

Lake County CWPP

UPDATE 2022

Original August 2005
Amended August 2008 & 2015

Lake County Wildfire Protection Plan Leaders and Funders:





COLORADO
Strategic Wildfire
Action Program
 Department of Natural Resources



This document is intended to set forth a recommended plan only and imposes no obligations on the signatories. Specifically, executing this document in no way obligates Lake County to take any action requiring the commitment of funds in order to accomplish the Summary Recommendations.

Notwithstanding any other provision of the CWPP to the contrary, no term or condition of the CWPP shall be construed or interpreted as a waiver, express or implied, of any of the immunities, right, benefits, protection, or other provisions of the Colorado Governmental Immunity Act 24-20-101, et seq., C.R.S. (including future amendments) or as an acceptance by Lake County or any responsibility or liability with respect to the CWPP.

This report is a collaborative effort between various entities. The representatives listed below compromise the core decision-making team responsible for this report and mutually agree on the plan's content.

 Sarah Mudge, Lake County
 Board of County Commissioners

 Date

 Kayla Marcella, Lake County
 Board of County Commissioners

 Date

Jeff Fiedler, Lake County
Board of County Commissioners

Date

Dan Dailey, Chief, Leadville/Lake County
Fire Rescue Department

Date

Adam Moore,
Colorado State Forest Service

Date

Greg Labbe, Mayor
City of Leadville

Date

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Report compiled and edited by Kim Smoyer and Cindy Williams with generous input and guidance from the Lake County Forest Health Council and CFRI.

Section 1: Executive Summary

A. Overview

Decades of fire suppression and recent beetle infestations have caused poor forest health in Lake County. Wildfires across the West are more frequent/scarier and the Lake County community is no exception. Forests are overly dense with high fuel loads. These unhealthy forests are further impacted by multiple insect epidemics, including a beetle epidemic resulting in 80 to 90% mortality of spruce trees countywide. The United States Forest Service (USFS) estimates that an average of five standing dead trees per acre across Lake County in 2017 will increase to about 120 per acre by 2020. 70% of the Upper Arkansas River Watershed is forested and designated under the 2014 Farm Bill, Section 602, as experiencing insect and disease epidemics.

Poor forest health is evidenced by more intense wildfire incidents that are happening more frequently. Ten years ago, the Upper Arkansas River headwaters region had experienced only one Type 3 wildfire—ever. In the decade since, there have been two more Type 3's (Treasure Fire 2012 and Lodgepole Fire 2016), our first Type 2 (Hayden Pass Fire 2016), and our first two Type 1's (Weston Pass Fire 2018 and Decker Fire 2019). The risk is a top community concern. Accelerated fuel treatments are needed to manage the increasing risk wildfire poses to the community.

Further, our research shows that the community is not prepared for a wildfire emergency. Many residents are lacking a complete evacuation plan, and roughly half of homeowners say they are unsure what to do to decrease risk on their property, or even where to go for information.

The Lake County community, including citizens and a Community Wildfire Protection Plan (CWPP) Leaders Team (including 35 leaders from 19 agencies, local government bodies, fire protection districts, water providers and nonprofit organizations) worked together to develop the 2022 update to the Community Wildfire Protection Plan. Over 13 months, community input was integrated with the most current data and iterative geospatial modeling of wildfire risk and treatment priorities, combined with assessment of community preparedness. Top priority needs were identified and an updated community action plan was developed to address those needs.

Community engagement included a survey tool with 488 total respondents (Lake County Community Wildfire & Recreation Survey, [Appendix A](#)), a public meeting with approximately 40 participants, engagement with local media, monthly email-news updates

and a community summary report that makes outcomes and next steps transparent and accessible (see Lake County Community Wildfire & Recreation Survey Summary Report Appendix B). Community engagement is described in Section II. CWPP Leaders and technical experts from the Colorado Forest Restoration Institute (CFRI) at Colorado State University engaged to assess wildfire risk to six assets (or “values at risk”) prioritized by the community in order as follows: life safety, infrastructure, water, wildlife, buildings and recreation assets. The team then prioritized treatments to most cost-effectively decrease risk to those assets. This was done with iterative modeling and input from the CWPP Leaders Team and from the broader community, as described in Section III and detailed in Appendices C (Wildfire Risk Assessment) and D (Treatment Prioritization). Data development involved collation of map layers, representing best available information on community assets at risk and fire behavior models. Deep community research on forest health and lessons learned from other communities provided additional information and ideas.

The outcome was a Treatment Priority Map unanimously approved by the CWPP Leaders Team with a big takeaway:

Treating 2 to 8% of the Lake County total landscape may reduce the risk that severe wildfire poses to community assets by 20 to 60%.

Said another way, best available models indicate 60% of the risk wildfire poses to community assets can be addressed with \$50 million of treatment investment. The next \$50 million can provide an additional 20% risk reduction. After that point, however, return rapidly diminishes. Reducing the remaining 30% of risk would cost an estimated \$500 million. Clearly, limited available dollars must be focused where they can have the most “bang for the buck.”

In addition to wildfire risk assessment and fuel treatment priorities, the CWPP Leaders Team assessed community wildfire preparedness. Community preparedness for a major wildfire event is a concern, including citizen evacuation planning and home preparedness (including lack of a sense of urgency to create defensible space and a lack of understanding of where to get information about necessary action).

However, community plans related to fire resilience are improving and the preparedness of local emergency management agencies is solid. This information is provided in Section IV. [Appendix E](#) provides a summary of all WUI communities.

Based on the above data, the CWPP Leaders Team is committed to action in this updated CWPP. Action focused on the goals and objectives is outlined below and detailed in Section V. These goals build upon existing treatments and successes from the 2015 CWPP.

The outcome of the Lake County 2022 Updated CWPP process is profound and proposes substantial change to the way forest management is done in Lake County. The plan is to reduce the overall risk to the community's assets by nearly 50% in ten years by accelerating treatment on the right acres—as unanimously supported by the CWPP Leaders Team. This will take real change. Increased collaboration is required by priority areas that span jurisdictions, including 71% USFS, 3% BLM, 1% state lands and 25% private. Accelerated action requires additional funding and staff resources. Agency leaders may have to manage the challenge of staff incentives currently focused on targets for acres treated vs. treating the right acres, and on treating a large number of acres vs. accelerating treatment to achieve a specific goal.

However, in Lake County, land management agencies and their community partners have the opportunity to take a big, new, collaborative and disciplined approach. Using this plan as a guide, we can achieve substantial progress toward a fire-ready future— together.

For questions on the plan or for additional information on community research and engagement, contact Tim Bergman, County Manager.

B. CWPP 2022 Update Goals and Objectives

A summary of the 2022 Updated CWPP goals and objectives is as follows:

Fire-Resilient Landscapes and Productive Habitat

Accelerate multi-jurisdictional treatment and stewardship activity in Treatment Priority Areas to decrease the risk wildfire poses to community values at risk while also (as practicable) enhancing watershed health and habitat.

Goal #1: Reduce risk by 50% spending roughly \$40 million to treat the most important 20,000 acres by 2033 (2/3 public and 1/3 private lands including 20% prescribed fire).

Near-term milestones for this key objectives for Goal #1 include:

1. Identify, develop and implementation plan for "shovel ready"& early win project/s
2. Develop a plan and resources to support communications to the community and tracking/communication of plan goals
3. Develop a long-term plan for the full private acres
4. Develop a long-term plan for the full public land acres

5. Develop both the capacity and funding for the estimated \$40 million over 10 years to support programs for all goals.

Fire-Adapted Communities

Build community engagement, understanding, preparedness, public support and realistic expectations for forest and fire management. This includes personal preparedness (such as evacuation plans), citizen action to decrease the risk wildfire poses to private lands and structures, and continuing to build upon strong local support for accelerated treatment—or “social license to treat.”

Goal #2: Prepare the community (residents and government) for wildfire by:

- Ensuring all residents in high risk zones have an evacuation plan by 2025;
- Ensuring all residents in high risk zones have taken action to reduce structure risk by 2030, AND
- Reducing the risk of human caused wildfire related to dispersed camping and recreation use 50% by 2025.

Goal #3: Create a ten-fold increase in community demand and maintain 80% support for all treatment action on priority private and public lands by 2025.

Safe and Effective Wildfire Response

Enable safe and effective wildfire response, including collaborative preparedness for severe wildfires and evacuation events.

Goal #4: Safely increase county-wide pile and broadcast burning 5% per year up to 2027 and build public support to use beneficial (prescribed and natural) fire to reduce risk.

Goal #5: Ramp up safe wildfire suppression capacity by 2023.

Goal #6: Take action to improve post fire response planning by 2023.

The CWPP 2022 updated goals, objectives, measurable results and action plan are detailed in Section 5.

C. Background - The Community Wildfire Protection Plan Framework

The Lake County Community Wildfire Protection Plan 2022 update builds on changes in federal wildfire policy that increased the participation and influence of local communities in addressing wildfires in the West. An important part of that effort is creation of a community wildfire protection plan (CWPP).

CWPPs and the process by which they are created are intended to:

- increase collaboration and cooperation between the community and federal, state, and local land management and wildfire agencies;
- help those agencies and interests identify high-priority treatment areas as well as the human and natural values and assets particularly at risk;
- identify projects designed to reduce wildfire risks in high priority areas;
- encourage local and regional interests to discuss the benefits and costs of various management options and implications for the community, forest, and watershed;
- create a comprehensive and long-lasting decision-making process; and
- identify the plans and resources needed to implement wildfire-related projects in the short and long term.

At a minimum, CWPPs are required to address the following criteria:

- collaboration among local government officials, fire agencies, and the state forestry agency while also working with interested parties and the appropriate federal land management agencies;
- prioritize fuel reduction by identifying areas for hazardous fuel reduction in at-risk communities and essential infrastructure, including types and methods of treatment on public and private lands; and
- reduce structural ignitability throughout at-risk communities.

The resulting plan must be approved by the applicable local government, local fire department(s), and the state agency responsible for forest management, i.e. the Colorado State Forest Service (HFRA 2003).¹ In addition to the identification of wildfire-related priorities and projects, creation of the CWPP improves access to federal, state, and private funds for wildfire planning and project implementation.

D. Background - Building on the March 2006/August 2008/August 2015 CWPP Results

The original CWPP in Lake County was completed in March 2006 with a Taskforce made up of representatives from the Colorado State Forest Service (CSFS), US Forest Service (USFS), Colorado Mountain College (CMC) Natural Resource Management, Leadville/Lake County Fire Rescue Department (LCCFRD). The 2006 plan was amended in August of 2008 and again in August of 2015. It remains the base plan for this substantial 2022 update.

¹ See also, 30-15-401.7 and 23-31-312 (3), Colorado Revised Statutes.

Citizens and leaders in the Forest Health and Fire Protection Community in Lake County decided to take the CWPP to the next level, creating an updated 2022 Community Wildfire Protection Plan. The Plan builds on the 2015 amended CWPP foundation, adding community engagement and momentum, latest data and new partners with current technology.

The 2009 and 2015 Lake County Community Wildfire Protection Plan were solid first steps in building fire resilience. The following outlines the action taken to date and current status of projects and work for each of the subdivisions and areas throughout the County. This link is a “living” spreadsheet which will be used to track results over time:

https://docs.google.com/spreadsheets/d/1qTGxzW6qdCxcy7B_sdEUAne4qRtl7YX48Hjsi1RI8k/edit?usp=sharing

The Colorado State Forest Service, the CSU Extension program and the Lake County Conservation District (NRCS funding opportunities) can provide an array of forestry services to private landowners including:

- Forest Management Plans
- FireWise Workshops
- Insect and Disease Site Visits
- Wildfire Defensible Space Consultation
- Mountain Pine Beetle Inspections
- Timber Sale Layout and Administration
- Support for Local Fire Departments
- Tree Seedling Distribution and Survival Product
- Tree Planting Plans (including windbreaks) and Tree Planting
- Conservation Education
- Community Forestry
- Mitigation Services i.e. chipping, thinning, pile burning, small projects
- State Land Forest Management

Other Action Items from Phase II and Phase III will continue include the following:

- Find out when annual homeowner association meetings are held as possible venues for CWPP neighborhood meetings.
- Send information for inclusion in HOA newsletters, before their annual meetings.
- Do most active neighborhood meetings in the summer, when forest fire becomes a more salient issue to Lake County residents.
- Continue declaration of May as National Wildfire Awareness month.
- Include the Division of Parks & Wildlife and other wildlife organizations such as Trout Unlimited and others in the Lake County Forest Health Council.

- Include a list of existing and future subdivisions and ratio of build-out as a reference in future amendments to the CWPP.
- Send copies of CWPP to City and County Planning and Zoning Departments as a reference tool.
- In future versions of the CWPP, fire suppression and water access in neighborhoods needs further discussion.

Planned Projects

The following projects are currently in the planning phase by the USFS and are a direct result of the CWPP planning process on private lands.

- Lake County WUI community Fuels Reduction Project (CAFA Grant) - The focus of this project is to reduce hazardous fuels and mitigate in WUI subdivision (Grand West Estates) near Leadville city limits (128 acres). This project will tie into USFS fuel treatments and help protect surrounding subdivisions. ARWC is administering the grant and the completion date is set for november 2022.
- Lake County COSWAP Forestry Proposal - The focus of this project is to reduce hazardous fuels on Colorado Mountain College and City owned land. SCC crews will be implementing the work and ARWC will be administering the grant.
- Lake County CWPP Fuel Reduction Project (COSWAP Grant) -This project will implement a mix of forest thinning and mastication treatments to reduce fuel loads across 221 acres within three areas identified by Lake County CWPP. The three areas where treatment will occur is North of Four Seasons subdivision, Home stake Trout Club, and Mountain View Trailer Park. These projects will tie in with past USFS treatments and help protect 7 surrounding communities. CSFS will be the agency administering the grant.
- Forest Ag properties (6 Landowners 1445 Acres) - all 6 landowners have active management plans and are completing forest thinning projects annually. CSFS is administering the Forest Ag program for Lake County.
- Wildfire Mitigation Program - parcel level wildfire risk assessments are implemented by CSFS staff. This program helps educate landowners on reducing their fire risk and developing defensible space projects.

The Colorado State Forest Service remains vigilant in searching for funding opportunities to implement CWPP action items.

Monitoring Plan

The CWPP Leaders Team will be the monitoring projects associated with the CWPP. The Leaders Team will serve to ensure that the CWPP remains current and includes additional

neighborhoods or other areas as needed. CWPP Leaders Team meetings will be held annually to accomplish these objectives. The Colorado State Forest Service will use the CWPP in annual work plans to determine where to focus attention and funding to complete forest management on private and state lands. The CWPP Leads Team will coordinate with the CSFS and federal government representatives to ensure goals and objectives are met across property boundaries.

The Leaders Teams will engage with the Lake County Forest Health Council to schedule quarterly meetings and an annual review of the CWPP and to discuss and update the goals and objectives of current and/or future projects.

Section 2: Community Engagement

A. Overview

Since the CWPP's origins in 2006, community engagement has been at the root of this plan and a key element that makes the plan unique. The Lake County Community Wildfire Protection Plan 2022 update process grew out of the methods and tools used in Chaffee County, driven by Envision, a nonprofit community-led visioning, planning and implementation effort initiated in Chaffee County in 2017.

Planning efforts began in early 2021 by reaching out to Envision Chaffee County to ask for assistance and use of their tools and process. Between March 2021 and March 2021, several working groups met to develop this plan as an update to the prior CWPP. Local and regional leaders from critical organizations provided over 1,500 hours – or 40 work weeks of planning time and expertise to develop the plan.

The leaders that gave their time and expertise to this work matter and so are listed here: Carrie Adair - ARWC / Water Providers, Jerry Andrews, Joni Burr - NRCS (Salida), Mike Conlin - LCOSI, Dan Dailey - Leadville Fire Chief, Karen DeAguero - Newmont, Bryce Ehrlich - Lake County GIS, Jeff Fiedler - Lake County BOCC, Jim Fiorelli - USFS Leadville Recreation Program Manager, Cailee Hamm - Lake County OEM, Devon Horntvedt - Newmont, Eric Howell - Colorado Springs Utilities, Fire Manager, Mike Irwin - Lake County Public Works Director, Todd Jeffery - USFS Connector for RMRI Upper Ark, Bryan Lamont - CPW Wildlife Biologist, Andy Lerch - ARWC, Amber Magee - Recreation Director, John Markalunas - BLM, Dave McCann - Leadville Fire, David McNitt - NRCS, Bird Conservancy of the Rockies in

Woodland Park Forester, Pat Mercer - USFS Leadville District Ranger, Adam Moore - USFS Communications and Communities Supervisor Forester in Alamosa, Sarah Mudge - Lake County BOCC, Chris Naccarato, USFS Fire Management Officer, Jonathan Paklaian - ARWC, Marcus Selig - VP National Forest Foundation, JT Shaver, CSFS Forester, Mark Shea - Colorado Springs Utilities, Arkansas Basin Roundtable Chair, Kim Smoyer - Smoyer & Associates, Bryon Stilley - CEO Sangre de Cristo Electric BV, Kelly Sweeney - President, Friends of Twin Lakes, Jeremy Taylor - CSU Forest Program Manager, Joe Viera - BLM Rocky Mountain District, Ty Webb - BLM Fuels Specialist, Cindy Williams - Co-Director Envision Chaffee County, and Jeni Windorski - USFS Leadville Wildlife Biologist.

Modeling and analysis was provided by experts at the Colorado Forest Restoration Institute at Colorado State University (Assistant Director Brett Wolk and Spatial Analyst Allison Rhea, and Stephanie Mueller).

Overall administrative leadership and community facilitation was delivered by Kim Smoyer, Smoyer & Associates, who was hired by Lake County to work with the Leaders Team to develop the community survey, provide management support, facilitation and reporting services throughout the process. The Envision Chaffee County team made up of Greg Felt (Chair, Chaffee Board of County Commissioners), Cindy Williams (Co-Director, Envision Chaffee County) and Kim Marquis (Co-Director, Envision Chaffee County) assisted this process by providing valuable tools, support and direction.

