



2023 Update

Lyon County Community Wildfire Protection Plan December 2023



Lyon County



Central Lyon
FPD



North Lyon
FPD



Smith Valley
FPD



Yerington
Mason Valley
FPD



Nevada
Division
of Forestry

Funded by:

FEMA Hazard Mitigation Grant program
and Nevada Division of Forestry



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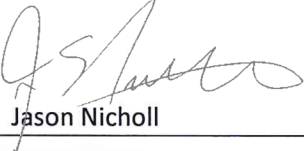



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Acronyms

BLM	Bureau of Land Management
CAT	Community Assessment Tool
CCT	Community Core Team
CLFPD	Central Lyon Fire Protection District
CWPP	Community Wildfire Protection Plan
FAC	Fire Adapted Community
FAN	Fire Adapted Nevada
FEMA	Federal Emergency Management Agency
FPD	Fire Protection District
HFRA	Healthy Forests Restoration Act 2003
MVCD	Mason Valley Conservation District
MVFPD	Mason Valley Fire Protection District
NASF	National Association of State Foresters
NDF	Nevada Division of Forestry
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NLFPD	North Lyon Fire Protection District
RCI	Resource Concepts, Inc
SVCD	Smith Valley Conservation District
SVFPD	Smith Valley Fire Protection District
USFS	U.S. Forest Service
VFD	Volunteer Fire Department
WUI	Wildland/Urban Interface

Plan Review and Support

The following authorities have reviewed the *Community Wildfire Protection Plan 2023 Update for Lyon County* and concur with the wildfire hazard assessment and the recommendations to implement actions to reduce the risk and potential loss from wildfires in Lyon County.

 Rich Harvey	Fire Chief Central Lyon Fire Protection District	12/21/2023 Date
 Scott Draper	Fire Chief Mason Valley Fire Protection District	1/16/2024 Date
 Jason Nicholl	Fire Chief North Lyon Fire Protection District	1/8/2024 Date
 Matthew Nightengale	Fire Chief Smith Valley Fire Protection District	1/9/2024 Date
 Kacey K.C.	Digitally signed by Kacey KC Date: 2023.12.21 14:39:13 -08'00' State Forester and Fire Warden Nevada Division of Forestry	12/21/2023 Date
 Dave Hockaday	Lyon County, Nevada Chairman, Board of Commissioners	12/21/2023 Date

1.0 Introduction

1.1 General Background

National laws and policies to address the tragic loss of life and property and unprecedented long-term impacts to natural resources were enacted in **2002 with the Healthy Forests Initiative**. In **2003 the Healthy Forests Restoration Act (HFRA)** was passed which, among other things, authorized communities to draft and implement Community Wildfire Protection Plans (CWPPs) to specifically address a community's unique conditions, values, and priorities related to wildfire risk reduction and resilience. Communities with a completed CWPP in place are given priority for funding of hazardous fuels reduction projects carried out under HFRA.

Later in **2009 the Federal Land Assistance and Management Act (FLAME)** was passed and **the Cohesive Wildfire Management Strategy** emerged whereby Congress directed federal entities to develop a cohesive federal/ state/ local framework for dealing with wildfires. It was developed in three phases to formalize a commitment to the belief that, as stakeholders,

We all share responsibilities for managing and protecting our nation's natural resources in a manner that will keep our communities safe and resilient to wildfire for generations to come.

The Cohesive Strategy merges wildfire hazard reduction with a responsibility to work collaboratively among all stakeholders and across all landscapes using best science to make meaningful progress toward three goals:

- 1) Restore and maintain healthy and resilient landscapes to reduce and control the potential wildfire fuels of so that wildfire severity is reduced.
- 2) Create fire adapted communities by encouraging communities, localities, and property owners to take meaningful action to prevent wildfires and limit their destructive potential.
- 3) Provide safe and effective wildfire response using the smartest on-the-ground strategies to maximize their effectiveness.

In 2023 an Addendum to the National Cohesive Wildland Fire Management Strategy was released from the Wildland Fire Leadership Council that again reaffirmed the original strategic goals.

1.2 CWPP History in Lyon County

The Initial CWPP for Lyon County, Nevada that addressed wildfire risks and hazards was prepared in 2004 by Resource Concepts, Inc. (RCI) on behalf of the Nevada Fire Safe Council.

This 2023 Update to the *Lyon County Community Wildfire Protection Plan (2023 CWPP Update)* has been prepared for Lyon County by the Nevada Division of Forestry (NDF) and RCI to present the results from a 2022 Wildfire Risk Assessment and to identify opportunities and projects to lower wildfire risks in Lyon County communities and neighborhoods. The 2023 CWPP Update touches on each of the three goals of the Cohesive Strategy. However, the emphasis is on creating and maintaining fire-adapted communities.

The purpose of the 2023 CWPP Update is to serve as a framework for a comprehensive long-term resiliency plan used to prioritize future wildfire protection projects and foster a collaborative approach

with adjacent neighborhoods and jurisdictions. This Lyon County update will enhance the future plans to identify and prioritize local fuel reduction treatments and other wildfire hazard mitigation activities at a site-specific scale and provide a methodology for monitoring progress and accomplishments (R. Bollier, personal communication, 2023).

1.3 CWPP Plan Area

The assessment areas for the 2023 CWPP Update included reevaluating and updating the wildfire risks in designated neighborhoods in each of the four Lyon County Fire Protection Districts (FPDs). The 2023 CWPP Update includes the developed neighborhoods located in the Central Lyon Fire Protection District (CLFPD), the North Lyon Fire Protection District (NLFPD), the Mason Valley Fire Protection District (MVFPD), and the Smith Valley Fire Protection District (SVFPD). Fire Protection Districts in Lyon County are organized under the provisions of NRS Chapter 474 and are under the direction of an independent, generally elected Fire Boards of Directors. The CWPP Plan Area is shown in Figure 1.

The recommended criteria given for defensible space and other homeowner responsibilities for maintaining homes and the surrounding private property in a fire-adapted condition are also applicable to the outlying agricultural and rural developments in Lyon County that are not specifically identified as neighborhoods in this 2023 CWPP Update.

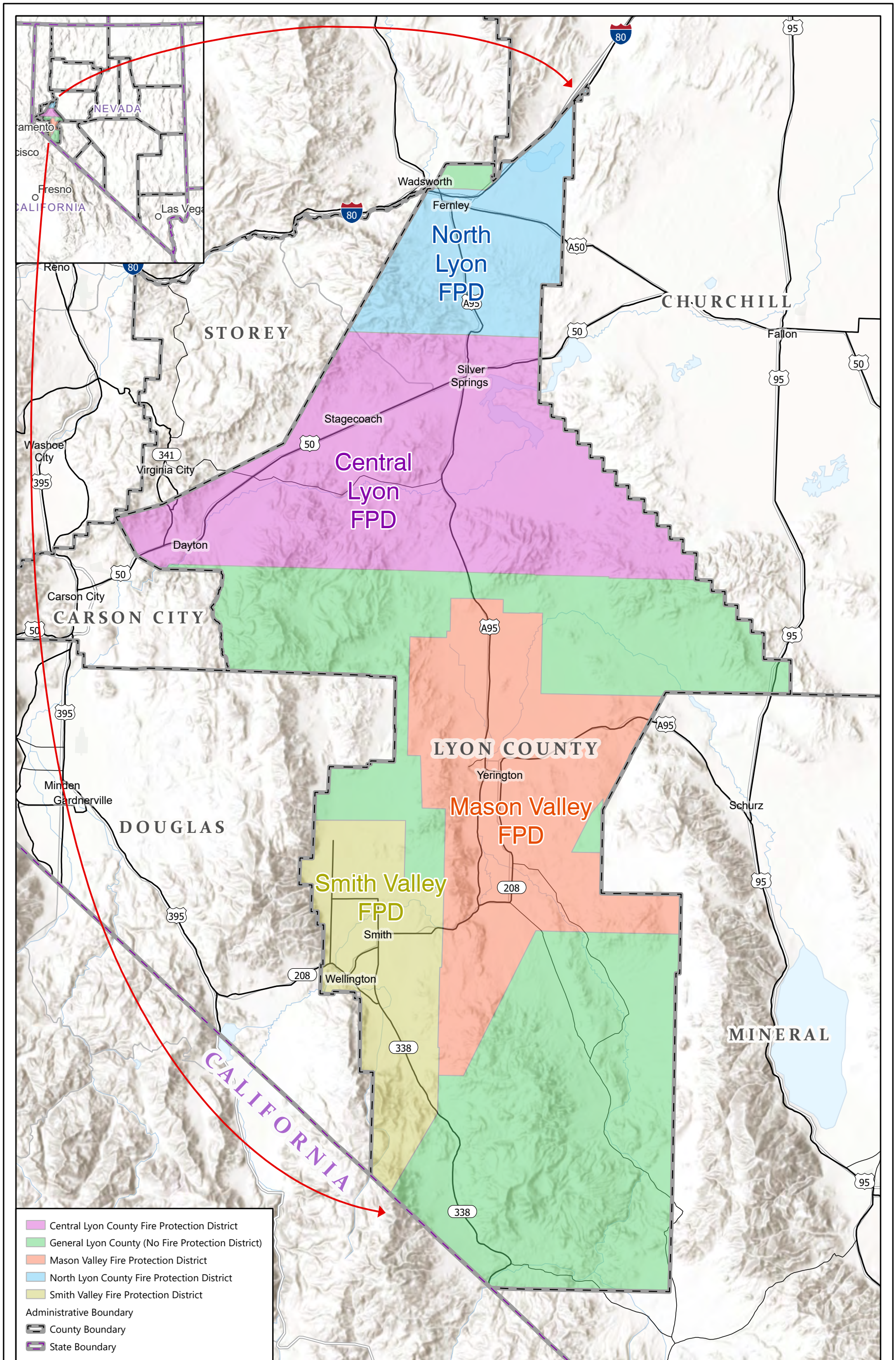


Figure 1. Project Area
 Lyon County Community Wildfire Protection Plan
 2023 Update

0 7.5 15 Miles
 1 in = 7.5 Mile



12/01/2023



PART 1 – WILDFIRE RISK

2.0 Wildfire History and Ignition Risks

Wildland fires are not uncommon in Lyon County. Fire has always been a component of Great Basin ecosystems. However, wildfire size, intensity, and frequency are increasing throughout the West. Wildfire severity and property loss have been amplified by prolonged drought, expansion of cheatgrass, and lack of vegetation management to reduce and maintain both wildland and residential fuel loads.

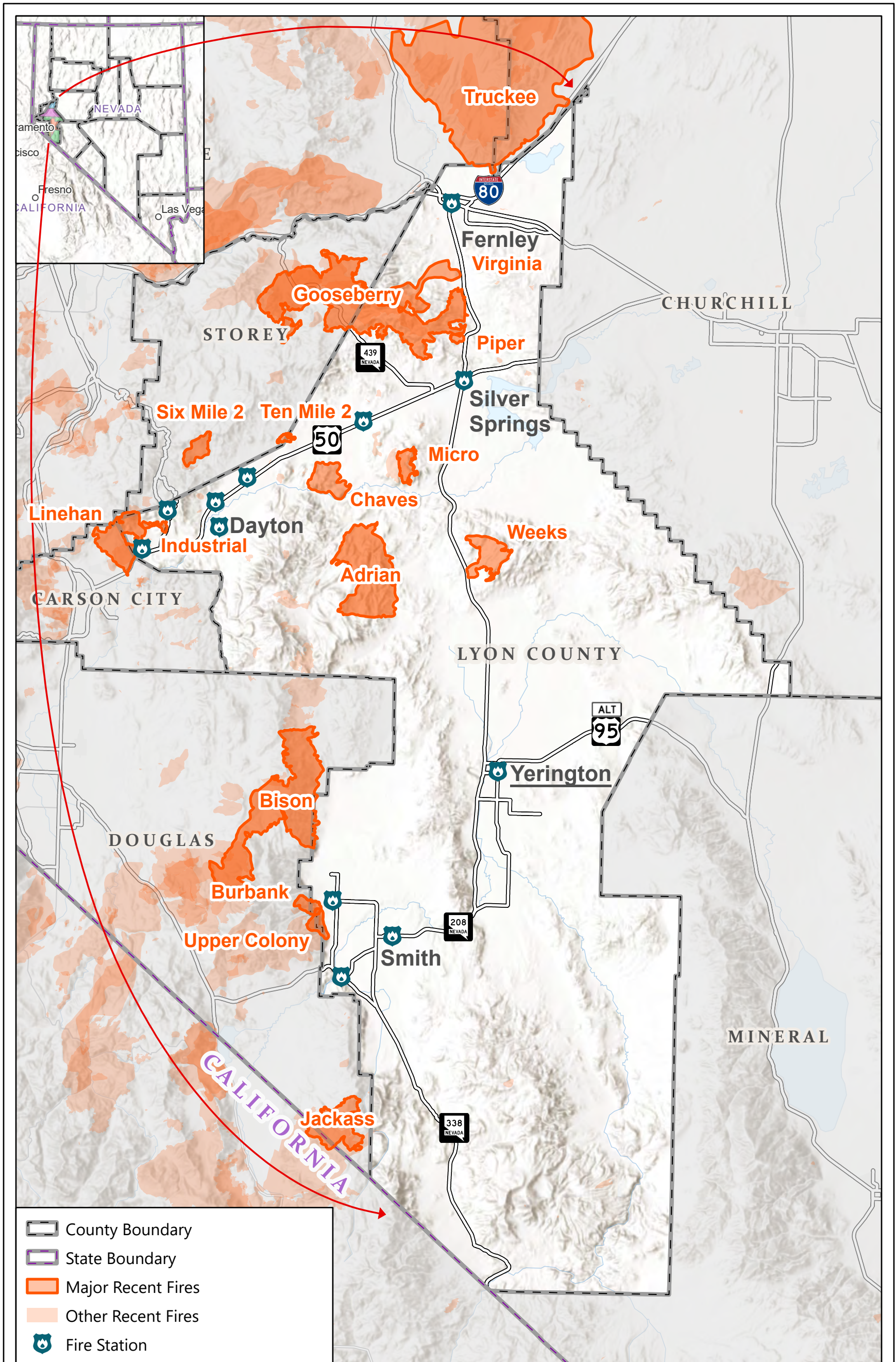
Wildfire ignitions generally fall into two categories, natural and human caused. Natural ignitions are started by lightning. Human-caused fires are usually started by accident or negligence and include many factors such as automobiles, barbecues, cigarettes, campfires, target shooting, etc. The majority of large fires in Lyon County have been caused by lightning strikes. Thunderstorms frequently occur during late spring and summer, and approach primarily from the south, southwest, or west. In a dry lightning storm, rain does not reach the ground in sufficient amounts to extinguish or hinder wildfire. Dry vegetation rapidly ignites and can spread quickly, especially under windy conditions which accompany frontal weather systems.

Wildfire behavior is influenced by many factors including fuel load, geography, climate, weather, and topography. Reducing and managing the vegetative fuel load will lower risks to private property, affect the potential for extreme fire behavior, improve safety and suppression capability for firefighters, and reduce losses of wildlife habitat and ecosystem services.

Historic large fires in Lyon County are predominantly located west of the SVFPD boundary in the Pine Nut Mountains and west and north of the NLFPD boundary. A partial list of large fires in Lyon County since 2006 is summarized in Table 1 and shown in Figure 2.

Table 1. Partial list of large fires (>300 acres) since 2006 that have burned into Lyon County Fire Protection Districts.

Central Lyon Fire Protection District (CLFPD)			
Year	Fire Name	Source of Ignition	Fire Size (acres)
2006	Linehan	Natural	5,860
2006	6-Mile 2	Natural	1,733
2006	Virginia	Natural	4,602
2007	Industrial	Human	428
2007	Adrian	Natural	14,001
2012	Weeks	Natural	3,864
2017	Micro	Natural	1,549
2018	Chaves	Human	3,437
2018	Piper	Human	314
2020	10-Mile 2	Human	306
North Lyon Fire Protection District (NLFPD)			
Year	Fire Name	Source of Ignition	Fire Size (acres)
2006	Virginia	Natural	4,602
2017	Truckee	Human	98,954
2018	Piper	Human	314
Smith Valley Fire Protection District (SVFPD)			
Year	Fire Name	Source of Ignition	Fire Size (acres)
2006	Jackass	Natural	6,213
2011	Burbank	Natural	1,113
2013	Bison	Natural	24,140
2018	Upper Colony	Human	1,201








-  County Boundary
-  State Boundary
-  Major Recent Fires
-  Other Recent Fires
-  Fire Station

Figure 2. Recent Fire History
 Lyon County Community Wildfire Protection Plan
 2023 Update

0 7.5 15 Miles
 1 In = 7.5 Mile



3.0 Fuel Hazards

3.1 Wildland/Urban Interface

The wildland/urban interface (WUI) is defined as the place where development meets wildlands. The WUI is the zone of transition between unoccupied land and human development. It is the area where wildfires pose the greatest risk to people and property. As communities in Lyon County continue to expand into wildlands, the WUI will continue to grow, and the risk of property losses may become worse (USFA 2022).

