could healthy cooperation look like?*

+ CO-EXISTENCE

It is not uncommon to hear of organizations and departments or even teams working in silos, often for a range of legitimate reasons. Those in different sectors, functions, and interest areas - local or state government, environmental or social NGO's, different industries - often don't engage with each other regularly or effectively and can know little about, misunderstand, or discount the value of each other.

Examples:

- It is not uncommon in years past for wildfire, conservation groups, climate, social health and equity, planning and building professionals, agriculture and open space, and many others that intersect with wildfire to not communicate with each other.

↪ KEY QUESTION:

- ▶ *How can organizations and sectors coordinate and collaborate enough to generate mutually beneficial outcomes and synergies? What systems and methods can they employ?*

+ COMMUNICATION

Communicating key information about the what, why, and how of adopting new wildfire approaches and practices is a valuable way to raise awareness and motivate some to take action. It's essential, and often effective if it's two-way communication (i.e., to and from key audiences). However, different disciplines, organizations, sectors and even social subcultures often have different interests, terminology, ways of thinking and working (i.e., cultures), as well as different communications channels and capacities that can create dissonance and barriers to understanding or effectively communicating with each other. Digital communications (e.g., blogs, Tweets, Facebook posts) can inform many people cost effectively, more directly, and multiple times.

Yet, good communications requires dedicated teams and professional communications support, especially to large groups or historically disengaged ones, to create clear, coordinated and effective messaging. Content creators and curators should be selected deliberately as initiatives increase in importance. As per Fema's 2022 Report, "Wildland Urban Interface: A Look at Issues and Resolutions," "effectively reaching various audiences is complex and requires traditional and digital communication tactics. Expertise within all the communications mediums and channels, as well as wildland fire knowledge, is critical for communication professionals. Research shows that increasing funding for wildfire prevention education and communication can significantly reduce wildfire-related losses and suppression costs."²³

Examples:

- Public-facing awareness-building events, webinars, fact sheets, newsletters, blogs.
- Meetings and information/data sharing for risk assessments, mapping, planning.
- Fire Safe Marin's 2022 "Adapt to Wildfire" campaign really engages residents.²⁴

↪ KEY QUESTIONS:

- ▶ *How can decision makers and organizations improve their ability to communicate, both how they listen to and understand others as well as craft and convey messages?*
- ▶ *How important are the communications needed to obtain our desired results and do we have the communications skills and resources to achieve those results? Do they need help?*

²³ Wildland Urban Interface: A Look at Issues and Resolutions." Fema.gov, U.S. Fire Administration, June 2022. <https://www.usfa.fema.gov/downloads/pdf/publications/wui-issues-resolutions-report.pdf>.

²⁴ New "Adapt to Wildfire" Campaign Aims for Culture Change in Marin. <https://www.marinwildfire.org/news/new-adapt-to-wildfire-campaign-aims-for-culture-change-in-marin>.



A handful
of fire
and planning
professionals
and non-profit
allies cannot and
should not do all
that is needed to
be done; many
leaders and
organizations
must be involved
to bring solutions
and change to a
community.



+ COOPERATION

While organizations may occasionally engage other stakeholders to educate and/or share information at certain events or on certain tasks, they will achieve modest outcomes depending upon the quality of those cooperative efforts. Yet, this can be real progress in beginning to understand others and break down barriers. In order to win hearts and minds, and therefore mobilize significant change, engaging beneficiaries in the process of designing solutions for them that support behavior change can be effective.

Examples:

- Sharing ideas, resources, “best practices,” and information among Fire Safe Councils to rapidly build awareness and take action in neighborhoods.
- Gathering public or key stakeholder input on priorities for CWPP’s while seeking minimal agreement.
- Informal discussions and interaction among stakeholders to address a specific task or program.

↪ KEY QUESTIONS:

- ▶ *How can organizations ensure that cooperation is high quality and determine if it is enough to achieve their aims?*
- ▶ *If we are seeking to engage certain stakeholders, do they have time, interest and/or resources to engage? From our experience and research, disadvantaged and underserved groups have been both overwhelmed by impacts of wildfires, COVID or other crises, as well as in fielding lots of requests for engagement in recent years, both of which can be challenging.*

+ COORDINATION

At this level of collaboration, organizations get more serious and deliberate about addressing the need to align efforts with other groups and organizations to improve outcomes, be more efficient with resources, and/or reduce friction or conflict between efforts. As more organizations are involved in addressing wildfire issues, the more they need to coordinate efforts.

While we saw and heard examples of Fire Safe Councils, Fire Districts, COPE groups and other NGOs cooperating and coordinating efforts to build awareness, educate and mobilize citizens to be prepared, and to create fire safe properties, we also heard from a number of sources that there can be too much uncoordinated activity from the many engaged and appropriately concerned stakeholders. This has caused considerable role confusion, differing or conflicting preparedness frameworks, inefficient resource use, and flared tempers and frayed relationships that may already be fragile.

In the big picture, this is a good problem to have: many organizations and citizens wanting to help, to take action, to solve problems of all sizes and types. The key is to facilitate their coordination and to clarify and agree on roles and responsibilities of organizations, in order to mobilize their abilities and resources in complementary rather than competitive ways. A community-wide “organization chart” can be very helpful.

Examples:

- Sharing data, risk analyses, mapping and/or planning documents in order to build a larger sense of efforts happening across departments, agencies, or areas. (The need to share fire-related data among agencies was identified in the [RFFC report](#) as a top need²⁵).
- The Greater San Diego Area RCD conducts standing monthly meetings of fire-related agencies every other month and on alternating months conducts meetings with all agencies and fire-related NGO’s/CBO’s. This provides a structure to support sustained coordination.
- Aligning County and neighborhood CWPP’s to ID, coordinate and prioritize overlapping opportunities (Napa County).
- County-level collaborative fire networks are becoming seen as vital to long-term, community-wide change.²⁶ These are similar to the successful [climate-adaptation networks](#) which are more regional and less focused on ground-level changes.²⁷ Having a collaboration-savvy coordinator can support these networks.

↔ KEY QUESTIONS:

- ▶ *How well do we know all of the stakeholders that could be directly or indirectly impacted? How well do we know the needs and interests of stakeholders you are seeking to engage and coordinate with? Is an assessment needed?*
- ▶ *How can you ensure results are greater than the extra effort it takes? How might you make it easier for a full range of community stakeholders to cooperate?*

25 Jane Davis, Emily, et al. “Investment Opportunities for Increasing Forest and Fire Management Capacity in California.” Regional Forest and Fire Capacity Report, 2020. https://static1.squarespace.com/static/5d7fbfdd7fed606396f41e20/t/5e384e18be55567743848f37/1580748323320/RFFC_CapacityNeeds_web.pdf.

26 “The California Fire Safe Council County Coordinator Program: Building Collaborative and Resilient Networks.” Fire Adapted Communities Learning Network, 16 Feb. 2023. <https://fireadaptednetwork.org/california-fire-safe-council-county-coordinator-program/>.

27 <https://www.easybib.com/project/style/mla?id=0c05fa3b-517e-4c34-b8dd-46256a9bf4ae>



+ COLLABORATION

Collaboration is largely about solving complex problems. Yet, working together can be both exciting and quite hard, taking time to build trust, dedicate resources, let go of preconceived ideas and even change the organizations themselves to address those problems and enable meaningful change and build the community's capacity. This level of engagement can be thought of as "What do we need to do together that we can't do without each other?" As communities incorporate landscape-scale wildfire management in their purview, multiple stakeholders with a broad range of interests must be engaged in ongoing ways to co-develop viable solutions.

The RFFC capacity needs report shows that two of the top four needs of practitioners involve building the capacity to share and coordinate fire-related social, cultural, economic, ecological/forest/biophysical data and information across silos and organizations for better planning and action.²⁸ This is not a one-time need, but an ongoing one as data is updated or more and different data is needed.

Effective relationship building and a commitment to coordinate - particularly involving different agencies and across sectors - makes this work easier, faster, and more viable long term. It is all the more important when data shared can be curated into mutually-beneficial resources (e.g., GIS maps, databases).

²⁸ Jane Davis, Emily, et al. "Investment Opportunities for Increasing Forest and Fire Management Capacity in California." Regional Forest and Fire Capacity Report, 2020. https://static1.squarespace.com/static/5d7fbfdd7fed606396f41e20/t/5e384e18be55567743848f37/1580748323320/RFFC_CapacityNeeds_web.pdf.

Examples:

- Working together to co-develop a CWPP including ecological and equity elements.
- Working with a range of key stakeholders, experts, practitioners to co-develop wildfire decision support tool for landscape-scale wildfire management that seeks to integrate “inside out” (buildings-to-landscape) and “outside in” (landscape-to- buildings). approaches to wildfire decisions into a unified framework for all types of collaboration.²⁹
- Marin Wildfire Protection Authority’s well-funded JPA of 17 cities, towns and fire districts closely coordinated planning, implementation, and communications and education.
- One limitation with a JPA, however, is that it only allows governments and agencies to be members, relegating NGO’s and businesses to providing input on JPA decisions and planning (i.e., the Cooperate or Coordinate level).

↪ KEY QUESTIONS:

- ▶ *How can organizations enable the more holistic and rigorous solutions and change that is truly needed? How can they be more inclusive and empowering of those groups and organizations involved in the different phases of initiatives?*
- ▶ *How ready are we to work with others over time? How ready are the other stakeholders we are seeking to work with?*

+ INTEGRATION:

Some programs, County departments or agencies may find that combining outcomes can save money, eliminate conflicts, and enable better outcomes. Sometimes collaboration can yield transformative change that enables fundamentally better outcomes and often at dramatically lower costs.

This element can also involve organizations integrating certain perspectives, functions, and processes that they have not previously but that are vital to address wildfire. For example, a fire district may integrate ecological thinking and science into its work to ensure vegetation management doesn’t damage ecosystems or make fire conditions. Conversely, environmental and agricultural groups are adopting wildfire management into their objectives and work.

Although a different focus, the One Water model for integrated water/watershed management is restructuring government agencies to enable more holistic management outcomes and innovation at far lower costs than siloed organizations. A similar approach could be used for wildfire.

Examples:

- Integrating Planning and Wildfire functions and outcomes at the County levels.
- CalFIRE and local fire districts that share staff and resources.

↪ KEY QUESTIONS:

- ▶ *How might integrating certain programs or agencies significantly improve performance and outcomes, and/or reduce costs?*

29 Sonoma County Decision Support Framework. County of Sonoma, <https://www.rrwatershed.org/wp-content/uploads/2021/11/012-HANDOUT-Sonoma-County-Wildfire-Resilience-DSF.pdf>.

+ LEADING SUSTAINED COMMUNITY CHANGE

Once one gets comfortable assessing and determining the appropriate level of engagement and collaboration, the following is an invaluable community change resource. Applicable from the “communicate” level of engagement to more advanced levels of engagement, this resource can assist leaders, managers, and elected officials to effectively enable community-wide capacity building and change for wildfire preparedness and resilience. Each of these practices can provide value in their own right, but as a set of interconnected practices appropriately adapted to specific community contexts will lead to greater impact and deeper, more durable change.³⁰

While other community change and ‘collective impact’ type models can be useful, this one is proven, based upon considerable social research, and is supported by low-cost resources, training and support. It is also fully compatible with the Collaboration Spectrum, FAC Wheel, and

THE FIVE CORE DIMENSIONS OF COMMUNITY CHANGE
WHICH CAN BE CONSCIOUSLY LEVERAGED TO FACILITATE
DEVELOPMENT OF A FIRESMART COMMUNITY.

 Each of these practices can provide value in their own right, but as a set of interconnected practices appropriately adapted to specific community contexts will lead to greater impact and deeper, more durable change.



³⁰ Five Interconnected Practices for Community Change - Tamarack Institute. <https://www.tamarackcommunity.ca/hubfs/Resources/Resources%20we%20link%20to/Five%20Interconnected%20Practices.pdf?hsCtaTracking=d4cecd60-62ac-4a13-a2c3-1c2179a816f8%7Cce8e2386-4d31-40d9-9212-8c34f6cb0e0d&hsLang=en-us>.

+ COLLECTIVE IMPACT

What is it: a coordinated and collaborative approach where government, NGO, and business and education/ research organizations and sectors work together with a common agenda/goal to solve complex problems. This includes shared measures of success, shared/ coordinated communications, drawing complementary skills and activities, and supported by a ‘backbone infrastructure’ to enable change all over time.