B. Community Engagement Process

In addition to the CWPP Leaders team engagement described above, multiple avenues were used for broader public engagement, including survey tools, public meetings, and ongoing outreach and information delivered through traditional and social media.

Lake County Community Wildfire & Recreation Survey

A comprehensive survey of community understanding and perceptions about forest health, fire resilience, treatment activities and preparedness for a major wildfire event was developed using the Envision Chaffee County and the Rocky Mountain Research Station WiRe team survey from Chaffee County. This survey is a transferable tool, available to other communities upon request.

The online survey instrument ([Appendix A](#)) was administered during a three-week period during March and April 2021. The survey collected data from 488 participants: 485 in English and 3 in Spanish. The majority (61%) of the survey population own and occupy their residence full-time. Most respondents live in either the City of Leadville (39%) or in

the rural forested subdivision (35%) areas of the county. Major findings from the survey are described below, with the full Lake County Community Wildfire & Recreation Survey Summary Report provided in [Appendix B](#).

Regarding wildfire preparedness, the survey indicated that 80% of respondents thought that a major fire in the area was either “very likely” or “likely” within the next five years. However, the data also indicates that nearly half of citizens were not prepared for such an event. For instance:

- 29% indicated a great deal of concern and 30% are only moderately concerned about a fire occurring near their residence,
- 42% of respondents think it’s very likely (16%) and likely (26%) that their property will be destroyed by a fire,
- 66% of respondents feel confident that they can easily obtain timely and reliable information in the event of a local wildfire,
- 41% have signed up for the Lake County Everbridge or Code Red systems.
- 16% think it is very likely (and 26% that it is likely) that their property would be destroyed by a wildfire.

Sixty-six percent (66%) of respondents feel confident that they can easily obtain timely and reliable information in the event of a local wildfire, however, only 41% have signed up for the Lake County Everbridge or Code Red systems. Only 16% think it is very likely (and 26% that it is likely) that their property would be destroyed by a wildfire.

The survey also indicated that over 60% of the respondents have already taken some action to reduce fire risks on their own property by clearing vegetation, mowing dead grass, moving firewood or clearing plants within 5 feet of structures. Over 70% of respondents believe that reducing homeowner policy rates or increasing access to homeowners insurance would motivate them to take action to reduce risk on their own property. However, the top factor residents indicated would encourage them to act was “information about what to do,” which is consistent with the lack of clarity about where to get such information regarding fire risk reduction. This suggests an opportunity for education on why/how much private lands treatment matters and what fully effective treatment entails, in order to develop increased urgency for action (assuming additional work on private lands is generally warranted). Once that sense of need is established, the data suggests that support to do the work and to remove cleared vegetation, combined with ongoing encouragement, would increase.

Eighty three percent (83%) of respondents characterized the health of Lake County public forests as either good or very good, while professionals consider it to be poor. The advancing beetle kill epidemic, high forest density and fuel loads related to decades of fire

suppression and increasing drought/climate change are perceived by citizens as top threats to forest health.

A strong majority of respondents support land management activities to mitigate wildfire risks including: 90% who support land management partners removing excess trees/brush (thinning) and clearing trees (patch cuts); 80% support land management partners burning piles of vegetation following thinning; and 81% support land management partners conducting a controlled burn ignited by fire managers. Eighty-eight percent (88%) also think these activities are beneficial to wildlife. Some expressed concerns, including: 1) lack of trust in public agencies and government to conduct the work cost-effectively and responsibly, 2) concern that such efforts are overly optimistic and arrogant, and 3) with regard to emergency preparedness, concerns about proper planning and egress issues. These challenges could be addressed through more transparent planning and prioritization of treatment activities, more effective communication around treatment activities (pre- and post-work), and education about how the safety and air quality impacts of controlled burns are managed.

With 53% of respondents recreating outdoors and 45% recreating both outdoors and indoors, it is important to understand and plan for recreational impacts that will result from an increasing population, growth and wildfire risk. A majority of respondents believe there is an economic value to recreation with 89% who believe that recreation supports locally owned businesses and 83% who believe that visitors coming to recreate support better shopping and dining opportunities. However, there are some concerns about protecting some of the values that are important to residents as recreation use is forecasted to grow. Most respondents (90% - 92%) believe it is important to protect smaller wildlife (such as eagles and trout) and larger wildlife such as elk and bighorn sheep. Additionally, 92% of respondents believe it is important to maintain the quality of recreational experiences, including 72% who believe that maintaining multi-use opportunities is important. Just over half of the respondents also want to see more development of facilities (such as restrooms) and more recreation (such as trails/roads).

To address some of these concerns and impacts, respondents believe it is important for government to manage recreation growth to 1) protect wildlife and water quality (91%), 2) maintain exceptional experiences (85%), 3) focus new recreation development where it will have the least impact to wildlife (82%), 4) improve existing recreation infrastructure (picnic areas, bathrooms, parking, paved trails, etc.) (67%) 5) develop more non-motorized trails (hiking, biking, horseback riding, etc.) (62%), and 6) improve existing recreation facilities (recreation center, active field complex, etc.) (60%).

Respondents were interested in annually supporting these efforts financially by paying for wildfire treatment with an average of \$66, for outdoor recreation with an average of \$45, and for indoor recreation with an average of \$32. Respondents also provided over 181 additional ideas and suggestions for how to address some of these concerns and impacts. Many of those ideas revolve around funding and fee, recreation facilities and programming, control, management and limiting growth, and regulation and enforcement. Clearly residents are interested in this work; over 250 people provided an email address and asked to stay informed about what Lake County is doing to manage growth and the risk of severe wildfire.

This survey was intended to inform government and public agency partners and to inspire community action to better manage wildfire risk and recreational impacts. The results indicate opportunities to:

- Increase community wildfire preparedness,
- Help private landowners understand the value of/need for action to reduce risk to their homes, the work they need to do, and develop additional programs to support such actions.
- Provide more transparent planning and prioritization of public and private land wildfire risk management activities, coupled with more effective communication about planned and completed work.

The CWPP Leaders team reviewed survey results and noted stronger than expected public support for public land treatment activities, including thinning and controlled burns, as well as for new regulations to enhance public safety. The team also noted strong opportunities for collaborative education and outreach, programs enabling citizens to treat and to help them understand why action matters. These opportunities are addressed in the Community Action Plan (Section 5) with several proposed treatment programs.

C. Community Map Walk Meeting

This public meeting was used as a tool to more deeply engage the community, educate and receive feedback on draft CWPP 2022 update products. A public meeting was held on



October 13, 2021 at the Freight venue in Leadville — to discuss wildfire issues and gather input on the developing wildfire plan. Roughly 40 residents attended. Representatives from Envision Chaffee County, U.S. Forest Service, Bureau of Land Management, Colorado State Forest Service, and local fire protection and emergency services

agencies participated, guided by professional facilitation.

Local wildfire and emergency personnel celebrated the community's readiness for additional treatment action, and also shared concern about gaps in community preparedness for wildfire. The impacts of recent wildfires in Paradise, CA (Camp Fire), the Decker Fire and the Waldo Canyon Fire, CO, were used as examples of the need for residents to prepare themselves for emergency situations.

Meeting participants were asked to visit two stations (Station I – Risk to Things We Value and Station 2 - Taking Action) to review maps and to use post-it notes to share their questions, comments, and concerns about the information depicted. Personnel from Envision Chaffee County, U.S. Forest Service, Bureau of Land Management, Colorado State Forest Service (CSFS), and local fire departments were available to answer questions. The community provided written comments and questions. A written response to these community comments and questions was provided to all participants in an [Q&A document](#).



Several members of the Leaders team presented information about what residents could do to prepare for fire based on examples and lessons learned from recent fires. CSFS staff discussed sources of wildfire risks for homeowners (e.g., building features and surrounding vegetation), homeowner wildfire preparedness, and provided take-away information regarding what homeowners can do to reduce wildfire risks.

Additionally, USFS staff discussed wildfire land treatment activities and the role that fire plays in maintaining forest health Programs and incentives in other counties were reviewed that assist or provide incentives to homeowners to address forest fuel conditions on their properties, such as slash hauling and community chipping days. Creating similar programs in Lake County was discussed, and participants were asked for their comments and concerns on these topics.



Meeting participants were asked to identify action items to support public land treatment activities and answer the following questions:

- What resources are missing in Lake County that could help homeowners and the community be better prepared?
- What do professionals need to accelerate action?
- What do homeowners need to accelerate action?

During this brainstorming session the following actions and ideas to accelerate treatment items were offered by participants:

What the Pros Need:

- Funding - money - consider a ballot measure
- Write grants - CSFC/Restore
- More Fire Department resources - staff (I think this is first better coordination with agencies and the work going on)
- Better manage campfires/camping - education on community effort to
- Need a current list of HOAs with contacts

What the Community Needs:

- Leveraging the resources of utility companies, municipalities that have water rights, storage, cell companies, etc.
- Raise awareness through paper and tourism team
- Get people ready to accept/embrace treatment
- Educate visitors
- Need clarity on the need and urgency
 - Fire trends
 - Communicate likelihood of fire is increasing a lot
- Slash management options at Climax and Gypsum biomass plant:
<https://www.summitdaily.com/news/crime/with-biomass-mothballed-climax-mine-takes-in-summits-wood-chips/>
 - Contact person in Summit County for slash management: Dan Schroder, Summit County Extension Director
 - 970-668-4140
 - Dan.Schroder@colostate.edu

As a direct result of community input obtained during this meeting, CFRI and the CWPP Leaders team revised the maps to reflect comments and questions presented at the meeting. This impacted treatment priority areas and enhanced community buy-in to the final products.

D. Additional Community Engagement

In addition to surveys and the public meeting, other outreach tools and approaches were used to engage the community throughout the process.

The County held two meetings, one in the southern part of the county on May 5, 2022 and one in the northern part of the county on May 6, 2022. The meetings were designed to obtain feedback from subdivision and neighborhood leaders to both share information about the CWPP process and also obtain feedback and input on the action steps and goals for these geographic areas.

CWPP Subdivision Meeting: South

The May 5th community meeting was held at the Twin Lakes School House in the village of Twin Lakes. There were 24 people present in person, 9 people joined via Zoom, and five County reps and partners including Lake County Commissioner Sarah Mudge, Fire Chief Dailey (LLCFR), Chief of Operations Dave McCann (LLCFR), JT Shaver (CSFS), and Andy Lerch (ARWC).

The group projected the online County mapping accessible to all online. The goal was to show the community the tools and layers available for their use regarding CWPP amended mapping to incorporate from CFRI, current fuels mitigation projects, and fuel mitigation priorities based on the CWPP mapping and willing and ready partners. It was interesting, however, because many of the current and ongoing projects are taking place in the northern end of Lake County. Many large-scale impacts in the south rely on USFS actions. One community member stood up and said, "How do we get that work here?"

It was clear that this area, especially Pan Ark, Twin Lakes, Gordon Acres, EE Hill, and Reva Ridge (all subdivisions from Pan Ark South) rely greatly on activity of the USFS for fuels mitigation surrounding their communities. There was past USFS work, such as broad mastication efforts, that were brought up that may not have been completed or are posing different threats today. Also of great concern was the need for help from law enforcement and the activity from visitors/campers on private properties further up along HWY 82/Independence Pass.

Notes, questions and comments shared from the southern community include the following:

- Requests and Inquiries:
 - The community communicated an eagerness to have support and treatment in their neighborhoods as well as on the adjacent public lands surrounding their neighborhoods.
 - Neighbors want to understand what land management agencies have learned over the years from wildfires and treatments. Eager to understand the reasons behind methods applied.

- Chipping program and opportunities wanted by homeowners.
- Some community members appreciated and understood that burning was the most effective treatment option. Again, communication on what treatments, how, and why would go a long way in maintaining support by the community for ongoing treatments.
- Dispersed camping was a large concern across the community conversations. Additionally, natural causes of wildfire were equally of concern, given the current condition of forest around the County.
- Local professional Arborist were in attendance and in communication with the team. There are local resources to draw on both for private work and potentially public treatments.
- Questions regarding extreme and unusual circumstances were also asked (ie: underground smoldering fires), indicating that there is a level of sophistication and understanding of various levels of wildfire risk and behavior.
- Extreme challenges are chronic with trespassing and camping on private lands, especially along HWY 82/Independence Pass. Increased law enforcement support and response, as well as signage, could be helpful. Tourism Panel has identified signage as a way to collaborate with partners to inform and mitigate impacts.
- Request for clarification on Fire Ban process: How do we know we have a ban, how do we know what each level ban includes, and, when do we know it's over?
 - There is an Alert system (Reverse 911/Everbridge to sign up for on Lake County website, and calling 211 for local info is an option. Improved communications across various platforms suggested and agreed on.
- Lands with past treatment and remaining broadcasted materials east of Forebay are a great concern. Combustible material left behind a concern, as well as impact on wildlife access and human recreation access. The idea of better coordination of community members with other agencies as work is done was proposed and had a good amount of interest in.
- Dispersed camping has grown exponentially in many areas. The overwhelming perception is that it is out of control county wide. Locals seem to understand that dispersed camping restrictions are necessary and inevitable. One local retailer shared their support prohibiting firewood retail sales County wide during a fire ban.
- CO State Forest Service (CSFS) Forestry Management Plan (40+ acres) opportunities were discussed:
 - Information sharing and outreach to promote the program should be continued and ongoing.
 - CSFS is engaged with private homeowners no matter what size the property and is open, and encourages a combination of multiple smaller land owner properties to create a greater impact and protection on a larger landscape/area. This approach will not be eligible for incentives in tax

breaks like the 40+ acre program, but should have a similar outcome for protection. NRCS and EQUIP program also mentioned

- Noted that you get taxes on the reimbursement dollars from NRCS
- Question: Can CSFS certify defensible space work done for insurance company purposes?
 - NO
 - There is a House Bill or Statute that may protect property owners from being dropped by insurance. (I saw this in the existing CWPP. I do not know if it is still relevant/active)
- NRCS and EQUIP program mentioned. The Lake County Conservation District has resources to assist, through Central Colorado Conservancy and Conservation District support.
- Suggestion for more specific names to be added to the CWPP to distinguish subdivisions and land areas
- Building materials and utilities were discussed. Local and State authorities are actively discussing improvements to guidelines and standards regarding building materials and code. Lake County has adopted the 2018 building code. Ideal utility connections, storage, and placement can always be discussed with local land use officials and Fire Department.
- We heard encouragement to support the local urban forestry industry.
- Continue to incorporate and reach out to land managers and organizations for ongoing conversation and engagement (CO Outward Bound School/COBS, 10th Mtn. Hut Division)
- Great interest across various groups and individuals to develop a volunteer auxiliary group to help monitor and educate recreationalists.

CWPP Subdivision Meeting: North

The May 6th community meeting took place in the Northern end of the County at the Tennessee Pass Nordic Center. There were 14 community members present, along with County partners including: Lake County Commissioner Sarah Mudge, Chief of Operations Dave McCann (LLCFR), JT Shaver (CSFS), Andy Lerch (ARWC), City of Leadville, Piney Run, HSTC, Sylvan Lakes, HMI, Elk Trail, and Turquoise Lake Estates. There were community members and representatives present that are also heavily involved in similar neighboring efforts in Eagle County and at some ski resorts. These folks have expertise that can be tapped into by partners.

The group projected the online County mapping accessible to all online. The goal was to show the community the tools and layers available for their use regarding CWPP amended mapping to incorporate from CFRI, current fuels mitigation



projects, and fuel mitigation priorities based on the CWPP mapping and willing and ready partners. Unfortunately, the amazing natural light in the room prevented the visual, but the conversation naturally occurred with very involved community members. They knew the areas of work explained and outlined by ARWC and CSFS. CSFS was also able to vet a current opportunity application being drafted for further treatment applications into Homestake Trout Club and potentially Sylvan Lakes and Piney Run. There was immense support for the work and proposal. There may be fewer year round residents in this area of the County, but those that call Lake County home are very informed, active, and invested in current and potential activities.



There was an incredibly interesting conversation with this group of community members. Some interesting factors were shared with partners that will need to be investigated further. These include single egresses in and out of each subdivision, and even more interesting and concerning, UXO's, or Unexploded Ordnances. Unexploded ordnances (UXO) are explosive weapons (bombs, bullets, shells, grenades, mines, etc.) that did not explode when they were employed and still pose a risk of detonation. From <https://www.denix.osd.mil/uxo/home/> , “No matter what you call it — ammo, explosives, UXO, duds or souvenirs — remember munitions are dangerous and can explode if approached, touched, moved or disturbed. This area is in close proximity to Camphale and in the area where the 10th Mtn Division and military trained for many years. Partners

will need to investigate and research flyover restrictions and mapping of these areas to be sure that approaches are appropriate.

Signage for through hikers and those utilizing federal lands, through and adjacent to these neighborhoods, was a very large part of the conversation during this meeting. Dispersed camping was a great concern given the amount of nearby community members in these areas, as well as the UXO's. It seems that there is great opportunity to work with the USFS and Lake County Tourism Panel to address signage as well as discuss any potential shift in prioritizing these areas for these unique reasons.

Notes, questions, and comments shared from the northern community include the following:

- Include a goal, to combine or use similar tools/software across different platforms and share and update information with partners regularly. Add this to appropriate County staff responsibilities to coordinate.
- Dry Hydrants. Something for the Fire Department to assess, exercise, and monitor across the county. Map infrastructure of subdivisions and available water sources.