Many neighborhoods throughout Lyon County are characterized as having an “Intermix” WUI condition where structures are scattered among or mixed throughout wildland vegetation without a clear line of demarcation between the vegetation inside and outside of the development. The intermix wildland fuels arrangement is most common in neighborhoods with large parcels (at least one acre in size). In these cases, at least some portion of a parcel is usually left in native vegetation leaving pockets of potentially hazardous fuels within neighborhood interiors. The intermix WUI fuel hazard occurs both within and around the perimeter of the neighborhood and increases the neighborhood wildfire risk.

For the purpose of this 2023 CWPP Update, the WUI fuel hazard was assessed on vegetative fuels within neighborhoods and within a 0.5 mile perimeter around the designated neighborhood boundary. This designation was useful for conducting a visual qualitative assessment of the WUI fuel hazard as a function of vegetation type, vegetation height and density, the continuity of the fuel bed, and the overall landscape position of the adjacent wildlands. This approach was consistent with the methodology used in 2004. In specific areas, the WUI boundary was expanded beyond the 0.5-mile perimeter to incorporate low density development areas and additional lands of high importance and value to the people of Lyon County and the State.

The FPD and the property owners in each neighborhood may at some point in the future decide to formally designate a WUI boundary pursuant to the 2018 International Wildland-Urban Interface Code. Central Lyon FPD has completed a formal WUI designation that characterized the entire undeveloped portion of the protection district as WUI.

3.2 Fuel Hazard Conditions

WUI areas within each FPD that were viewable from existing roads were evaluated and the fuel hazard conditions were noted as follows:

LOW FUEL HAZARD

- Areas dominated by sparse, low stature vegetation, generally less than 20 inches tall, such as low sagebrush (*Artemisia arbuscula*), bud sagebrush (*Picrothamnus desertorum* aka *Artemisia spinescens*), black sagebrush (*Artemisia nova*), and shadscale (*Atriplex confertifolia*) forming a discontinuous fuel bed. Sparse expanses of Bailey greasewood (*Sarcobatus Balieyi*) are common throughout much of Lyon County and can also be a low fuel hazard if cheatgrass is not present.
- Slopes of predominately rock outcrop and sparse vegetation.
- Recently burned areas. The fuel hazard in these areas will vary widely from low to high based upon spring precipitation conditions and annual production of cheatgrass and annual mustard.

MODERATE FUEL HAZARD

- Areas where shrubs average less than 30 inches in height and have walkable interspaces that are at least twice the height of the shrubs or clusters of shrubs and with sparse understory vegetation or bare ground, i.e., without a continuous fuel bed. The most common moderate hazard vegetation types in Lyon County are Bailey greasewood and Wyoming big sagebrush (*Artemisia tridentata wyomingensis*) with a moderate component of cheatgrass and other annuals.

HIGH FUEL HAZARD

- Areas with large amounts of vegetation or urban debris throughout neighborhoods (Intermix condition).
- Areas that have not recently burned, where shrub heights of mostly big sagebrush (*Artemisia tridentata*) and bitterbrush (*Purshia tridentata*) average greater than 30 inches and there is little or no space between shrub crowns creating a nearly continuous fuel bed. Other high fuel hazard shrubs in Lyon County include rabbitbrush (*Chrysothamnus* sp.) and desert peach (*Prunus andersonii*) which rapidly resprout after fire.
- Phase 1 and Phase 2 pinyon pine (*Pinus monophyla*) and/or juniper (*Juniperus osteosperma*) (commonly referred to as P-J) encroachment into mature sagebrush stands forming both a continuous fuel bed and creating a ladder fuels arrangement (Miller et al. 2008).

Currently, Phase 1 encroachment is characterized by scattered individual trees at the base of the Pine Nut Mountains, the Virginia Range, the Sweetwater Mountains, and the Desert Creek Mountains. As ecological succession progresses over time to Phase 2 encroachment, tree cover increases and co-dominate with shrubs and the herbaceous understory. As tree growth and rate of tree establishment increase further, the tree canopy closes and trees dominate the vegetation community in Phase 3 which is typical of the mountain ranges along the west and southwest sides of Lyon County.

The fuel load contributed by P-J encroachment doubles between Phase 1 and Phase 2. From Phase 2 to Phase 3, fuel loads contributed by the trees double again while understory abundance decreases to a small fraction of its pre-tree levels (Joint Fire Science Program 2008).

EXTREME FUEL HAZARD

Fuel loads in Phase 3 P-J encroachment are as much as eight times higher than the sagebrush ecosystems prior to tree encroachment and are characterized as an extreme fuel hazard condition. Phase 2 encroachment on steep slopes can also create extreme conditions for extreme fire behavior (Joint Fire Science Program 2008).

AGRICULTURAL LANDS

Agricultural lands were classified in a category of their own because they are normally irrigated and function as fire breaks rather than fuels. The agricultural land classification for this project includes areas that are currently irrigated for crop production or have been previously cleared for crop production and have not reverted to native vegetation. They may however transition to invasive annual grass (cheatgrass) and annual mustard which are easily ignited, flashy fuels that can spread fire at extremely high speed under windy conditions. The fuel load in individual irrigated fields and pastures can vary annually based upon management decisions and the quantity of water available for irrigation.

CHEATGRASS AND ANNUAL FORBS

Cheatgrass (*Bromus tectorum*), tumble mustard (*Sisymbrium altissimum*), and Russian thistle (*Salsola kali*) are introduced (nonnative) annual plants that have invaded nearly all native plant communities to some degree. Replacement of a native shrub community following a wildfire with a pure stand of cheatgrass increases the susceptibility of an area to repeated wildfire ignitions, especially in mid to late summer when desiccating winds and lightning activity are more prevalent.

The annual production, and thus fuel load, of annual plants is directly related to precipitation. In a normal or above normal precipitation year, cheatgrass can be considered a high hazard fuel type. In dry years cheatgrass poses a low fire behavior hazard because it tends to burn with a relatively low intensity. In every year, dried cheatgrass creates a highly flammable fuel bed that is easily ignited with the propensity to rapidly burn into adjacent cover types that may be characterized by more severe and hazardous fire behavior.

BURNED AREAS

Most dominant shrubs common to Lyon County are killed by burning and do not regrow for several years or decades following fire. This does not eliminate the potential for wildfire. Cheatgrass and annual forbs, and re-sprouting shrubs such as rabbitbrush and desert peach rapidly fill this void recreating the potential for highly hazardous fire conditions.

URBAN FUELS

These fuel loads are a separate, more complicated type. Urban fuels consist of garbage, abandoned wooden structures and mobile homes, dry wooden fences, old cars, and other objects that are flammable and harbor accumulations of wind-blown debris (tumble weeds, leaves, garbage). Urban fuels are more difficult to address because they require an entirely different disposal process through waste management. Hazardous urban fuel accumulations complicate establishing defensible space and promote structure-to structure ignitions.

3.3 Interface Conditions and Fuel Hazard

Fuel hazard conditions range from low to moderate throughout most of the neighborhoods in Lyon County FPDs. High fuel hazards occur when neighborhoods are intermixed with pinyon-juniper such as Linehan Road & McClellan Peak Road and Silver City in the CLFPD and Pinion Drive in SVFPD.

Low and moderate fuel hazard areas that are dominated by sagebrush, Bailey greasewood, or other salt desert shrubs with a component of cheatgrass, tumble mustard, and Russian thistle can surge the fuel load drastically in wet years such as 2023 when a continuous fuel bed develops among and between shrub vegetation creating high hazard fuel conditions in otherwise sparse, low growing shrub types.

River corridors such as the West Walker River on the west side of MVFPD and the Carson River Corridor in Dayton State Park (neither of which are designated neighborhoods in the 2023 Update) are also characterized by High to Extreme Fuel Hazard conditions.

4.0 Community Risk Assessment / Methods

4.1 Nevada Community Assessment Tool (CAT)

The wildfire risk assessment for the 2023 CWPP Update was compiled and quantified by NDF using a computer analysis model developed for the National Association of State Foresters (NASF). The model, *Nevada Community Assessment Tool (CAT)*, was specifically configured by local experts for Nevada wildfire risk assessments and evaluates three categories of wildfire hazards for neighborhoods: suppression hazards, hazards in the surrounding environment, and structural hazards.

NDF Fire Personnel assessed each neighborhood assisted by Google Maps and satellite images. Wildfire hazard factors were verified during on-the-ground field visits. Menu-driven responses in the CAT model were recorded to create a database for quantifying the assessment results.

SUPPRESSION HAZARDS

A total of ten factors were evaluated for the Suppression Hazard Analyses addressing factors that either facilitate or obstruct fire department response and capability for wildfire suppression. The Suppression Hazard score comprised twenty percent of the Overall Hazard Score. The Suppression Hazard includes consideration for the following factors:

- Water supply (most heavily weighted suppression variable). Hydrants or other near-by water sources are essential for fire suppression.
- Ingress and egress: Access for fire apparatus and simultaneous evacuation of residents can be hindered in areas with less than two roads in/out of the neighborhood.
- Road width: Roads greater than 24 feet or less than 20 feet wide either help or hinder access for emergency vehicles.
- Street signs: Signage throughout the neighborhood with 4-inch reflective lettering assists fire fighters in locating structures under heavy smoke conditions during a wildfire.
- Local fire response resources: Paid professional or volunteer fire fighter responses can affect response time.
- Road accessibility: Road surfaces, road maintenance, and road gradients greater than five percent affect access by heavy suppression equipment.
- Driveway accessibility: Driveway design affects fire fighters' safety and response time when approaching a burning structure.
- Geographic features: Remote areas hinder suppression efforts by increasing response time.
- Secondary road terminus: Narrow cul-de-sacs or narrow dead-end roads affect maneuverability of suppression apparatus.
- Neighborhood organization: Designated authority to assist with neighborhood meetings, promote proposals for projects to reduce wildfire hazards, and coordinate neighborhood project implementation enhances homeowner engagement with wildfire safety and keeps neighborhood safety plans at the local level.

SURROUNDING ENVIRONMENT HAZARDS

Eight risk factors that characterize the environment surrounding each neighborhood that affect wildfire behavior and suppression were evaluated. The Surrounding Environment Hazard comprised forty percent of the Overall Hazard Score. Hazards in the surrounding environment include consideration for the following factors:

- Predominant vegetation (most heavily weighted variable for the Surrounding Environment Hazard). The vegetative fuel type within a neighborhood, e.g., grass, brush, and tree cover, affects wildfire ignition, fire behavior, rate of spread, and fire fighter safety. In addition to vegetative fuels, “urban fuels” consisting of dead woody materials, trash, old wooden fences, and other flammable debris in yards create hazardous conditions for firefighters dispatched to residential properties and can endanger adjacent structures.
- Defensible space: The most important activity that homeowners can do to protect their property is removing/trimming flammable vegetation and removing ignitable debris within the recommended distance around homes and outbuildings. Homeowner guidelines for defensible space are included in Appendix A.
- Adjacency to wildlands with accumulated fuels: Hazardous wildland fuels adjacent to neighborhoods can create conditions for extreme fire behavior that can spread to neighborhood residences.
- Slope: Landscape steepness affects fire behavior, rate of spread, access for fire suppression apparatus, and fire fighter safety.
- Vacant lots: Restricted access or vegetative fuels that are not maintained create hazardous wildfire fuel conditions and promote fire spread within the neighborhood.
- Electric transmission lines: The condition and design of electric transmission and distribution lines have been responsible for many recent wildfire ignitions. High wind events can cause powerlines to spark and ignite vegetation below.
- Possible structure-to-structure ignition: Excessive fuel and flammable debris can readily ignite and spread wildfire throughout a neighborhood.
- Topographical features that adversely affect wildland fire behavior: Slope and aspect, especially south exposures, negatively affect fuel moisture and pre-heat vegetation, greatly increasing ignitability and spread of wildfire.

STRUCTURE HAZARDS

A total of ten risk factors were evaluated in the structural hazard analyses. The Structural Hazard score comprised forty percent of the Overall Hazard Score. Structural Hazards relate to the “built environment” and include features that affect the ignitability of homes and outbuildings.

- Roofing material (most heavily weighted factor for the structure hazard analysis). Fire resistant materials such as metal, tile or class A asphalt, or fiberglass singles are most resistant to ignition from fire brands and blowing embers.
- Ventilation soffits: Screened or enclosed soffits and exterior vents preclude fire brands and embers from entering a home or lodging in and under structures, smoldering, and igniting a structure.
- Siding material: Noncombustible siding slows or prevents structure ignition.

- Under skirting and other structure openings: Unenclosed stairwells, porches, and decks provide places where embers can land, smolder, and ignite structures.
- Wooden attachments: Dry wooden attachments to homes such as decks, fencing and old sheds can easily ignite and spread fire to residential structures.
- Debris on roof and/or gutters: The presence of dry debris and plant litter on rooftops are easily ignited by fire brands and blowing embers that can spread fire to the entire structure.
- Building setback from adjacent slope: As slope increases, hazardous fire behavior increases. Less than a thirty-foot setback increases the possibility of spreading fire from ignitions within the neighborhood to adjacent neighbors and to wildlands.
- Propane tanks: Fuel tanks could ignite if the surrounding vegetation is not cleared for a distance of at least thirty feet around the tanks.
- Electric utilities: Transmission lines can arc and ignite vegetation if fuels are not maintained.
- Non-combustible zone: Clearance of all combustible material and vegetation within a five-foot perimeter around homes and outbuildings reduces the potential for structure ignition.

4.2 CAT Wildfire Hazard Scoring Method

Hazard assessments were directly recorded in the CAT database from a drop-down menu. The CAT model assigned a numerical score to each hazard based upon the severity of its potential to affect wildfire ignitions and fire behavior. Individual hazard factor scores were summed to compile the Hazard Rating Score for each of the three wildfire hazard categories: Suppression, Surrounding Environment, and Structural.

The points assigned for each hazard condition are described in Appendix B.

The score for the Suppression Hazard was weighted as 20 percent of the Overall Hazard Score; the Surrounding Environment and Structural Hazard scores were each weighted as 40 percent of the Overall Hazard Score for each neighborhood. Hazard scores were assigned to categories based on the rubric in Table 2.

Fire Chiefs were consulted in each Fire Protection District to review the CAT assessment process, and to verify the accuracy of the CAT assessment results. Fire Chiefs identified changes needed in the database based upon their local knowledge and expertise. The database was revised to incorporate the recommendations from local fire professionals.

Table 2. Assignment of hazard categories from the CAT results.

Suppression Hazard Score Range (0-60)	Hazard Category
0-10	Low
11-20	Moderate
21-35	High
36-60	Extreme
Environmental Hazard Score Range (5-120)	Hazard Category
5-15	Low
16-45	Moderate
46-75	High
76-120	Extreme
Structural Hazard Score Range (5-120)	Hazard Category
5-15	Low
16-45	Moderate
46-75	High
76-120	Extreme
Overall Hazard Score Range (10-300)	Hazard Category
10-50	Low
51-100	Moderate
101-185	High
186-300	Extreme

4.3 CAT Hazard Assessment Neighborhoods

All communities in Lyon County are threatened by wildfire to some degree. The 2023 CWPP Update takes a close look at wildfire hazards in residential areas by delineating and evaluating individual neighborhoods within each of the four Lyon County Fire Protection Districts (FPD).

CAT Assessment Neighborhoods were delineated within each FPD by NDF based on geographic boundaries of residential development that were built with similar construction methods and were constructed over the same general time period. Separate, detailed assessments were completed for individual neighborhoods and summarized for each FPD. The complete assessment database can be accessed through the NDF or Lyon County Emergency-Communication Manager at:

<https://lyon-county.org/1078/Hazard-Mitigation>

4.4 Community Planning and Involvement

RCI and NDF implemented a plan to involve stakeholders, both public and private, in the planning process. A key element of the public involvement plan was formation of a Community Core Team (CCT) which included the following federal, state, and local fire and resource agencies: Lyon County Fire Protection Districts, Bureau of Land Management (BLM) Carson City District, U.S. Forest Service Carson and Bridgeport Ranger Districts, Nevada Division of Forestry, Nevada Department of Wildlife, three Lyon County Conservation Districts, and the Lyon County Emergency-Communications Manager. The CCT reviewed an administrative draft CWPP to provide technical input on the overall CWPP, especially mitigation recommendations, proposed projects, and the results of the CAT analysis. Agency review and collaboration through this process was effective in securing information on priority agency fuels management projects that are in various stages of planning and implementation.

Letter invitations to join the CCT were sent to Native American Tribes located in or in the region of Lyon County. Of the eight tribes contacted, two responded in an affirming manner, which included the Pyramid Lake Paiute Tribe and the Reno-Sparks Indian Colony.

PUBLIC WORKSHOPS

Four public workshops were held in October 2023 to review and discuss the draft CWPP. Workshops were co-hosted by the four Lyon County Fire Protection Districts and advertised in advance with assistance from the Lyon County Emergency-Communication Manager. Meetings were held at each fire district headquarter office. Public attendance at these workshops included a total of 21 county residents. A number of helpful comments were received during the course of these four workshops. All the public comments and suggestions received at these workshops were considered and nearly all were addressed and incorporated into the development of the final CWPP.