This structure, and ones like it, also supports ongoing engagement and collective learning that taps the collective intelligence needed to navigate a rapidly changing and less stable environment.

Examples: One Tam, North Coast Resource Partnership; The Fire-Adapted Communities Network promotes network development

+ COMMUNITY ENGAGEMENT

What is it: As discussed at length with the Collaboration Spectrum, engaging stakeholders and citizens in learning and working together to build awareness, educate, mobilize action, and change culture is critical to success.

+ COLLABORATIVE LEADERSHIP

What is it: Leadership that is authentic, clear-eyed, and bold is important these days to inspire a community to join the effort to do what is needed to adapt to a FireSmart future. Bringing the right people together, developing a shared vision and big goals, and basing decisions on shared data, information, and models is critical to this work. A key opportunity for most communities is determining a compelling vision and/ or desired future conditions, a common goal-setting measure for forest management, for a community and its landscapes. Central to success is moving beyond management practices to bold solutions and sharing leadership among a number of parties.

Example: Sonoma’s Decision Support Framework collaborating closely with multiple parties on the tool development, as well as interviewing potential users.

+ COMMUNITY INNOVATION

What is it: Taking action that tests new and innovative policies and practices is vital for a community to learn and change more rapidly. Fostering a culture of learning and growth that supports creating, testing, and learning from and scaling new solutions matters when communities face multiple and compounding challenges. This practice balances the over-reliance on meetings and long-term planning cycles that are slow, overly theoretical, and minimizes guesswork through learning by doing.

Most government agencies are inherently risk-averse, exceedingly careful with how public money is spent, and are inclined to only set goals based upon what they know they can achieve (even if those goals are insufficient to solve problems). Communities now exist in a context where the risks of in-action and slow action can be far greater than the transition risks of trying something new, even if those efforts fail at times. The important thing is minimizing judgment of errors and focusing on collective learning for everyone’s benefit. Sometimes partnering with NGOs, businesses and entrepreneurs, and facilitators, can introduce new ways of thinking and acting. Methods like community-based social marketing enable wildfire practitioners to understand needs and how to barriers to behavior change.

+ EVALUATING IMPACT

What is it: Tracking the progress of change, whether it be changes in community attitude about the need to adapt or acres treated, is important to determine if and what engagement practices are having an impact. This approach seeks evidence of change at the community scale, not just relative to individual organizations’ progress against their own goals.

4. RESOURCES:

+ GENERAL RESOURCES:

- » *The Art of Possibility* by Rosamund and Ben Zander
- » *Effective Communications for Fire Management* by Sarah McCaffrey.

+ MORE IN-DEPTH STAKEHOLDER ANALYSIS TOOLS:

01

How do we know we are accounting all the community members and how they might be impacted by or impact our efforts?

- » Stakeholder Analysis tools: mapping and analysis.

02

How do we improve our efforts to be truly equitable?

- » Equity Engagement tool for Communities.

03

What are the actual lived experiences of specific stakeholder groups so that we can really understand and work with them better?

- » Empathy Map for understanding stakeholders' experiences and needs.

04

How do we go beyond required, policy-driven outreach to effectively engage community members in ways that are effective and improve outcomes (and not just go through the motions)?

- » 7 Principles for Engagement - helps clarify the spirit of collaboration, how you do it, potential outcomes and pitfalls. Useful for both mandated and voluntary outreach and engagement efforts.

05

What is the right amount of involvement in decisions that impact specific groups, especially partners that could improve programs or plans and/or will be involved in implementation?

- » Levels of Involvement in Decision Making - this a useful model similar to the Spectrum but used for decisions.
- » Facilitator's Guide to Participatory Decision-Making - covers everything from agenda design to dealing with difficult group dynamics.

06

How do we design solutions (programs, incentives, etc.) for target groups that will get their attention and really meet their needs to produce the desired outcomes?

- » Community-based Social Marketing - similar to user-centered design, this method actively seeks design communications and solutions to enable behavior change in a community.

4.2 POLICY, REGULATION AND PLANNING

♦ POLICY AND REGULATION

1. OVERVIEW

Wildfires don't recognize political boundaries, jurisdictions or property lines. As we see consistently, they easily cross over federal, state, Tribal, municipal, private property, watershed and ecosystem boundaries, making coordination between wildland fire management agencies, municipalities, property owners, and adjacent counties essential. As risks increase, policy and planning must adapt and strengthen to reduce wildfire risks and support wildfire victims.

The following are areas of high leverage that communities can address directly and with the help of key partners, like utilities, water districts, State agencies, insurance companies, National Forest or Park staff, and local Tribes. We also present them to provide a baseline level of understanding for those readers who may be learning about these areas of policy and regulation for the first time.

+ WILDFIRE-RELATED REGULATION & CODES

Landowners located in the State Responsibility Area (SRA) are responsible for ensuring that their property is in compliance with California's building and fire codes. These codes call for landowners to take proactive steps to protect their property from a wildfire. Meanwhile, landowners located in the Local Responsibility Area (LRA) must follow local codes and ordinances related to fire protection.³¹ Depending on location, local ordinances may be more or less stringent than those of the state. Vegetation management activities (including burning activities) must comply with state and local ordinances. In addition, if vegetation management activities use a permit or public funds, the activity will need to meet the requirements of the California Environmental Quality Act (CEQA).³²

+ LAND USE PLANNING

While home losses from wildfire are high in the state, California's land use policies currently make no restrictions on residential development related to wildfire risk.³³ U.S. law allows for community zoning and planning that restricts individual property rights, but it cannot require local governments to prohibit development in high fire hazard areas. Local planners and elected politicians who are the primary decision makers are often unwilling to restrict property rights as it can incur considerable costs on those residential and commercial property owners by limiting development, as well as create considerable opposition and animosity from the community itself. This is true both before and after a fire, as research shows that homes lost in a wildfire are likely to be rebuilt in the same location.^{34, 35}

31 "FAQs Fire Prevention Fee." State of California, https://www.firepreventionfee.org/sra_faqs/.

32 "Vegetation Management Workshop Q&A." Sonoma County Agricultural Preservation and Open Space District, 5 May 2021, <https://www.sonomaopenspace.org/vegetation-management-workshop-qa/?locale=en>.

33 Woodyard, Chris. "California's Fire Dilemma: Rebuild Knowing Same Homes Will Burn Again?" USA Today, Gannett Satellite Information Network, 16 Nov. 2018, <https://www.usatoday.com/story/news/nation/2018/11/12/california-wildfires-fire-destroy-homes-rebuild/1985117002/>.

34 Woodyard, Chris. "California's Fire Dilemma: Rebuild Knowing Same Homes Will Burn Again?" USA Today, Gannett Satellite Information Network, 16 Nov. 2018, <https://www.usatoday.com/story/news/nation/2018/11/12/california-wildfires-fire-destroy-homes-rebuild/1985117002/>.

35 "Rebuilding for a Resilient Recovery: Planning in California's Wildland Urban Interface." Next 10, UC Berkeley Center for Community Innovation, 10 June 2021, <https://www.next10.org/publications/rebuilding-resilient>.

+ ENVIRONMENTAL PROTECTIONS: CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA) generally requires state and local government agencies to inform decision makers and the public about the potential environmental impacts of proposed projects, and to reduce those environmental impacts to the extent feasible. The CEQA Guidelines apply to public agencies throughout the state, including local governments, special districts, and State agencies. While firefighting is typically exempt from environmental review, preventative wildfire fuels management work frequently requires environmental review.³⁶ If federal funding is being used to support fuels management work, those projects may need to comply with the National Environmental Policy Act (NEPA).³⁷

+ PROPERTY INSURANCE

Insurance is also a leverage point that may be utilized to encourage property owners and communities to adapt and change in order to maintain coverage or reduce insurance premiums due to wildfire risk. In 2018, the California Insurance Commission adopted a law protecting policyholders from losing their insurance within one year after a wildfire has affected them. For owners who are unable to access coverage in the traditional market, the FAIR Plan provides access to basic coverage. They also maintain a list of insurance companies offering discounts for adopting fire safe practices.³⁸

To reward policyholders who take action to reduce their fire risk by improving their home's construction and defensible space, some insurance companies are now offering lowered premiums. Insurance industry research has shown a 50% reduction in risk when homes manage their defensible space, which is informing policy changes.^{39, 40} These private sector incentives, which provide both "carrots" (reduced premiums for active reduction of property risks) and "sticks" (loss of insurance), are changing so quickly that it is important to track how it is trending and influencing community choices.

+ CULTURAL BURNING

Indigenous peoples have practiced cultural burning - "the intentional lighting of smaller, controlled fires to provide a desired cultural service, such as promoting the health of vegetation and animals that provide food, clothing, ceremonial items and more"⁴¹ - for millennia.⁴² For the last two hundred or so years, the U.S. government has restricted cultural burning and Indigenous land stewardship practices.⁴³ Those policies have had profoundly negative impacts on ecosystems that rely on fire, as well as on Indigenous peoples themselves unable to conduct practices that have significant meaning and practical value to them. Reducing barriers for Indigenous communities to practice cultural burning, including by LandBack (the practice of returning land to the political and economic control of Indigenous peoples) and co-management (the practice of sharing management responsibility between governments or land trusts, and Indigenous peoples), could and is beginning to help address these historic abuses.

36 "Vegetation Management Workshop Q&A." Sonoma County Agricultural Preservation and Open Space District, 5 May 2021, <https://www.sonomaopenspace.org/vegetation-management-workshop-qa/?locale=en>.

37 "National Environmental Policy Act (NEPA)." National Institute of Justice, <https://nij.ojp.gov/funding/national-environmental-policy-act-nepa#:~:text=NEPA%20recognizes%20that%20the%20range,funding%20such%20as%20NIJ%20grants>.

38 "Insurers Currently Offering Discounts." CA Department of Insurance, State of California, <http://www.insurance.ca.gov/01-consumers/105-type/95-guides/03-res/Insurers-Currently-Offering-Discounts.cfm>.

39 Stich, Brian. "Nearly Doubling a Property's Wildfire Survival Rate: Impact of Key Mitigation Action." Insurance Institute for Business & Home Safety, 27 Apr. 2022, <https://ibhs.org/ibhs-news-releases/nearly-doubling-a-property-s-wildfire-survival-rate/>.

40 "Virtual Homeowners' Insurance Investigatory Hearing." CA Department of Insurance, <https://www.insurance.ca.gov/01-consumers/200-wrr/Virtual-H03-Investigatory-Hearing.cfm>.

41 "Indigenous Fire Practices Shape Our Land." National Parks Service, U.S. Department of the Interior, [https://www.nps.gov/subjects/fire/indigenous-fire-practices-shape-our-land.htm#:~:text=%E2%80%9CCultural%20burning%E2%80%9D%20refers%20to%20the.%E2%80%9D%20\(Roos%2C%202021\)](https://www.nps.gov/subjects/fire/indigenous-fire-practices-shape-our-land.htm#:~:text=%E2%80%9CCultural%20burning%E2%80%9D%20refers%20to%20the.%E2%80%9D%20(Roos%2C%202021)).

42 "Indigenous Fire Practices Shape Our Land." National Parks Service, U.S. Department of the Interior, [https://www.nps.gov/subjects/fire/indigenous-fire-practices-shape-our-land.htm#:~:text=%E2%80%9CCultural%20burning%E2%80%9D%20refers%20to%20the.%E2%80%9D%20\(Roos%2C%202021\)](https://www.nps.gov/subjects/fire/indigenous-fire-practices-shape-our-land.htm#:~:text=%E2%80%9CCultural%20burning%E2%80%9D%20refers%20to%20the.%E2%80%9D%20(Roos%2C%202021)).

43 Marks-Block, Tony, and William Tripp. "Facilitating Prescribed Fire in Northern California through Indigenous Governance and Interagency Partnerships." MDPI, Multidisciplinary Digital Publishing Institute, 16 July 2021, <https://www.mdpi.com/2571-6255/4/3/37#B90-fire-04-00037>.