- Each of the three northwestern most subdivisions have some unique qualities:
 - Homestake: Streamline management with functioning and active association and President. Minimal/least year round residents (4, do not publish). Likely easiest to coordinate large scale work with, given the association operating structure and land ownership.
 - Sylvan Lakes: More even split between year round and second homeowners. Greatest concern and impacts from STRs and violations of covenants.
 - Piney Run: Most year round residents. About 20 parcels with 13+/- developed with homes. Out of those, only about one is a second homeowner and may STR.
- Piney Run neighbors requested signage for dispersed camping and through hikers, to include fire ban info, UXO info, general wildfire risk info, and respect for your neighbor/year round residents.
- What are the penalties?
 - District Court staff present mentioned information sharing between agencies and community members to share more information on fear and danger created in these situations so that when they do have violators in court, they can penalize to appropriate extent.
- Unexploded Ordnances (UXO) are a concern in this area. This area is in proximity to Camphale and may be mapped with UXOs which could restrict certain activity both in prevention and suppression. Understand what is mapped. Advocate for USFS treatment in the area, especially because of these extenuating circumstances.
- Sylvan Lakes:
 - HOA restrictions on tree cutting
 - Bylaws restrict cutting to immediate defensible space area, and prohibit any other cutting.
 - Encourage subdivisions to have the conversations to update their bylaws for current social and environmental conditions to allow for appropriate fuels mitigation.
 - HOA restrictions on open fire pits and enforcement is a problem.
 - The neighborhoods do have restrictions, but no way to enforce them. Can law enforcement help?
 - Each neighborhood felt that STRs were out of control and they feared for consideration and safety of their families and properties with the increase of visitors to their neighborhoods.
 - Explore linking STR licensing, or language, to following HOA regulations and also communications and alert systems.
- Revisit all subdivision HOA Homeowners Association agreements/covenants. Be sure that they are appropriate for today's social and environmental climate. Is there an opportunity for the County to better support guidelines and requirements of HOAs or wildfire protection in general?
- BLM land between Sylvan and Homestake. Opportunity to treat lands outside of USFS.

- Local contractor and industry promotion and contacts requested.
 - Include, create and promote evacuation plans for visitors such as hikers on adjacent federal lands.
 - Explore the best way to get e-notifications to through-hikers or USFS visitors.
 - Assess broadband and cell and internet coverage impacts in this area regarding best communication methods.
 - Advocate for hard look at egress road between Sylvan Lakes and Homestake as well as general secondary routes out of subdivisions. Look at roads scarified and explore potential gating for general use, but be available for emergency evacuation.
-
- Insurance companies may pay for preventative private property treatments. Individuals need to explore and advocate for this with their own insurance companies.
 - Survey insurance company policies and publish those that support mitigation work?
 - Local leaders commit to joining at least one neighborhood meeting a year.
 - Interest in developing a volunteer auxiliary group to help monitor and educate.

E. Community Research

To support this update of the CWPP’s conclusions, recommendations and ultimate success, research was conducted on community perceptions for forest health, fire resilience and willingness to treat in the Lake County Community Wildfire & Recreation Survey ([Appendix A](#)).

Section 3: Wildfire Risk Assessment and Treatment Prioritization

A. Overview

A critical conclusion from the Lake County CWPP 2022 update is that treating 2% to 8% of the total landscape in Lake County yields 20-50% reduction of the risks wildfire poses to assets prioritized by the community that can be addressed with fuels treatments (i.e., feasible risk reduction). The following sections provide a summary of the process, technical approach and final map products. Additional details are available in the Lake County

Wildfire Risk Assessment ([Appendix C](#)) and Lake County Fuel Treatment Prioritization ([Appendix D](#)) technical reports from the Colorado Forest Restoration Institute at Colorado State University.

Developing such a strong conclusion with unanimous buy-in required:

- iterative community input, from citizens and the CWPP Leaders team from many agencies, government bodies and non-profit organizations most closely supporting fire protection and forest health;
- the most current data reviewed and endorsed by local leaders, and
- best practice geospatial modeling from the Colorado Forest Restoration Institute (CFRI) at Colorado State University.

<https://drive.google.com/file/d/1ptBRABqnyqjmfLAzD5QRJlgMjqysLYfg/view?usp=sharing>








Community input was part of an iterative process, integrated with data collection and geospatial modeling. The process included the following steps:

- **Community Prioritizes General Values at Risk:** The community identified and prioritized 6 assets or “values at risk,” with citizens participating in the Lake County Community Wildfire & Treatment Survey ([Appendix A](#)).
- **Data Acquired to Map Values at Risk:** Data was collected to identify the 6 values at risk at the more detailed level, including 25 map layers ([Appendix C](#)). For example, critical community infrastructure included map data of communications structure, electrical substations and transmission lines, and emergency service stations.
- **Ranking of Map Layers for Importance and Response to Fire:** The CWPP Leaders team next ranked the importance of each of these specific values at risk and a “response function” indicating how it might respond to fire of varying intensity ([Appendix C](#)).
- **Wildfire Risk Assessment:** Using this data, an initial Wildfire Risk Assessment was completed. This work includes predictions of burn probability and fire intensity, combined with modeling of potential impacts to values at risk. This process resulted in the **Composite Wildfire Risk Map**, indicating where the community's valued assets are at the highest risk from wildfire.
- **Community Input:** The CWPP Leaders team reviewed the initial risk assessment products; maps of burn probability, wildfire behavior and composite wildfire risk and provided input based on local knowledge and on-the-ground experience. This

Generated some important changes to the initial products. CWPP Leaders provided additional local information to better represent these areas. Similarly, water providers identified critical water infrastructure that was not included in the draft product, and provided additional data on infrastructure relative importance to CFRI.

- **Fuel Treatment Prioritization:** Building on the wildfire risk assessment, CFRI developed a fuels treatment prioritization. This process included factoring in cost to identify where treatment can do the most to lower risk for the least amount of money. Treatment options included mechanical thinning, prescribed fire, mechanical thinning and prescribed fire (“complete treatment”), and patch cut. Per-acre treatment costs were based on the opinions of local experts. Fuel Treatment Priority areas were assigned by assessing the level of reduced risk and the cost and feasibility of each treatment type. The result of this step was a draft Treatment Priority Area map.
- **Community Input:** Draft maps, including burn probability, fire intensity, composite wildfire risk and treatment priorities, were next shared with the community for input. Citizens participated in a community map walk meeting and provided written comments. This step not only supported community buy-in, but also identified concerns.
- **Finalizing Risk Assessment and Fuel Treatment Priorities:** CWPP Leaders and CFRI took the community input seriously. CFRI completed additional edits and revisions based on community questions and concerns. The CWPP Leaders team voted unanimously to adopt the edited burn probability model, addressing the community questions and concerns and, again, building a quality product with buy-in.
- **End Product:** The final risk assessment and fuels treatment assessment was developed by CFRI, considering input from citizens and many hours of work by the CWPP Leaders Team. The resulting Treatment Priority Map was unanimously endorsed by the CWPP Leaders Team.

Risk Assessment Roadmap

-  Identified 25 highly valued resources and assets (HVRAs)
-  Quantified the response functions and relative importance of all HVRAs
-  Mapped composite wildfire risk to HVRAs
-  Determined treatment constraints and assumptions with forest managers
-  Explored a variety of treatment plans ranging from \$5M to \$250M
-  Selected one target budget (\$40M) and 2 incremental budgets (\$20M and \$10M) to help with planning
-  Formed actionable goals regarding resilient landscapes, fire adapted communities, and safe and effective fire response

B. Wildfire Risk Assessment

Wildfire risk assessment consists of three elements—the likelihood of wildfire, wildfire intensity, and the susceptibility of public and private resources and assets (“values at risk”) to damage from wildfire (Figure 1).

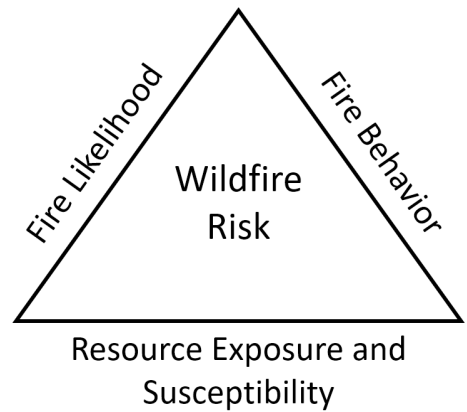


Figure 1: Wildfire risk triangle adapted from Scott et al. (2013).

CFRI and the CWPP Leaders Team adapted the wildfire risk assessment methods in the Colorado Wildfire Risk Assessment (CO-WRA; Technosylva 2018) for use in Lake County using locally informed fire simulation products, HVRA spatial data and response functions, and relative importance weights (Figure 2). The CFRI model quantifies and maps the expected consequences of wildfire based on:

- predictions of burn probability and fire intensity across the county;
- the physical locations of values at risk;
- estimated impacts of wildfire on those values; and

- ratings of those values to represent their importance to the community.

Locally informed fire simulation products, HVRA spatial data and response functions, and relative importance weights (Figure 2) were used to develop this framework.

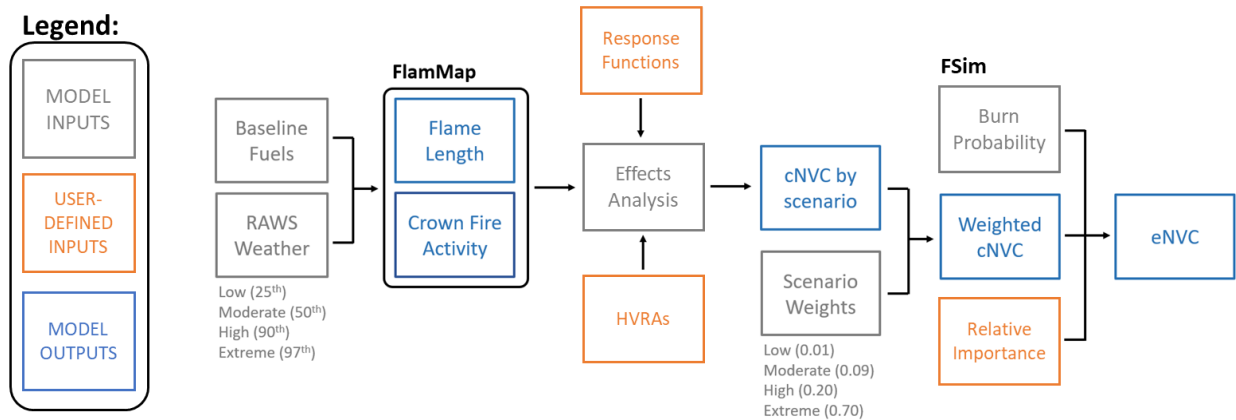


Figure 2: The Lake County Risk Assessment is based on the analysis framework from the Colorado Wildfire Risk Assessment (Technosylva 2018).

C. Wildfire Simulations

Wildfire hazard was determined for Lake County from modeled of burn probability (FSim) and fire intensity (FlamMap). The intent of this analysis is not to describe the behavior of a specific fire in the future, but to depict trends in fire occurrence and intensity over many potential future fire seasons (Gannon 2019). This technical data was combined with community input and iterative modeling, as described above, to produce two key products:

1. Burn probability reflects the likelihood that wildfire will occur at a given location.
2. Flame length estimates the intensity with which wildfires will burn at various locations.

CWPP Leaders team discussions noted that, 1) just because an area is mapped as low risk does not mean that wildfire cannot occur there and negatively impact existing values; and 2) it is also important to understand that, although the probability of a wildfire in a certain area may be low, the consequences may be high.

D. Values at Risk

The community prioritized values at risk used in this CWPP 2022 update, and the 2006 CWPP values at risk are summarized in Table #1. Note that the community-driven prioritization was substantially different than that used in the 2006 CWPP. Map data on all values at risk, as well as data on prioritization and fire response are provided in [Appendix C](#), and also available at the Lake County Community Planning and Development Department. Table #1 provides a summary or composite view of the values at risk.

Table 1. Values at Risk Categories as ranked in the current (2022) and 2006 CWPPs.

2022 CWPP Update	2006 CWPP
Life Safety (evacuation routes and major highways)	Housing, Business and Essential Infrastructure
Infrastructure (communication structures, electrical substations and transmission lines, and emergency service stations)	Recreation Areas/Watersheds/Wildlife Habitat
Water (ditches, water conveyance, water treatment facilities, critical water supply, and mine tailings)	Local Preparedness and Protection Capability
Wildlife (elk habitat, bighorn sheep winter range, mule deer habitat, lynx habitat, tier 1 critical habitat, aquatic habitat and wetlands)	Local Hazards and Issues
Buildings (structures and historic structures)	
Recreation (Ski Cooper, trails, camping, dispersed camping and recreation assets)	

Life Safety

Human life and safety refers to the lives of firefighters, residents and visitors during a wildfire. Components reflect: 1) the risk of entrapment because of difficulties that residents and/or visitors may have evacuating due to, for instance, single ingress/egress points and narrow roads, and 2) restrictions on WUI area access by firefighters due to, for instance, steep, tight turns that fire fighting equipment cannot easily navigate. Access and evacuation routes in the county that would present hazardous conditions during a wildfire were identified by CWPP Leaders.

Infrastructure

Critical community infrastructure includes communication structures, electrical transmission lines, emergency service stations and substations.

Water

Water refers to ditches, water conveyance, water treatment facilities, mine tailings and critical water supply to the community, such as reservoirs, pump stations, and surface water diversions.

Wildlife

Wildlife is represented by factors prioritized by the CWPP Leaders Team, including: elk habitat, bighorn sheep winter range, mule deer habitat, lynx habitat, tier 1 critical habitat, aquatic habitat and wetlands, including the Arkansas River and its tributaries.

Buildings

The buildings HVRA represents where there are human-made structures and other assets. This includes homes, businesses, historic structures, etc. A full list of Lake County subdivisions is provided in [Appendix E](#), which also includes a list of the subdivision filings that are in the top two Treatment Priority Areas (tier 1 and tier 2).

Recreation

Recreational assets include the Ski Cooper ski area, recreation sites, campgrounds, and dispersed camping areas, and major trail systems.

Composite Wildfire Risk

All of the above geospatial data, fire probability and fire behavior modeling come together in a single map of composite wildfire risk. This important map shows where the community values are at highest risk from severe wildfire and areas where moderate wildfire may be of net benefit.

E. Lake County Treatment Priorities

The next step in the CWPP 2022 update process identified priority fuel treatment locations and treatment types that would reduce wildfire risk most cost-effectively.

Fuel treatment priorities were optimized by weighing risk reduction benefits against fuel treatment costs while also accounting for treatment feasibility, budget, and use constraints (Figure 3). The model simulated the effects of the various fuels treatments (i.e. mechanical thinning, prescribed fire, patch cut) on existing forest or woodland surface fuels and canopy conditions to characterize how a given treatment could change fire behavior and subsequent measures of risk (details can also be found in tables 1 & 2 of [Appendix D](#)). The

model is supported by published data on fuels reduction and forest restoration treatments in the western U.S. (Gannon 2019).

Objective: maximize risk reduction (minimize risk)

Decisions: acres to treat by location and treatment type

Model:

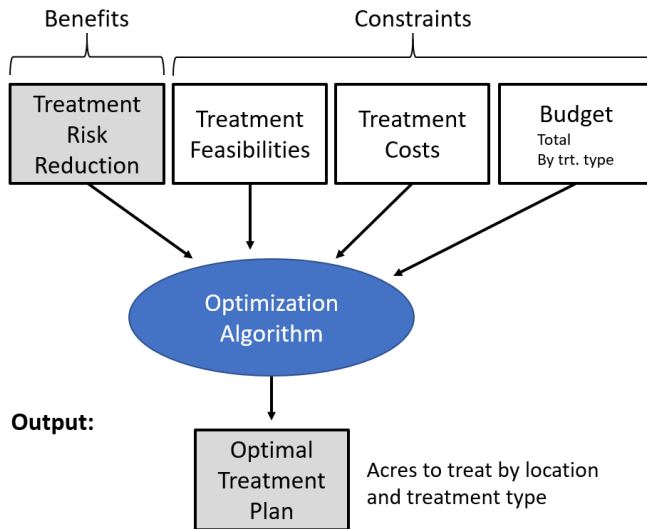


Figure 3: Conceptual diagram of the Risk Assessment and Decision Support (RADS) fuel treatment optimization model. Fuel treatment benefits and constraints are summarized for the feasible treatment area in each treatment unit. Linear optimization is then used to maximize risk reduction for the available budget. Budget is manipulated by the user to focus or expand priorities.

Three proposed budgets were evaluated to determine optimal treatment types, locations, and wildfire risk reduction (i.e., the most cost-effective fuel treatments for a level of funding). Table 2 provides a breakdown of proposed treatment areas by land ownership, setting context for the Treatment Priorities. The Treatment Priority Areas are summarized by the map in Figure 5 and Table 2 below.

Table 2. Treatment Priority (acres) ([Appendix F - Total Acres by Zone](#))

Owner	Tier 1 (\$10M cost)	Tier 2 (\$20M cost)	Tier 3 (\$40M cost)
US Forest Service	4,035	6,467	13,374
Private	712	2,910	4,911
Bureau of Land Management	174	227	529

Fish and Wildlife Service	78	80	80
State Land Board	-	-	3
Total	4,999	9,684	18,897

The key take-away from this work is demonstrated by the risk reduction vs. cost graph (Table 3 and Figure 4). The conclusion is profound. The first \$50 million of treatment yields roughly 60% reduction in the risk wildfire poses to community assets. The next \$50 million yields a further 20% reduction—a total of 80% reduction for \$100 million. The next \$100 million in spending further reduces risk by only 19%, and an additional \$69 thousand is needed for the final 1%.

Table 3. Budget summary of risk reduction achieved and treatment allocation.