PROJECT WEBSITE

To solicit additional public involvement, a project website was developed and hosted during the development period of the CWPP Update. The project website hosted announcements and advertisement for the four public workshops, a link to the draft CWPP, and a survey function to allow citizens to submit comments on the draft CWPP online. The website also allowed participants from the public workshops to clarify and submit their written comments on the draft CWPP directly to the project contractor.

PART 2 – ASSESSMENT RESULTS AND RECOMMENDATIONS

5.0 Central Lyon Fire Protection District

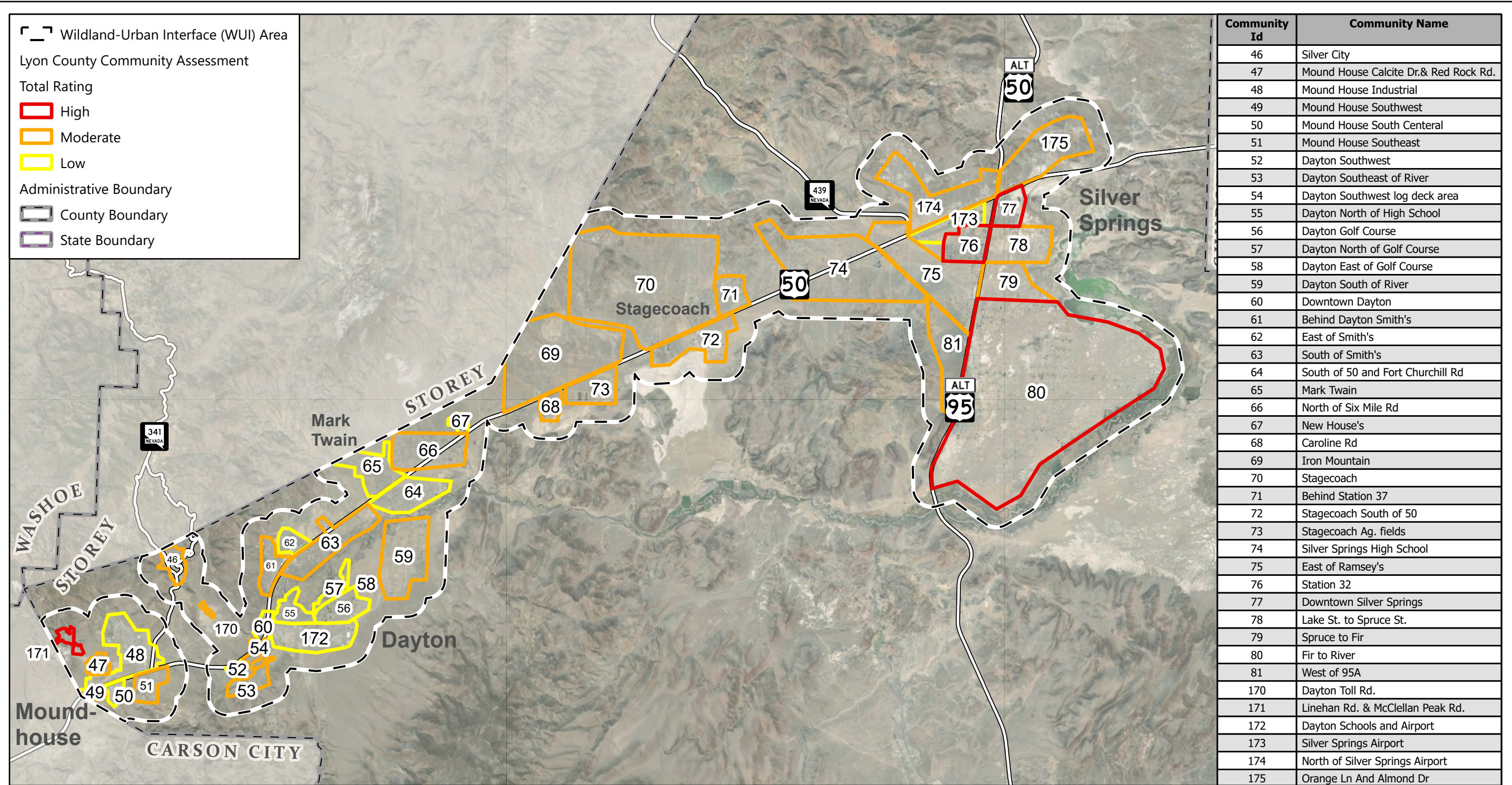
The Central Lyon FPD (CLFPD) covers an area of 650 square miles, representing the largest fire district in Lyon County in terms of its extent and acreage. The entire district was designated by ordinance as WUI based upon the dispersed distribution of residential subdivisions separated by large expanses of undeveloped open space.

The CLFPD is a combination emergency services provider that is predominantly career staffed with firefighter-paramedics supported by volunteer members. CLFPD provides fire protection, hazardous materials response and mitigation, public education, fire investigations, plan review, emergency medical services with mutual and automatic aid locally, regionally, and nationally. The District currently operates seven fire stations:

	Station Number						
	32	34	35	36	37	38	39
Service Area	Silver Springs	Silver City	Dayton	Mound House	Stagecoach	Mark Twain	Dayton Valley
Staff	Combination Career/Volunteer	Volunteer	Career	Combination Career/Reserve	Career	Career/Volunteer/Reserve	Career

5.1 Risk Assessment Results

CLFPD consists of six unincorporated communities along US Highway 50 east of Carson City to US Highway 95A which include Mound House, Dayton, Dayton Valley, Mark Twain, Stagecoach, and Silver Springs, and one community along State Route 341, Silver City. NDF identified a total of 42 individual neighborhoods in all seven communities as shown in Figure 3.



Community Id	Community Name
46	Silver City
47	Mound House Calcite Dr.& Red Rock Rd.
48	Mound House Industrial
49	Mound House Southwest
50	Mound House South Central
51	Mound House Southeast
52	Dayton Southwest
53	Dayton Southeast of River
54	Dayton Southwest log deck area
55	Dayton North of High School
56	Dayton Golf Course
57	Dayton North of Golf Course
58	Dayton East of Golf Course
59	Dayton South of River
60	Downtown Dayton
61	Behind Dayton Smith's
62	East of Smith's
63	South of Smith's
64	South of 50 and Fort Churchill Rd
65	Mark Twain
66	North of Six Mile Rd
67	New House's
68	Caroline Rd
69	Iron Mountain
70	Stagecoach
71	Behind Station 37
72	Stagecoach South of 50
73	Stagecoach Ag. fields
74	Silver Springs High School
75	East of Ramsey's
76	Station 32
77	Downtown Silver Springs
78	Lake St. to Spruce St.
79	Spruce to Fir
80	Fir to River
81	West of 95A
170	Dayton Toll Rd.
171	Linehan Rd. & McClellan Peak Rd.
172	Dayton Schools and Airport
173	Silver Springs Airport
174	North of Silver Springs Airport
175	Orange Ln And Almond Dr

Figure 3. Central Lyon County FPD
 Wildfire Hazard Assessment and Wildland-Urban Interface
 Lyon County Community Wildfire Protection Plan
 2023 Update

0 2.75 5.5 Miles
 1 In = 2.75 Mile

N

12/01/2023
RCI
 Resource Concepts Inc.

DAYTON COMMUNITY

The Dayton Community is the largest residential community in the Central Lyon FPD with nearly 2,900 dwelling units on approximately 4,600 acres. NDF identified eleven neighborhoods in Dayton that were included in the CAT assessment including two residential/commercial neighborhoods. Dayton is a Firewise USA Community. The results of the CAT analyses are summarized in Table 3.

Table 3. CENTRAL LYON FPD – CAT Wildfire Hazard Assessment Summary— DAYTON

Neighborhood Name (Number)	Dwelling Units	Acres	Community Type	Suppression Hazard	Surrounding Environment Hazard	Structures Hazard	Overall Hazard Score
Dayton Southwest (52)	150	101	Residential – Stick-built	Low	Low	Low	Low
Dayton Southeast of River (53)	30	354	Residential – Stick-built	Moderate	Moderate	Low	Moderate
Dayton Southwest log deck area (54)	50	143	Residential – Stick-built I	High	Moderate	Moderate	Moderate
Dayton North of High School (55)	600	372	Residential – Stick-built	Low	Moderate	Low	Low
Dayton North of Golf Course (57)	300	213	Residential – Stick-built	Low	Moderate	Moderate	Low
Dayton East of Golf Course (58)	250	37	Residential – Stick-built	Low	Low	Moderate	Low
Dayton South of River (59)	200	1,526	Residential – Stick-built	Low	Moderate	Moderate	Moderate
Downtown Dayton (60)	200	185	Residential – Commercial	Low	Moderate	Low	Low
Dayton Toll Rd. (170)	15	32	Residential – Stick-built	High	Moderate	Moderate	Moderate
Dayton Schools and Airport (172)	75	1,054	Residential – Commercial	Low	Low	Low	Low
Dayton Golf Course (56)	1,000	561	Residential – Stick-built	Low	Low	Low	Low

Factors that Contributed to HIGH SUPPRESSION HAZARD SCORES:

- Dayton Southwest Log Deck Area: There is only one narrow, non-surfaced road (less than 20 feet wide) in and out of the neighborhood.
- Dayton Toll Rd.: There is only one narrow, non-surfaced road (less than 20 feet wide) in and out of the neighborhood, dead-end roads are more than 200 feet long, and the water source for fire suppression is within four miles of the neighborhood.

Other Dayton Neighborhood Hazards Identified in the CAT Analysis.

One road in and out

Dayton Southwest Log Deck Area
Dayton Toll Road
Dayton Southeast of River
Dayton East of Golf Course

MODERATE/HIGH response/evacuation complexity

Dayton Golf Course

Possible structure-to-structure ignition

Dayton North of High School
Dayton Golf Course
Dayton North of Golf Course
Dayton East of Golf Course
Downtown Dayton

Topographical features that can adversely affect wildland fire behavior (box canyons, chimneys, etc.)

Dayton Southeast of River
Dayton Toll Rd.

Adjacent to wildlands with accumulated fuels

Dayton Southeast of River
Dayton Southwest Log Deck Area
Dayton North of Golf Course
Dayton South of River
Downtown Dayton
Dayton Toll Rd.

31 to 50 percent of lots are undeveloped

Dayton Southeast of River

More than 50 percent of homes/outbuildings have adjacent 5-ft non-combustible zone

Dayton South of River

MOUND HOUSE COMMUNITY

Mound House was the first Firewise USA community in Lyon County. The Mound House Community has four residential neighborhoods and two commercial neighborhoods with approximately 1,000 dwelling units on 2,200 acres. The most hazardous neighborhood for wildfire was *Linehan Road & McCellan Peak Road*. The fuel hazard in the WUI is moderate to high in the surrounding environment with some areas occupied by dense pinyon-juniper (P-J). The results of the CAT assessment are summarized in Table 4.

Table 4. CENTRAL LYON FPD – CAT Wildfire Hazard Assessment Summary— MOUND HOUSE

Neighborhood Name (Number)	Dwelling Units	Acres	Community Type	Suppression Hazard	Surrounding Environment Hazard	Structures Hazard	Overall Hazard Score
Mound House Calcite Dr. & Red Rock Rd. (47)	200	184	Residential – Mixed	Low	Moderate	Moderate	Moderate
Mound House Industrial (48)	200	1,240	Commercial	Low	Low	Low	Low
Mound House South Central (50)	50	160	Commercial	Low	Moderate	Low	Low
Mound House Southeast (51)	100	401	Residential – Stick-built	Moderate	High	Low	Moderate
Mound House Southwest (49)	400	70	Residential – Mobile	Moderate	Moderate	Moderate	Moderate
Linehan Rd. & McClellan Peak Rd. (171)	50	142	Residential – Mixed	High	High	Moderate	High

Factors that Contribute to a HIGH SUPPRESSION HAZARD SCORE:

- Linehan Rd. & McClellan Peak Rd.: One-way access in and out of the residential neighborhood, dead-end roads more than 200 feet long; water sources for suppression within four miles; and topo-geographic features that hinder suppression efforts.

Factors that Contribute to a HIGH SURROUNDING ENVIRONMENT HAZARD SCORES:

- Mound House Southeast: Slopes 11 to 30 percent that are adjacent to wildlands with accumulated fuels (P-J).
- Linehan Rd. & McClellan Peak Rd.: Less than 50 percent of homes in this neighborhood meet defensible space criteria with both vegetative and urban fuels amongst structures; and topographical features that adversely affect fire behavior.

Other Mound House Neighborhood Hazards Identified in the CAT Analysis.

One road in and out

Mound House Southwest
Linehan Rd. & McCellan Peak

Water sources located within four miles of community (includes helicopter dip sites)

Linehan Rd. & McCellan Peak Rd.

Suppression efforts hindered by geographical features (e.g., hazardous terrain)

Mound House Southeast
Linehan Rd. & McCellan Peak Rd.

Possible structure-to-structure ignition

Mound House Calcite Dr. & Red Rock Rd.
Mound House Southwest

Topographical features that can adversely affect wildland fire behavior (box canyons, chimneys, etc.)

Mound House Southeast
Linehan Rd. & McClellan Peak Rd.

Adjacent to wildlands with accumulated fuels

Mound House Calcite Dr. & Red Rock Rd.
Mound House South Central
Mound House Southeast

Building setback less than 30 feet from a slope

Mound House Southwest
Linehan Rd. & McCellan Peak Rd.

Less than 50 percent of homes/outbuildings have adjacent 5-ft non-combustible zone

Mound House Calcite Dr. & Red Rock Rd.
Linehan Rd. & McCellan Peak Rd.

DAYTON VALLEY COMMUNITY

The Dayton Valley Community consists of three neighborhoods with approximately 1,050 dwelling units encompassing approximately 1,900 acres. Two neighborhoods, *Behind Dayton Smiths* and *East of Smiths*, are residential; *South of Smiths* is Agricultural/ Rural. The neighborhood *East of Smith's* is one of the more newly constructed residential neighborhoods in CLFPD and was LOW in all categories. The results of the CAT assessment are summarized in Table 5.

The neighborhood *Behind Dayton Smiths* had a MODERATE score for the Surrounding Environment with less than 50 percent of dwelling units that meet defensible space criteria; 50 to 75 percent of homes that have non-combustible siding; and the possibility of structure-to-structure ignition.

There were no HIGH or EXTREME Hazard Factors in the Dayton Valley Community.

Table 5. CENTRAL LYON FPD – CAT Wildfire Hazard Assessment Summary— DAYTON VALLEY

Neighborhood Name (Number)	Dwelling Units	Acres	Community Type	Suppression Hazard	Surrounding Environment Hazard	Structures Hazard	Overall Hazard Score
Behind Dayton Smith's (61)	350	461	Residential – Mixed	Low	Moderate	Moderate	Moderate
East of Smith's (62)	600	271	Residential – Stick-built	Low	Low	Low	Low
South of Smith's (63)	100	1,141	Agriculture/ Rural	Moderate	Moderate	Moderate	Moderate

Dayton Valley neighborhood hazards identified in the CAT analysis.

Water sources located within four miles of community (including helicopter dip sites)
 South of Smiths

Possible structure-to-structure ignition
 Behind Dayton Smith's
 East of Smith's

Adjacent to wildlands with accumulated fuels
 South of Smith's

Less than 50 percent of homes/outbuildings have adjacent 5-ft non-combustible zone
 Behind Dayton Smiths

MARK TWAIN COMMUNITY

The Mark Twain Community has the highest density of dwellings per acre in the Central Lyon FPD. NDF delineated four residential neighborhoods consisting of 1,900 dwelling units on 2,974 acres. No HIGH hazard conditions were found in the Mark Twain Community. The results of the CAT analyses are summarized in Table 6.

The neighborhood *North of Six Mile Road* is mixed construction stick-built (includes manufactured homes) and mobile homes with cul-de-sac roads less than 100 feet in diameter, inconsistent reflective and non-flammable signage, water sources for wildfire suppression within four miles, and less than fifty percent of homes meeting defensible space standards.

There were no HIGH or EXTREME Hazard scores in the Mark Twain Community.

Table 6. CENTRAL LYON FPD – CAT Wildfire Hazard Assessment Summary— MARK TWAIN

Neighborhood Name (Number)	Dwelling Units	Acres	Community Type	Suppression Hazard	Surrounding Environment Hazard	Structures Hazard	Overall Hazard Score
South of 50 and Fort Churchill Rd (64)	700	826	Residential – Stick-built	Low	Low	Low	Low
Mark Twain (65)	800	793	Residential – Stick-built	Low	Moderate	Moderate	Low
North of Six Mile Rd (66)	200	1,221	Residential – Mobile	Moderate	Moderate	Moderate	Moderate
New House's (67)	200	134	Residential – Stick-built	Low	Moderate	Low	Low

Mark Twain neighborhood hazards identified in the CAT analysis.

Street signs inconsistent throughout with four-inch lettering, non-flammable and reflective
 North of Six Mile Rd.

Water sources located within four miles of community (including helicopter dip sites)
 North of Six-Mile Rd.