Additionally, as Christopher Adlam and Deniss Martinez ask in their research, “we must also ask: how do we make sure that current efforts do not continue the pattern of Indigenous erasure and instead acknowledge and uplift prescribed burning’s intellectual and cultural origins?” We must be willing to credit what is often referred to as Traditional Ecological Knowledge and work effectively with Tribes to get fire back onto the landscape in culturally appropriate ways that begin to build trust and relationships.⁴⁴

Cultural burning is regulated, like other controlled burning, and has also been a liability for Tribal members and others who set those fires. That changed in 2022, with two new laws - SB 332 and AB 642 - that limit liability.⁴⁵ The State is starting to support and fund cultural burning as a cultural practice that begins to address historic abuses and steward ecosystems, including reducing catastrophic wildfire risk. It is also a step towards Tribal stewardship of land. More work is needed in order to shift policies of fire suppression which have damaged the ecosystem and Indigenous peoples. This work must be done in collaboration with Indigenous peoples. Further, those pursuing this approach must be committed to the work of rebuilding trust and relationships with Tribes.

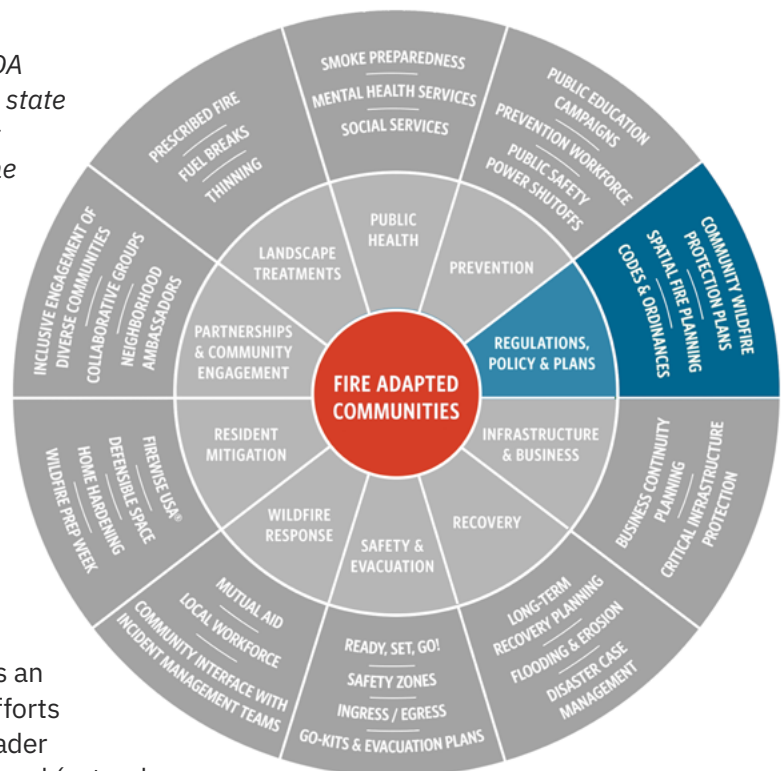
2. EFFECTIVE PRACTICES

We refer to these as *successful* instead of best practices because while they have worked in one community does not mean they ‘best’ for all community contexts. All practices and efforts need to be tailored to the specific needs, priorities, resources and abilities, and culture of that community.

■ Interagency agreements make managing fire risk and active wildfires across political boundaries easier.

- ▶ *The Good Neighbor Authority allows the USDA Forest Service to enter into agreements with state forestry agencies to do critical management work to keep forests healthy and increase the scale of forest management work.*⁴⁶
- ▶ *Through mutual aid agreements, fire agencies send their firefighters, engines, aircraft, and equipment to wildfires on land under the jurisdiction of other agencies to help out.*⁴⁷

- **Integrating Parcel- and Landscape-Scale Efforts.** Many forward-looking communities, recognizing that home hardening and defensible space practices are not enough to protect homes or neighborhoods, are aligning risk reduction efforts with wildland, agricultural land, and open space stewardship. Sonoma County refers to this complementary process as an “inside-out/outside-in” process, where some efforts start at the parcel level and work out to the broader landscape and some work from the landscape level (natural and working lands) and work in towards the parcel-scale and developed areas. Decision support resources to enable this work can make this collaborative work both easier and better informed.⁴⁸



44 Adlam, Christopher, and Deniss Martinez. “Project Firehawk: Decolonizing Prescribed Fire.” Fire Adapted Communities Learning Network, 30 Mar. 2021, <https://fireadaptednetwork.org/project-firehawk-decolonizing-prescribed-fire/>.

45 Kunze, Jenna. “In California, Tribal Members and More Protected from Liability for Cultural, Controlled Burns.” Native News Online, 5 Jan. 2022, <https://nativenewsonline.net/currents/california-tribes-protected-from-liability-for-cultural-controlled-burns>.

46 “Good Neighbor Authority.” US Forest Service, <https://www.fs.usda.gov/managing-land/farm-bill/gna>.

47 “Helping Each Other - What Is Mutual or Automatic Aid between FD’s?” Plumas County Fire Chiefs Association, <https://www.plumasfirechiefs.org/helping-each-other---what-is-mutual-or-automatic-aid-between-fds.html>.

48 Sonoma County Decision Support Framework. County of Sonoma, <https://www.rrwatershed.org/wp-content/uploads/2021/11/012-HANDOUT-Sonoma-County-Wildfire-Resilience-DSF.pdf>.

- **Support and Funding Through County-wide Measures.** Efforts can be substantially and sustainably funded through county-wide measures enabling large-scale and coordinated support for a range of parcel- scale and landscape-scale efforts, benefitting both people and nature, as with Measure A in Marin County, a ¼ of 1% sales tax for example. This measure was endorsed by the Marin Wildfire Protection Authority and the County Fire Chief.⁴⁹
- **Account for New Insurance Impacts and Incentives.** Track insurance industry developments and leverage incentives to encourage property owners to make home hardening and defensible space improvements. This may be a better option than enforcing compliance with fines.
- **Reduce Costs and Risks of Code Compliance.** The burden of code compliance can be expensive and time intensive. Local governments can support landowner compliance in high fire risk areas by offering incentives, education, and guidance specific to their property. This work, of course, is expensive, and local governments must find creative funding solutions (see “county wide measures,” above).
- **Inspectors as Educators more than Enforcers.** If enforcement is the most effective approach for your community, inspectors that wear the uniform of the agency that they represent will make a visual impact. If incentives are the better approach, inspectors may want to wear casual clothing. In both cases, education is key.
- **Build Resilience/Prepare for Outages.** Public Safety Power Shutoffs are found to be effective in preventing wildfires during extreme fire weather. However, they are disruptive events. Communities and their emergency services agencies need to be prepared for shutoffs, planned or otherwise, and are coordinating across agencies and community groups, including the creation of resiliency hubs, extreme heat shelters, UPS for residential medical devices, and even microgrids, like the one in Humboldt County, to keep the power on for critical services during outages and help protect those that are vulnerable medically and/or disadvantaged.⁵⁰
- **Make the Wildfire-Water Connection.** Water agencies have a considerable stake in water supply and watershed management. Reservoirs and other water bodies from which they store and draw water are at considerable risk of wildfire, as forest fires can result in serious erosion and water pollution from toxic runoff from man-made structures, pipes, and changes to the area’s hydrology (e.g., fewer plants and less organic matter allows for faster surface runoff on slopes).^{51, 52} Water agencies can be strong advocates of wildland fire management projects and great partners in FireSmart watershed stewardship.
- **Build Capacity for and Seek Tribal Engagement.** Given relationships and trust have been established, local governments and NGOs can collaborate with Tribes and specific Tribal efforts by lending organizational capacity and resources or jointly applying for grants that support them. The State is partnering with Tribes on a Strategic Wildfire Mitigation Plan that includes prescribed burning.⁵³ At more local levels, county agencies, fire districts, UC Cooperative Extension, RCD’s and related joint efforts can engage and employ Tribal experts to lead, teach, and collaborate on prescribed and cultural burning efforts.^{54, 55} Land trusts, private and public land managers are also exploring partnering with Tribes to allow for cultural burns.

Universities and practical field research organizations like Pepperwood Preserve are conducting research that incorporates Indigenous perspectives and control over the knowledge-building process. Prescribed fire training can provide scholarships to Tribal participants, and include cultural exchanges led by traditional knowledge holders. Government agencies and land managers are collaborating more with Tribes to co-manage lands that were their ancestral lands and delegate decision making.^{56, 57}

49 “Measure A.” Measure A - Marin County Parks, <https://www.parks.marincounty.org/about-us/measure-a>.

50 “Redwood Coast Airport Microgrid.” Redwood Coast Energy Authority, <https://redwoodenergy.org/rcam/>.

51 Pierce, Gregory, et al. “Wildfire & Water Supply in California.” UCLA Luskin Center for Innovation, <https://innovation.luskin.ucla.edu/wp-content/uploads/2021/12/Wildfire-and-Water-Supply-in-California.pdf>.

52 Cen.acs.org, <https://cen.acs.org/environment/water/wildfires-contaminate-drinking-water/100/i20>.

53 “Governor’s Task Force Launches Strategic Plan to Ramp up Wildfire Mitigation with Prescribed Fire Efforts.” State of California Governor’s Office, 30 Mar. 2022, <https://www.gov.ca.gov/2022/03/30/governors-task-force-launches-strategic-plan-to-ramp-up-wildfire-mitigation-with-prescribed-fire-efforts/>.

54 “Cultural Fire: Cultural Fire Management Council: Weitchpec.” Culturalfire.org, <https://www.culturalfire.org/>.

55 Elassar, Alaa. “California Once Prohibited Native American Fire Practices. Now, It’s Asking Tribes to Use Them to Help Prevent Wildfires.” CNN, Cable News Network, 3 Apr. 2022, <https://www.cnn.com/2022/04/03/us/california-native-american-fire-practitioners-wildfires-climate/index.html>.

56 “Region 5 - Land & Resource Management.” Forest Service National Website, <https://www.fs.usda.gov/detail/r5/landmanagement/?cid=fseprd581503>.

57 “Tribe Maps Where to Burn to Restore Northern California Forest to Balance.” Esri, 26 May 2022, <https://www.esri.com/about/newsroom/blog/karuk-map-forest-restoration/>.

3. CHALLENGES AND KEY QUESTIONS

Despite considerable progress in community-scale wildfire protection and resilience, much work, capacity building, and learning needs to be done in regard to policy, regulations and planning. The following are issues or areas for development and key questions to prompt reflection and clarity for leaders and practitioners to consider as they seek to develop wildfire efforts.

-
- **Increasing Tribal Engagement and Improving Relationships.** Complex policy governing Tribal lands and environmental resources can restrict prescribed and cultural fire use and management.

↪ KEY QUESTIONS

- ▶ *How can Tribes continue to receive support from policymakers to reduce barriers to safe and effective cultural burning?*
- ▶ *How can we ensure that efforts to reintroduce fire to the landscape are sustained over time, culturally appropriate, and don't perpetuate marginalization or appropriation of knowledge?*

-
- **Managing Risks and Development Differently in High-Risk Areas.** Development in hazard-prone areas continues, increasing both the fuel load and potential for fire ignitions in those areas.

↪ KEY QUESTIONS

- ▶ *How can communities urge their elected officials and planners to integrate fire hazard zones into their permitting approach and curb development in high-wildfire risk areas?⁵⁸*
- ▶ *How can communities manage some degree of retreat from certain areas, pre- and post fire?*

-
- **Fostering Awareness, Learning and Development.** Some of the most potent work community leaders can do is help its members make better sense of what is happening with large climate-driven wildfire dynamics. This is true for the community at large in terms of basic awareness, yet it is also true with professionals to fully understand causes and dynamics of wildfire, building science and ecology, as well as the most effective, scalable solutions in practical terms. Everyone is on a learning curve with climate-driven wildfire.
 - **Fostering Foresight and Innovation.** While many things are becoming clear in terms of how to effectively develop wildfire resilience, many more are not and communities need to stay in a learning mode as California and the world continue into uncharted climate-driven waters. Weather is getting more extreme, unpredictable and damaging. Developing insights and foresight to better understand these dynamics will allow for better strategic and operational action for all.
 - **Tapping Broader Perspectives for Insight and Solutions.** Resources from within and beyond the fire community are relevant and applicable to California and can be helpful. Some are highly practical and integrative, like The Wildfire Resilience Planner, the Fire-Adapted Communities Learning Network, and many others referenced in this Playbook. Innovative and intersecting resources can help us think beyond the wildfire lens, including by understanding larger climate impacts that shape social responses, nature-based regeneration and resilience, and interrelated biodiversity and water issues.