Priority	Budget	Risk Reduction (eNVC)	Thin (acres)	Rx fire (acres)	Complete (acres)	Patch Cut (acres)	Total (acres)
Tier 1	\$10M	2,367	20	707	0	4,271	4,999
Tier 2	\$20M	3,972	20	1,509	628	7,527	9,684
Tier 3	\$40M	6,362	20	2,660	654	15,562	18,897

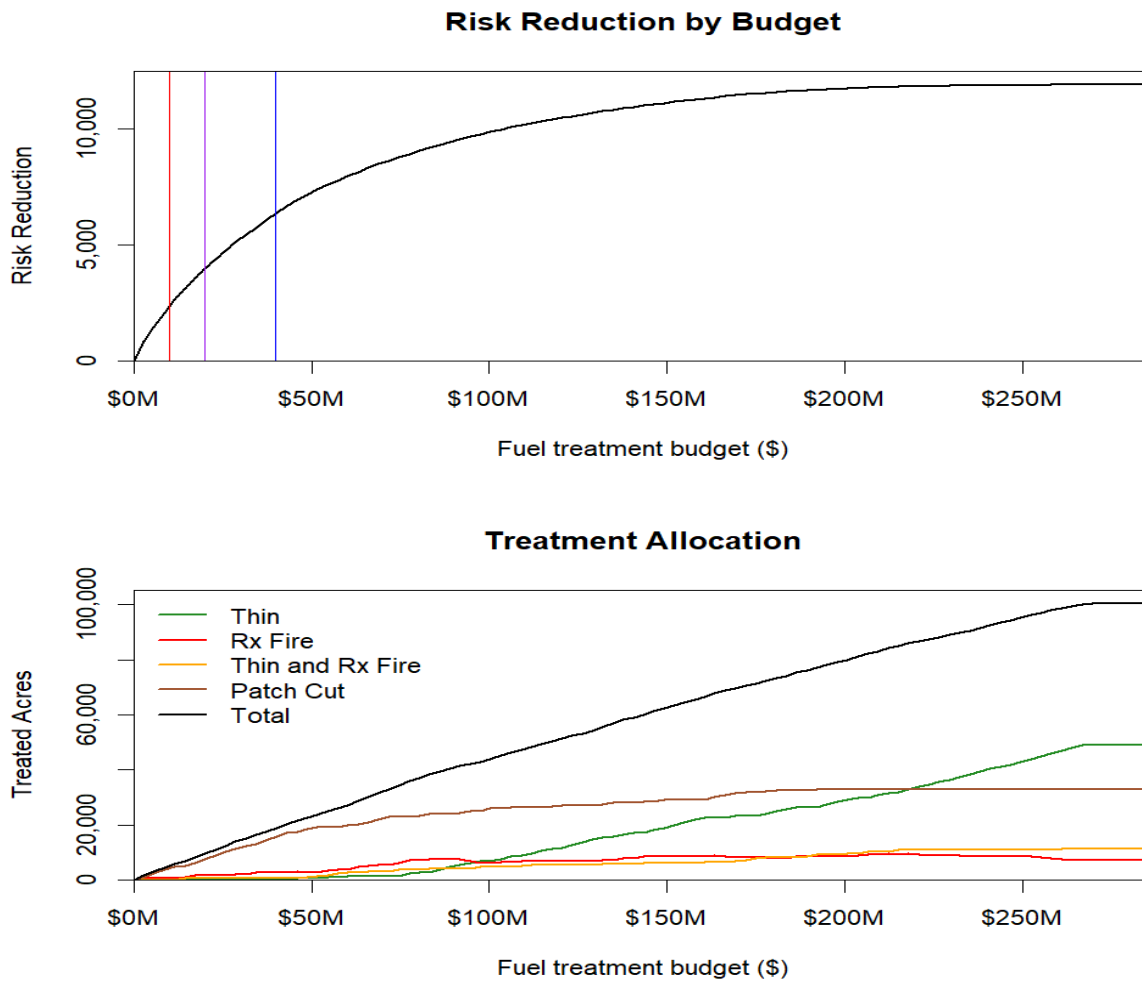


Figure 4: The avoided risk curve shows the level of risk reduction achieved across a wide range of fuel treatment budgets in the top panel with the \$10M, \$20M, and \$40M budgets marked by the red, purple, and blue vertical lines, respectively. Treatment type allocations are tracked by budget level in the lower panel. Risk is a unitless (or relative) measure of expected Net Value Change from the Lake County Wildfire Risk Assessment, and approximates 0% to 100% feasible risk reduction above \$250 where the line flattens.

This data is the cornerstone of the Lake County CWPP 2022 update. Based on the best available community input, data, and modeling, spending \$10 million to \$40 million to treat 2 to 8% of the total landscape in Lake County can reduce risk to community assets by 20 to 50%. Treatment activity in other areas generally has much lower return on invested capital. Of course, this map cannot be prescriptive or replace the need for field assessment of current conditions and treatment feasibility, but it should be strongly employed as a decision-making guide for all countywide treatment activities.

The Treatment Priority Map was unanimously endorsed by the CWPP Leaders Team. It is the strongest recommendation of the CWPP 2022 update that it be used to focus future treatment activities in locations with best benefit to cost.

The Treatment Priority assessment considered the following fuel treatment methods—mechanical thinning, prescribed fire, mechanical thinning and prescribed fire (“complete treatment”), and mastication. Per-acre treatment costs noted below were based primarily on the opinions of local experts.

- For **thin only**, we applied a base treatment cost of \$2,500 per acre which increased for slopes > 40% and distances from roads > 400 m.
- For **prescribed fire only**, a treatment cost of \$1,000 per acre was used when the treatment was >250 m from any buildings and \$2,000 per acre when within 250 m of any buildings.
- For **complete treatment**, we summed the costs for mechanical thinning and prescribed fire. Therefore the base cost would be \$3,500 per acre and would vary based on slope and distance from buildings and roads. Complete treatment would be used primarily in dense mid- to high-elevation forests.
- For **patch cut**, we applied a base cost of \$2,000 per acre which increased for slopes > 40% and distances from roads > 400 m., similar to thinning treatment costs.

Constraints by treatment type. The following constraints were applied to each treatment.

- The **thin only** treatment was excluded from wilderness, upper tier roadless, and non-forested lands. Non-forested lands were defined as having <10% canopy cover (source: Landfire).
- The **prescribed fire only** treatment followed the same **thin only** criteria, but was also limited to frequent fire forest types that could be burned with broadcast prescribed fire as an entry treatment (i.e., no high elevation forests types like lodgepole and spruce-fir)
- The **complete** treatment (thin followed by prescribed fire) followed the same treatment criteria as the **prescribed fire only** treatment.
- The **patch cut** treatment followed the same **thin only** criteria, but was also limited to lodgepole and aspen stands based on ecological compatibility.

A complete report on this work, including geospatial products, is provided in Appendices C and D. All map products are also available at the Lake County Community Planning and Development Department.

F. Key Maps

Sub-watersheds were used as the treatment units in this treatment prioritization. Sub-watersheds are small drainages where surface water from rain or melting snow converges at a single point such as a local stream or creek. Because of this, one community may show different risk ratings or prioritization if it covers multiple drainages. Key maps include: **Composite Risk** (Figure 5) and **Treatment Priority** (Figure 12).

The **Composite Risk** (Figure 5) map combines information on where assets that the community values are located (life safety, water, infrastructure, wildlife, buildings and recreation assets) (Figures 7 - 11) and where damaging wildfire is most likely to occur (based on vegetation types, fuel moisture, slope, aspect etc.). Areas where several assets are at high risk are shown in dark red. These are generally places with a combination of multiple things (homes or roads that provide a single evacuation route for many homes or visitors, major power lines, etc.) and vegetation/aspect/slope etc. that make severe wildfire more likely. Paler red areas represent moderate risk, generally drainages with fewer assets and/or a lower probability of severe wildfire. In some areas – such as important wildlife habitats without structures – moderate intensity wildfires can be beneficial. These areas are shown with green shading.

The **Treatment Priority Area** map (Figure 12) and **Dominant Treatment Type** map (Figure 13) show areas where the risk that wildfire poses to community assets can be most cost-effectively reduced by implementing fuels treatments such as mechanical thinning, prescribed fire, or patch cuts. Areas in red provide the greatest “bang for the buck” meaning they provide the greatest risk reductions per dollar spent. That could be because the highest risk areas were selected first or inexpensive treatment units or types were selected (i.e., because they are accessible, not too steep etc.). Ultimately, this ensures that the money invested into fuels treatments will have a high impact in protecting community assets. If the community had only \$10M to spend on treatment activities, treating the areas in red (tier 1) would have the greatest impact, reducing the risk that severe wildfire poses to community assets by 20%. If \$20M were available, risk to community assets could be reduced by 30% by treating the red (tier 2) and purple (tier 2) drainages. If \$40M were available, total feasible risk could be roughly halved by treating tier 1-3 priority areas (red, purple and blue drainages). More detailed breakdowns of cost effectiveness of dominant treatment types can be found in [Appendix D](#).

Of course, this science, while very good, is not perfect. So local forest health and fire professionals will develop treatments using these maps in combination with on-the-ground knowledge and experience.

Composite Wildfire Risk

Expected Net Value Change

- Negative
-
-
- Neutral
-
- Positive

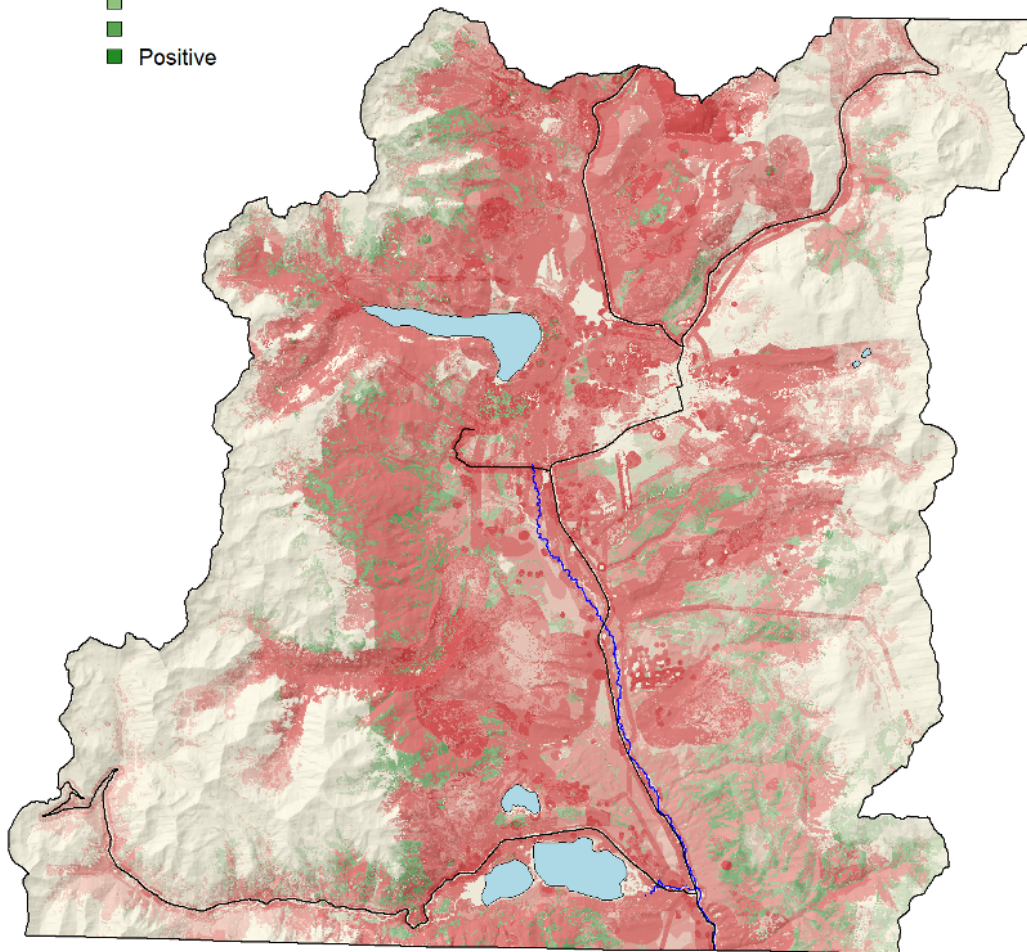


Figure 5: Composite wildfire risk map for Lake County. Negative eNVC means high risk. Positive eNVC means there is an expected benefit from fire. eNVC measures account for both the effect and probability of wildfire.

LIFE SAFETY

Expected Net Value Change

- Negative
- Negative
- Negative
- Neutral
- Neutral
- Positive
- Positive

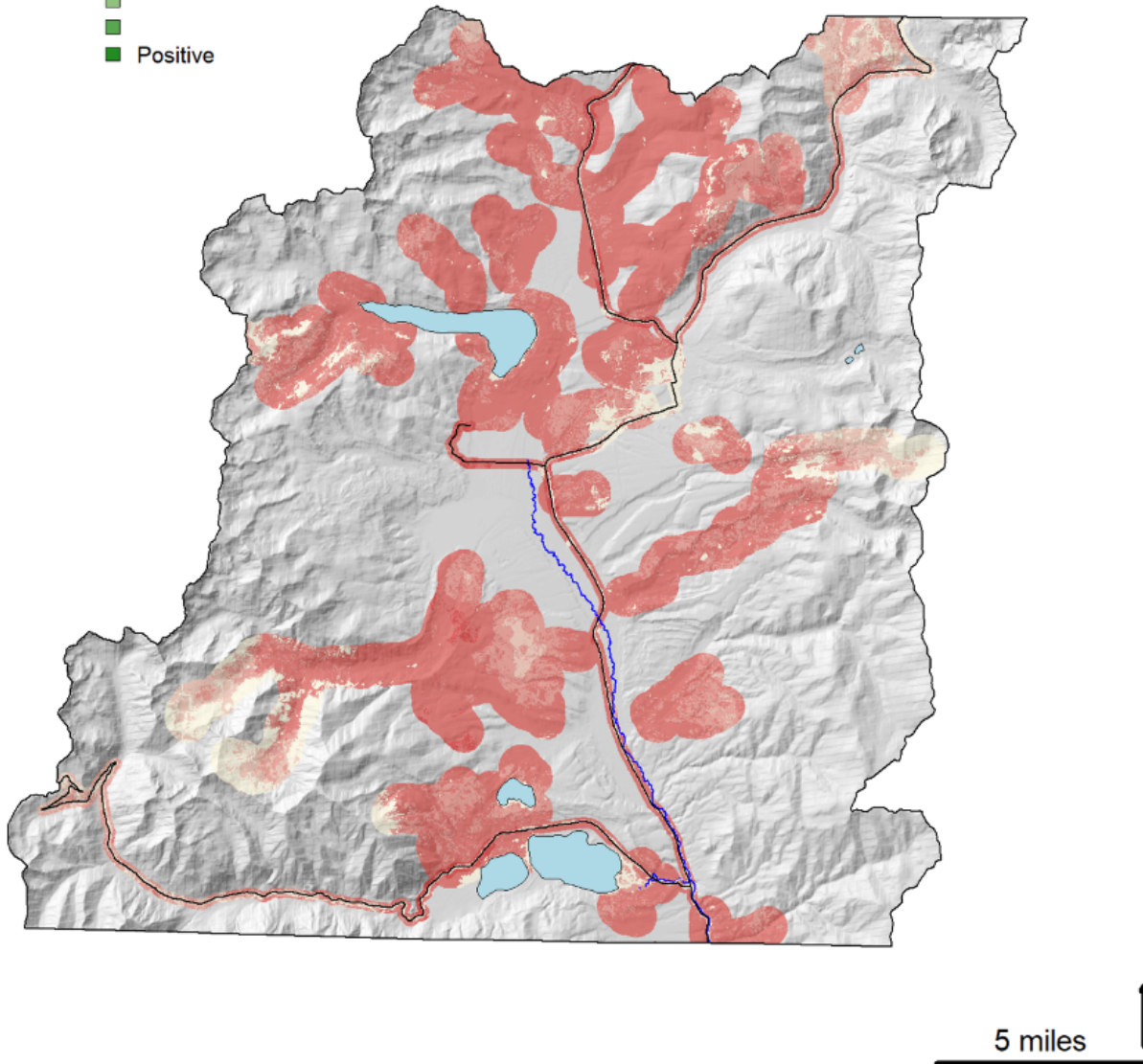


Figure 6: Wildfire risk to life safety in Lake County. Negative eNVC means high risk. Positive eNVC means there is an expected benefit from fire.