Possible structure-to-structure ignition
 South of 50 and Fort Churchill Rd.
 Mark Twain
 New Houses

31 to 50 percent of lots are undeveloped
 New Houses

Less than 50 percent of homes have no wood attachments
 Mark Twain

STAGECOACH COMMUNITY

The Stagecoach Community extends across approximately 12,500 acres. NDF designated six neighborhoods with a total of approximately 950 dwellings in the Stagecoach Community. CLFPD Fire Station 37 is located in the Stagecoach Community. Five neighborhoods are mixed stick-built (including manufactured) homes and mobile homes. All neighborhoods in Stagecoach have Moderate Overall Wildfire Hazard scores.

There were no HIGH or EXTREME Hazard scores in the Stagecoach Community.

Table 7. CENTRAL LYON FPD – CAT Wildfire Hazard Assessment Summary— STAGECOACH

Neighborhood Name (Number)	Dwelling Units	Acres	Community Type	Suppression Hazard	Surrounding Environment Hazard	Structures Hazard	Overall Hazard Score
Caroline Rd (68)	75	255	Residential – Mixed	Low	Moderate	Moderate	Moderate
Iron Mountain (69)	100	3,373	Residential – Mixed	Moderate	Moderate	Low	Moderate
Stagecoach (70)	300	6,685	Residential – Mixed	Moderate	Moderate	Low	Moderate
Behind Station 37 (71)	350	479	Agricultural – Mixed	Low	Moderate	Moderate	Moderate
Stagecoach South of 50 (72)	100	1,003	Residential – Mixed	Moderate	Moderate	Moderate	Moderate
Stagecoach Ag. Fields (73)	30	661	Residential – Stick-built	Moderate	Moderate	Moderate	Moderate

Stagecoach neighborhood hazards identified in the CAT analysis.

Roads less than 20 feet wide

- Stagecoach
- Iron Mountain

Dead-end roads greater than 200 feet long

- Iron Mountain
- Stagecoach

Water sources located within four miles of community (including helicopter dip sites)

- Stagecoach South of 50
- Stagecoach Ag Fields

Possible structure-to-structure ignition

- Behind Station 37

Adjacent to wildlands with accumulated fuels

Caroline Rd.
 Iron Mountain
 Stagecoach
 Stagecoach South of 50
 Stagecoach Ag. Fields

Fewer than 30 feet from the house and/or surrounding vegetation not maintained

Caroline Rd.
 Stagecoach South of 50

Less than 50 percent of homes/outbuildings have adjacent 5-ft non-combustible zone

Behind Station 37

SILVER CITY COMMUNITY

Silver City is a small community bordering Storey County. There is one designated neighborhood with 150 dwellings across 320 acres. The results of the CAT analyses are summarized in Table 8.

Factors that Contribute to HIGH SUPPRESSION HAZARD SCORE:

- Silver City: Dead-end roads greater than 200 feet long, steep terrain, narrow roads, evacuation complexity, suppression efforts hindered by geographic features, and narrow canyon bottoms with dense vegetative fuels.

Table 8. CENTRAL LYON FPD – CAT Wildfire Hazard Assessment Summary— SILVER CITY

Neighborhood Name (Number)	Dwelling Units	Acres	Community Type	Suppression Hazard	Surrounding Environment Hazard	Structures Hazard	Overall Hazard Score
Silver City (46)	150	320	Residential – Stick-built	High	Moderate	Moderate	Moderate

Other Silver City neighborhood hazards identified in the CAT analysis.

Roads less than 20 feet wide

Silver City

MODERATE/HIGH response/evacuation complexity

Silver City

Suppression efforts hindered by geographical features (hazardous terrain)

Silver City

Building setback less than 30 feet from a slope

Silver City

Fewer than 30 feet from the house and/or surrounding vegetation not maintained
Silver City

Less than 50 percent of homes/outbuildings have adjacent 5-ft non-combustible zone
Silver City

SILVER SPRINGS COMMUNITY

The Silver Springs Community extends across approximately 28,000 acres. NDF designated eleven neighborhoods with a total of approximately 1,850 dwellings in the Silver Springs Community. The seven residential neighborhoods in Silver Springs are mixed stick-built (including manufactured homes) and mobile homes. Three neighborhoods are mixed residential/commercial and one is commercial. Silver Springs is the neighborhood of highest concern in CLFPD.

Factors that Contribute to EXTREME SURROUNDING ENVIRONMENT HAZARD SCORES:

- Downtown Silver Springs: The predominant fuel hazard is urban debris that is heavy to extreme amongst structures within the neighborhood; possible structure to structure ignition; and adjacent to wildlands with accumulated fuels.
- Fir to River: Slight response/evacuation complexity; water for suppression is located within four miles of neighborhood; notable geographic features hinder fire suppression; predominant fuel hazard is urban debris that is heavy to extreme amongst structures; adjacent to wildlands with accumulated fuels; and more than 51 percent of lots are undeveloped.
- Station 32: Predominant fuel hazard is urban debris that is heavy to extreme amongst structures; adjacent to wildlands with accumulated fuels; and possible structure-to structure ignition.

Factors that Contribute to HIGH SUPPRESSION HAZARD SCORES:

- Fir to River: Water source for suppression within four miles of the neighborhood.
- North Silver Springs Airport: One narrow road less than 20 feet wide in and out of neighborhood; dead end roads more than 200 feet long; water source for suppression within four miles of neighborhood.
- Orange Ln. and Almond Dr.: One narrow road less than twenty feet wide in and out of the neighborhood; dead-end roads greater than 200 feet long; and inconsistent nonflammable signage with four-inch reflective lettering.
- Silver Springs High School: Dead-end roads greater than 200 feet long; inconsistent nonflammable signage with four-inch reflective lettering; and water source for suppression within four miles of neighborhood.

Factors that Contribute to Neighborhoods with HIGH STRUCTURAL HAZARD SCORES:

- Downtown Silver Springs: Less than 50 percent of homes have non-combustible siding; less than 50 percent of homes have skirting underneath; less than 50 percent of homes have the five-foot non-combustible zone.

Table 9. CENTRAL LYON FPD – CAT Wildfire Hazard Assessment Summary— SILVER SPRINGS

Neighborhood Name (Number)	Dwelling Units	Acres	Community Type	Suppression Hazard	Surrounding Environment Hazard	Structures Hazard	Overall Hazard Score
Downtown Silver Springs (77)	400	489	Residential/ Mobile	Low	Extreme	High	High
East of Ramsey’s (75)	75	2,383	Residential/ Mixed	Moderate	Moderate	Moderate	Moderate
Fir to River (80)	500	13,425	Residential/ Mixed	High	Extreme	Moderate	High
Lake St. to Spruce St. (78)	30	1,070	Residential/ Commercial	Moderate	Moderate	Moderate	Moderate
North of Silver Springs Airport (174)	20	1,675	Residential/ Commercial	High	Moderate	Moderate	Moderate
Orange Ln. and Almond Dr. (175)	10	1,614	Residential/ Commercial	High	Moderate	Moderate	Moderate
Silver Springs Airport (173)	5	567	Commercial	Low	Low	Low	Low
Silver Springs High School (74)	100	3,711	Residential/ Mixed	High	Moderate	Moderate	Moderate
Spruce to Fir (79)	50	948	Residential/ Mixed	Moderate	Moderate	Moderate	Moderate
Station 32 (76)	600	686	Residential/ Mixed	Low	Extreme	Moderate	High
West of 95A (81)	50	1,276	Residential/ Mixed	Moderate	Moderate	Moderate	Moderate

Other Silver Springs neighborhood hazards identified in the CAT analysis.

One road in and out

North Silver Springs Airport
Orange Ln. and Almond Dr.

Roads less than 20 feet wide

Lake Street to Spruce Street
North of Silver Springs Airport
Orange Ln. and Almond Dr.

Dead-end roads more than 200 feet long

North of Silver Springs Airport
Orange Ln. and Almond Dr.
Silver Springs High School

Street signs inconsistent throughout with four-inch lettering, non-flammable, and reflective

Silver Springs High School
Orange Ln. and Almond Dr.

Water sources located within four miles of community (including helicopter dip sites)

Silver Springs High School
East of Ramsey's
Spruce to Fir
Fir To River
West of 95A
North of Silver Springs Airport
Orange Ln. and Almond Dr.

Five miles or less from agency with response authority (VFD)

Silver Springs High School
East of Ramsey's
Station 32
Downtown Silver Springs
Lake St. to Spruce St.
Spruce to Fir
Fir to River
West of 95A
Silver Springs Airport
North of Silver Springs Airport
Orange Ln. and Almond Dr.

Defensible space: fuels heavy/extreme amongst structures & other urban hazards/materials are present

Station 32
Downtown Silver Springs
Fir to River

Possible structure-to-structure ignition

Station 32
Downtown Silver Springs

Topographical features that can adversely affect wildland fire behavior (box canyons, chimneys, etc.)

West of 95A
North of Silver Springs Airport
Orange Ln. and Almond Dr.

Adjacent to wildlands with accumulated fuels

Silver Springs High School
Station 32
Downtown Silver Springs
Lake St. to Spruce St.
Spruce to Fir
Fir to River

31 to 50 percent of lots are undeveloped

Lake St. to Spruce St.

More than 51 percent of lots are undeveloped

Fir to River

Less than 50 percent of structures have skirting underneath raised floors/decks

Downtown Silver Springs

Fir to River

Building setback less than 30 feet from a slope

West of 95A

North of Silver Springs Airport

Orange Ln. and Almond Dr.

Fewer than 30 feet from the house and/or surrounding vegetation not maintained

Silver Springs High School

Lake St. to Spruce St.

Spruce to Fir

Fir to River

Less than 50 percent of homes/outbuildings have adjacent 5-ft non-combustible zone

Silver Springs High School

Station 32

Downtown Silver Springs

Lake St. to Spruce St.

Spruce to Fir

Fir to River

5.2 CLFPD Mitigation to Reduce Wildfire Risks

PAST AND ONGOING PROJECTS

Mechanical fuel reduction was provided across 110 acres in 2022. Working with volunteer landowners and homeowners, CLFPD provided trailer drops and debris disposal at 88 locations across the district.

CLFPD Fuels Reduction Program and fuels reduction projects are targeted for the benefit of communities and constituents.

CLFPD Prevention Division has just been awarded a grant for a WUI Technician who will be responsible for new residential construction, for WUI code adoption and enforcement, fire investigation, defensible space assessments/inspections, and public education.

CLFPD was awarded a FEMA Fire Prevention and Safety Grant to implement the “Fresh Start Urban Fuels Reduction Program.” This program focuses on community education, community involvement,

and sustainability through the formation of Fire Adapted Communities. It does this by providing clean up for a small number of volunteer residents on an as needed basis, transfer station vouchers in coordination with Community Clean up days, and dumpster drops also on an as needed basis. This is a voluntary program and does not have code enforcement elements. The final piece of this program is to expand efforts to create Fire Adapted Communities within the service area.

Downtown Dayton (Old Dayton) is a very active Firewise Community that recently held a successful community clean-up day which was well attended and resulted in a number of fire hazards being cleaned up in this historic area.

Dayton and Mound House are Firewise communities in CLFPD. Silver Springs is actively pursuing Fire Adapted Community status. It is hoped that the existing Firewise communities will be pivotal examples for expanding the fire safe actions for the remaining communities in CLFPD.

PROPOSED ACTIONS

55-Mile Fuel Break Project: The District has plans to develop 55 miles of fuel breaks along the Highway 50 corridor, Six Mile Road, the north end of the Pine Nut Range, from the Carson River to the north side of Churchill Butte, and along the USA Parkway in 2023-2024 (Figure 4).

Landscape-scale planning document: A strategic plan that will outline the district's goals for the next five years. This plan will be tied to the 2023 CWPP Update.

A few of the future projects that will be outlined in this document are:

- Fuel breaks in critical areas with mechanisms for keeping the breaks clear of fuels and/or maintained.
- Public Education and Outreach.
- Update Community assets at risk and prioritize protection plans.
- Assist and encourage Fire Adapted Community organization for all of our communities.
- Continue to build partnerships with all relevant agencies.
- Create a strategy to replace the funding stream formerly provided by SB-508.
- Investigation training for enough staff to be able to determine the cause and origin of every fire.

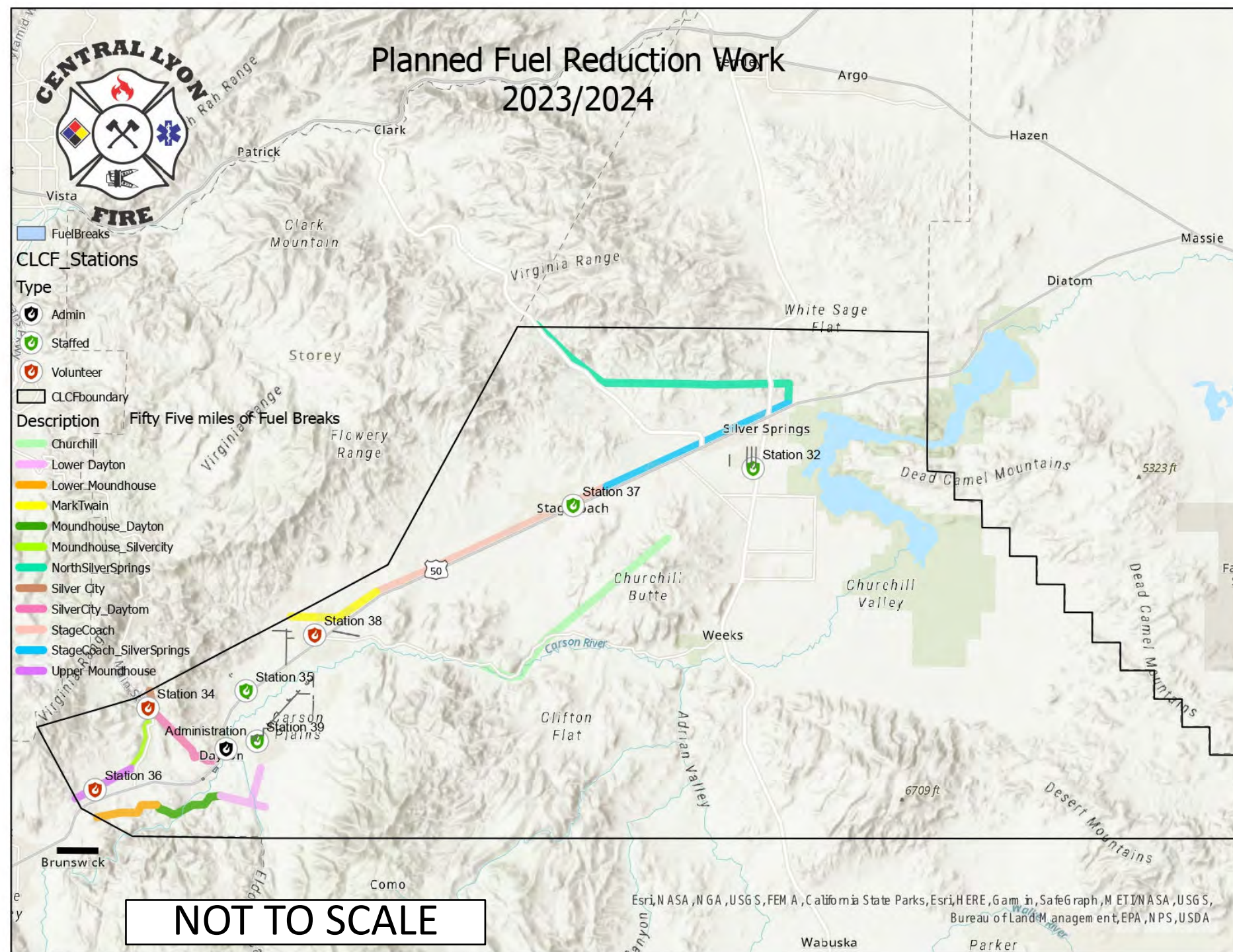


Figure 4. Central Lyon County FPD
 Planned Fuel Reduction Work
 Lyon County Community Wildfire Protection Plan
 2023 Update

6.0 North Lyon Fire Protection District

6.1 Risk Assessments Results

North Lyon County Fire Protection District (NLFPD) operates two fire stations that provide services to the City of Fernley and surrounding area. The District service area covers approximately 165 square miles and has approximately 27,000 residents. NLFPD is a combination fire department of paid and volunteer staff providing “all risk” emergency services, including ambulance transport. The NLFPD has unique features that include a large industrial park, major Interstate thoroughfares, and a railroad system, each of which adds to the risk of fire ignition.

As small farm properties transition into subdivisions, water rights are transferred and ditches are abandoned. Dry tumble mustard, Russian thistle, and other windblown debris accumulate in these areas creating an easily ignited fuel hazard that can create a wick into residential areas.

NDF identified 38 individual neighborhoods in Fernley as shown in Figure 5. The CAT assessment results for NLFPD are summarized below and in Table 10.

FERNLEY

Fernley is a fast-growing community that is rapidly transitioning from small farm neighborhoods to residential subdivisions. The remaining agricultural neighborhoods are generally large with few dwellings. NDF delineated forty neighborhoods with a total of nearly 6,000 dwelling units for the CAT assessment. Most neighborhoods scored Low or Moderate for all of the hazard ratings.