↪ KEY QUESTIONS

- ▶ *How can policy makers guard against complacency of “what we know to be true” and stay open to the most current observations, science, and modeling that reflect new drought and climate-driven scenarios?*
- ▶ *How can communities take advantage of climate-oriented thought leadership and practical research from universities and organizations like Pepperwood Preserve?⁵⁹ Who can help translate complex science and research into actionable knowledge for decision makers and on-the-ground practitioners?*

58 Rogers, Paul. “New Limits Recommended for Building Homes in High-Risk Wildfire Areas in California.” The Mercury News, 11 Oct. 2022, <https://www.mercurynews.com/2022/10/10/new-limits-recommended-for-building-homes-in-high-risk-wildfire-areas-in-california/>.

59 “Building Climate and Fire Resilience.” Pepperwood Preserve, https://www.pepperwoodpreserve.org/wp-content/uploads/2021/08/Pepperwood-Building-Climate-_-Fire-Resilience.pdf.

- **Insurance Risks and Opportunities.** Since the Valley and Butte wildfires, the California Department of Insurance (CDI) has received increased complaints, evidence, and feedback from consumers, consumer groups, public officials, and other stakeholders that homeowners' insurance coverage in the WUI is increasingly difficult to obtain and, if available, unaffordable.⁶⁰ Furthermore, many recent fire victims were underinsured and unable to cover the cost of rebuilding, which resulted in many homeowners leaving their community in search of affordable housing. New building codes reduce the risks for new homes.⁶¹ Additionally, through a new set of rules dubbed Safer from Wildfires, the California Department of Insurance (CDI) has required insurance companies to provide discounts for residential property insurance when policyholders reduce their wildfire risks.⁶²

➔ KEY QUESTIONS

- ▶ *What can insurance customers do to avoid underinsurance? How can communities encourage their property owners, individually and collectively, to gain sufficient coverage, maintain their policies and/or reduce costs?*
- ▶ *How can communities reduce the number of uninsured homes in the WUI?*
- ▶ *Alternately, how do jurisdictions begin to appropriately and fairly manage retreat from WUI areas where costs and risks are too great?*

- **Removing Regulatory Barriers to Landscape Treatment.** While environmental review can be an effective way of disclosing and mitigating potential negative impacts to vegetation management, the process can be lengthy and expensive, hindering or delaying essential work. Recognizing this, CAL FIRE has created the Cal-VTP process (vegetable treatment program), which expedites the review process for certain approved activities.⁶³

An even newer initiative, called generally the Cutting Green Tape initiative, and more specifically the Streamlined Environmental Restoration Program (SERP) may make permitting even faster and on larger scales. However, at the time of this report details on how this permitting process is being operationalized remained as yet undetermined.

➔ KEY QUESTIONS

- ▶ *What can we learn from communities that have been challenged by the environmental review process? How can it be streamlined?*
- ▶ *How can project "lead agencies" participate in programs like Cal-VTP or SERP to reduce time and expense in environmental review while still protecting natural resources?*

- **Financial Assistance to Help Homeowners.** The majority of homeowners need financial assistance to comply with home hardening and defensible space, which can cost many thousands of dollars.

➔ KEY QUESTION

- ▶ *How can communities finance expensive retrofits and landscaping changes?*
- ▶ *When there is very limited funds, who should be prioritized for funding?*

4. ADDITIONAL RESOURCES

- » CAL FIRE State Responsibility Areas maps.
- » Your local area's planning and permitting offices.
- » Planning the Wildland-Urban Interface.
- » California FAIR Plan.
- » Ready for Wildfire: Fire Safety Laws.
- » CA Insurance Commissioner's List of Insurers Currently Offering Discounts.
- » Planning and Permitting Forest Fuel-Reduction Projects on Private Lands in California.
- » Decolonizing Prescribed Fire.

60 "Virtual Homeowners' Insurance Investigatory Hearing." CA Department of Insurance, <https://www.insurance.ca.gov/01-consumers/200-wrr/Virtual-H03-Investigatory-Hearing.cfm>.

61 Fields, Samantha. "California's Wildfire Building Codes Make Newer Homes Less Likely to Burn." *Marketplace*, 1 Apr. 2022, <https://www.marketplace.org/2022/04/01/californias-wildfire-building-codes-make-newer-homes-less-likely-to-burn/>.

62 California, State of. "Safer from Wildfires." *CA Department of Insurance*, <https://www.insurance.ca.gov/01-consumers/200-wrr/saferfromwildfires.cfm>.

63 "CAL VTP." *CAL FIRE Department of Forestry and Fire Protection*, <https://bof.fire.ca.gov/projects-and-programs/calvtp/>.

PLANNING

1. OVERVIEW

Planning is an essential activity that empowers individuals, communities and agencies with a strategy for managing resources before, during and after fire events. Below are a few key community-level planning tools for wildfire resilience and protection.

Strategic Fire Plan for California: The Strategic Fire Plan is the state's road map for reducing the risk of wildfire. By placing the emphasis on what needs to be done long before a fire starts, the Fire Plan looks to reduce firefighting costs and property losses, increase firefighter safety, and to contribute to ecosystem health.⁶⁵

Strategic Fire Plan for each CAL FIRE Unit: The Unit plan is intended to be an active planning tool for wildfire protection efforts in areas that CALFire operates. The Fire Plan will consider the priorities of all communities and agencies within the boundaries of the Unit. The plan utilizes the following objectives to accomplish its goals: 1) Educate and participate with communities and stakeholders to evaluate fire prevention concerns and exposure; 2) Collect data for proper record keeping, analyze historical values, benefit from trends associated with weather patterns, fuel contents, and project responsibility within the Fire Plan; 3) Monitor effectiveness of Unit programs, projects and initial attack successes; and 4) Identify and improve areas of Wildland Urban Interface (WUI).



“Unless we find a path to both reversing our emissions trajectory and increasing our adaptive capacity within the next ten years, this warming trend will triple by this century’s end. Threats to life and property will upend our communities and economy if we do not identify and implement effective climate and fire resilience strategies.”

- Pepperwood Preserve’s Building Climate and Fire Resilience Initiative.⁶⁴

⁶⁵ California Department of Forestry and Fire Protection (CAL FIRE). “Strategic Fire Plan for California.” CAL FIRE Department of Forestry and Fire Protection, <https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/fire-plan/>.

⁶⁴ “Building Climate and Fire Resilience.” Pepperwood Preserve, <https://www.pepperwoodpreserve.org/wp-content/uploads/2021/08/Pepperwood-Building-Climate-Fire-Resilience.pdf>.

Community Wildfire Protection Plans: A Community Wildfire Protection Plan (CWPP) is a strategic plan typically developed by the local fire department, federal and state land managers, local governments, and communities. Each CWPP is designed for and by a specific community's needs, which drive decisions and designations about scale, approach, an area of emphasis, and depth. CWPPs are intended to mitigate and prepare for wildfire risk and recommend actions including fuels treatments, road improvements, evacuation planning, and prescribed fire to reduce risks. CWPPs are important in facilitating community engagement in wildfire risk reduction and preparedness. They can be used by individual communities, multiple communities or whole counties.⁶⁶

- Neighborhood or local area CWPPs are often driven by a FireSafe Council or equivalent group of concerned homeowners and residents to outline the risks and priority efforts for a given area. These often seek guidance from and require approval of the local fire marshals in order to receive grant funding to mitigate risks and reduce vegetation. The plans are often written by wildfire experts. These local CWPPs are a great opportunity to tap the passion and local knowledge of residents to learn from each other and get engaged in solving problems that affect them directly. However, often running on tight budgets and run by local volunteers, these neighborhood CWPPs often have limited capacity to do the more involved, long term engagement with diverse groups.
- In comparison, County-wide CWPPs, as well as revisions to existing CWPPs, are typically run by professional staff and facilitated by skilled facilitators or planners with wildfire expertise. They often involve a range of agencies, RCDs, community groups, NGOs with social and ecological expertise and have more resources and a mandate to do the more involved, collaborative work of systematic inclusion of diverse, disadvantaged or vulnerable groups or to fully address broader and deeper wildfire issues.

2. EFFECTIVE PRACTICES

- **Local CWPPs.** These are effective tools for bringing local-area stakeholders together to assess fire risk, discuss mitigation opportunities, plan projects, and earn access to CAL FIRE grants. It's common to have multiple neighborhood CWPPs within each county.
- **County CWPPs.** These are typically higher cost and more sophisticated planning documents that include fire modeling, more in-depth environmental input and review, a larger group of planning partners, and a longer timeline for broader partnership and stakeholder engagement. Napa County's 2021 CWPP included eight core partners and another select group of 15 stakeholders, plus 13 Fire Safe Councils and more to guide its development.⁶⁷
- **Link Local and County CWPPs.** Local CWPPs are often added to or nested within County plans, creating cohesion and consistency across planning efforts. See [mapping example](#).
- **Using GIS-based Decision Support Resources for County CWPP's.** New and updated CWPPs can benefit greatly from mapping tools that integrate a range of data sets - land use, ecological, social, infrastructure, ingress/egress data - and allow for much better clarity and deeper analysis for many stakeholders to make superior decisions. Tools, including for [larger scale wildlands](#), [WUI landscape-scale](#), and [parcel-level mapping](#) are available.
 - ▶ *How can data and mapping resources be housed in a central place accessible by all?*
 - ▶ *As preferred practices emerge, how can communities generate the resources, business services, and workforce to conduct work cost effectively?*

⁶⁶ "California Community Wildfire Protection Plans (CWPP)." California Community Wildfire Protection Plans (CWPP) - Wildland Fire Lessons Learned Center, <https://www.wildfirelessons.net/communities/community-home/librarydocuments?LibraryKey=438e7cbf-248a-4b24-b477-f7bdac9895f4&CommunityKey=49e8c861-f977-4684-b67f-d1176e5d5b38>.

⁶⁷ Napa County Community Wildfire Protection Plan. <https://napafirewise.org/wp-content/uploads/2021/05/CWPP-Signed-May-4-2021.pdf>.



3. CHALLENGES AND KEY QUESTIONS

- **Local CWPP's not supported to be inclusive or ecologically sound.** Local CWPP's are often conducted with limited funds and rely on caring and committed volunteers. Yet, they have little guidance from State agencies on the best practices for engaging diverse groups and ecologically-oriented organizations, including those that are focused on disadvantaged and vulnerable populations. It can be hard and time consuming to figure out how to include these groups, especially if it's not something the CWPP committee has considerable experience doing.

↪ KEY QUESTION

- ▶ *How can county leaders guide and encourage local CWPP efforts to consistently engage groups other than homeowners? Can they provide funding or staffing resources to help with ongoing efforts?*

- **County-wide CWPP's and other local planning and development efforts can be disconnecte.** Some are becoming quite savvy about the need to align efforts across county and city departments, agencies and other stakeholders.

↪ KEY QUESTIONS

- ▶ *How can communities and partners involved in planning, and related projects and programs continually develop their environmental knowledge in ways that build health and resilience in the landscape?*
- ▶ *How can communities engage environmental partners early in the planning process?*

- **Very few counties or communities have decision-support tools.** These tools are complicated and expensive to create, yet potentially very valuable.

↪ KEY QUESTION

- ▶ *How can communities leverage the work done by leading counties (and other Western states) and work together to rapidly develop and deploy these tools far more cost effectively?*

4. RESOURCES

- » [Strategic Fire Plan for California.](#)
- » [Strategic Fire Plan for each CAL FIRE Unit.](#)
- » [Community Wildfire Protection Plans.](#)

4.3 PREVENTION - PUBLIC EDUCATION

1. OVERVIEW

Eighty-five percent of wildfires in California are caused by human activity and error, which includes fires caused by utility infrastructure malfunction.⁶⁸ Most of these fires can be prevented with sustained public education for residents, as well as for commercial and government workers who work in the field. Education campaigns are run at the national, state and local levels and teach the public how to prevent sparks, burn safely, identify and report hazards, harden homes, create defensible space, manage wildfire fuels, receive emergency notices, prepare for an evacuation, and more. There is already considerable collaboration happening between these organizations, especially with knowledge and resource sharing, since education is one of the first actions communities must take to inform and change behavior.