INFRASTRUCTURE

Expected Net Value Change

- Negative
- Negative
- Negative
- Neutral
- Neutral
- Positive
- Positive

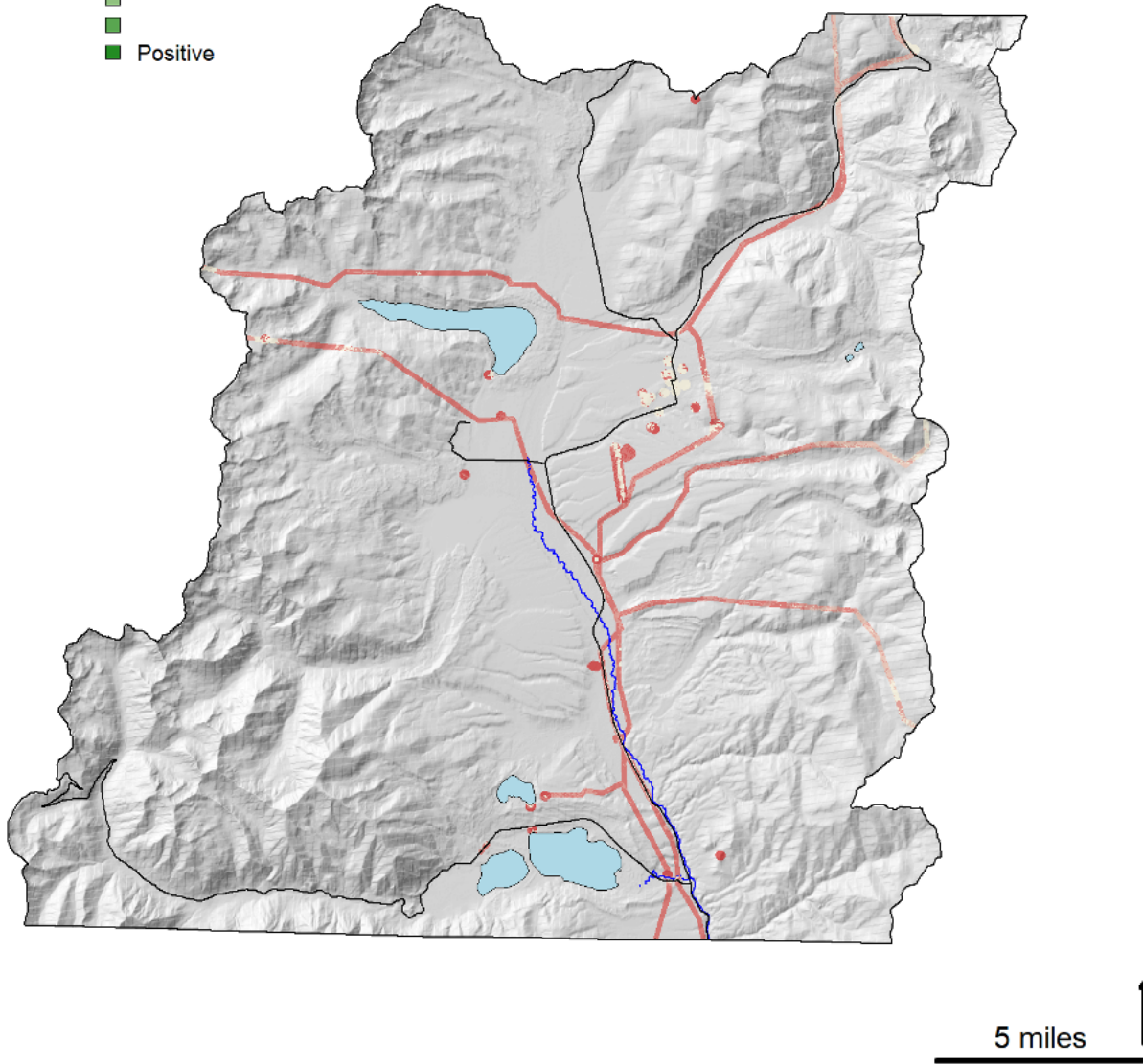


Figure 7: Wildfire risk to infrastructure in Lake County. Negative eNVC means high risk. Positive eNVC means there is an expected benefit from fire.

WATER

Expected Net Value Change

- Negative
-
-
- Neutral
-
- Positive

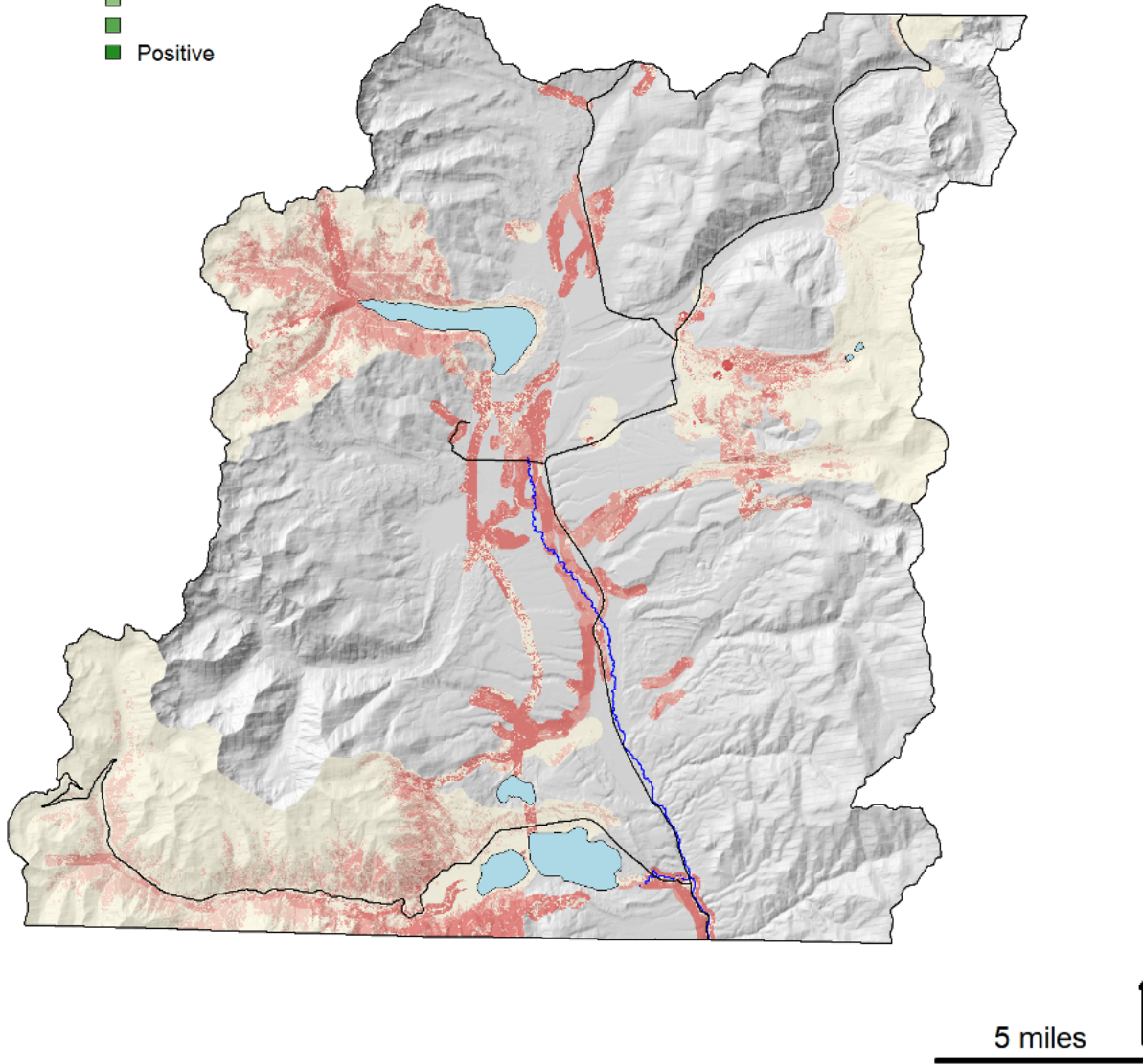


Figure 8: Wildfire risk to water in Lake County. Negative eNVC means high risk. Positive eNVC means there is an expected benefit from fire.

BUILDINGS

Expected Net Value Change

- Negative
-
-
- Neutral
-
-
- Positive

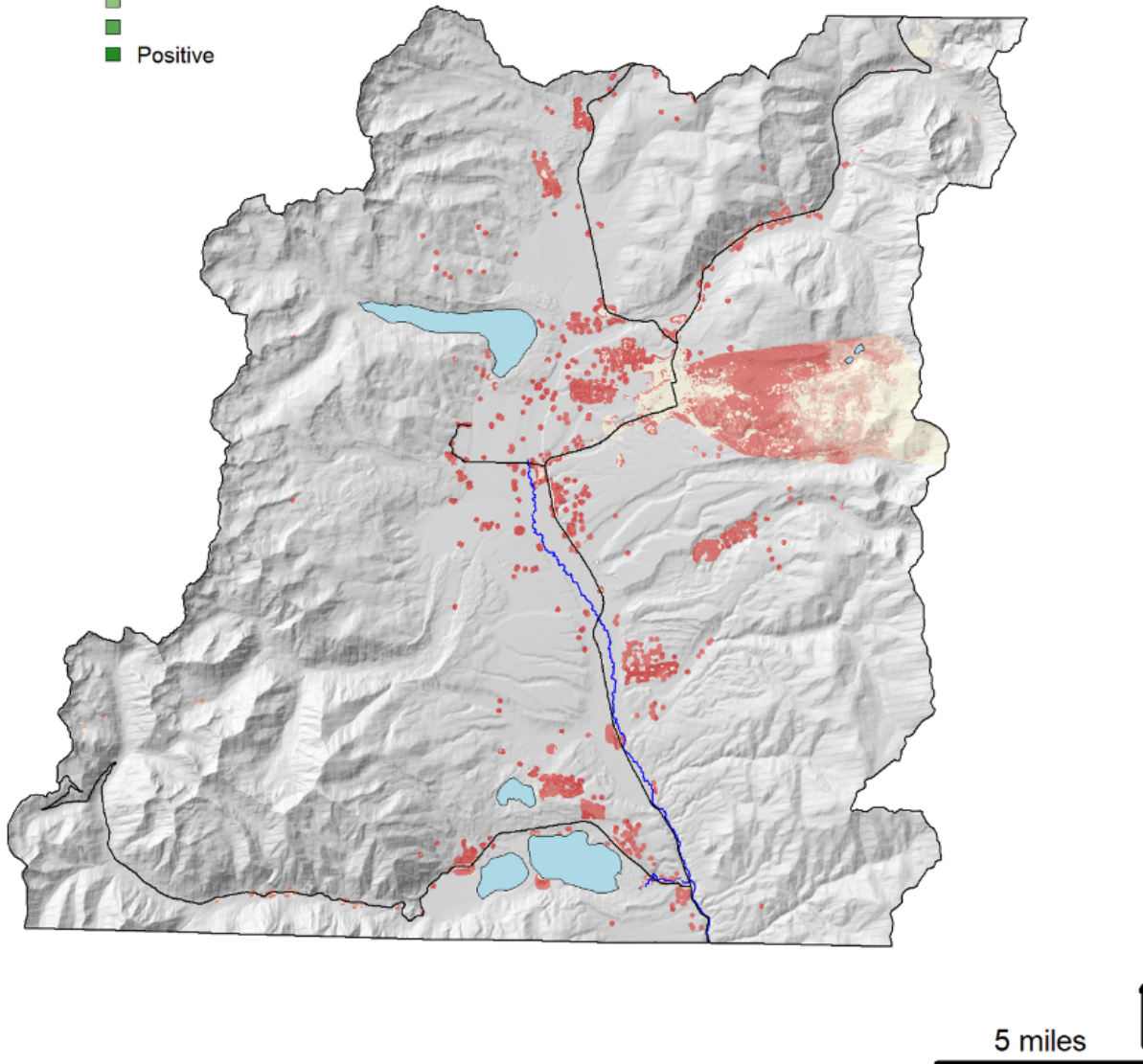


Figure 9: Wildfire risk to buildings in Lake County. This includes both individual structures from Microsoft as well as historic structures from the National Park Service. Negative eNVC means high risk. Positive eNVC means there is an expected benefit from fire.

WILDLIFE

Expected Net Value Change

- Negative
- Negative
- Negative
- Neutral
- Neutral
- Positive
- Positive

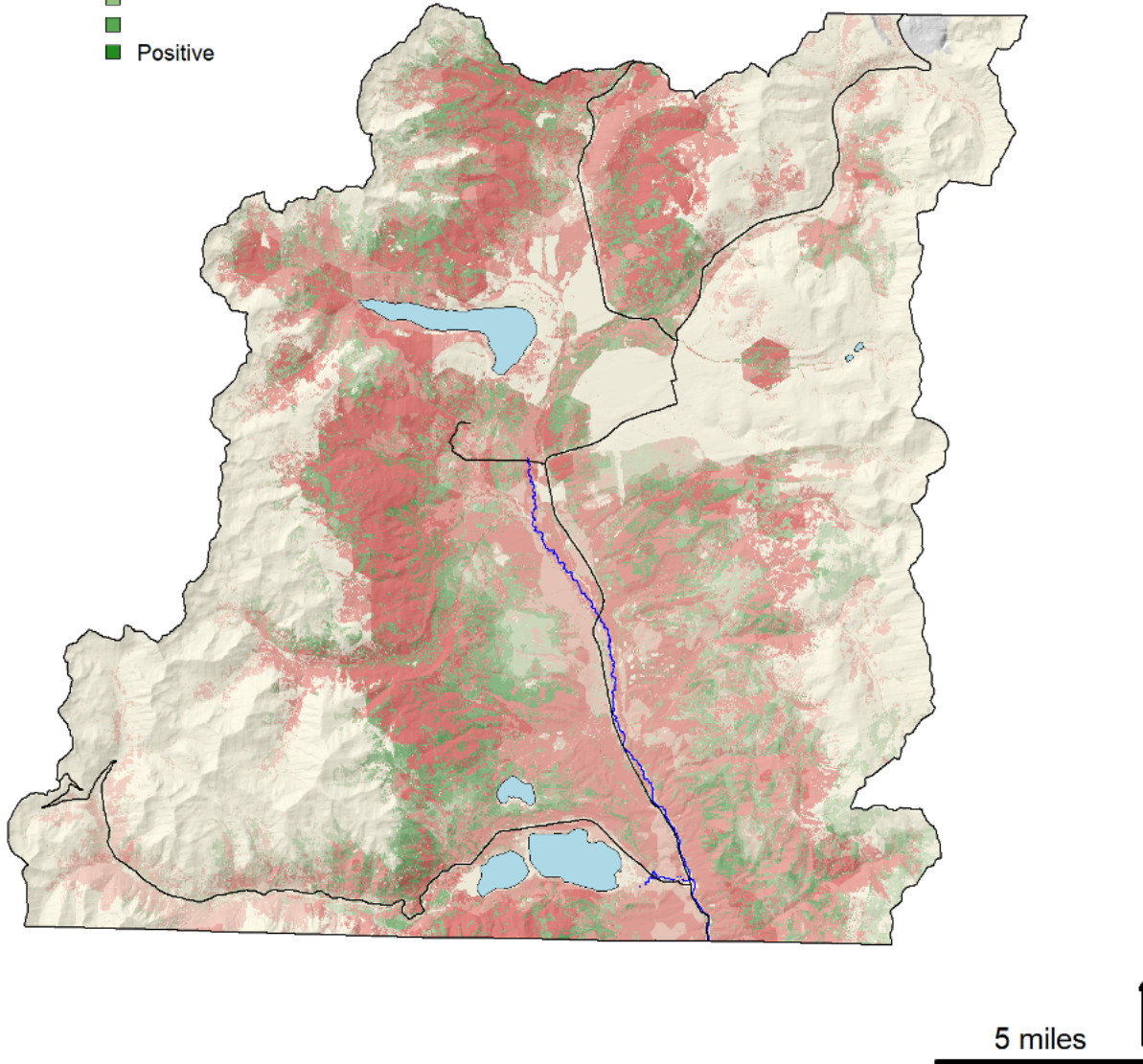


Figure 10: Wildfire risk to wildlife in Lake County. Negative eNVC means high risk. Positive eNVC means there is an expected benefit from fire.

RECREATION

Expected Net Value Change

- Negative
- Negative
- Negative
- Neutral
- Neutral
- Positive
- Positive

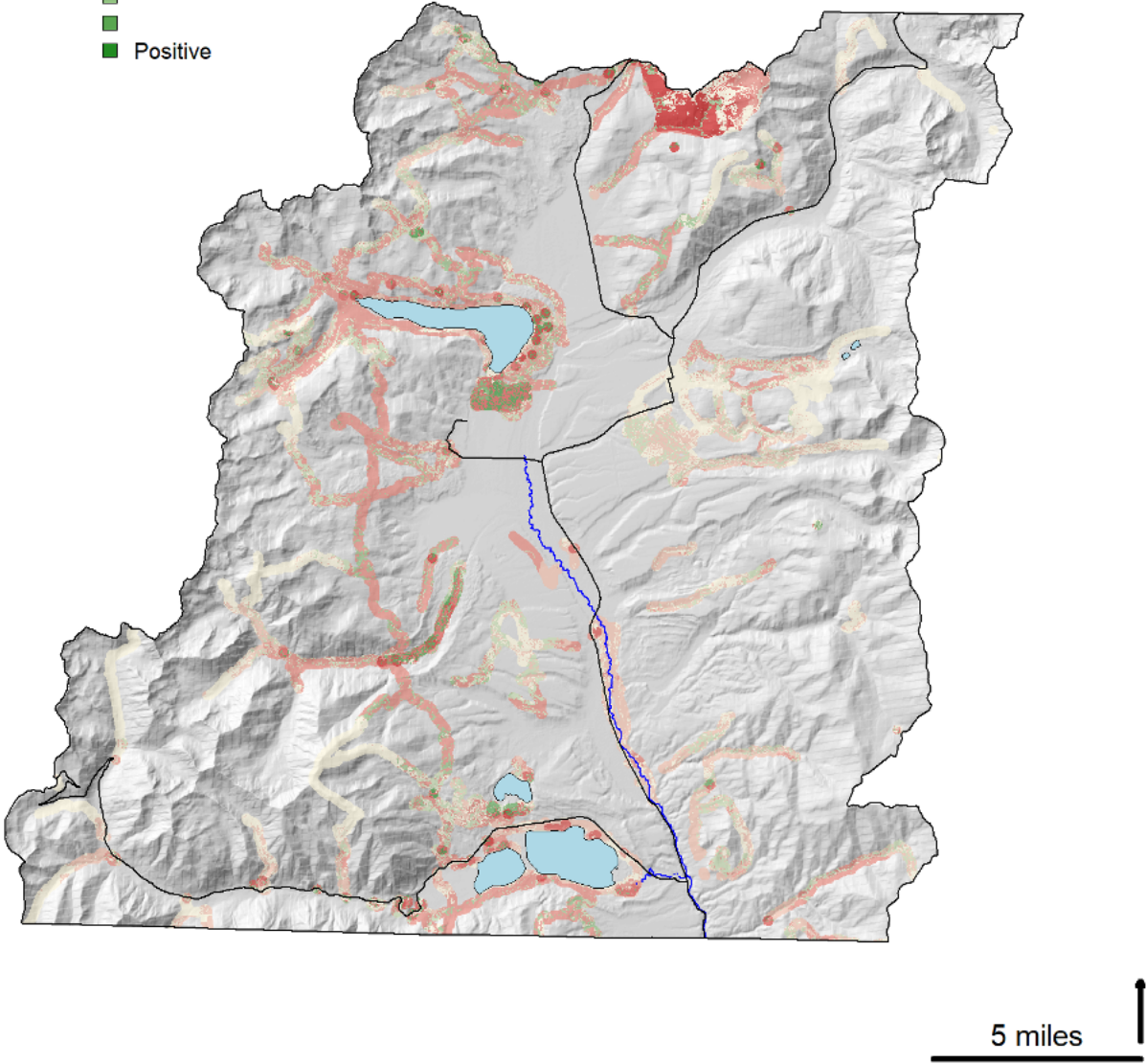


Figure 11: Wildfire risk to recreation in Lake County. Negative eNVC means high risk. Positive eNVC means there is an expected benefit from fire.