Factors that contribute to HIGH SUPPRESSION HAZARD SCORE:

- Valley View: One road in and out of the neighborhood, inconsistent four-inch signage lettering, nonflammable, and reflective; and moderate fuel hazard.
- Vonnie: Possible structure-to-structure ignition and inconsistent four-inch signage lettering, nonflammable, and reflective.
- Mull Lane: One road in and out of the neighborhood and inconsistent four-inch signage lettering, nonflammable, and reflective.

Factors that contribute to HIGH STRUCTURAL HAZARD SCORE:

- Justin Way: Less than 50 percent of homes have noncombustible siding, 50-74 percent of homes have skirting underneath raised floors and decks, and 50 percent of homes have wooden attachments.
- Vine: Less than 50 percent of homes have noncombustible siding, 50-74 percent of homes have skirting underneath raised floors and decks, and more than 50 percent of homes have wooden attachments.

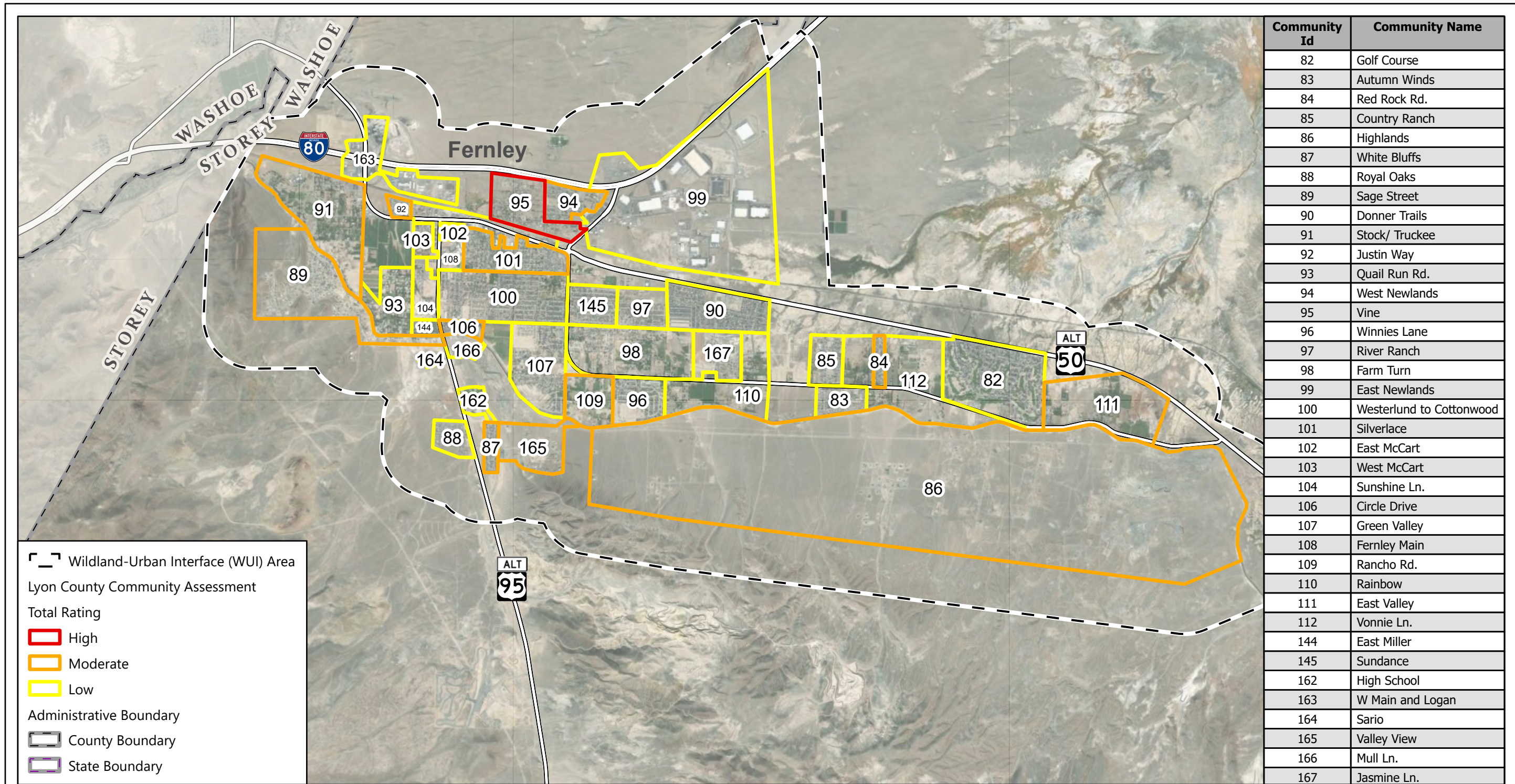


Figure 5. North Lyon County FPD
 Wildfire Hazard Assessment and Wildland-Urban Interface
 Lyon County Community Wildfire Protection Plan
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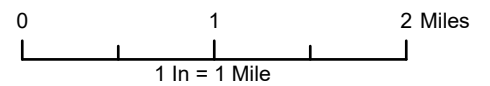


Table 10. NORTH LYON FPD – CAT Wildfire Hazard Assessment Summary— FERNLEY

Neighborhood Name (Number)	Dwelling Units	Acres	Community Type	Suppression Hazard	Surrounding Environment Hazard	Structures Hazard	Overall Hazard Score
Autumn Winds (83)	110	85	Residential – Stick-Built	Low	Moderate	Low	Low
Circle Drive (106)	28	35	Residential – Stick-Built	Low	Moderate	Moderate	Moderate
Country Ranch (85)	50	104	Residential – Stick-Built	Low	Moderate	Low	Low
Donner Trails (90)	320	264	Residential – Stick-Built	Low	Moderate	Low	Low
East McCart (102)	50	21	Residential – Stick-Built	Low	Low	Moderate	Low
East Miller (144)	12	26	Residential – Mixed	Low	Low	Moderate	Low
East Newlands (99)	30	1577	Commercial	Low	Low	Low	Low
East Valley (111)	30	390	Agricultural – Rural	Moderate	Moderate	Moderate	Moderate
Farm Turn (98)	375	387	Residential – Stick-Built	Low	Low	Moderate	Low
Fernley Main (108)	200	215	Residential – Commercial	Low	Low	Moderate	Low
Golf Course (82)	550	458	Residential – Stick-Built	Low	Low	Low	Low
Green Valley (107)	375	279	Residential – Stick-Built	Low	Moderate	Low	Low
High School (162)	10	45	Residential – Commercial	Low	Low	Low	Low
Highlands (86)	100	4881	Residential – Stick-Built	Moderate	Moderate	Moderate	Moderate
Jasmine Ln. (167)	90	141	Residential – Stick-Built	Low	Low	Moderate	Low
Justin Way (92)	100	27	Residential – Mobile	Moderate	Moderate	High	Moderate
Mull Ln. (166)	10	45	Residential – Stick-Built	High	Low	Low	Low
Quail Run Rd. (93)	30	165	Residential – Stick-Built	Low	Moderate	Low	Low
Rainbow (110)	125	289	Agricultural – Rural	Low	Moderate	Low	Low
Rancho Rd. (109)	50	146	Agricultural – Rural	Moderate	Moderate	Moderate	Moderate
Red Rock Rd. (84)	30	37	Residential – Stick-Built	Low	Moderate	Low	Moderate
River Ranch (97)	125	125	Residential – Stick-Built	Low	Moderate	Moderate	Low

Neighborhood Name (Number)	Dwelling Units	Acres	Community Type	Suppression Hazard	Surrounding Environment Hazard	Structures Hazard	Overall Hazard Score
Royal Oaks (88)	75	77	Residential – Stick-Built	Low	Moderate	Low	Low
Sage Street (89)	100	528	Residential – Stick-Built	Moderate	Moderate	Moderate	Moderate
Sario (164)	10	9	Residential – Stick-Built	Moderate	Low	Moderate	Low
Silverlace (101)	450	199	Residential – Stick-Built	Low	Moderate	Low	Moderate
Stock/Truckee (91)	100	447	Residential – Stick-Built	Moderate	Moderate	Moderate	Moderate
Sundance (145)	150	122	Residential – Stick-Built	Low	Moderate	Low	Low
Sunshine Ln. (104)	75	89	Residential – Stick-Built	Low	Low	Low	Low
Valley View (165)	25	185	Residential – Stick-Built	High	Moderate	Moderate	Moderate
Vine (95)	175	206	Residential – Stick-Built	Moderate	Moderate	High	High
Vonnie Ln. (112)	24	468	Agricultural – Rural	High	Moderate	Low	Low
W Main and Logan (163)	20	216	Commercial	Low	Low	Low	Low
West McCart (103)	50	44	Residential – Stick-Built	Low	Moderate	Moderate	Low
West Newlands (94)	250	106	Residential – Stick-Built	Low	Moderate	Moderate	Moderate
Westerlund to Cottonwood (100)	520	409	Residential – Stick-Built	Low	Low	Low	Low
White Bluffs (87)	125	45	Residential – Stick-Built	Low	Moderate	Low	Moderate
Winnies Lane (96)	350	144	Residential – Stick-Built	Low	Moderate	Low	Low

Other Fernley neighborhood hazards identified in the CAT analysis.

One road in and out

- Country Ranch
- Quail Run Road
- Rancho Road
- Rainbow
- East Valley
- Vonnie Ln.
- East Miller
- Sario
- Sage Street

Valley View
Mull_Ln.

Road width is less than 20 feet

Justin Way

Dead-end roads more than 200 feet long

Justin Way

Street signs Inconsistent throughout, four-inch lettering, non-flammable and reflective

Valley View
Mull Ln.

Fewer than 50 percent of homes meet defensible space criteria in Zone 0, 1 & 2 - Light fuels amongst structures

Stock Truckee
Vine
Circle Drive

Possible structure-to-structure Ignition

Golf Course
Autumn Winds
Red Rock Rd.
Country Ranch
White Bluffs
Donner Trails
Justin Way
West Newlands
Vine
Winnies Lane
River Ranch
Westerlund to Cottonwood
Silverlace
East McCart
West McCart
Sunshine Ln.
Circle Drive
Green Valley
East Miller
Sundance

Above ground electric transmission lines are NOT maintained

Vine

Fewer than 50 percent of homes have non-combustible ventilation soffits with mesh or screening

Justin Way

Fewer than 50 percent of homes have non-combustible siding

Justin Way

Farm Turn

Rancho Road

Fewer than 50 percent of homes/outbuildings have adjacent five-foot non-combustible zone

Stock/ Truckee

Justin Way

East McCart

6.2 NLFPD Mitigation to Reduce Wildfire Risks

PAST AND ONGOING PROJECTS

Fire Suppression Equipment: The District recently purchased a new Type 3/ Type 1 Engine to increase the fire suppression capabilities.

Fuels Reduction: NLFPD operates a cooperative fuel reduction program with NV Energy to reduce fuels along transmission lines.

Fuels Hazard Clean-up: NLFPD provides assistance and dump trailer service upon request from vulnerable and/or under-served property owners to complete fuel hazard clean-up.

PROPOSED/POTENTIAL ACTIONS

Update Evacuation Plan: Coordinate city and county resources to update an emergency evacuation plan for NLFPD neighborhoods.

Abandoned TCID Ditches: Work cooperatively with the Truckee-Carson Irrigation District (TCID) to maintain abandoned ditches weed-free and to manage fire hazards and fuel levels.

Truckee Canal: Work with Lyon County and find funding and opportunities to increase direct access to both sides of the canal to improve emergency access.

Fuel Reduction Equipment: NLFPD presently has one dump trailer that can be loaned out for green fuels reduction and removal. The single trailer is currently dedicated to the NV Energy Program. A second dump trailer is needed to facilitate and expand the community fuel reduction program. A commercial woodchipper could also be utilized to expand the capabilities for both fuels management programs.

Weed and Litter Clean-up: Work collaboratively with Lyon County and NLFPD to determine the feasibility of collaborating with local businesses, corporations, and private citizens to sponsor annual clean-up days to remove wind-blown accumulations of tumble weeds and other fire hazard litter along

fences and abandoned buildings that pose ignition risks for structures and fires that could burn into communities.

Opportunities to improve ingress/egress: Coordinate with Nevada Department of Transportation and the City to address ingress/egress bottlenecks when road paving or other road improvements are proposed.

7.0 Mason Valley Fire Protection District

The Mason Valley Fire Protection District provides services to the City of Yerington and greater Mason Valley over an area of 400 square miles. The District has one fire station operated by a combination of career and volunteer staff. In 2021, the District responded to 1,328 incidents including 213 fire calls, 1,102 emergency medical calls, and 17 wildland/brush fires.

7.1 Risk Assessment Results

Fifteen neighborhoods with 1,665 dwellings were delineated for the CAT assessment (shown in Figure 6). MVFPD is an agricultural area of approximately 77,000 acres. The agricultural/rural neighborhoods represent 83 percent of the District creating large expanses of low fuel hazard conditions throughout most of the District. The results of the CAT analyses are summarized in Table 11.

Factors that contribute to HIGH SUPPRESSION HAZARD SCORE:

- Walker River State Park: Walker River State Recreation Area / Pitchfork Ranch is approximately 14 miles from Yerington. The HIGH suppression hazard score is primarily related to response time. Walker River State Park does not function as a residential neighborhood.

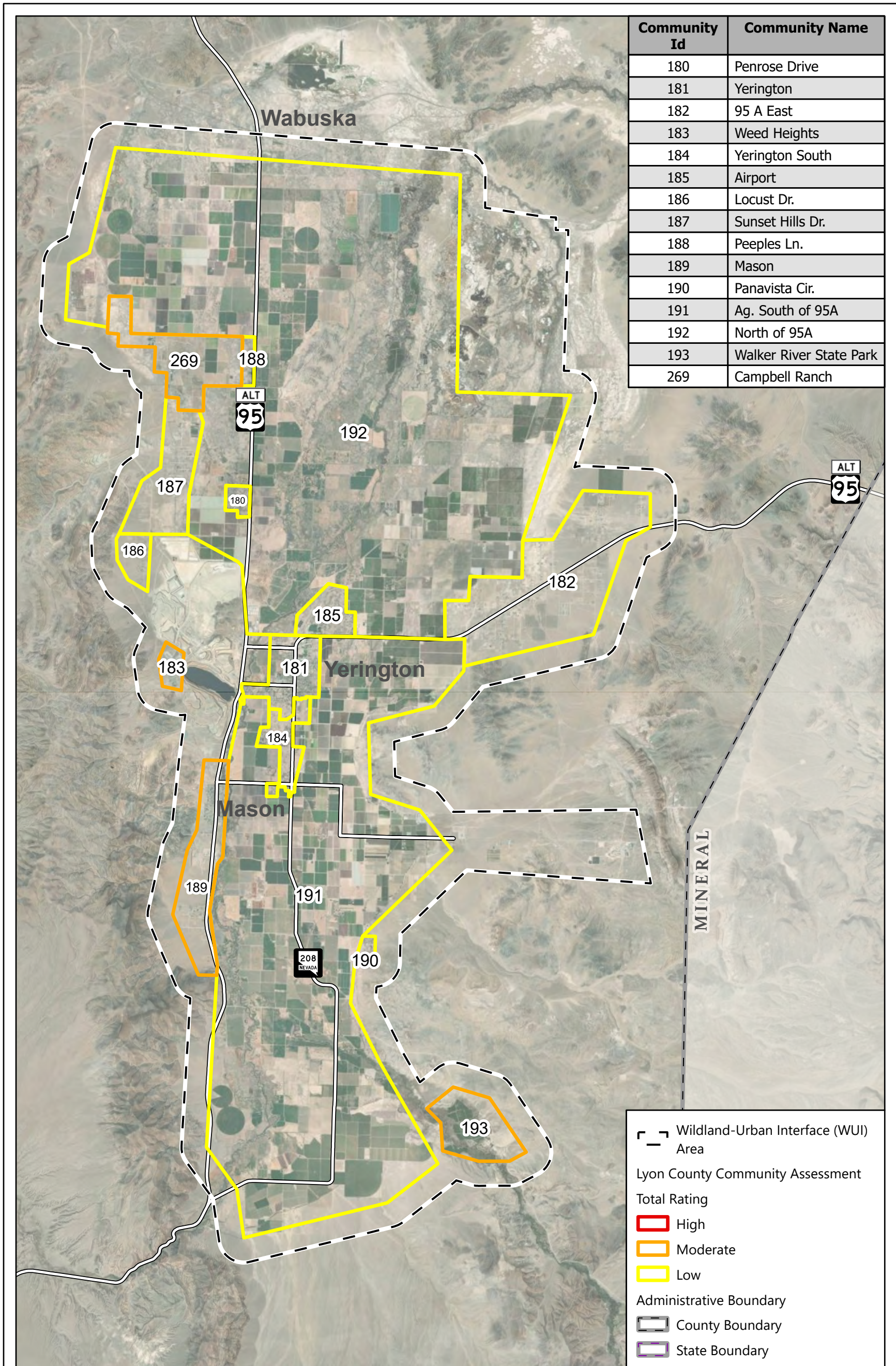
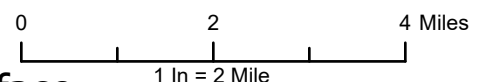


Figure 6. Mason Valley FPD
 Wildfire Hazard Assessment and Wildland-Urban Interface
 Lyon County Community Wildfire Protection Plan
 2023 Update



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Table 11. MASON VALLEY FPD – CAT Wildfire Hazard Assessment Summary— YERINGTON

Neighborhood Name (Number)	Dwelling Units	Acres	Community Type	Suppression Hazard	Surrounding Environment Hazard	Structures Hazard	Overall Hazard Score
95A East (182)	225	4,708	Residential/ Stick-built	Moderate	Moderate	Low	Low
Ag. South of 95A (191)	125	24,705	Agricultural/ Rural	Moderate	Moderate	Low	Low
Airport (185)	120	590	Residential/ Stick-built	Low	Moderate	Low	Low
Campbell Ranch (269)	60	1,642	Residential/ Commercial	Low	Moderate	Moderate	Moderate
Locust Dr. (186)	45	392	Residential/ Stick-built	Moderate	Moderate	Low	Low
Mason (189)	175	1,671	Residential/ Stick-built	Low	Moderate	Moderate	Moderate
North of 95A (192)	50	37,955	Agricultural/ Rural	Low	Moderate	Low	Low
Panavista Cir. (190)	65	110	Residential/ Stick-built	Moderate	Moderate	Low	Low
Peeples Ln. (188)	25	174	Residential/ Stick-built	Moderate	Low	Low	Low
Penrose Drive (180)	60	176	Residential/ Stick-built	Low	Moderate	Low	Low
Sunset Hills Dr. (187)	120	1,505	Residential/ Stick-built	Moderate	Moderate	Low	Low
Walker River State Park (193)	10	1,183	Agricultural/ Rural	High	Moderate	Low	Moderate
Weed Heights (183)	65	235	Residential/ Stick-built	Moderate	Moderate	Low	Moderate
Yerington (182)	345	1,017	Residential/ Commercial	Low	Moderate	Low	Low
Yerington South (181)	175	605	Residential/ Stick-built	Low	Moderate	Low	Low

Other Mason Valley neighborhood hazards identified in the CAT analysis.