Today, fire prevention education is disseminated by many different organizations and comes in many forms: public service announcements, webinars and in-person presentations, how-to guides and videos, workshops, drills, site assessments by fire professionals, community events, community training and certification programs, and more.

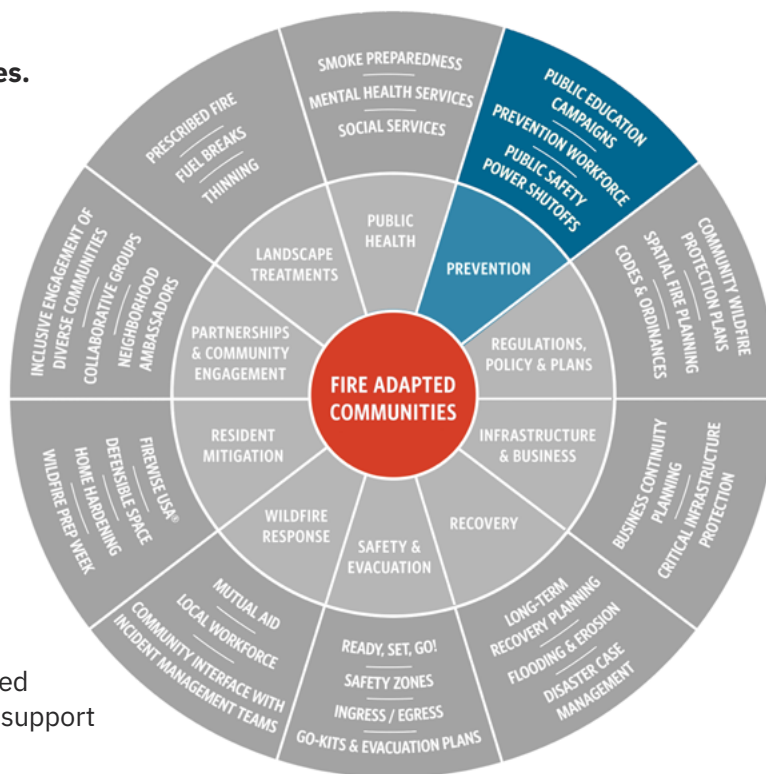
2. EFFECTIVE PRACTICES

- **Match the medium(s) to the intended outcomes.**

Internet-based and radio public service announcements may reach a wide number of people for general awareness building and direct people to online resources, while presentations to homeowners associations may provide “why” and “how to” guidance for homeowners and residents in higher-risk areas. Reaching your target audiences consistently is often not easy.

- **Ongoing Outreach Campaigns.** Public outreach campaigns are most effective when they are accessible (in language and delivery method), clear, consistent, actionable, and ongoing. The Marin Wildfire Protection Authority partners with the Fire Safe Council to offer a set of educational resources and an ongoing campaign of webinars and internet-based communications crafted to engage, inform, and support behavior change.

- **Partner with Community Experts.** Educators should be inclusive of diverse populations, for example: renters, low-income, agricultural workers, English-second language, mobility-challenged, elderly, and others. If educators do not have expertise in working with a target population, they should partner with others who do, like community-based organizations who have in-depth knowledge about and trusted relationships with the community, in order to meet their goals. Failure to do so may render the campaign ineffective, thereby eroding trust and squandering resources.



⁶⁸ "Wildfire Causes and Evaluations (U.S. National Park Service)." National Parks Service. U.S. Department of the Interior, <https://www.nps.gov/articles/wildfire-causes-and-evaluation.htm>.

- **Coordinate Communications Across Agencies and Disciplines.** Public outreach campaigns should be accurate and consistent with messaging across the community, as well as minimize mixed messages. Homeowners, who have limited attention, knowledge, and resources, need to be given actionable guidance that isn't contradictory. For example, the water agency's drought communications to cut back on water use should reconcile fire safe council's guidance to water plants well so they are less flammable. The UC Master Gardeners offer a very good set of [resources](#) that skillfully address a range of diverse needs into a balanced waterwise and firewise landscaping approach.⁶⁹ [Napa Valley Community Organizations Active in Disaster \(COAD\)](#)⁷⁰ provides coordinated communications related to a range of risks and disasters for disadvantaged and vulnerable populations - fire, earthquakes, COVID - all within one organization.
- **Clarify Complementary Roles.** Community organizations should determine how best to complement each other's efforts, not compete or duplicate efforts unnecessarily. Certain organizations have more expertise, authority, relationships, dedicated resources and commitment than others to serve a particular function or role.

3. CHALLENGES AND KEY QUESTIONS

- **Inspections can be a double-edged sword.** Local fire departments have mixed success with educational home inspections. In some cases, landowners respond positively to information from a uniformed firefighter; they trust the firefighter's authority and are motivated to make changes. In other cases, landowners are intimidated by the inspection and are not receptive to the information, even if it is educational and not enforced.

↪ KEY QUESTION

- ▶ *How can efforts encourage interest and minimize anxiety or aversion to inspections?*

- **Variations in risk perception and tolerance.** Another challenge for educators is how to address the varying perceptions of and tolerances to risk, which is true for both prevention and property protection (e.g., defensible space).

↪ KEY QUESTION

- ▶ *How can outreach and education efforts acknowledge differences of perception and tolerance, while still collectively increasing preparedness, for themselves and their neighbors?*

- **Ensure education resources and communications are respectful.** While wildfire prevention is everyone's responsibility, certain vulnerable populations will bear the greatest impacts. It can be challenging to know how to serve and coordinate with these most vulnerable populations. We suggest working through organizations that serve them already.

↪ KEY QUESTION

- ▶ *Have education and communications been audited to ensure they are respectful and unbiased?*

4. RESOURCES

- » [One Less Spark](#) campaign.
- » [FirewiseUSA](#) program.
- » [Ready for Wildfire](#) program.
- » [Ready.gov](#).

69 "Fire-Smart Landscaping." UC Marin Master Gardeners. <https://marinmg.ucanr.edu/BASICS/FIRESMARTLANDSCAPING/#Cheat>.

70 "Napa Valley Coad." Community Action of Napa Valley. <https://www.canv.org/napa-valley-coad/>.

4.4 PREVENTION - WORKFORCE

1. OVERVIEW

A sustained workforce is essential to prevent wildfires before they start. A diverse range of groups each has a role in wildfire prevention. Fire departments, CAL FIRE, fire safe councils, the California Conservation Corps, foresters, prescribed fire practitioners, natural resource professionals, private landscaping and vegetation management companies, and many others are involved in wildfire prevention work. Developing and sustaining these industries is essential to maintaining prevention work across the state.

Right now, California still has more capacity in suppression than prevention. We also have a workforce that is aging out. For example, in California, “there are 1,159 registered professional foresters now, and 48% have said they will retire in the next 10 years, at a time they’re adding only 25 or so per year.”⁷¹ California must invest heavily in the prevention workforce. Fire prevention can’t be a fad that comes in and out of fashion; it should be a sustained effort and part of life in fire-prone communities.

A sample of professions or employers that are essential to wildfire prevention and management:

Urban Planners, Local and volunteer fire departments, CAL FIRE, building construction and retrofit contractors, emergency management professionals, foresters, landscapers/arborists, public works crews, agricultural workers, and other natural resource specialists, livestock grazers, prescribed fire practitioners.

2. EFFECTIVE PRACTICES

+ FUNDING MECHANISMS:

- Voter-approved progressive parcel tax funding can be a community-supported source of sustainable income for public agencies. For example, the Marin Wildfire Prevention Authority is funded by a voter-approved progressive parcel tax measure lasting 10 years.⁷²
- Developing goods and services that create multiple products can generate greater profits and support additional industries. For example, vegetation management services that turn forest debris into products such as wood products, landscaping mulch, or a high-value soil amendment like biochar, can support both vegetation management activities and other industries.
- Long-term contracts between public agencies and service providers can be a source of sustainable income for smaller contractors. For example, livestock grazers contracted for seasonal grazing work on public parkland can provide stable land access and work to a relatively volatile industry.

+ TRAINING AND WORKFORCE CAPACITY:

- Training programs that prepare youth for careers in fire and vegetation management are an investment in a safer future. Universities, colleges, conservation corps, and private businesses can create work-training opportunities. These are most successful when they pay employees a living wage, support other aspects of their professional development, and lead to higher employment opportunities when they are ready to advance. It’s also important that there be stable, well-paid upper-management job opportunities to retain talent in the industry; this can be a challenge and an opportunity.

71 Starkey, Danielle. “LTCC Gets Grant to Develop 1st of Its Kind Forestry Program.” [TahoeDailyTribune.com](https://www.tahoedailytribune.com/news/ltcc-gets-grant-to-develop-1st-of-its-kind-forestry-program/), TahoeDailyTribune.com, 18 June 2020, <https://www.tahoedailytribune.com/news/ltcc-gets-grant-to-develop-1st-of-its-kind-forestry-program/>.

72 “Measure C.” Marin Wildfire Prevention Authority, <https://www.marinwildfire.org/about-mwpa/measure-c>.

- In California, as much as 48% of foresters are reaching retirement this decade, making recruitment of new foresters a high priority.⁷³ Communities can support aspiring foresters by increasing forestry programming at universities and community colleges and subsidizing their education.
- Agricultural workers are skilled land managers who can contribute significantly to fire prevention work. Some programs are training agricultural workers to manage fire fuels in the off-season, creating defensible space between the surrounding wildlands and cropland.⁷⁴

3. CHALLENGES & KEY QUESTIONS

- **Housing costs are a major barrier to many essential workers.** Providing subsidized housing for workers and their families will likely attract and retain essential workers in the community.⁷⁵

↪ KEY QUESTION

- ▶ *How can communities provide subsidized housing for essential workers?*

- **Prevention needs to be a main strategy for community wildfire safety.** Right now, we still have more capacity in suppression than prevention. We need to invest heavily in the prevention workforce.

↪ KEY QUESTION

- ▶ *How can we develop and sustain a prevention workforce in the long-term?*

- **Grant funding is limited and competitive.** While grants can give a needed infusion of capital, grant funding is limited and competitive. Grants are also not sustainable forms of support, since program priorities often shift.

↪ KEY QUESTIONS

- ▶ *What other funding sources are available to workforce development?*
- ▶ *How might communities support ongoing development of the wildfire workforce if and/or when funding decreases with economic downturns? How can communities and regions build a viable wildfire-related economy that supports businesses and the workforce with little to no grant support?*

- **Silos lead to decreased outcomes:** The various players in the fire prevention workforce have the responsibility of being both experts of their own work and also aware of the other players that fit into the FireSmart community. When industries work in silos separate from each other, they weaken the overall effectiveness of the FireSmart community.

↪ KEY QUESTION

- ▶ *How can we better integrate sectors to work collaboratively in fire prevention?*

- **Over reliance on exploitative prison labor:** State prisoners conscripted for firefighting have proven their skills as firefighters and their ability to return to society. However their virtually unpaid labor continues to be used by the state to fill a large gap in the affordable trained workforce. Many formerly incarcerated firefighters have called for better pathways to employment after their release from prison.⁷⁶

↪ KEY QUESTION

- ▶ *How can the state expand opportunities for these formerly incarcerated individuals to become employed as professional EMT workers and firefighters?*

⁷³ Starkey, Danielle. "LTCC Gets Grant to Develop 1st of Its Kind Forestry Program." TahoeDailyTribune.com, TahoeDailyTribune.com, 18 June 2020, <https://www.tahoe-dailytribune.com/news/ltcc-gets-grant-to-develop-1st-of-its-kind-forestry-program/>.

⁷⁴ "Community-Based Burning: Caring for Our Land Together." YouTube, 15 Sept. 2020, <https://youtu.be/1DIA5TC8Txw>.

⁷⁵ "Building California's Forest Resilience Workforce." The Nature Conservancy | California Conservation Science, <https://www.scienceforconservation.org/products/Forest-Restoration-Workforce-Development>.

⁷⁶ "Building California's Forest Resilience Workforce." The Nature Conservancy | California Conservation Science, <https://www.scienceforconservation.org/products/Forest-Restoration-Workforce-Development>.