Fuel Treatment Priorities

- Tier 1 (\$10M)
- Tier 2 (\$20M)
- Tier 3 (\$40M)

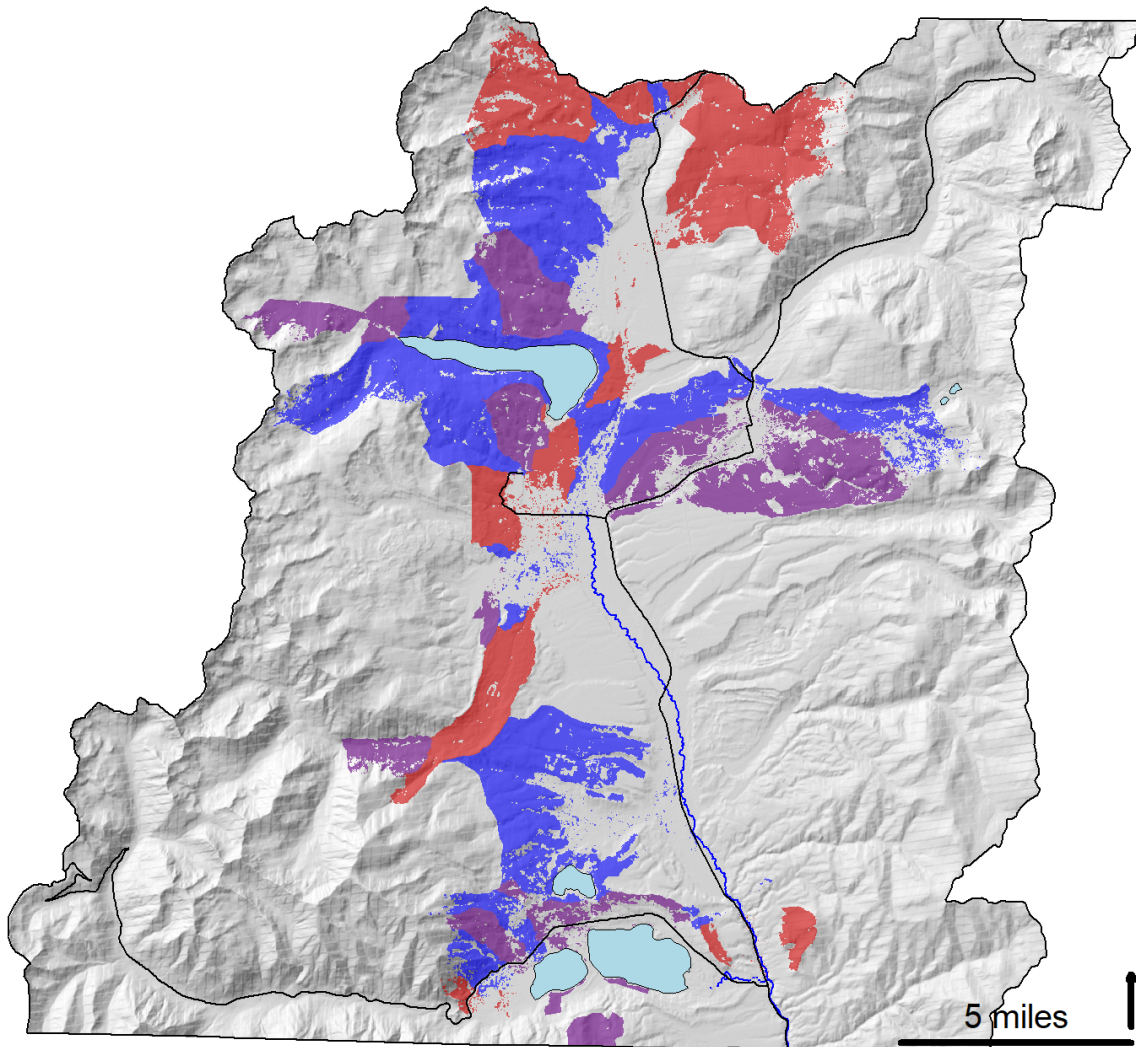


Figure 12: Fuel treatment prioritization for Lake County's \$10M, \$20M, and \$40M budgets.

Dominant Treatment Type

- Treatment**
- Thin
 - Rx Fire
 - Thin and Rx Fire
 - Patch Cut

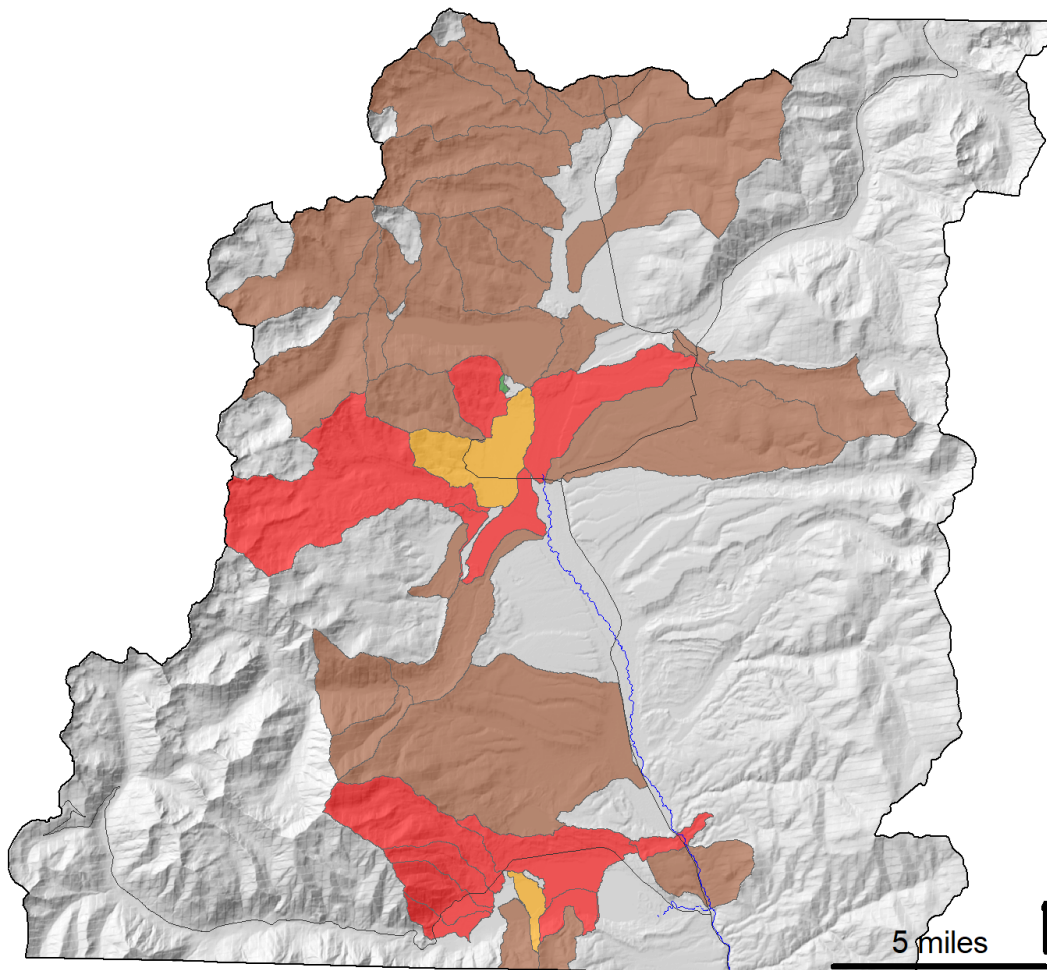


Figure 13: This simplified map shows the dominant treatment type in each treatment unit based on the \$40M treatment plan. It does not imply that the mapped treatment type should be applied across the entire treatment unit. Treatment-specific feasibility should be considered and multiple treatment types can be assigned to a treatment unit.

Section 4: Community Wildfire Preparedness Current Status and Structural Ignitability in the WUI

A. Overview

Community outreach conducted during the CWPP process indicates concern for forest health, access to, awareness of, and utilization of communications to inform the community and visitors, short term rental activity, as well as a lack of comprehensive, and sufficient, prevention action taking place across all parcels varying in size and both public and private ownership. A strong majority of residents support land management activities to mitigate wildfire risks, and many think these activities are beneficial to wildlife. Community input also showed strong interest in new programs and incentives to address forest fuel conditions on private lands, as well as a curiosity of the USFS ability to implement mitigation plans in high risk areas within a time frame that would make an impact.

Community plans related to emergency management and fire resilience are improving. Leadership within Lake County and partner organizations continue to work together to coordinate comprehensive strategies across the County. A comprehensive approach to manage and reduce various sources of risk, increase communications, message responsible behaviors both to community members and visitors, are some items that various partners are currently working toward. Addressing capacity increase is also something that should be part of the ongoing conversation so that we are sure to pursue all opportunities that will be available. Ongoing learning and partner involvement will aim to improve Lake County preparedness for wildfire related activities and post fire recovery. The County and partners aim to become a fire wise and fire adapted community.

Emergency response preparedness is solid with the current Lake County Office of Emergency Management (OEM) and the county's Hazard Mitigation Plan in place. The Fire Department indicates training and equipment are adequate to address small wildfire situations, although in any event that should occur in Lake County, mutual aid would immediately be called for a response. Other State, Federal, and Lake County stakeholders would make up this mutual aid effort. Given today's climate of risk, an all hands on deck approach is embraced across jurisdictions, understanding that a robust immediate response is likely the best action taken in the event of a wildfire.

B. Citizen Preparedness and Community Survey

As noted in the summary of Lake County Community Wildfire & Recreation Survey data ([Appendix B](#)), community preparedness for a large wildfire event is a concern, with gaps in evacuation planning, reverse 911 signup, and home preparedness. The CWPP Leaders team

recommended more and better public outreach and coordinated communications between local, state and federal land management regarding wildfire issues and resources, efforts that should be sustained over the long term.

Programs and incentives in other counties (including adjacent Chaffee County) were reviewed by CWPP Leaders that assist or provide incentives to homeowners to address forest fuel conditions on their properties, such as slash hauling and community chipping days. Creating similar programs in Lake County was discussed at the public meeting and in conjunction with other nonprofit organizations.. Citizens indicated strong support for such programs, emphasizing the need for education to know what to do.

At the community meeting, citizens provided some ideas for actionable items including the following:

- Leveraging the resources of utility companies, municipalities that have water rights, storage, cell companies, etc.
- Raise awareness through paper and tourism team
- Get people ready to accept/embrace treatment
- Educate visitors
- Need clarity on the need and urgency
 - Fire trends
 - Communicate likelihood of fire is increasing a lot
- Slash management options at Climax and Gypsum biomass plant

C. Community Planning Preparedness

The current [Lake County Comprehensive Plan](#) was adopted in 2015 and identifies, in the Safety section (page 56), two strategies under Goal 3.15 (*Prepare staff, volunteers and the County's public service partners to handle the range of emergencies and disasters that can occur in the mountains*) in the section on safety. These strategies are directly related to community preparedness, they read:

- **Strategy E** – *Encourage and provide support to individual homeowners and homeowners associations to mitigate wildfire hazards and prepare their homes and neighborhoods with adequate emergency-vehicle access and water supply for firefighting.*
- **Strategy H** – *Review the Land Use and Development Code to ensure that natural hazards are avoided or mitigated: geologic hazards, avalanche hazards, floodplains, wildfire-prone areas, and slopes that have a grade of over 30%.*

These were the only references to wildfire and wildfire preparedness in the 2015 comprehensive plan, this suggests that more specific and up-to-date provisions be adopted to guide growth in wildfire-prone areas and to protect structures from fire damage.

Local leaders are taking action, with updates to both of these critical plans in progress, and coordinated to capture opportunities for updates to regulations and codes.

The existing plans do offer some support to fire resilience. Current county regulations require that new subdivision access be reviewed during the planning review process, and that preliminary subdivision plans are reviewed by the Colorado State Forest Service as a referral agency. The [Lake County Natural Hazard Mitigation Plan](#) (page 162 - 167) does not have a recommendation regarding electric transmission and distribution lines in new developments be placed underground to address several hazards, including wildfire. And, no provisions exist in current county building codes that specifically address structural ignitability.

Information from the Lake County Assessor on March 31st, 2022 indicates there are a total of 83 neighborhood filings in the county comprising 8,620 parcels. Of those, at least 75 filings include more than 7 parcels, with the caveat that county data on the number of lots is not complete for some filings. ([Map #3](#), [Table A](#)) As these neighborhood codes are used for primarily technical and administrative purposes, there are also more broadly defined communities and neighborhoods whose names will be more familiar and are commonly used amongst the population of Lake County as well as by first responders. [Map #4](#) shows these communities and neighborhoods. [Table B](#) is a list of these communities as well as the Assessor's neighborhood codes contained within them.

Since 2006, 11 neighborhood filings have been added to the county, and at least 10 of those have more than 7 parcels (again, the data on the number of parcels is not complete in all filings). Given the degree of change and the updated prioritization in this plan, an update of subdivisions wildfire risk ratings is strongly recommended.

One concept that incorporates most of the best practices regarding structural ignitability and defensible space is Firewise USA. This program guides communities through a series of steps intended to reduce their vulnerabilities to wildfire, such as landscaping and fuel reduction, home construction and design, and neighborhood planning. This is a proactive process that develops a pre-fire strategy to reduce risk. CSFS and local fire departments assist with the Firewise program.

In addition to the Comprehensive Plan and the CWPP, Lake County has a [Hazard Mitigation plan](#) completed in 2019. Wildfire-related recommendations in this plan include:

- ***Minimize loss of life and property from natural hazard events to the residents and businesses in Lake County.***
 - Identify and protect people, structures, critical facilities, and critical infrastructure that are vulnerable and provide protection via a safe and operable EOC and critical facilities.
- ***Protect the public health and safety of residents, businesses and visitors to Lake County.***
 - Take a proactive approach to comprehensive planning, zoning, building codes and enforcement in Lake County to ensure development is approached in a manner designed to protect life safety.
- ***Reduce the potential risk and effects of natural hazards on residents, businesses and visitors to Lake County.***
 - Take proactive measures to ensure that all new construction and development within Lake County conforms with local planning tools, regulations and is developed with adequate infrastructure available to serve it.
- ***Update and keep current identified hazards and the risk assessment for hazards pertinent to Lake County.***
- ***Update and maintain current mapping for all of Lake County to ensure adequate travel, planning and response times etc. in an emergency.***
 - Update and continue to maintain all County maps in a GIS format and make these maps available to planners and all emergency response organizations.
- ***Improve government and public partnerships response to natural hazard disasters while strengthening community disaster resilience.***
 - Take a proactive approach to the development and maintenance of partnerships that will enhance the County's ability to reduce vulnerability to natural hazards.
- ***Take a proactive position to address and consider the potential impacts of climate adaptation in all planning efforts including mitigation planning.***
 - Address the potential impacts of climate adaptation in all hazard write ups in the mitigation plan as well as other future planning efforts.

The following additional plans govern federal wildfire-related activities in Lake County and the region:

- Lake County [Comprehensive Emergency Operations Plan](#)
- Upper Arkansas Valley Wildfire Annual Operating Plan, includes Chaffee and Lake Counties.
- Within the 2004 BLM Fire Management Plan, both Lake and Chaffee Counties are managed as part of the Upper Arkansas Fire Management Unit.

- The PSICC 2008 Fire Management Plan includes Lake County in the Upper Arkansas Fire Management Unit with Chaffee County and a portion of Park County.

D. Emergency Response Preparedness

Agency preparedness for emergency response is solid. The Lake County Office of Emergency Management (LCOEM) operates under the guidelines of the Lake County Comprehensive Emergency Operations Plan (LCCEOP) and the City of Leadville and Lake County Natural Hazard Mitigation Plan. The LCCEOP is a basic plan that provides a framework for Emergency Support Functions with detailed information for conduct of the County emergency mitigation and preparedness program and the County's response and recovery efforts.

The mission of the LCOEM is to coordinate the all-hazards planning, training, protection, prevention, mitigation, response, and recovery for natural, technological or human-made local emergencies and disasters; and assists with regional, state, and Federal emergencies and disasters as required. LCOEM plans, manages, and coordinates the administration, organization, and operation of the County Emergency Preparedness Program. LCOEM participates in and coordinates County department professional training and provides technical assistance in public awareness and informational services and conducts and/or coordinates emergency preparedness exercises to facilitate proper response during an emergency or disaster.

Regardless of the type of hazard, it is the responsibility of emergency management to help put in place mitigation, preparedness, response, and recovery programs to deal with all hazards.

The Lake County OEM operates the Lake County Office of Emergency Management program. The goal and objectives of the program are to protect public health and safety and protect public and private property across Lake County, Colorado. LCOEM follows the emergency response continuum to prepare for and manage all-hazards incidents.

In addition, LCOEM also coordinates Lake County's Emergency Services Council (ESC) which is composed of core emergency services agencies and departments, as well as local government leadership. The purpose of the Lake County ESC is to provide a forum for cooperation, communication, and coordination among the entities providing emergency services to the citizens and visitors of Lake County and the City of Leadville, Colorado. The Council advises, informs and gives recommendations to the Board of County Commissioners of Lake County and the City of Leadville on emergency services issues. The

recommendations may result in BOCC resolutions, regulations, policies or procedures for Lake County.