Dead-end roads more than 200 feet long

Campbell Ranch

Street signs not Present

Walker River State Park

Local Response Resources more than five miles from Agency with Response Authority

Walker River State Park

Possible Structure-to-Structure Ignition

Yerington

Weed Heights
Yerington South
Airport
Mason
Campbell Ranch

7.2 MVFPD Mitigation to Reduce Wildfire Risks

PROPOSED ACTIONS

Walker River Fuels Reduction: Work with landowners to coordinate fuel reduction activities along the Walker River. Property owners should cooperate with MVFPD and MVCD to implement fuel reduction projects to reduce the fire hazard along reaches of the Walker River corridor that do not have irrigated agricultural land on both sides of the river. Fuels should be reduced to approximately one ton per acre, prioritizing removal of dead wood and debris. Target tree and brush species for thinning and removal include tamarisk, Russian olive, dead willow and cottonwood branches, greasewood, and four-wing saltbush. Live willow and cottonwood trees should not be removed but may be pruned to remove dead branches within the canopy. The treatment should be installed between 100 and 300 feet wide on both sides of the river as recommended and coordinated by the MVFPD.

In the river corridor, landowners and the district should coordinate with Nevada Department of Wildlife (NDOW) biologists and other interested parties to identify any special treatment specifications relative to wildlife habitat concerns. Collaborate with NDOW to develop guidelines and specifications for implementing fuel reduction treatments in the river corridor to address wildlife habitat such as timing of implementation to minimize impacts during nesting, and pesticide application procedures for tamarisk removal.

8.0 Smith Valley Fire Protection District

The Smith Valley Fire Protection District (SVFPD) is a combination volunteer/career fire department that provides fire, rescue, and ambulance services within the 182 square mile district and an additional 300 square miles of western Lyon County. The District operates three volunteer fire stations and serves approximately 1,680 residents in the rural and agricultural communities of Smith and Wellington, Nevada.

8.1 Risk Assessment Results

NDF delineated nine neighborhoods over approximately 32,000 acres for the CAT analysis (Figure 7). The results of the CAT assessment are summarized in Table 12.

There were no HIGH or EXTREME Hazard Factors in SVFPD.

Table 12. SMITH VALLEY FPD – CAT Wildfire Hazard Assessment Summary— WELLINGTON and SMITH

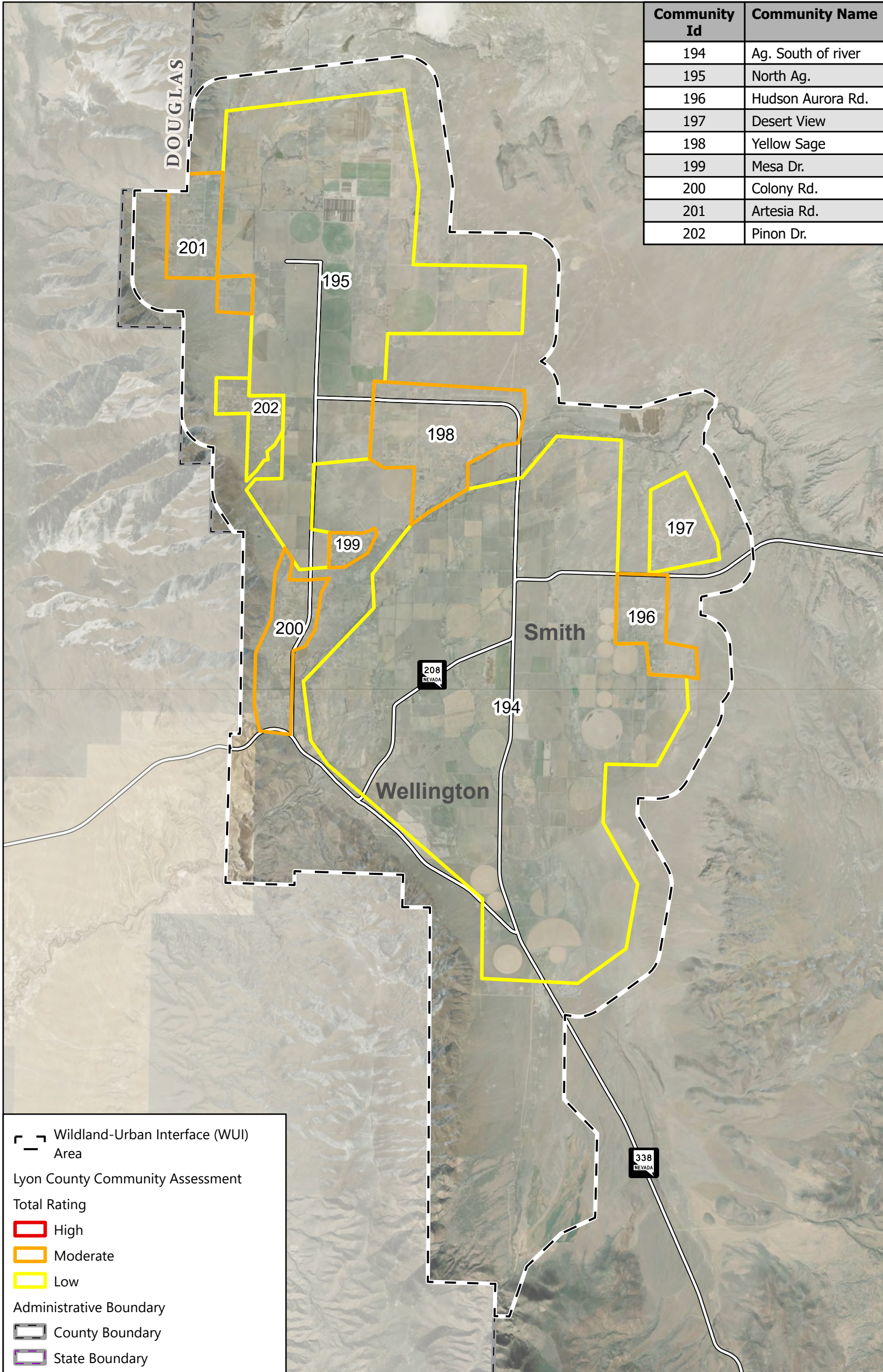
Neighborhood Name (Number)	Dwelling Units	Acres	Community Type	Suppression Hazard	Surrounding Environment Hazard	Structures Hazard	Overall Hazard Score
Colony Rd. (200)	120	944	Residential – Stick-built	Moderate	Moderate	Low	Moderate
Mesa Dr. (199)	50	182	Residential – Stick-built	Moderate	Moderate	Low	Moderate
Artesia Rd. (201)	45	915	Residential – Stick-built	Moderate	Moderate	Low	Moderate
Hudson-Aurora Rd. (196)	55	721	Residential – Stick-built	Moderate	Moderate	Low	Moderate
Yellow Sage (198)	60	1860	Residential – Stick-built	Moderate	Moderate	Low	Moderate
Desert View (197)	65	701	Residential – Stick-built	Moderate	Moderate	Low	Low
Pinion Dr. (202)	45	474	Residential – Stick-built	Moderate	Low	Low	Low
Agri. North of River (195)	45	9,836	Agricultural – Rural	Moderate	Moderate	Low	Low
Agri. South of River (194)	75	17,263	Agricultural – Rural	Moderate	Moderate	Low	Low

Smith Valley FPD neighborhood hazards identified in the CAT analysis.

Possible Structure-to-Structure Ignition

- Mesa Dr.
- Colony Rd.
- Artesia Rd.

Community Id	Community Name
194	Ag. South of river
195	North Ag.
196	Hudson Aurora Rd.
197	Desert View
198	Yellow Sage
199	Mesa Dr.
200	Colony Rd.
201	Artesia Rd.
202	Pinon Dr.



Wildland-Urban Interface (WUI) Area
 Lyon County Community Assessment
 Total Rating
 High
 Moderate
 Low
 Administrative Boundary
 County Boundary
 State Boundary

Figure 7. Smith Valley FPD
 Wildfire Hazard Assessment and Wildland-Urban Interface
 Lyon County Community Wildfire Protection Plan
 2023 Update

0 1.5 3 Miles
 1 in = 1.5 Mile

 12/01/2023

8.2 SVFPD Mitigation to Reduce Wildfire Risks

PAST AND ONGOING PROJECTS

Equine Evacuation Program: The property owners in the Pinion neighborhood have developed a phone chain action plan for evacuation of horses and other livestock in the event of a wildfire or other emergency situation. This is a grassroots, neighbor-helping-neighbor approach for the safe transport of large animals that require special trailers and equipment for translocation.

SVFPD Dump Trailer Drop Program is administered by SVFPD. The program assists residents with their own hazardous vegetation clean-up. A trailer is delivered for residents to fill with vegetative refuse and is then picked up and brought to dump location provided by a local agricultural landowner where it is processed for mulch and soil amendments.

BLM Mastication Treatments for fuel reduction were implemented on the west side of the district to create mosaic conditions and break up continuous high hazard fuel beds in accordance with the recommendations in the 2004 CWPP. Mastication and/or hand thinning has also been used on private property on the west side to create a landscape mosaic with increased interspaces between “shrub islands”.

Smith Valley Conservation District (SVCD) Fuels Management and Wildfire Education Project

- **Fuels Reduction Projects** will occur on a total of 380 acres in the northwest side of Smith Valley at the base of the Pine Nut Mountains in the vicinity of the Pinion Drive Neighborhood. Approximately 170 homes will be protected by these activities. Treatments include:

Mastication: SVCD will masticate old and decadent desert shrubs on 60 acres not previously treated in the Upper Colony and Artesia Road subdivisions to reduce fuels loads by approximately 40-60 percent.

Tree Removals: SVCD will remove 50 dead and decadent trees on 20 acres in the Upper Colony and Artesia Road subdivisions.

Greenstripping: SVCD staff will treat 300 acres with an application of pre-emergent herbicide and/or seeding to create greenstrips with native and drought tolerant species that are less flammable in the event of a wildfire.

Public Education and Outreach: SVCD will partner with SVFPD, NDF, Living With Fire, and the Nevada Network of Fire Adapted Communities to further wildland-urban interface fire awareness in the community by assisting with:

- “Wildfire Awareness Month” educational events at the local fire station;
- Assisting with the annual SVCD fire awareness display at the Smith Valley Library;
- Performing 25 defensible space inspections each year; and
- Providing defensible space and fire adapted community improvement recommendations.

- **Fire Adapted Community Approval**: The Nevada Network of Fire Adapted Communities will engage with SVCD in these local events and assist in hosting at least four community meetings, project announcement and kickoff, community education on defensible space and sign-ups for inspections needed for community and individual membership in the Nevada Network of Fire Adapted Communities; and next steps in advancing the fire adapted status of the community.

- Living With Fire, Fire Adapted Community, and Defensible Space brochures will be provided to at least 100 households.

PROPOSED ACTIONS

Wildfire Hazard Assessment for the Desert Creek and surrounding neighborhood: Rural development at the south end of Smith Valley is comprised mostly of large acreage agricultural properties. Newer streets and smaller parcels are becoming more prevalent, increasing residential density. The greater Desert Creek area should be used to develop a modified CAT model for rural agricultural communities and approved as an addendum to the 2023 CWPP Update.

Update and Expansion of the District Dry Hydrant Program: SVFPD lacks the distribution infrastructure for community-based pressurized water systems and relies heavily on strategically located dry hydrants to resupply engine water during prolonged fire suppression incidents. The district's current dry hydrant program and its facilities are aging and now require maintenance and expansion to meet the district's current demands and area growth. This improvement is a current priority for the district.

New Station in the South Part of SVFPD: Due to recent growth in the south part of the district, the SVFPD is looking into the feasibility and costs for building and operating a new fire station at the south end of the district to reduce initial fire response times.

Fuel Reduction Equipment: SVFPD presently has a single dump trailer that is loaned out to community members for green waste removal within the defensible space zone. As a popular and frequently used piece of equipment, the current dump trailer has become worn and requires maintenance or replacement. The County/District should pursue funding for trailer maintenance and for the purchase of a second dump trailer for the continued operation of this popular community program.

9.0 Federal Land Past and Proposed Habitat / Fuels Management Projects

Approximately 73 percent of Lyon County, 950,000 acres is federal land. In Lyon County, the Bureau of Land Management, Carson City District (BLM) manages approximately 44 percent of federal lands and the US Forest Service - the Humboldt-Toiyabe National Forest (USFS) manages approximately 21 percent of federal lands. These federal agencies are responsible for wildland fire suppression on public lands and also assist with wildfire suppression on private and state land through mutual aid agreements. Both agencies are also actively involved with wildfire fuels reduction, wildfire rehabilitation, and community wildfire protection planning and implementation. Both BLM and USFS pursue opportunities to design and implement hazard reduction projects in conjunction with other governmental jurisdictions, tribes, and private landowners for continuity in wildfire hazard reduction projects. Fuel reduction projects and other vegetation management on public lands require compliance with the National Environmental Protection Act (NEPA).

9.1 BLM Past and Proposed Habitat and Fuels Management Projects

The BLM Carson City District (CCD-BLM) has and will continue to be actively engaged in managing hazardous fuels on BLM and partner lands within Lyon County. The primary focus areas of past and future fuels management projects has been the Rawe Peak and Sunrise Pass areas of the Pine Nut Mountain Range, the area southeast of Dayton, and the Upper Colony Road area on the west side of the Smith Valley.

Since the year 2000, over 24,600 acres have been treated on projects within or intersecting with Lyon County. Past projects have focused on improving the health of P-J woodlands, reducing the risk of catastrophic wildfire to WUI communities, improving Greater sage grouse habitat, and performing post-fire stabilization and rehabilitation (Table 13).

Table 13. Vegetation treatments completed by the BLM Carson City District in Lyon County since 2000.

Treatment Name	Year	Acres
Ramsey Fire ESR Seeding	2000	720
Mound House Highlands Mastication	2003	2
Illinois RX Burn Piles	2005	78
Upper Colony Rd Mastication	2006	110
Adrian Fire ESR Planting	2008	145
Adrian Fire ESR Seeding	2008	643
Mill Canyon Mastication and Lop/Scatter	2010	2,509
Upper Colony Rd 2 Mastication/Thinning	2011	1,075
Sunrise Pass Lop and Scatter	2011	400
Buckskin Valley Lop and Scatter	2012	789
Buckskin Valley Mastication	2012	384
Como Fire ESR Seeding	2012	768
Buckskin Valley Seeding	2013	1,344

Treatment Name	Year	Acres
Mound House Highlands Maintenance	2014	2
Mill Canyon Lop and Scatter	2014	2,210
Illinois Canyon Lop and Scatter	2014	177
Lyon Peak Lop and Scatter	2014	969
Mill Canyon 2 Lop and Scatter	2016	2,412
Pipeline Lop and Scatter	2016	106
Sunrise Pass Thinning	2016	82
Illinois RX 1 Burn Piles	2015	78
Eldorado Canyon Lop and Scatter	2016	485
Mill Canyon Maintenance	2016	2,348
Big Lake Lop and Scatter	2016	1,959
Sunrise Pass Lop and Scatter	2016	82
Sunrise Pass Piles	2016	82
Illinois 4 Lop and Scatter	2017	63
Upper Colony II Maintenance Mowing	2018	1,079
Pine Nut Pile Burn	2018	49
Eldorado 2 Lop and Scatter	2018	60
Lyons Fire PJ Removal	2018	637
Barton Springs Lop and Scatter	2018	494
Upper Colony II Maintenance Grazing	2019	1,075
Buckskin Valley Maintenance	2020	208
Barton Springs 2 Lop and Scatter	2021	447
Mound House Highlands Maintenance	2021	2
Eldorado 2 Mastication	2022	557

Current and ongoing NEPA-approved projects for 2023 and the foreseeable future include approximately 4,000 acres in Lyon County (Table 14).