- **Grazing requires access to land 24 hours a day, seven days a week, and someone on duty caring for animals.** Recently, the Department of Industrial Relations required grazers to pay prevailing wages for their employees.⁷⁷ This has posed a financial challenge to small companies, causing them to significantly downsize or stop operations. Grazers operate on very small margins and can struggle to find consistent work; bolstering these small companies with reliable, good-paying work may be a solution to keep them in business.
- **Professional training and insurance for prescribed fire practitioners is limited.** Furthermore, the number of trained, insured professionals is currently too small to support the demand. While educational pathways are growing, the pace of growth is not commensurate with the level of interest and the need for these services.

↪ KEY QUESTIONS

- ▶ *How can we incentivize growth in this area?*

- **Liability:** Burn bosses can be held liable for damages caused during prescribed burns. Proposed legislation is being considered that could bridge the insurance gap by creating an insurance fund that will cover specific situations in which the burn boss was not grossly negligent for damages.⁷⁸

↪ KEY QUESTIONS

- ▶ *What else can be done to accelerate and scale prescribed burns safely?*

4. RESOURCES

- » National Fire Protection Association [training](#).
- » National Interagency Fire Center [training opportunities](#).
- » Prescribed Fire Training Exchanges (Trex).

⁷⁷ Shobe, Brian. "Wildfire Solutions for Agriculture, Part 2: Prescribed Grazing." *CalCAN*, 16 Feb. 2021. <https://calclimateag.org/wildfire-solutions-for-agriculture-part-2-prescribed-grazing/>.

⁷⁸ Callahan, Mary. "New California Law Aims to Reduce Liability Standard for Prescribed Fire Accidents." *Santa Rosa Press Democrat*, The Press Democrat, 8 Oct. 2021. <https://www.pressdemocrat.com/article/news/new-bill-expected-to-encourage-use-of-good-fire/>.



4.5 RESIDENTIAL MITIGATION

1. OVERVIEW

Residents have a significant role to play in creating a FireSmart community. Private property makes up a large percentage of land ownership in the California wildland urban interface (WUI).⁷⁹ Therefore, landowners, homeowners, and even renters, should take a proactive approach to reducing potential ignition sources and wildfire fuels. It's important that these residents work across property lines in order to increase the scale and effectiveness of any treatments. Treating one property may potentially help to protect that property in a limited way, but treating a whole neighborhood or landscape increases the effectiveness of treatments exponentially, as well as helps to reduce costs by providing opportunities to cost-share.

A range of organizations, both professional and volunteer-led, have been stepping up to help communities become more aware and educated about ways to mitigate risks on their properties. As mentioned previously in this report, the need to engage and mobilize all homeowners and residents in WUI areas has grown exponentially in recent years due to devastating and frequent wildfires.

The two most important issues in residential mitigation are home hardening and defensible space. We will outline specific issues in more detail below under 'Challenges and Questions' given how important this topic is for resident safety.

- **Home hardening:** Home hardening is the first and most effective way to protect a home from wildfire. Hardening can be done during or after construction to protect a building from flames and embers with ignition-resistant materials. As of January 2021, the seller of a home in a designated high fire area built before 2010 must disclose to the buyer conditions that make the home vulnerable to wildfires.⁸⁰
- **Defensible space:** Homeowners in the State Responsibility Area (SRA) are responsible for ensuring that their property is in compliance with California's building and fire codes to ensure owners take proactive steps to protect their property from a wildfire. Law requires owners in SRA reduce and manage flammable materials such as brush or vegetation around their buildings to 100 feet (or the property line) to create a defensible space buffer.⁸¹

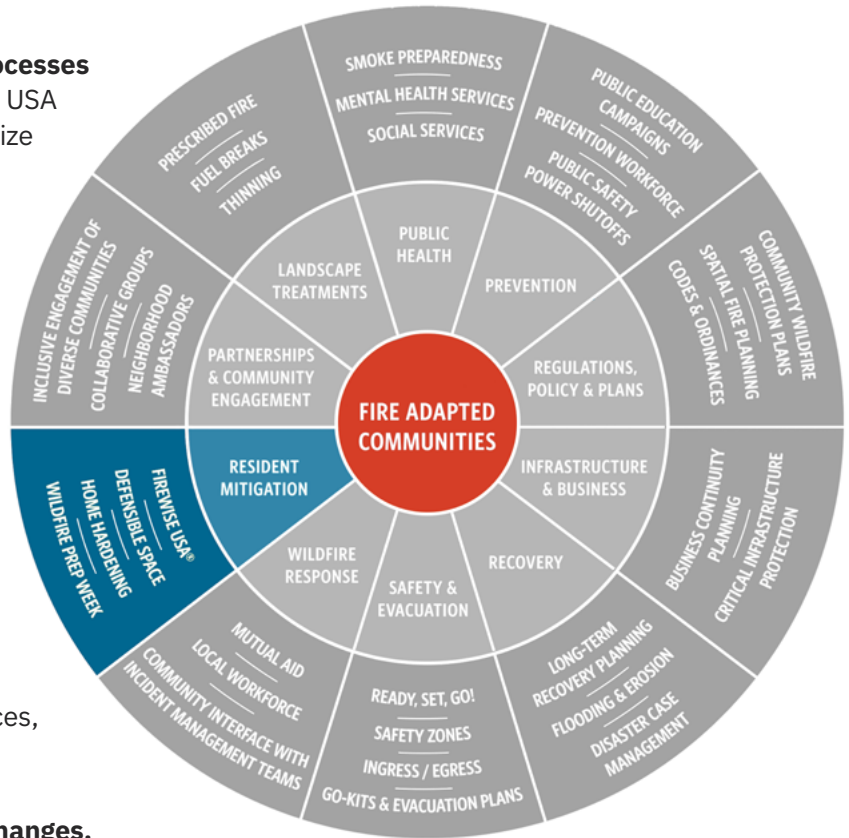
79 "Wildland Urban Interface: A Look at Issues and Resolutions." Fema.gov, U.S. Fire Administration, June 2022, <https://www.usfa.fema.gov/downloads/pdf/publications/wui-issues-resolutions-report.pdf>.

80 Gabbert, Bill. "New California Law Requires Seller of Home to Disclose Vulnerability to Wildfires." *Wildfire Today*, 7 Jan. 2021, <https://wildfiretoday.com/2021/01/07/new-california-law-requires-seller-of-home-to-disclose-vulnerability-to-wildfires/>.

81 California Department of Forestry and Fire Protection (CAL FIRE). "State Responsibility Area." *CAL FIRE Department of Forestry and Fire Protection*, <https://bof.fire.ca.gov/projects-and-programs/state-responsibility-area-viewer/>.

2. EFFECTIVE PRACTICES

- **Use Proven and Dedicated 3rd Party Processes and Tools:** While there are many, Firewise USA offers useful processes and tools to organize neighborhood-scale efforts.⁸²
- **Leverage Social Dynamics:** Support efforts for neighbors and property owners to work together since much learning and behavior change comes from peers working together. Further, these efforts can reduce costs and increase the effectiveness of home-scale treatments.
- **Clarify Complementary Roles:** Community organizations should determine how best to complement each other's efforts, not compete or duplicate unnecessarily. Certain organizations have more expertise, authority, relationships, dedicated resources, and commitment than others to serve a particular function or role.
- **Design Effective Incentives for Costly Changes.** Government and nonprofit organizations can incentivize retrofit home hardening in areas most vulnerable to wildfire by providing incentives for specific improvements. Incentive programs are often funded by state and federal grant programs.
- **Help Remove Barriers to Action:** Effective ways to support residents in creating and maintaining defensible space include education, community wood chipping services, volunteer labor assistance for the elderly and disabled, debris removal programs, incentive dollars for specific improvements, grants for residents, and by supporting training in the landscaping workforce. Keep inquiring with specific community groups about what prevents them from taking action.
- **Use a range of motivational tools, especially positive ones:** Government agencies can enable and enforce home hardening retrofits and defensible space through site assessments and guidance, inspections and, as well as warnings, fines and liens. Especially in the early years of efforts, carrots tend to work better than sticks. As discussed previously, residents will be more willing and able to comply with regulation if they have access to incentive funds and education first. Assume good intentions. and remain curious about how to foster change.
- **Support High-Quality Inspector Development and Outcomes:** Onsite inspections and guidance outcomes are improved when inspectors receive extensive training in fire dynamics, fire and drought-smart landscaping, building science, and effective ways to engage and educate.



82 Firewise USA - Fire Safe Marin. <https://firesafemarin.org/programs/firewise-usa/>.



3. CHALLENGES AND KEY QUESTIONS

- **Complexity and practical trade-offs not addressed sufficiently:** Most educational materials do not explain how to deal with the real world messiness of a typical property. This complexity is not adequately addressed until a homeowner speaks onsite with a well-trained, experienced fire professional who understands landscaping, building construction, fire dynamics, and understands homeowners' interests and limitations. Creating a viable, affordable plan to make a property safe is often not an easy process.
- **Perceived mitigation costs blunt action:** Home hardening and defensible space activities can be expensive to implement. While some basic home hardening measures can be inexpensive (e.g., moving a wood pile, clearing gutters), creating defensible space is often more affordable, and, per RCD's staff observations captured in interviews, this can cause more residents to focus on creating defensible space over home hardening.

↪ KEY QUESTIONS

- ▶ *How can residents be encouraged to take practical plans and steps to harden their home?*
- ▶ *How do communities make best use of limited funds to mobilize many owners?*

- **Resources often conflict:** One resource may say well-maintained plants (dead branches removed) within 5-10 feet of a home are fine, other resources may say they should be well-hydrated, still others will say non-woody and discontinuous plantings are needed. Mulches that protect soil and plants, conserve water, and store carbon can be portrayed as fire hazards when they often may not be. Many examples of these conflicting guidelines exist.

↪ KEY QUESTION

- ▶ *How can fire, water, ecological and disaster organizations work together to minimize conflicting or misleading educational resources?*

- **‘Recommended’ versus ‘required’ is often unclear:** Distinctions between what is required by code/law and what is elective or recommended are vague in guidance materials. From a close review of a number of webinars and digital and printed materials, there is a confusing and sometimes frustrating array of guidance on “what to do,” “what you should do,” and “what you have to do.” Given the sometimes complicated and expensive nature of home hardening and defensible space, rarely can homeowners quickly address all that needs to be done. Most need to prioritize actions.

This need for clarity is further articulated in this 2022 FEMA report, *Wildland Urban Interface: A Look at Issues and Resolutions*. “Clear messages on wildfire risks, challenges and opportunities to prevent and prepare for wildfire in the WUI are needed. Inconsistent messaging confuses the public and policymakers.”⁸³ Homeowners rarely have the time or energy to access or digest this array of views and resources; they need clarity conveyed in easy-to-understand, layperson terms.

↪ KEY QUESTIONS

- ▶ *How can you make these distinctions between required and recommended more clear so that property owners can prioritize efforts effectively?*
- ▶ *To what degree do large parcel owners (e.g., > 5-10 acres) know where to get help? Are there effective resources available, like the local RCD?*

- **Illustrations of and examples of risk mitigation do not reflect reality:** The defensible space zones and recommended actions do not reflect reality of most properties in WUI areas which have mature, dense landscaping, not a blank slate to work with. Further, the lack of practical examples on-the-ground landscaping projects can discourage owners from taking action. Specific examples, with before and after photos, are needed.

↪ KEY QUESTIONS

- ▶ *How can communities create and/or utilize materials and give examples that reflect the context and types of properties they can relate to and act upon?*

- **Accurately conveying wildfire risks.** A challenge to educators is correcting the public perception of wildfire risks. The public may perceive a low threat as a high one, or vice versa. For example, many people will perceive wildland vegetation as a high threat and others the flammability of plants and structures in their immediate area a low threat.

↪ KEY QUESTIONS

- ▶ *How can communities acknowledge varying perspectives of risk and still convey accurate assessments and mobilize action?*

4. RESOURCES

- » Resilient Landscapes Coalition - this includes UC Master Gardeners and Sonoma Ecology Center with advanced resources for ecological, waterwise, fire safe landscaping.
- » Effective Communication about Wildfire Management: Observations from 20 years of fire social science research.
- » Fire Safe Marin - communications and education resources for residents.
- » “Why Adapting to Wildfire is a Must for Marin Residents” video.
- » Wildland Urban Interface: A Look at Issues and Resolutions.
- » Additional Resources for Defensible Space

⁸³ “Wildland Urban Interface: A Look at Issues and Resolutions.” Fema.gov, U.S. Fire Administration, June 2022, <https://www.usfa.fema.gov/downloads/pdf/publications/wui-issues-resolutions-report.pdf>.