The ESC also serves as the Local Emergency Planning Committee [LEPC] for Lake County and the City of Leadville. ESC meetings are every other month and are generally held at Colorado Mountain College or virtually.

The Lake County OEM orchestrates the coordination of all County departments in their respective Emergency Service Function, or ESF group, to address post-disaster damage assessment as part of recovery efforts. The Office is also the source of debris management plans that address debris removal after major incidents. OEM, in combination with the Department of Human Services, also has created a sheltering and feeding plan for those displaced during severe events. The Public Health plan directs the county to identify the functional and access-needs population that may need assistance during events with items such as medication, oxygen, hydration, etc.

During emergencies requiring notification and potential evacuation of residents, the County Assessor's Office, the Mapping Department, or the Community Planning and Development Department, provides emergency personnel with computer files of taxable property with information regarding property owners and contact information within the affected area.

Leadville Lake County Fire Rescue Fire Chief, CSFS officials, and Office of Emergency Management personnel have indicated that the following are strengths of current emergency response planning and prevention:

- mutual aid agreements and MOUs ;
- monthly county emergency services council meetings ;
- county emergency operations plan adopted by all municipalities ;
- established CWPP operating plan CDFPC ;
- wildland firefighter training ;
- participation and availability of the LLCFR training facility (HTC) Headwaters Training Facility, to host and strengthen teamwork, relationships, and expectations across mutual aid partners;
- community fire mitigation efforts;
- coordinate responses with U.S. Forest Service and;
- Strong developing relationships with land owners such as Colorado Mountain College, and Newmont Mining for implementation of on the ground treatments

E. Fire Responses

Wildland Fire Management and Suppression Tactics: Suppression priorities for firefighters will vary based upon the capabilities, overall strategy and fire behavior. Firefighter safety is a priority, reinforced by the community as the most important “value at risk.” These priorities make it imperative that individual homeowners effectively treat the home ignition zone around their structures to increase the likelihood of their structures surviving a wildfire.

Fire Response: In the event of a wildfire, provide safety for yourself and your family, and call 911 immediately.

Fire Equipment: For this CWPP, a high-level assessment of local fire suppression capacity was completed, and is summarized below. Based on this information, Lake County fire equipment and personnel are considered below average for a county of our size and wildfire history, according to Lake County Fire Chief Dan Dailey. The assessment did identify gap areas for additional action as follows:

1. Considering that local personnel and equipment are also dispatched for national fires, a “drawdown” policy at the local fire department may be needed to ensure appropriate response is available considering current local conditions.
2. A plan to share staffing on local engines and tenders for local incidents would be helpful, for example increasing the number of ambulance personnel who are also wildland-firefighter qualified.
3. Assess if sufficient local agency wildfire modules and/or hand crew are available to respond to a high-probability initial attack on a wildfire without equipment access.
4. Continuing an ongoing assessment of suppression capabilities to maximize the effectiveness of firefighting for our community.

The following firefighting equipment is available in Lake County:

City of Leadville/ Lake County Capabilities: Personnel: 15 full-time career firefighters and 10 part-time reserve/resident firefighters.

Apparatus: 2 Type I Engines, 1 Aerial Apparatus, 2 Type VI Engines, 1 Tactical Tender, 1 Type III Engine, 3 Support Vehicles, 1 HazMat Rescue

Colorado Division of Fire Prevention and Control (DFPC)

In addition to the local assets above, DFPC has equipment listed below that can be ordered by the local incident commanders as needed and as available per state administrative policies.

Personnel: Hand crews, supervisory expertise and fire suppression module staffed with 7-10 firefighters located in Colorado Springs.

Apparatus: Engines and modules, overhead, Type 3 helicopter, Type 2 helicopter, Type 1 helicopter, single engine air tanker, large air tanker, very large air tanker, multi-mission aircraft, aerial supervision.

Currently, no auto-aid agreements are in place but will be focused on for all local fire agencies within DFPC Pikes Peak Region.

F. Preparedness in the Wildland-Urban Interface - Structural Ignitability

The wildland-urban interface (WUI) is where human-made structures and other assets are located near or within undeveloped areas with flammable vegetation. Preparedness in the WUI addresses conditions in the home ignition zone, that is, vulnerabilities in homes and other buildings (“structural ignitability”) and the surrounding landscape (“defensible space”). For this CWPP, the WUI in Lake County is defined as all buildings + a 100 m buffer, and all non-wildlife HVRAs (evacuation routes + 400 m buffer, major highways + 200 m, ditches + 200 m, water treatment + 200 m, water conveyance + 200 m, mine tailings + 400 m, critical water supplies, emergency service stations + 100 m, communication structures + 200 m, electrical transmission lines + 100 m, substations + 200 m, historic structures + 30 m, buildings + 100 m, ski sooper + 200 m, trails + 200 m, camping + 200 m, Recreation assets + 200 m, and dispersed camping).

The Colorado State Forest Service is the key agency in providing education and developing/delivering treatment projects on private lands, with the exception of prescribed burns. Colorado Division of Fire Prevention and Control is the agency that implements prescribed burn programs in Colorado. They offer a certification program that measures the level of skill, knowledge and abilities. These competency-based standards provide a basis for a voluntary training and certification program for private landowners to safely and successfully plan, initiate and complete controlled fire treatments on private lands. In addition, DFPC’s role in prescribed fire includes: Technical assistance in project design, planning, and assistance to state and other agencies with implementation of prescribed fire on state lands.

Human Life and Safety—Firefighter Access and Resident Evacuation

Structural ignitability, defensible space, and neighborhood development patterns directly affect human life and safety issues during wildfires. Extreme wildfire conditions can generate situations that overwhelm available firefighting resources—conditions that threaten both residents and firefighters. Issues for firefighters include:

- difficulties in accessing or escaping an area may prevent firefighters from approaching burning structures;
- the presence and extent of flammable vegetation near structures may also prevent or limit firefighter approach, deny them useful areas in which to work, or endanger them while fighting the fire; and
- the flammable nature of WUI structures may hinder effective fire control while also contributing to the spread of the fire.

The Boulder County CWPP (2011) noted that, “Only 7% (of Boulder County residents) thought that it was not likely the department would be able to save their home. However, the plan offered ten lessons from the county’s experience with wildfires, one of which was “Firefighters cannot defend and save every house.” The high winds and extreme conditions associated with Boulder County’s catastrophic fires often severely limit firefighters’ ability to save them. This lesson from Boulder County was echoed during CWPP Leaders team discussions.

Similarly, for residents, narrow, steep driveways may hinder escape, while narrow, steep roads limit or deny two-way traffic during evacuations. Flammable vegetation adjacent to homes may hinder or prevent homeowners from addressing embers and small fires. The Same may apply to the materials and features of the home. Most of these conditions in the WUI were noted during CWPP Leaders team discussions and are represented by the first CWPP value at risk, Life Safety, and are considered in this plan.

The increase in the size and number of houses in the WUI contributes to the rising costs of wildfire suppression, nor do prior wildfires in an area necessarily dissuade people from rebuilding their homes or others from building new homes in fire-prone areas. Evidence also indicates that trends toward more and larger fires across the West will continue. Some 80% of Colorado’s WUI remains undeveloped and the number of WUI homes in the state is expected to increase 130% by 2030.

Protection of property and people in the WUI has been a major emphasis of federal firefighting legislation since the early 2000s. Major goals are reduction of forest fuels around homes, communities, and resources to slow or stop wildfires from threatening high-value areas. Twenty years later, protecting the WUI still remains the nation's fastest-growing firefighting expense.

Structure loss during wildfires occurs as a result of direct flame contact such as that from the moving flame front, and from radiant heat and embers (“firebrands”). A common misconception about home loss during wildfires is that it usually occurs as the main body of the fire passes through. However, the main flame front moves through an area in one to ten minutes, depending on the vegetation type. Instead, most homes are destroyed by fires started by spotting by flying embers, especially under windy conditions and with large wildfires. Under the right conditions, firebrands can create separate and widespread points of ignition beyond the main fire front and thereby expose a large number of structures in a short amount of time. Larger fires may then produce conditions that lead to more embers, including those generated by burning structures. When spotting becomes the dominant ignition source, established fire barriers and subsequent fire suppression efforts are quickly overwhelmed.

Treating WUI Vegetation—Creating Defensible Space

Fuel treatment on private land in Lake County is currently voluntary. Advice and additional resources are available from the local office of the Colorado State Forest Service and local fire department personnel and OEM.

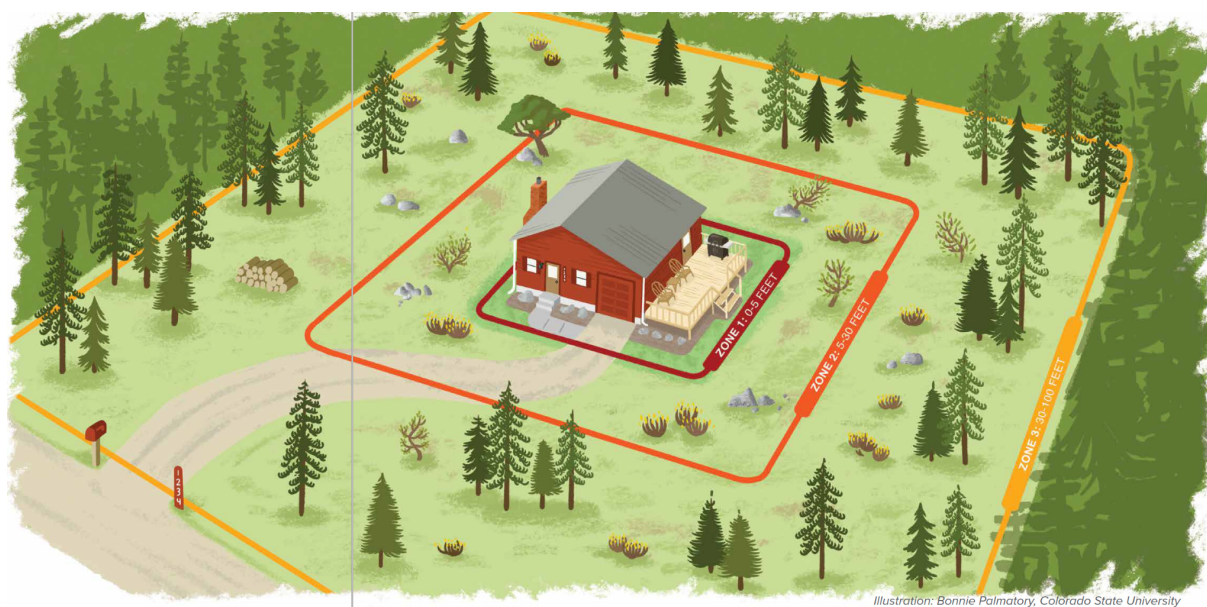


Figure 14: Home ignition zone.

Home ignition zone. The home ignition zone refers to the characteristics and immediate surroundings of structures in the WUI. These characteristics—building materials and

design—and surroundings—vegetation, outbuildings, and other elements—are the primary reason that homes survive wildfires—or not (Figure 14). Building materials and design reflect “structural ignitability,” which is discussed below. A home’s surroundings represent its “defensible space.” This space consists of three concentric zones around the house (Figure 15).

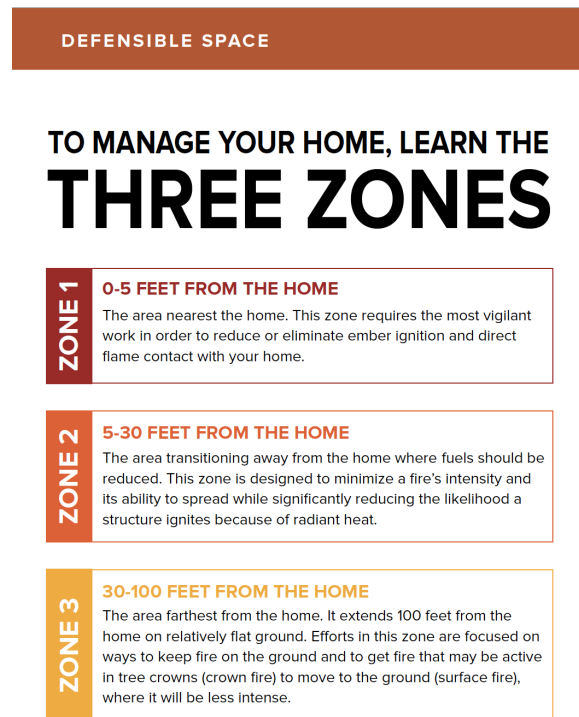


Figure 15: Defensible space zones 1 - 3

For more information visit: [Home Ignition Zone Checklists - Colorado State Forest Service](#)

Construction materials and design. Whether a home ignites during a wildfire is determined by the characteristics of its exterior materials and design and the response of those materials and design to burning objects within the home ignition zone and to burning embers. Features that represent a structure’s wildfire vulnerabilities include:

- roofs are large, relatively horizontal surfaces exposed to embers;
- window failure allows flame and embers to enter a structure;
- gutters are areas where debris can accumulate and potentially ignite;
- vents are avenues for embers and flames to enter a structure;
- decks and porches represent other large, flat surfaces exposed to embers; and
- exterior siding can burn if exposed to flame or radiant heat long enough, and embers can collect at the base of exterior walls, potentially igniting debris in the same area.

In terms of structure design:

- complex roof designs provide a number of horizontal-to-vertical intersections where debris can collect and embers can land;
- eaves and overhangs can collect wind-blown embers and increase the risk of igniting siding or nearby vegetation;
- flames can more easily penetrate lap siding compared to ship lap or tongue-and-groove designs; and

- the roof edge is vulnerable to wildfire when debris accumulates in adjacent gutters. Where construction creates gaps between the roof covering and the roof sheathing, embers and flame can enter.

For more information and detailed recommendations visit: [Research Fact Sheet Series - Firewise USA](#)

Home ignitability and firefighter efforts. Conditions in the home ignition zone also have a direct bearing on issues of human life and safety. Cohen (2010) suggested that, under extreme wildfire conditions, “reasonable levels of fire suppression cannot prevent these disasters.” One of ten lessons learned offered in Boulder County’s CWPP(2011) was “Firefighters cannot defend and save every house.” Discussions during the Chaffee County CWPP process similarly noted differences between the public’s expectations that firefighters will try to put fires out no matter what the circumstances. This contrasts with the firefighting community’s core value of firefighter safety and protecting human life first. Graham, et al. (2012) concluded: “minimizing home ignition potential enhances life safety and firefighter effectiveness especially during extreme burning conditions.”

Summary. Fire protection agencies can predict when wildfire conditions are dangerous, but they cannot otherwise control them. Waiting for an announcement of such conditions to address ignitability issues is too late. Wildfire destruction within the WUI is largely independent of management of fuels in adjacent wildlands—based on construction materials, design, and immediate surroundings, a fire-resistant home can reside in a high-hazard area and survive high-intensity wildland fires. Conversely, a highly ignitable home in a low-hazard area can be destroyed during a lower-intensity fire. In other words, vegetation and structural issues must be considered together. The implications for planners, fire agencies, and homeowners include the need to: 1) define high-hazard areas, 2) identify which wildfire treatments are most appropriate and necessary, and 3) determine who is responsible for those treatments and the subsequent wildfire impacts. In most cases for WUI private property owners, evidence indicates that the burden is on the property owner (Cohen 2000, 2010; Syphard, et al. 2013).

Section 5: Community Action Plan

A. Overview

Considering the Wildfire Risk Assessment, treatment prioritization and community preparedness data, the CWPP Leaders team worked with the community to develop a

shared action plan. The plan considers deep community research on current best practices in community wildfire preparedness, available upon request to: Tim Bergman, County Manager, tbergman@co.lake.co.us.

Decades of fire suppression, drought and ensuing insect infestations have caused our forests to decline into very poor health. Fires are occurring more frequently and are more intense. The community strongly supports accelerated treatment. Through this planning initiative, Lake County citizens and more than 65 organizations believe that healthy forests, waters and wildlife are critical to a healthy community.

Based on the above data, the CWPP Leaders team is committed to action in this CWPP 2022 Update. These goals build upon existing treatments and successes from the 2015 CWPP.

B. Specific Goals, Objectives and Initial Action Planning

The top priority of the 2022 CWPP Update and the Lake County Forest Health Council is to accelerate treatment activity across all jurisdictions in high Treatment Priority Areas to halve the risk wildfire poses to community values at risk while also (as practicable) enhancing watershed health, habitat and agricultural productivity. The goal has several objectives:

Goal #1: Reduce risk by 50% spending roughly \$40 million to treat the most important 20,000 acres by 2033 (2/3 public and 1/3 private lands including 20% prescribed fire).

Objectives:

Identify, develop an implementation plan for "shovel ready"& early win project/s.

Create an early win potential map - capturing all the shapes below. Bring it to the next Tech Meeting and work to ID top early win project (discussion map: https://lccgis.maps.arcgis.com/apps/webappviewer/index.html?id=e68d7ce178a84bfc3a2460e99b4d5d21)
Identify Property owners already in forest management plans with CSFS
Identify treatment priority areas that overlap Mining, Newmont and County Land coordination (4000 acres adj city)
Identify area SW of town where county property could be treated in partnership with Xcel and Newmont and FAA.
Pat connect Bryce with Lisa Corbin to get Tennessee Creek and Turquoise Lake files

Meet again with CSFS, ARWC, Newmont and get clarity on availability of parcels to treat
Identify large landowners in the Treatment Priority Areas (+100 acres)
USFS Focus is Tennessee Creek, Turquoise Lake and then Twin Lakes. Capture these shapes and pull into an "early win" Map
Develop a big picture plan for the Early Win project near town (give it a name, create a plan).
Develop funding for the early win project: Lake County submit application, MOU CMC, ARWC Project Management, CMC Curric Development, SWIFT Crew Camping Site? ID, COSWAP and NRD Funds. Coordinate larger RMRI proposal to incorporate Lake projects
Develop a collaborative COSWAP application for the Upper Ark RMRI Landscape with Lake and Chaffee projects and any associated asks for SWIFT or Conservation crews
Develop Newmont relationship and approach to treatment on their land
Make wood products at treatments available for firewood. Also provide any potential by products such as from biochar to support community or environmental projects.
Develop an early win Roadside Treatment on CR17 (AKA Mountain View) <ul style="list-style-type: none"> ● Work to create a roadside thinning project on the ROW on CTY RD 17 and CTY RD 4 and see how it fits in the bigger project picture. Bryce get shapes on the map to start. ● Assess if we may be able to use COSWAP funds to support planning/treatment capacity ● Confirm if CSFS Intern doing assessments could also do planning/support implementation of this project. Idea is to have the intern start with Assessments and build into a roadside fuel break plan.