Table 14. Current and foreseeable BLM fuels treatment projects in Lyon County.

Treatment Name	Timeline	Acres
Sunrise Pass Road Mastication/Piling	Current (Nov 2023)	338
Upper Colony Rd Maintenance Mowing	Current (est Dec 2023)	1,095
Sunrise Pass Rd Treatments	Future (est 2024-2025)	768
Como Rd Fuels Treatments	Future (est 2025-2027)	1,806

Additional proposed BLM fuels projects within Lyon County are currently in the NEPA planning stage and undergoing field office review. These proposed future treatments include up to 8,000 acres of fine fuel (cheatgrass) reduction and seeding within the Adrian fire boundary.

Figure 8 shows a majority of the past, current, approved, and future BLM fuels treatments within Lyon County.

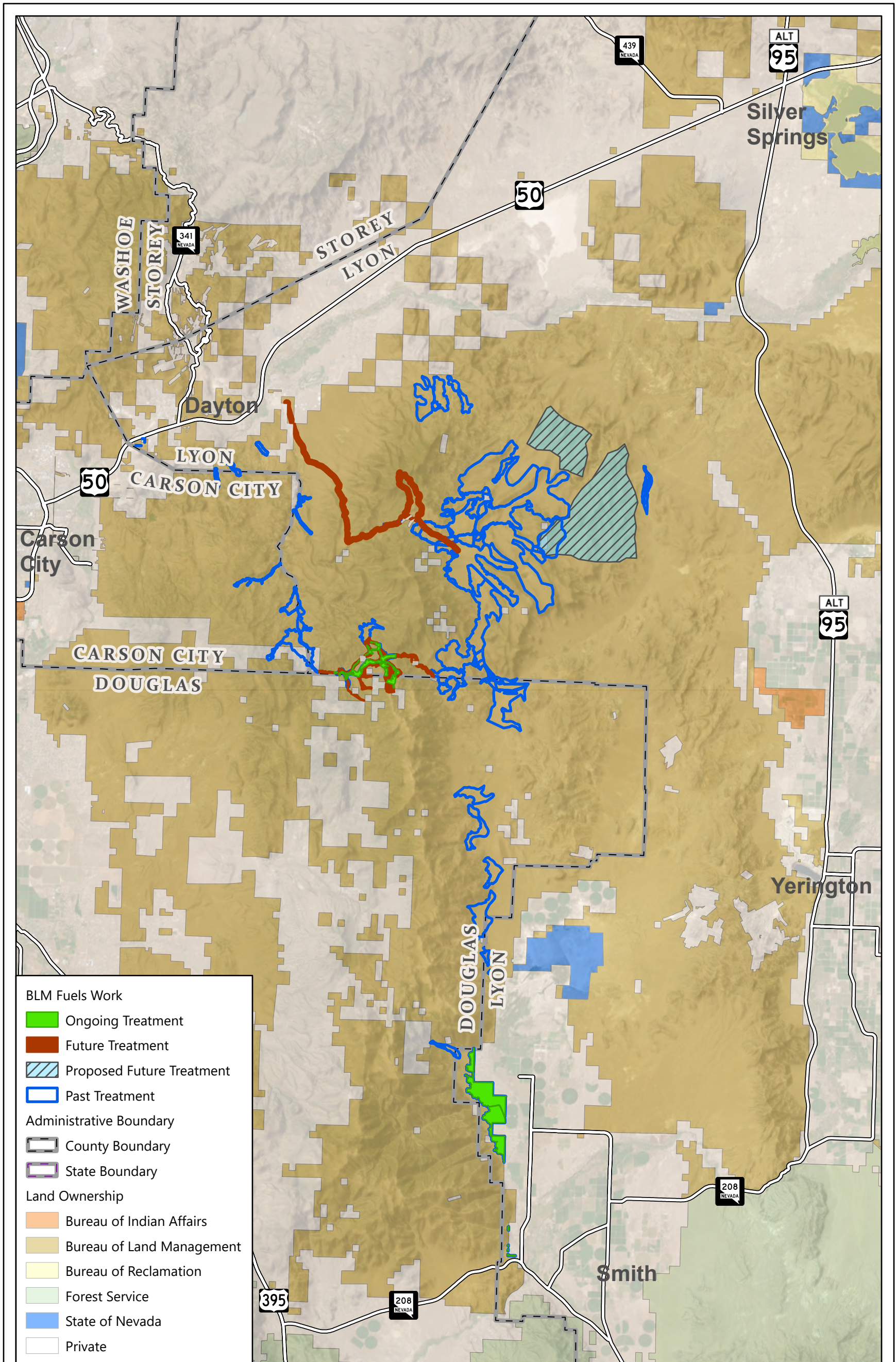


Figure 8. BLM Past and Proposed Habitat and Fuels Management Projects
 Lyon County Community Wildfire Protection Plan
 2023 Update

0 2 4 Miles
 1 In = 3.75 Mile



12/01/2023



9.2 USFS Past and Proposed Habitat and Fuels Management Projects

The USFS Bridgeport Ranger District on in the Humboldt-Toiyabe National Forest currently manages an active habitat improvement and fuels reduction program in conjunction with other state and federal partners in the south part of Lyon County. Past and ongoing projects primarily occur on National Forest System Land and their purpose is to improve habitat conditions for the Bi-State Sage-grouse and improve forest health and resilience within pinyon-juniper (P-J) woodlands.

2016 Four Mile Hill Habitat Improvement Project. This project is currently being completed on approximately 3,800 acres to the east and southeast of the Desert Creek Ranch and along both sides of State Highway 338. It includes the following vegetation treatments:

- Hand felling, lop and scatter 3,670 acres.
- Mechanical mastication or hand felling, pile, and burn 107 acres of Phase 2 P-J.

This habitat and forest health project achieved significant hazardous fuels reduction and reduced the threat of a catastrophic wildfire event which under extreme wind conditions could burn into rural home sites and ranch properties in the south end of the County.

Desert Creek Sage-grouse Habitat Improvement Project. This fuel reduction/ forest health project is directly to the west of the Desert Creek Ranch area. This planned and approved project comprises a total of 2,076 acres with the purpose of improving Greater Sage-grouse habitat and forest health and resiliency. The project design includes:

- Hand cutting, lop and scatter 1,327 acres of Phase 1 P-J .
- Hand cutting, pile, and burn 362 acres of Phase 1-2 P-J.
- Hand thinning, pile and burn in 387 acres of Phase 3 P-J.

This project is administratively approved, complies with NEPA, and represents a shovel-ready project that awaits funding. Due to its location immediately adjacent to rural residential development in the Desert Creek area, funding to implement this project is recommended as a priority to reduce the threat of catastrophic and unmanageable wildfire in an area of rural residential development as well as the multiple resources benefits that will result.

Figure 9 shows the current and future USFS fuels treatments within Lyon County.

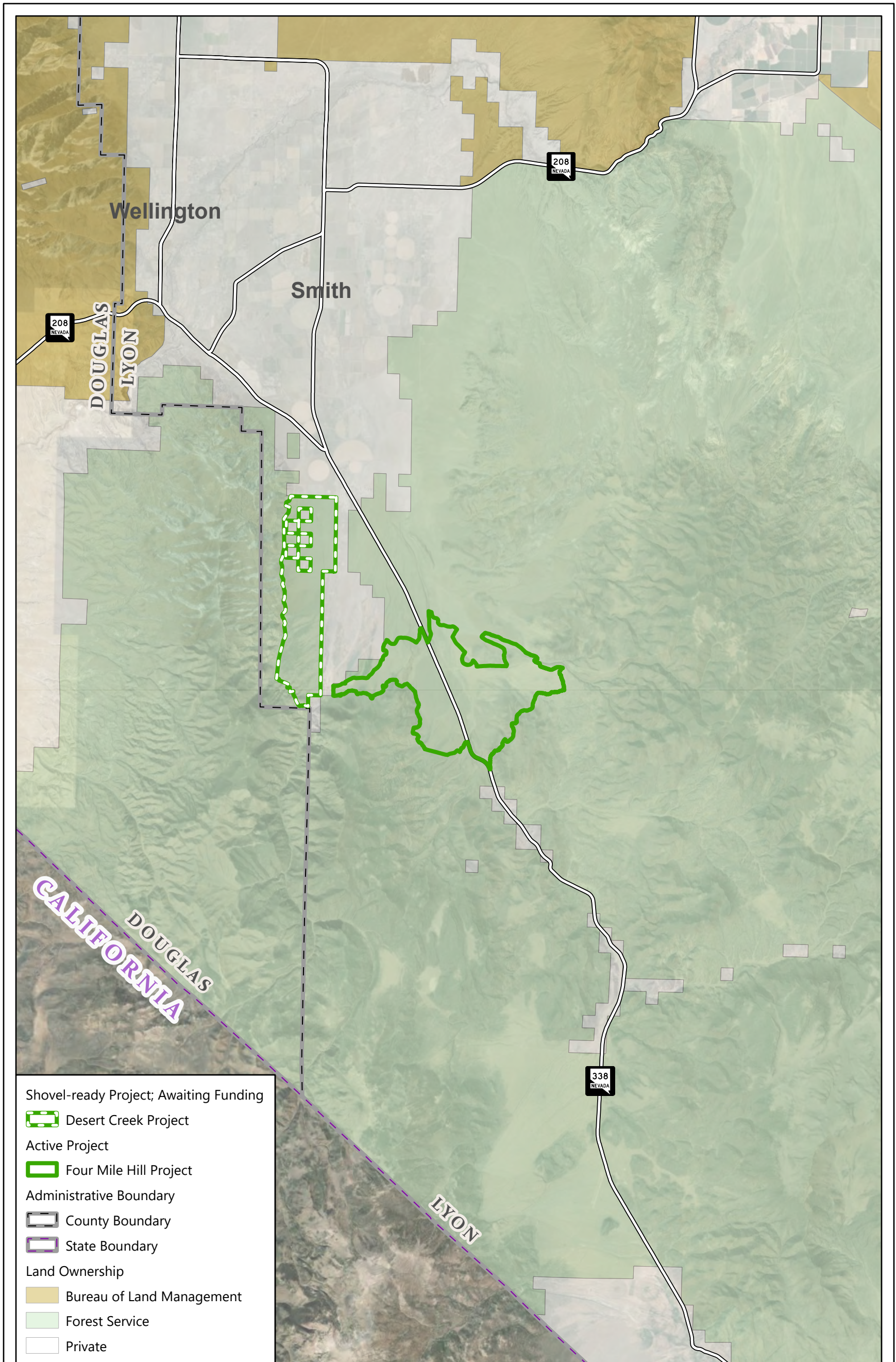


Figure 9. U.S. Forest Service Past and Proposed Habitat and Fuels Management Projects
 Lyon County Community Wildfire Protection Plan
 2023 Update

0 1 2 Miles
 1 in = 2 Mile



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10.0 County-Wide Recommendations to Reduce Wildfire Hazards

The primary and most effective methods for reducing losses from wildfire occur before the fire happens. There is no way to completely eliminate the threat that wildfires present to communities at the wildland/urban interface. It is important to continue and expand the use of programs and resources available to reduce wildfire hazards. The county-wide recommendations described in this 2023 CWPP Update are intended to increase public awareness and encourage concerned community members to collaborate with fire agencies and take proactive actions to effectively reduce the risk of wildfire ignitions within their communities and neighborhoods.

The most prevalent hazard throughout Lyon County identified in the CAT analyses was “potential for structure-to-structure ignitions.” Related hazards with high occurrence were “adjacent to lands with accumulated fuels,” “surrounding vegetation fewer than 30 feet from the house not maintained,” and “less than 50 percent of homes/outbuildings have an adjacent five-foot non-combustible zone.”

An over-arching recommendation to address these widespread hazards in Lyon County is the creation of **Defensible Space** and **Fire-Adapted Communities (FAC)**. With proper community-wide preparation, human populations and infrastructure can withstand the devastating effects of a wildland fire, reducing the loss of life and property.

10.1 Defensible Space

The primary responsibility for protection of homes and private property from loss or damage from wildfires lies with the homeowner. Both individual and neighborhood-based approaches are needed to limit the ability of a fire to spread uninterrupted from adjacent wildlands and open spaces directly to the home via direct contact from flames or embers, exposure to hot gases, or heat from radiation. Defensible space definitions and guidelines are included in Appendix A.

- Property owner’s defensible space responsibilities include removal, reducing, and replacement of vegetation to create defensible space around homes. Actions to maintain defensible space include:
 - Lean – There are only small amounts of flammable vegetation.
 - Clean – There is no accumulation of dead vegetation or other flammable debris.
 - Green – Existing plants are healthy and green during the fire season.
 - Immediately dispose of cleared vegetation when implementing defensible space treatments. This material dries quickly and poses a fire hazard if left on site.
 - Remove debris and flammable materials (urban fuels) from within the defensible space area.
 - Reduce or remove brush growing against wood fences in the community.
 - Clear all vegetation and combustible materials around propane tanks for a minimum distance of ten feet.
 - Abandoned trailers and structures should be removed or boarded up to prevent sparks entering and igniting the structure.

- General Recommended Actions from the CAT analysis are applicable to the high hazard ratings identified specific neighborhoods throughout Lyon County. The most frequent recommendations from the completed analyses included:
 - Be aware of the risks from falling embers in relation to nearby fuels and defensible space.
 - Mow lawns regularly.
 - Water grass, plants, trees, and mulch regularly.
 - Create a spacing of 30 feet between tree crowns.
 - Create a non-combustible area (zone 0) within 5 feet of your home, using non-flammable landscaping materials.
 - Remove dead vegetation from under the deck and within 10 feet of the house; stack firewood away from structures.
 - Consider xeriscaping.
 - Plant a mixture of deciduous trees (e.g., oak and maple) and coniferous trees (e.g., pine).
 - Provide Living with Fire/Firewise construction guidelines to developers /owners.
 - Consider developing covenant restrictions, if applicable.

10.2 Fire Adapted Communities

The ultimate goal of Fire Adapted Communities (FAC) is to enable communities to create their own fire-safe environment, lessening the need for federal protection, which is most applicable and appropriate for Lyon County rural areas that depend heavily on volunteer-staffed fire departments. Achieving this goal depends on strong and collaborative partnerships between neighbors and between agencies and the public at the State, Federal, and local levels, with each fulfilling their respective responsibilities (IAFC 2012). Guidelines for effective collaboration are given in Appendix C.

NEVADA DIVISION OF FORESTRY FIRE ADAPTED NEVADA

Fire Adapted Nevada (FAN) is a program administered by NDF that empowers residents to take personal responsibility for preparing their property and family for wildfire. Residents are considered as partners and active participants in creating **Fire Adapted Communities**. The more actively engaged residents become in preparing and reducing their risk, the more resilient they are to wildfire.

The goal of FAN is to facilitate a community of well informed and prepared citizens to collaboratively take actions to safely coexist with the threat of wildland fire by achieving **Firewise USA** status. More information on FAN can be found in Appendix D and by contacting the NDF FAN coordinator knevills@forestry.nv.gov.

10.3 Firewise USA

FIREWISE USA® (Firewise) is a voluntary program that provides a framework to help neighbors get organized, find direction, and take action to increase the ignition resistance of their homes and community. Home ignition zones often overlap onto adjacent properties. This makes the conditions of neighboring homes and vegetation a part of the wildfire threat. It's extremely important that neighbors work collaboratively with each other— and talk with each other—to reduce their shared risk.

Citizen involvement is the cornerstone of the Firewise USA® Communities recognition program. Firewise practices offer residents in fire-prone areas a unique opportunity to implement practices specially tailored to individual and community needs. The Firewise standards offer flexibility in creating the most appropriate plan and actions for their community. FPDs are encouraged to continue to assist Fire Adapted Community organization for all Lyon County communities.

- Consider a Lyon County-hosted event, countywide, open to all neighborhoods, as an educational outreach action to Increase homeowner’s awareness of the key mechanisms and characteristics of WUI fires that can result in home ignition, and to provide homeowners with guidance and various options for assistance.

11.0 Glossary of Terms Used in Wildfire Management

Defensible Space: The required space between a building structure and the wildland area that surrounds it. This area creates a buffer between the structure and the wildland fire, increasing the survivability of the home from radiant heat or direct flame. Zoned 1 extends 30 feet from the building. Zone 2 extends 30 to 100 feet.