4.6 LANDSCAPE TREATMENTS

1. OVERVIEW

Wildfire is a natural part of California's ecology and fire has been used as a landscape management tool by Indigenous peoples in California for centuries. Without fire, ecosystems such as forests, shrubland and grasslands, develop positive feedback loops that generate more catastrophic wildfire and other environmental impacts. Decades of fire suppression have altered our landscapes. Where before ecosystems were balanced by routine fire disturbance, often managed by Indigenous peoples, the absence of fire has resulted in overly dense, diseased, stressed, and imbalanced vegetation communities. This has ripple effects, one of which being a more flammable environment.^{84, 85} Landscape treatments are an essential piece of the puzzle for FireSmart communities

Here, we break up landscape treatments into two categories: ecosystem restoration and infrastructure protection.

+ ECOSYSTEM RESTORATION

Different from the vegetation surrounding homes and structures, which are included in the 100' defensible space zone, landscape treatments are modifications to larger swaths of forestland, shrubland, or grassland that are prone to wildfire. Strategic landscape treatments, such as targeted grazing, forest thinning, or prescribed burning, can reduce dense, dry vegetation in a landscape and maintain healthy vegetation and ecosystem functions. Fuel breaks, which are breaks in the composition of wildland vegetation, can provide a safe space from which firefighters can suppress an active fire.

+ INFRASTRUCTURE PROTECTION

Infrastructure such as roads, bridges, water systems, and utilities, require protection in a similar way to homes. They need hardened exteriors and defensible space to prevent direct heat exposure and provide firefighters operational space. Large infrastructure requires landscape-scale treatments.

⁸⁴ 3 Reasons Wildfires Are Getting More Dangerous." The Wilderness Society, 21 May 2019. https://www.wilderness.org/articles/blog/3-reasons-wildfires-are-getting-more-dangerous-and-3-ways-make-things-better?gclid=Cj0KCQjwufn8BRCwARIsAKzP694F8CLQz5nICP0j3UN0j_RvmvMeAYmNmpJrayzYscwPJDUtQqX5qMaAgs7EALw_wcB.

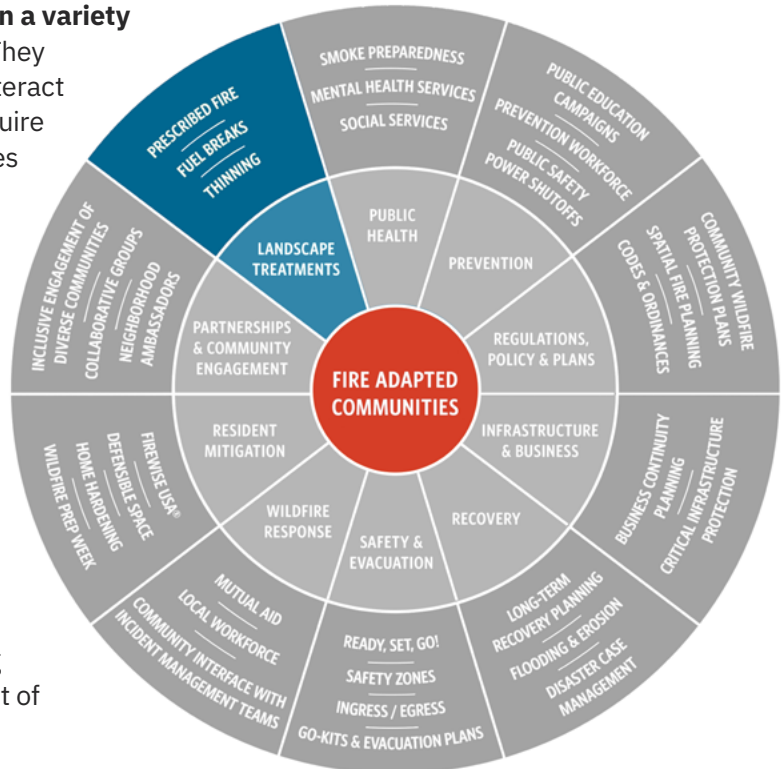
⁸⁵ "Indigenous Fire Practices Shape Our Land." National Parks Service, U.S. Department of the Interior. [https://www.nps.gov/subjects/fire/indigenous-fire-practices-shape-our-land.htm#:~:text=E2%80%9CCultural%20burning%E2%80%9D%20refers%20to%20the,E2%80%9D%20\(Roos%2C%202021\)](https://www.nps.gov/subjects/fire/indigenous-fire-practices-shape-our-land.htm#:~:text=E2%80%9CCultural%20burning%E2%80%9D%20refers%20to%20the,E2%80%9D%20(Roos%2C%202021)).

Ecosystem restoration and infrastructure protection projects may utilize similar treatment techniques: hand crews, mechanical equipment, herbicides, prescribed fire, or grazing animals. These projects generally involve multiple partners and large budgets, which emphasize the need for collaboration and coordination between landowners, permitting agencies, natural resource professionals, and service providers.

It's important to note that landscape treatments almost always require environmental review. State-funded projects must comply with the California Environmental Quality Act (CEQA); federally-funded projects must comply with the National Environmental Protection Act (NEPA). Natural resource professionals can help to design treatments that are ecologically-sound and comply with permits and regulations.

2. EFFECTIVE PRACTICES

- **Plan restoration activities to generate multiple benefits:** Restoration activities can meet multiple goals. By working with a natural resource professional (e.g., forester, rangeland specialist, fire ecologist), a landowner can develop a land management plan that meets their personal goals and benefits the environment.
- **Know what tools and treatment options best for your area:** An essential landscape treatment is thinning and brush clearing. This practice can reduce tinder-like fuel, increase horizontal and vertical spacing between mature vegetation, improve vigor, reduce pests and disease, improve timber, and improve accessibility for ongoing maintenance. Another important landscape treatment is prescribed grazing. Prescribed grazing matches animal type to forage type with a prescription for seasonal timing, intensity of grazing, and duration of grazing to meet certain goals. Choose the tool or treatment that is most appropriate based on your specific context.
- **Get comfortable with fire:** Prescribed fire is an effective tool in the toolbox. Prescribed fire uses fire under a prescription of season, weather and fuel conditions to burn vegetation to meet certain goals. This can restore natural habitats by re-introducing a biological disturbance that may historically have been central to the ecosystem. Prescribed burn associations are community-based, mutual aid networks that help private landowners put “good fire” back on the land.⁸⁶
- **Develop landscape treatments with experts in a variety of fields:** Landscape treatments are complex. They involve multiple objectives, long timeframes, interact with sensitive and regulated resources, and require careful planning. There are many public agencies that provide subsidized planning support: NRCS, CAL FIRE, RCD, UCE, and DFW are a few examples. Many land trusts and natural resource organizations are trained in setting and working towards long-term restoration goals.
- **Integrate landscape-scale treatments and parcel-scale actions:** Landscape level change happens when neighbors work together. In WUI areas where the lines between wildlands and urban areas can be hard to delineate, integrating parcels of private land into the process is fundamental to success. Sonoma County is effectively adopting this approach in their planning and development of decision-support resources.



⁸⁶ "California Prescribed Burn Associations CAL PBA." California PBA, <https://calpba.org/ca-pba>.

- **Being safe is just as much about what you do as what you don't do:** Land managers can reduce the risk of wildfire by modifying their use of equipment that may cause a spark during the dry season.
- **Have a maintenance plan:** Vegetation grows back. Land managers can build their capacity to maintain vegetation treatments beyond the life of a grant. In some cases, it may be appropriate to purchase equipment and train personnel in maintenance tasks.

3. CHALLENGES AND KEY QUESTIONS

- **Landscape treatments can be very expensive:** From planning, permitting implementation and maintenance, treatments can cost thousands of dollars per acre. While financial assistance programs exist, they can be competitive, and landowners can spend years waiting to acquire the necessary funds.

↪ KEY QUESTIONS

- ▶ *How can communities efficiently finance landscape treatments?*
- **Continued development in WUI areas increases costs:** The ever-growing WUI poses a challenge to wildland fire management for two main reasons: 1) Buildings require protective treatments that are different from wildlands. WUI buildings are also more difficult to access and protect in a fire than urban buildings; and 2) Flammable buildings pose a risk to the surrounding vegetation and are significant sources of fuel that make a wildland fire more difficult to contain.

↪ KEY QUESTIONS

- ▶ *How can communities balance the desire to live in natural places with increasing wildfire risk?*
- **WUI areas increase the number of individuals involved:** The diverse perspectives and needs of landowners can complicate landscape-scale projects. This can be especially true in WUI areas that tend to have smaller parcels (<20 acres) and denser populations. In some cases, the multitude of landowners, and therefore decision-makers, required to make change at the landscape-level can hinder progress.

↪ KEY QUESTIONS

- ▶ *How can wildfire professionals work with landowners to overcome differences and gain buy-in to take coordinated action?*
- **Climate change is compounding impacts:** The science of wildfires is having a hard time keeping up with the rapidly evolving realities of wildfire dynamics. Fire-generated winds, speeds at which fires move, 'firenadoes', catastrophically hot fires, embers traveling great distances are just some of the phenomena that are challenging widely-held views about how fire behaves.⁸⁷ We must be wary of assumptions that may no longer prove true in these changing scenarios.

4. RESOURCES

- » [Finding your local RCD.](#)
- » [UCANR's Forest Stewardship Educational Resources.](#)
- » [Planning and Permitting Forest Fuel-Reduction Projects on Private Lands in California.](#)
- » [CAL FIRE's Forest Health Grant Program.](#)
- » [USFS Resilient Landscapes.](#)
- » [California Prescribed Burn Associations.](#)

87 "Untangling the Physics behind Drifting Embers, 'Firenadoes' and Other Wildfire Phenomena." *Smithsonian Magazine*. Smithsonian Institution, 19 Mar. 2019. <https://www.smithsonianmag.com/science-nature/untangling-physics-firenadoes-drifting-embers-other-wildfire-phenomena-180971735/>.



4.7 SAFETY AND EVACUATION

1. OVERVIEW

A wildfire evacuation is a complex event. Fire-prone communities should be prepared for wildfire emergencies which requires both improving conditions in advance of an event as well as enabling effective coordination among key players during an event. Preparing the neighborhood for firefighter access, receiving emergency alerts and warnings in a timely manner, and knowing what to do in an evacuation makes communities safer during a wildfire.

2. EFFECTIVE PRACTICES

- **Alerts & warnings should reach the right people in a timely, accessible and reliable manner:**
 - ▶ *Timely means the notification is received at the time that it is needed and at a frequency that matches the need for timely information. Accessible means barriers have been reduced so that the notification can be delivered to the appropriate audience. Notifications may be sent by knocking on doors, putting up signs, blaring sirens, calling phones, broadcasting over radio, posting to websites and social media, sending email or text, pushing app notifications, and more. It also means that the message can be understood: it is the right language, the right vocabulary, the right amount of information, the right kind of information, at the right time.* **Finally, identifying the appropriate audience means knowing who needs the message.** Notifications can sometimes unintentionally exclude people such as those without cell service, non-English speakers, those without vehicle access, and others.
 - ▶ *Reliable means that the notification is delivered under any circumstance. Not all communication channels can be consistently reliable (for example, cell service may not be strong enough to always deliver a message), so redundancy in the variety of communication channels used to send a notice is important.*
- **Be redundant in the methods you use to send and receive alerts:** There are many ways to send and receive alerts. Below are a few examples of potential methods.
 - ▶ *For rural areas without cell service, NOAA weather radios are a reliable resource for emergency notifications; these generate an alarm, voice alert, and flasher when activated by an event.⁸⁸*
 - ▶ *Neighborhood phone trees are recommended for sending out critical messages to neighbors in an emergency quickly and efficiently. As interviews revealed, this is one of the essential functions FireSafe Councils groups can initiate and maintain over time.*

⁸⁸ US Department of Commerce, NOAA. NOAA Weather Radio, NOAA's National Weather Service, https://www.weather.gov/nwr&ln_desc=NOAA+Weather+Radio/.

- One Call Now is a service that will send alerts through phone, email, SMS text and mobile app to all listed recipients.⁸⁹

- NextDoor is a social platform that allows residents to communicate about neighborhood news.

- Watch Duty, Pulse Point, Code Red, and other mobile apps provide frequent communications on the status of active fires.