Develop a plan and resources to support plan implementation, communications to the community and tracking of plan results.

Communication to subdivisions and meet with HOAs at a determined location, reach out through fire marshall and obtain a running list of contacts.
Communication to larger landowners.
Develop and implement a plan to communicate with the community regarding early win projects including the COSWAP scope (at CMC and adjacent the Mineral Belt trail) and treatments at this location.
Determine who is the resource that helps drive CWPP Plan implementation, tracking, ongoing Forest Health Council meetings to share progress. Who oversees all the BHAGS? Could we add a coordinator role/ person in Lake Fire or in the County?
Plan communication to the community when the CWPP is complete that speaks to big goals and who is in charge - get the key messages out
Develop a big picture plan to coordinate plan implementation and communications: What resources are needed, identify funding opportunities, develop needed capacity. This should include: Convening the forest health council, annual reporting of progress, coordination of partners and communications to the community about projects and progress in a consistent message framework. Options may include: NFF staff in the long term, Kim Smoyer in the short term, others?

Use Lake County Facebook (OEM, LLCFR, Tourism Panel (\$ for signage?), USFS, and other social media, websites, and press releases to communicate information to the community. (consider using OEM to support)

Develop a list of opportunities to communicate with partners on a regular basis including LCOSI, Wed. community coffee meeting and LCCB

Develop LCOSI's role in fuel mitigation partnerships and discuss their role in community engagement and communications support.

Collaborate with nonprofits and other partners to develop grant applications and other funding sources.

Develop a long-term plan for the full private land acres.

Determine if/how Lake County may partner with NFF for a second RCPP-AFA Grant to add funding (year 4 renewal opportunity - 2026). Note: this could be a \$5M opportunity.

Engage with NFF and the Upper Ark Forest Fund to develop a strategy to guide a future RCPP-AFF Round II grant that supports Lake County (potential for \$3-\$5M)

Develop opportunities for strategic matching funds

Develop a 10 year plan for the full 6000 acres of private lands

Determine annual accounting of treatment funding spent.

Investigate bond issue options

Use a fire planning board to assist with planning including Friends of Twin Lakes and other partners.

Develop a long-term plan for the full public land acres.

Amend USFS 5-year Veg Mgt Plan to account for additional treatments as funding and capacity become available through cooperators, congressional appropriations, partner dollars, etc

Develop a cohesive public lands implementation strategy by developing a stepwise approach to connecting treatment acres within the Upper Ark RMRI landscape

Engage with NFF and determine how we can use their capacity to help raise funds for public lands (and private) and to implement cross jurisdictional treatments

Investigate the Joint Chiefs program through NRCS and USFS to capture both private and public lands. Some capacity concerns about using these funds effectively. Infrastructure dollars may be a better option.

Develop both the capacity and funding for the estimated \$40 million over 10 years to support programs for all goals.

Organizing crew time available with programs that exist with CMC (Students and general education courses for the community.

Connect the community to the educational and workshop opportunities at CMC and through the county.

Meet with Sarah, NFF and Envision to decide if/how NFF might support Lake county in identifying local private and commercial opportunities (through vendors and contractors) to provide treatment on the ground. Use procurement processes through the county. This may include development of needed cooperative agreement for working with local private commercial contractors and vendors and Coordinate and work with existing contractors and vendors (Ember Alliance, COSWAP, etc.) for ways to continue engagement and treatment actions.
Work with Conservation District and NRCS to assist with enrolling property owners in the EQIP program
Work with CO State Forest Service to assist with enrolling property owners in the the forest Ag program
Research and develop plan for a potential ballot measure to obtain additional funds for this work (and other recreation and economic impacts)
Develop Lake County Fire Rescue, OEM and the City of Leadville's role in fuel mitigation partnerships and discuss their role in community engagement and communications support.
Monitor and apply for Arkansas Basin Roundtable / CWCB funding opportunities regarding water health and fuel mitigation

This is a challenging goal with several challenging objectives. It requires a substantial change in priorities and approach for agency personnel, and accelerated action—especially on private lands—and increased funding.

The risk assessment and treatment prioritization unanimously supported by this CWPP Leaders team indicate the greatest impact toward reducing the risk that wildfire poses to community assets can be achieved by focusing treatment activity in Treatment Priority Areas—representing an estimated \$100 million budget. In fact, data indicate treating 2 to 8% of the right acres across the total county landscape may decrease the risk wildfire poses to community assets by 50%. The data also suggest that treatment in lower priority areas may yield much lower return on invested dollars. The Treatment Priority Areas should not be considered as prescriptive, however. On-the-ground conditions, landowner willingness, continuity with fire breaks and pre-existing treatments and other factors may, in some cases, render treatment inside the zones impossible and treatment outside the zones prudent. It is recommended that this is at the discretion of local experts, but that the bias should always and strongly be toward activity in the Treatment Priority Areas.

The shift to treating the “right acres” at the targeted rate of roughly 3,000 acres each year, however, will not be simple for three reasons.

First, agency personnel may currently be evaluated and awarded based on acres treated rather than on the impact treatment work has in reducing the risk to community assets. Further, acceleration of treatment beyond current agency goals may not be rewarded. These agency priorities and policies are outside the influence of this CWPP, but will require

attention from local and regional agency management. Local agencies have unanimously endorsed the Treatment Priority Areas in this plan but may face a headwind to change inside their organizations. The strategy for addressing this challenge is education, starting with this planning document.

Second, to achieve this goal it will require an increased pace of treatment on federal lands and an order of magnitude increase in the treatment rate on private and state lands. Acres within the \$100 million budget priority areas are comprised of 74% federal, 25% private and 1% state land, and also include evacuation routes that may involve county and state rights-of-way. Priority federal lands are generally in lower-lying areas, and closer to community assets, potentially complicating action and requiring increased coordination with other agencies, private landowners and community members. Treatment on private lands has historically been challenged by landowner willingness to treat.

Success will require increased coordination, increased landowner outreach, additional human resources for project identification, planning and execution and increased funding. Parallel development of the Lake County Forest Health Council and its programs and coordination and collaboration with other adjacent counties including Chaffee (Envision) —and their funding— are integrated strategies to manage this challenge.

Third, additional funding will be required. Develop both the capacity and funding for the estimated \$40 million over 10 years to support programs for all goals. The biggest barrier for treatment on private lands and for accelerated treatment on federal lands is funding. The actions to address this challenge are in development and include a focus on collaborative funding development by leveraging the science-based work and community collaboration demonstrated in this plan; County funds; and building on existing partnerships with business partners, including water providers.

As part of its discussions, the CWPP Leaders team considered how best to pursue project funding, especially with the goal of multiplying the impact of other funding sources. Table 4 summarizes possible primary funding sources according to approved uses for potential funds.

Beyond this list, continued and expanded partnerships with water providers and local businesses are included in the plan. Council members will work to further develop this strategy and to complete collaborative funding requests, with support available from CSFS with funding.

Table 4. Summary of potential funding sources for forest health treatment activities

Purpose	Agency
Conservation Easements	CSFS (Forest Legacy Program), NRCS (Healthy Forests Reserve Program), GOCO
Fuels Treatment and Fire Mitigation	CSFS (FRWRM), BLM, USFS, SFA (State Fire Assistance), NFWF (National Fish Wildlife Foundation) ReStore, FEMA Wildfire Mitigation, GOCO Youth Corps Grants, CNCS State Commission – AmeriCorps NCCC Chainsaw Mitigation Crew ,DFPC Wildfire Module, Juniper Valley SWIFT Crew (Sawyersin training)
Hazard Mitigation	FEMA (pre-, post-wildfire, flooding), NRCS (Emergency Watershed Protection, Joint Chiefs, TCP (Targeted Conservation Pool)), USFS (infrastructure cost share)
Planning, Design and Monitoring	CSFS (Forest Stewardship Program), BLM/USFS (Title III,Wildfire and WUI Community Fire Assistance programs),USFS/LOR (CPAW), BOR (watershed groups), CDHSEM(Emergency Management Performance Grant, disaster recovery), GOCO, DOLA
Habitat Restoration	NRCS (Joint Chiefs, TCP), USFS (Landscape Scale Restoration Program), CWCB (watersheds, healthy rivers), GOCO, CWRPDA (bonds), CPW Habitat Partnership Program, Rocky Mountain Elk Foundation, Mule Deer Foundation, Wild Turkey Federation, State Land Board Improvement Funds, NFWF ReStore, National Forest Foundation Matching Awards Program, CoCO/USFS HIM program
Capital Projects	USFS (infrastructure cost share), USDA (Community Facilities Direct Loan & Grant)
Equipment	FEMA (Assistance to Firefighters Grant), USFS (excess property), COCO AIM (Actions Implementation and Mitigation),CSFS (FRWRM)
Education, Training and Outreach	BLM (Rural Fire Asst.), USFS (Volunteer Fire Asst.), IAFC/AIGI (RSG Fuels Mitigation), USEPA, several NGOs, NFPA Firewise Wildfire Day of Service
Wood Products & Biomass	CSFS (CO Wood Utilization/Marketing), USFS (Wood Innovations Grant, Value Added Grant)
Wildlife & Aquatic Systems	CPW (Habitat Partnership Program, Colorado Wildlife

	HabitatProgram), TU (Embrace-a-Stream), NFWF, Excel EnergyFoundation, CWCB (CO Water Conservation Board)
Recreation	GOCO; Xcel Energy Foundation
Water Related	USEPA/CDPHE (CWA §319, drinking water, Five Star),CWCB Colorado Water Plan Grants, CWCB Water SupplyReserve Fund Grants, CWBC Watershed Restoration Program

Goal #2: Prepare the community (residents and government) for wildfire by: Ensuring all residents in high risk zones have an evacuation plan by 2025;

Create a communication plan to share with property owners information about the thinning projects on County Road 4 & 17. Including templates and other materials for developing their own evac plan.
Outreach to local schools and nonprofits to include evac planning information and assistance.
Outreach to high density multi-family unit managers and apartment complex (Eagles Nest, Lake Fork,Mountain View Village, Mountain Valley Estates and Cooperativa Nueva Union) to include evac planning information and assistance.
Outreach to HOA (Sylvan Lakes, Webster Gravel Pit Area, Homestake Trout Club, Mount Massive Trout Club, Beaver Lakes Estates, Pan Ark, EE Hill Estates and Twin Lakes Village) and all other private property owners and residents of highest risk county roads with continued private sector outreach.
Work with Silvan Lakes HOA and the USFS on an additional egress evacuation planning.
Prepare information that identifies evac routes and provides information to all residents on an annual basis.
Ensure that property managers and association leaderships provide information (evac route identification) to their residents on a regular basis.
Communicate existing resources for alerts and readiness, reverse 911.
Update individual community assessments - have the analysis changed since last CWPP

Ensuring all residents in high risk zones have taken action to reduce structure risk by 2030, AND

Develop a package for residents that provides important information about actions that residents can take to protect their structures including firewise, defensible space prep, evac route map, etc.
Update hazard mitigation plan (HMP) with home assessments. Outreach to and engage with landowners with high risk with this information.
Develop and implement Lake Chips program, a county-wide program that empowers the community to act to create defensible space. The program may include chipping, cutting, and trailers to haul slash.
Purchase and develop operations foran air curtain burner at landfill site.
Identification of residents who are already willing to begin mitigation or have existing preparation and using it as an example for others

Update the regulatory environment with zoning and code updates that support fire resilience.
Start working with landowners to develop forest management plans that meet the highest standards.
Evaluate and define plan for human caused fire starts from within private lands which may include debris burning, etc. (permits required in County)

Reducing the risk of human caused wildfire related to dispersed camping and recreation use 50% by 2025.

Determine a mechanism to measure human caused fire starts and unattended campfires on County lands.
Monitor and track number of human caused fire starts related to unattended campfires and recreation over time on County Lands
Monitor and track number of human caused fire starts related to unattended campfires and recreation over time on Forest Service Lands.
Develop a plan to increase signage and/or communications for county fire bans and fire safety restrictions. Potentially have smaller signs with QR codes in businesses and other locations.
Provide more frequent fire safety prevention patrols by adding responsibility of a prevention tech in the next year
Provide dedicated position to monitor and patrol recreation impacts on County facilities (water, Andrick/CCC, IM)
Partner with the Sheriff Dept to communicate, train and dedicate staff in understanding their role with regard to fire safety.
Add metal fire rings where dispersed camping overlaps with the most receptive fuel types

Goal #3: Create a ten-fold increase in community demand and maintain 80% support for all treatment action on priority private and public lands by 2025.

Develop a plan to obtain social license to build support for forest treatment that helps residents understand the role of fire to sustain the ecosystem and risk of catastrophic fire in this area and to get them ready. Provide case study of a treatment area, ie.e TN Creek Area, Twin Lakes pres fire occurred about how fire can be good.
Develop a narrative that identifies the early-wins project areas and that communicates the treatments options and benefits of those for forest health and human safety.
Designate a treatment model area where there is patch cut and thinning in '22 and a prescribed fire by '24.
Provide information and educate residents on how climate change/drought is increasing urgency. Part of social license information and talking points.

Partner with NPOs and districts to ensure they are informed and can communicate with their networks to support these efforts for treatment.
Assign a staff person at county to manage consistent communications..or add a communications and CWPP Implementation resource with funding from RMRI-CODEX \$s? Somehow Lake needs capacity like Cindy/Kim Marquis provide in Chaffee county in driving plan implementation, tracking and communications.

Goal #4: Safely increase county-wide pile and broadcast burning 5% per year up to 2027 and build public support to use beneficial (prescribed and natural) fire to reduce risk.

Increase frequency of social media posts and press releases about adjacent county pile/broadcast burning. BHAG 1 - line 30 repeat
Whenever local opportunity for planned ignitions is likely, broadcast potential to normalize projected and actual operations
Follow majority of patch cut prescriptions with post harvest broadcast burning
Seek out small unit, broadcast burn-only treatment opportunities in areas with excellent control lines
Increase burning at landfill. Measure by volume of slash and operation of airburner
Increase burn permit applications by 5%

Goal #5: Ramp up safe wildfire suppression capacity by 2023.

Initiate water use agreements with cooperators prior to primary fire season
Develop a plan to help ensure HOAs do annual dry hydrant testing annually - communicate as part of HOA convos
Communicate potential operational delinations (POD) on USFS land by mid-year 2022 to increase tactical awareness and opportunities to safely engage
Update Wildfire Decision Support System (WFDSS) with POD spatial data by 2023 and relevant Lake CWPP updates by summer of 2022
As Type 3 engine purchase is complete we need to develop local policies regarding deployment of equipment and staff outside the community.
Increase staff and interns capacity over time.
Replace equipment as needed over the next 10 years.
City and County allocate annual capital funds toward plan
Develop a plan to improve Emergency Services Council coordination to address mutual aid and planning for wildfire
Connect to developing/improved State response plans to address mutual aid and planning for wildfire

Goal #6: Take action to improve post fire response planning by 2023.

Incorporate Burned Area Rehabilitation with BAER (Burned Area Emergency Response) for emergency stabilization of affected areas into COOP planning.
Obtain educational information and incorporate OEM training regarding elements included in post fire response through the Ark Basin Roundtable, Envision and others
FEMA Region 8 Coordination within state field manager for planning of Presidentially declared disaster following initial stages of wildfire where involvement from multiple levels of government and agencies will then be required
Fire and known values at risk being mapped and documented in accessible layers on accessible platform (County website?) prior to fire, for briefing reviews before field testing begins in order to make determinations of priority and needs
Bridging from emergency response phase to long term recovery effort (5 plus) years post fire and seeing how they coordinate with the next seasons potential risks
Ensure clear transition and dissemination chain from both IMT and BAER to county for long term recovery for plans and requirements
Develop a Lake County specific post fire response playbook.

C. Implementation & Monitoring/Reporting

An initial action plan for each of the goals and objectives has been included in the section above. This information will be monitored and updated biannually by the Leaders Team and the Lake County Forest Health Council.

Funding has been established to advance the top priorities described above through the Colorado Strategic Wildfire Action Program (COSWAP) through the Division of Natural-Resources for 25 weeks of SWIFT Crew time, additional COSWAP financial support of \$500,000 to expand and enhance CSFS and ARWC work throughout Lake County, and also through the Natural Resource Damages Program through CO Public Health and Environment over the next five years of approximately \$3.9 million in funding support to include forest health projects among others. This will support facilitation and coordination of the work done by numerous agencies, government organizations, businesses and nonprofits.

Lake County and the CSFS will also provide high-level tracking, monitoring and transparent communication of progress and results. CFRI will remain involved to inform monitoring of progress toward risk reduction goals.

Identification, development, funding acquisition and execution of forest-health planning and treatment projects will be ongoing. It is recommended that the 2022 CWPP be updated each five years to incorporate both progress and changing conditions.

APPENDICES

- A. [Lake County Community Wildfire & Recreation Survey Instrument](#)
- B. [Lake County Community Wildfire & Recreation Survey Summary Report](#)
- C. [Lake County Wildfire Risk Assessment](#)
- D. [Lake County Fuel Treatment Prioritization](#)
- E. [WUI Communities](#)
- F. [Acreage Totals by Zone](#)
- G. [2015 Community Wildfire Protection Plan, Lake County CO](#)