- ▶ Consider what options exist for official sources.

- Everbridge Nixle is a nationwide service that will send email and SMS text message alerts for your area from official sources.⁹⁰

- Authorized public safety officials can use the federal Wireless Emergency Alerts (WEA) system to deliver critical warnings and information to the public on their wireless devices.⁹¹

- Emergency Alert System (EAS) from FEMA sends messages to local radio and television station announcements.⁹²

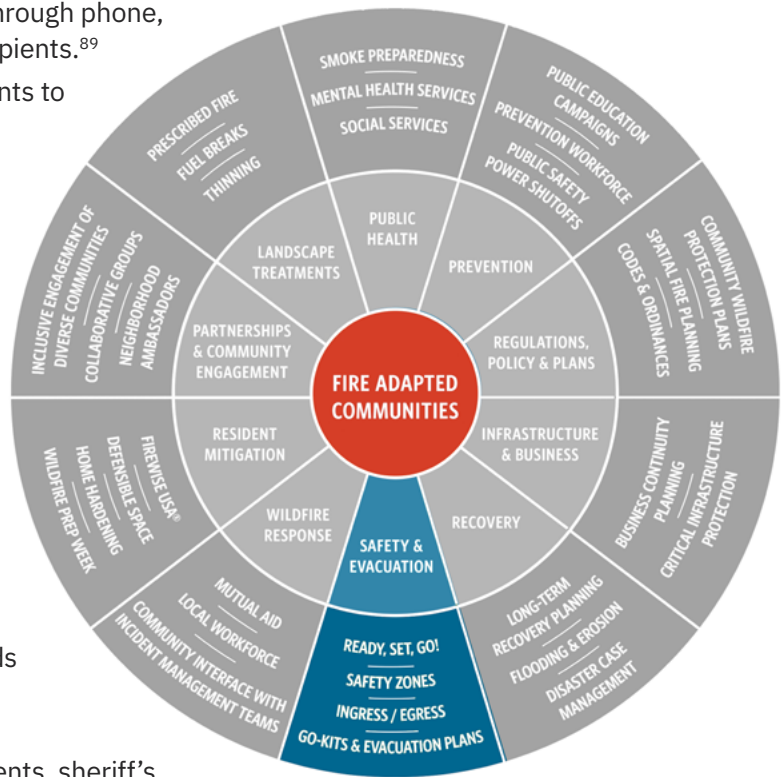
- Public safety officials, such as the fire departments, sheriff's office or office of emergency services, often use websites and social media to share emergency information.

- **Know your neighbors:**

- ▶ Neighbor-to-neighbor connections improve safety (as well as a sense of belonging), especially in rural vulnerable areas with elderly residents and/or poor cell or internet connections.
 - ▶ Tight-knit communities with strong social connections have demonstrated their ability to communicate information effectively in emergencies and save lives. They tend to know the most about their neighbors' special needs, where to find them and how to reach them. Community networks may be informal or more structured. COPE (Citizens Organized to Prepare for Emergencies), COAD (Community Organizations Active in Disaster) and CERT (Community Emergency Response Team) groups are good examples of more formal community organizations.⁹³

- **Be prepared to evacuate:**

- ▶ Residents need to be ready to evacuate far in advance; they should have multiple evacuation plans: for instance, what would you do if you have just one minute to evacuate? What would you do if you had an hour to evacuate? There are many resources dedicated to helping residents be prepared to take immediate action.⁹⁴
 - ▶ Residents should evacuate when they are ordered to. Evacuations are essential to firefighting because not only do they save lives by getting people out of harm's way, but they also reduce the demand on firefighters and public safety officers to be managing people while firefighting.⁹⁵



89 "One Call Now: Critical Communications Software by OnSolve." OnSolve, 17 Nov. 2022. <https://www.onsolve.com/platform-products/critical-communications/one-call-now/>.

90 Lortz, Mitch, and Mike Comer. Nixle, Mitch Lortz <http://www.nixle.com/Wp-Content/Uploads/2016/10/Headerlogonew-01-300x138.Png>, 27 Oct. 2022. <https://www.nixle.com/>.

91 "Wireless Emergency Alerts." Federal Communications Commission, 14 Feb. 2023. [https://www.fcc.gov/public-safety-and-homeland-security/policy-and-licensing-division/alerting/general/wireless#:~:text=The%20Wireless%20Emergency%20Alert%20\(WEA,requirements%20established%20by%20the%20FCC.](https://www.fcc.gov/public-safety-and-homeland-security/policy-and-licensing-division/alerting/general/wireless#:~:text=The%20Wireless%20Emergency%20Alert%20(WEA,requirements%20established%20by%20the%20FCC.)

92 "Emergency Alert System." FEMA.gov. <https://www.fema.gov/emergency-managers/practitioners/integrated-public-alert-warning-system/public/emergency-alert-system>.

93 "Citizens Organized to Prepare for Emergencies (COPE)." Healdsburg, CA - Official Website. <https://ci.healdsburg.ca.us/887/Citizens-Organized-to-Prepare-for-Emerge>.

94 "Go! Evacuation Guide." Ready for Wildfire, 14 Sept. 2022. <https://www.readyforwildfire.org/prepare-for-wildfire/go-evacuation-guide/>.

95 "Don't Wait, Evacuate! All Californians Should Be Prepared to Quickly React." Cal OES News. <https://news.caloes.ca.gov/dont-wait-evacuate-all-californians-should-be-prepared-to-quickly-react/>.

- **Cities and towns should develop safe evacuation routes:** Safe evacuations rely on adequate ingress and egress throughout the neighborhood to move residents safely out and allow first responders to quickly enter and set up operations. Roadside defensible space protects vehicles from flames. Roadside turnouts provide space for traffic to pass or change direction. Narrow roads, one-way roads, dead-ends, dense vegetation, and compromised utility lines near roads all make evacuation less safe.⁹⁶
- **Consider visibility and access in the event of a fire:** In an active fire, firefighters face many challenges to access and suppress fire. Visibility can be a problem if smoke is heavy. Residents can help firefighters by using bold and reflective road and address signage and using consistent and obvious placement of signs. Signs for water and power sources are also helpful. Gated properties should work with their local fire department to install “knox box” locks, which aid efficient emergency access without compromising security.⁹⁷
Communities are encouraged to talk with their local fire departments about how to improve conditions for a safe and efficient evacuation. Drills are an effective process for improving communications, practicing preparedness and detecting issues before an emergency strikes.
- **Partner With Community Organizations:** Community service organizations (e.g. family resource centers) and charity nonprofits (e.g. Catholic Charities) serve vulnerable populations; they are culturally-sensitive and rooted in their communities. These trusted organizations can be good partners in distributing information to diverse populations about emergency preparedness, responding quickly and effectively in crisis, and managing stress.

3. CHALLENGES AND KEY QUESTIONS

- **Partner with organizations that understand community needs and how to address them:** Despite recent catastrophic wildfires, many Californians are still underprepared for an evacuation. Putting together evacuation plans and go bags takes time, money, access to information and planning support. Vulnerable populations tend to be the least prepared. If current efforts aren’t working, we suggest partnering with organizations rooted in underserved populations, offering materials at no or low cost (such as go-bags, food stuffs, and emergency gear), and paying educators in the underserved communities to assist residents with preparedness planning.

↪ KEY QUESTIONS

- ▶ *What can communities do to help these populations prepare?*

- **Establish viable evacuation plans well before a wildfire event happens:** Evacuations pose significant challenges to people with disabilities and medical conditions, including need for assistance with mobility, access to specialized vehicles, and availability of evacuation sites with stable power sources. In some cases, these individuals need someone who can help them create a personal evacuation plan. Many cities and counties have plans for assisting people, but even these may not be adequate during an emergency that stretches resources thin, and not everyone with disabilities and medical conditions may be included in the city’s system.⁹⁸

↪ KEY QUESTIONS

- ▶ *How can communities support people with disabilities and medical conditions be more ready to evacuate?*

⁹⁶ State Minimum Fire Safe Regulations. https://bof.fire.ca.gov/media/gm3ghql0/2-state-minimum-fire-safe-regulations-initial-statement-of-reasons_revised-04152021_ada.pdf.

⁹⁷ State Minimum Fire Safe Regulations. https://bof.fire.ca.gov/media/gm3ghql0/2-state-minimum-fire-safe-regulations-initial-statement-of-reasons_revised-04152021_ada.pdf.

⁹⁸ Morris, Amanda. “We Didn’t Have a Plan”: Disabled People Struggle to Evacuate from Wildfires.” *The New York Times*, The New York Times, 12 Sept. 2021, <https://www.nytimes.com/2021/09/12/us/wildfires-disabled-people-evacuation.html>.

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- **Taking care of the elderly:** Elderly people may need additional assistance to be ready for wildfire. Access to information, financial constraints, social support and physical assistance can make it difficult for the elderly to prepare for and respond to emergencies. Family members, social services, charity and senior-lead organizations can provide immense planning support. They can help plan, make lists, and pack bags for seniors so they are more prepared. Fire departments can also assist with evacuation plans. Emergency providers can keep seniors' needs information on file.⁹⁹

↪ KEY QUESTIONS

- ▶ *How can communities increase support to the elderly?*

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- **Many cities with high wildfire risk don't have evacuation plans:** California does not require communities to plan for wildfire evacuations. Many cities with high wildfire risk don't have evacuation plans. Some city officials argue plans may be too expensive and complex for some large communities to justify creating them. Wildfires, they say, are too unpredictable to plan for, unlike more predictable events such as tsunamis and dam failures. While this may be the current state, many residents call for evacuation planning in light of increasing wildfire threats.¹⁰⁰

↪ KEY QUESTIONS

- ▶ *How can governments better communicate to the public about their evacuation plans, or lack thereof? How can they learn from the successes and problems from prior incidents?*

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- **Public Safety Power Shutoffs:** Utilities are permitted to shut power off to customers during extreme weather events to prevent wildfires. While this is a necessary safety precaution, power outages are disruptive events that residents must be prepared for. Utilities provide resources to residents to lessen the impacts of shut offs, including Community Resource Centers, where they can access energy, running water, wi-fi and other resources.¹⁰¹

↪ KEY QUESTIONS

- ▶ *How can residents be better prepared for power shutoffs?*
- ▶ *How can people access emergency information when there is a power outage?*

-
- **Residents who refuse to evacuate, choosing to "stay and defend," cost firefighters and first responders precious time and energy during an evacuation:** When residents ignore evacuation orders, crews have to shift focus from containing fires to transporting people in fire vehicles to safety.¹⁰²

↪ KEY QUESTIONS

- ▶ *Can communities shift the attitude away from "stay and defend" to safety first?*

4. RESOURCES

- » [Listos California.](#)
- » [Ready for Wildfire.](#)
- » [Preparate Para Los Incendios Forestales.](#)
- » [Ready.gov](#) (multi-lingual).
- » [Community Emergency Response Team \(CERT\).](#)
- » [Citizens Organized to Prepare for Emergencies \(COPE\).](#)

99 "Wildfires and the Elderly: Protecting the Most Vulnerable." *Frontline*, 25 May 2022, <https://www.frontlinewildfire.com/wildfire-news-and-resources/wildfires-elderly-protecting-vulnerable/#:~:text=Practice%20your%20home%20fire%20escape,interior%20and%20exterior%20sprinkler%20systems>.

100 Arthur, Damon. "Unprepared to Flee: Fleeing from Fires Is Common; Evacuation Planning Isn't." *Fleeing Fires in California Is Common; Evacuation Planning Isn't*. Redding, 13 Dec. 2019, <https://www.redding.com/in-depth/news/2019/04/25/california-wildfire-evacuation-plans-not-required/3304823002/>.

101 "Learn about Public Safety Power Shutoffs." *Learn about Public Safety Power Shutoffs (PSPS)*, https://www.pge.com/en_US/residential/outages/public-safety-power-shutoff/learn-about-psps.page.

102 "As Dixie Fire Tears through Communities, Some Refuse Evacuation Orders with Guns in Hand." *Los Angeles Times*, Los Angeles Times, 7 Aug. 2021, <https://www.latimes.com/california/story/2021-08-07/dixie-firefighters-struggle-as-some-residents-refuse-to-evacuate-in-towns-under-siege>.



THE FIRESMART PLAYBOOK:
Developing Community Resilience
at the Wildlands-Urban Interface