Ember Rain: Windblown embers are a concern in the WUI. Most structures within the WUI are not destroyed from direct-flame ignition, but rather from embers. Embers, or burning brands that precede the flaming fire front for distances of up to two to three miles when carried under high wind conditions.

Fire Adapted Community: A community located in a fire-prone area that requires little assistance from firefighters during a wildfire. Residents of these communities accept responsibility for living in a high fire hazard area. They possess the knowledge and skills to prepare their homes and property to survive wildfire, evacuate early safely and effectively, and survive if trapped by wildfire.

Fuelbreak: A strip of land where highly flammable vegetation is removed to reduce the wildfire threat. Fuelbreaks change fire behavior by slowing it down, reducing the length of flames, and preventing fire from reaching tree canopies. Fuelbreaks are particularly effective when integrated with defensible space.

Fuel Continuity: Fuel continuity is the degree or extent of continuous or uninterrupted distribution of fuel particles in a fuel bed thus affecting a fire's ability to sustain combustion and spread. This applies to ladder fuels as well as surface fuels (NWCG 2018).

Ladder Fuels: Low lying branches and vegetation that can help carry flames from the surface into the canopy of trees or shrubs.

Wildfire: An unplanned wildland fire, including unauthorized human-caused fires and escaped prescribed fire projects.

Wildfire Hazard: The combination of the likelihood of a fire occurring and the intensity of the fire. Also refers to the wildland or built fuels present in a given area, or the combustibility of a given fuel type or fuel complex in general.

Wildfire Risk: The wildfire hazard plus the addition of the factors that contribute to susceptibility, or the impact of a wildfire on highly valued resources and assets.

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Appendices

Appendix A. Homeowner's Guide to Reducing Wildfire Risk Through Defensible Space



Marshall Fire Mitigation Assessment Team: Homeowner's Guide to Reducing Wildfire Risk Through Defensible Space

June 2023



FEMA

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1. Introduction

On December 30, 2021, a wind-driven wildfire affected over 2,000 residential structures and several commercial facilities in unincorporated Boulder County, the City of Louisville, and the Town of Superior, Colorado. Data gathered after the fire highlighted several vulnerabilities in the Home Ignition Zone (HIZ), particularly with respect to defensible space principles, that likely played a significant role in spreading fire from the wildland and open spaces to the built environment.

Because of the unique nature of the incident, where extreme winds coupled with long term drought, high temperatures, and limited wildfire regulatory adoption, a fast-moving low-intensity grass fire became a highly destructive urban fire directly and indirectly impacting several communities and greater Boulder County area. The Federal Emergency Management Agency (FEMA) deployed its first-ever wildfire Mitigation Assessment Team (MAT) to evaluate building performance during the fire. The MAT was deployed to Louisville, Superior, and unincorporated areas in Boulder County, Colorado, to evaluate damaged homes and commercial structures. MAT members evaluated components and systems of primarily residential structures to determine the effectiveness of various building materials, design, and construction practices for wildfire resiliency. The MAT used the information gathered to evaluate how wildfire-urban interface (WUI) building codes and standards, as well as design, construction, and defensible space practices can be improved to increase community wildfire resilience. This is important as the landscape is continuously evolving due to climate change and putting more communities at risk.

1.1. Purpose

This document provides homeowners with steps they can take now to protect their homes from loss or damage from wildfires due to vulnerabilities introduced by surrounding landscaping and other exterior features (e.g., outbuildings, sheds, furniture, and trash bins) within the homeowner's property. The goal is to increase homeowner's awareness of the key mechanisms and characteristics of WUI fires that can result in home ignition, and to provide homeowners with guidance and various options to assist in the following:

1. Limit the ability of a fire to spread uninterrupted from adjacent wildlands and open spaces directly to the home (via direct contact from flames, exposure to hot gases or heat from radiation)
2. Limit the likelihood of embers igniting receptive fuel beds and other combustible items within the homeowner's property leading to home ignition (via heat from radiation, direct contact from flames, exposure to hot gases or additional embers created by vegetative and non-vegetative features (fuel))

These mechanisms, summarized in Figure 1, not only spread fire from wildlands, open spaces, greenbelts, and communal spaces to structures, but can also lead to the spread of fire from structure-to-structure and other items in the built environment. This is known as an urban conflagration.

This document provides homeowners with practical information, resources, and methods to better reduce or mitigate key vulnerabilities within their property from the home outward. This includes:

1. Creating and maintaining fire-adapted landscaping in terms of selection, location, and management of vegetation on the property
2. Increasing the home's chance to survive a fire whether firefighting resources are available or not available
3. Implementing additional wildfire-resiliency measures when property-line setbacks or defensible space are insufficient or unavailable which includes suggestions for how a homeowner can routinely check and evaluate the vulnerability of their home

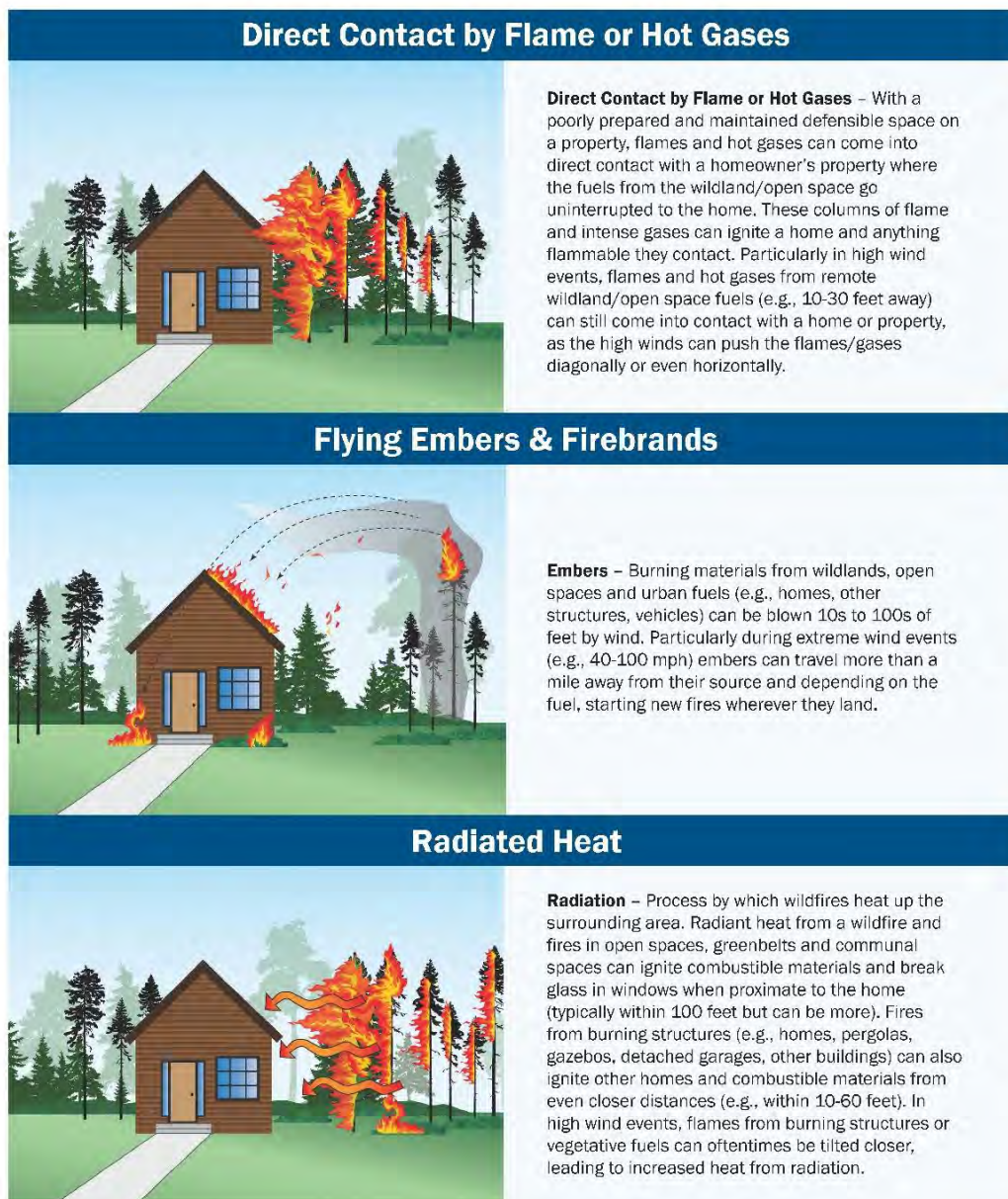


Figure 1. Key Mechanisms for Wildfires Leading to Property Damage and Loss.

Note: This document focuses on increasing wildfire resiliency in the defensible space around a home. Marshall Fire MAT document *Homeowner's Guide to Reducing Risk of Structure Ignition from Wildfire* provides actionable items for increasing wildfire resiliency for the home itself such as the building materials, components, assemblies, and attachments throughout the exterior envelope (i.e., structural hardening) from the top of the roof down to the foundation.

1.2. Key Issues

Defensible space is intended to provide a buffer between the building and the wildland or open spaces that surround it. It should be developed and maintained so that if vegetative or non-vegetative components ignite, they will not threaten the home from generated embers, radiant heat, or direct flames. During a major wildfire event, first responders will likely be unable to actively defend individual homes, so it is essential for homeowners to take proactive measures, so their homes and yards survive with or without defensive actions by first responders (i.e., "survivability"). That said, properly developed and maintained defensible space will also create a place of relative safety that may increase the likelihood of first responders to defend a property. Ultimately, the responsibility of developing and maintaining defensible space, fire-resilient landscapes, and monitoring parcel-level wildfire vulnerabilities lies with homeowners. Information in this report highlights key opportunities for homeowners to reduce their wildfire risk.

Fires rapidly spread via various flow paths that can lead to ignition of structures throughout communities. Structure ignitions can be caused by one or multiple mechanisms, building materials and features, site conditions, or adjacent environmental settings (Figure 2), including:



Figure 2. Key Wildfire Vulnerabilities Near a Home.

- **Wildland and Open Space Vegetation (e.g., grasses, shrubs, and trees)** – Fires in these spaces, whether intermixed or next to a community or home, can present a significant risk due to the intensity and rate-of-spread they are often characterized by (particularly in severe fire weather conditions). Large and uninterrupted open spaces or wildlands that border or mix with communities and neighborhoods, if not managed or considered in city or community land-use planning, can easily ignite homes and community assets through elevated radiative exposures, convective heat, and embers.
- **Landscape Vegetation** – Landscaping can consist of a wide range of managed vegetation types (e.g., trees, shrubs, flowers, grasses), plant characteristics and arrangements (e.g., height, growth type and extent, native vs. non-native, tendency for dead material accumulation), landscape purposes (e.g., food, shade, recreation), fire ecology attributes, and quality of ongoing maintenance. These ‘man-made’ landscape environments can be just as combustible as wildland vegetation and can provide a pathway for fire to spread from wildlands, open spaces, and greenbelts to the home both horizontally through surface fuels or vertically as ladder fuels from grasses and other low-lying vegetation and accumulated debris.

While some plants are marketed and described as “firesafe” or “fire resistant”, all plants will burn under the right conditions. The environment plants grow in and how they are maintained will generally have more influence on the flammability of the plant than its inherent characteristics.
(CAL FIRE, 2022)
- **“Approved” and “Prohibited” Plants** – Many areas have compiled lists of both “approved” and “prohibited” plants to guide homeowners in landscaping design. The ability or inability to resist ignition is based on the physical characteristics of the plant. While these lists are beneficial to homeowners, they can be incomplete or misleading and can provide a false sense of security. These lists are highly dependent on a variety of local factors that may not be relevant to other locations. Numerous factors (e.g., plant species, plant structure, plant products such as resins, setting, surface mass, branching patterns, foliage size, density, litter production and retention, maintenance practices, placement, weather, weather history, etc.) influence whether a plant should be considered “hazardous” or “approved”. Of these factors, maintenance is crucial, and any plant can become a hazard if not maintained properly. Homeowners are encouraged to consult with local fire departments or plant ecologists to evaluate plant “safety” due to the variety and nuances of plant flammability. Even “approved” plants will burn.
- **Embers** – Embers are responsible for the majority of wildfire structure ignitions (estimated to be at least 2/3 of ignitions, Maranghides 2009). Embers can be produced from burning vegetative fuels; other combustible materials such as buildings and contents; and other fuels such as vehicles, and waste bins in the area surrounding the built environment. Embers can be carried by high winds in front of the wildfire at varying distances (e.g., 1/2–2 miles). This creates a wind-driven fire hazard that is unique to wildfire incidents. See Figure 3.



Figure 3. Embers are the primary driver for rapid spread of wildfires into communities. (Valachovic, et al. 2021).

- **Site Constraints and Limited Setbacks** –Site constraints and limited setbacks to adjacent properties restrict a homeowner’s ability to achieve 30–100 feet of defensible space. These constraints can oftentimes mean that homeowners must contend with additional hazards e.g., adjacent unmanaged vegetation, vacant lots, structure-to-structure fire spread, that are mostly outside of their control. Alternative methods, such as common defensible space with neighbors and other structural hardening measures, are needed to address these increased risks.
- **Other Fuels in the Built Environment** – There are a wide range of other types of combustible fuels that homeowners may have stored adjacent to the primary structure, which may ignite due to a wildfire and present an additional fire hazard to homes. This can include firewood piles, sheds, outdoor grills, propane tanks, outdoor furnishings, lawnmowers, trash bins, vehicles, and decorative landscaping (e.g., artificial grass/turf). The type, quantity, and characteristics of these other fuels range dramatically and can present additional challenges in predicting fire behavior (e.g., fire severity, rate of spread, burning characteristics) and damage loss potential in the WUI (Society of Fire Protection Engineers WUI Handbook, 2023).

1.3. Definitions

- **Approved or Recommended plants** – “Recommended” or “approved” plants are generally based on characteristics that allow for a more fire-resistant landscape. Common characteristics include drought-resistance, high moisture content, low levels of volatile oils and other readily flammable chemicals, noninvasive, slow, and low growing, low litter production and bark shedding, and sustainable without supplemental fertilization.

- **Defensible space** – The area around a home where the location, selection, and maintenance of vegetation and other combustible materials are managed such that a fire or wind-blown embers are less likely to ignite the structure. This managed area provides a “defense” against the fire to reduce the structure’s exposure to radiation (heat), direct flame contact and ignition from embers, which are considered the three principal factors of ignition in a wildfire. (Bell et al. 2007).
- **Defensibility** – The level and degree of wildfire mitigation measures that are provided for a structure such that it can be safely defended by firefighting resources in a wildfire but may not survive if firefighting is unavailable.
- **Embers (a.k.a. firebrands)** – Smoldering or flaming particles of vegetation from tree branches, leaves, shrubs, grass, chaparral, or other urban combustibles (such as building components, fences, sheds) that ignite and burn during a wildfire and are carried by winds in front of the wildfire at varying distances. Embers are sometimes also referred to as firebrands.
- **Fire-Adapted Plants** – Plants that have adapted to survive and live in environments with fire. Plant species can typically be classified into five different categories based on their adaptations, although some fit into more than one category. These categories include resisters (i.e., survive moderate to low-intensity fires), sprouters (i.e., endure fire and resprout from their roots), seeders (i.e., evade fire by shedding lots of seeds that sprout after a fire such as serotinous cones of lodge pole pine), invaders (i.e., take over recently burned areas) and avoiders (i.e., grow in areas where fire does not normally occur) (BLM, 2010).
- **Fire-Resistant Landscapes** – This type of landscape uses fire-resistant plants that are strategically planted and maintained to resist the spread of fire to your home. (CAL FIRE, 2019)
- **Hazardous or “Prohibited” Plants** – “Hazardous” or “prohibited” plants are generally based on characteristics that increase ignitability and introduce fire hazards in the landscape. Common characteristics include blade-leaf or needle-leaf evergreens; stiff, woody, small or fine, lacey leaves; leaves and wood containing volatile waxes, fats, terpenes, or oils. Other traits include gummy or resinous sap; plentiful fine, twiggy, dry, or dead materials, loose or papery bark, or produce a large amount of vegetative debris or duff. These types of “hazardous” plants typically flame when preheated and ignited (Fire Safe Marin, 2022).
- **Home Ignition Zone (HIZ)** – The HIZ consists of three zones around a structure including the immediate or ember-resistant zone, the intermediate zone, and the extended or reduced fuel zone (Figure 4). Different names and numbering may be given to these zones by different agencies and organizations.
- **Survivability** – The level to which a structure has the potential to withstand wildfire without being defended.

2. What is Defensible Space?

Defensible space, coupled with home hardening, is essential to increasing your home's likelihood of surviving a wildfire. It is the space that provides a buffer between your home and potential fires in adjacent open spaces or wildland areas comprised of grasses, shrubs, and trees. This buffer is needed to slow or stop the progression of wildfire, and it helps protect your home from damage or loss. Maintaining defensible space includes specific actions for vegetative and non-vegetative objects (e.g., trash cans, fencing and sheds) around a home generally up to 100 feet from the structure (IWUIC, 2021). Defensible space is generally subdivided into three zones, whereby the highest priorities and most restrictive measures are required for the area closest to the structure. The National Fire Protection Association® (NFPA) defines the three zones as follows (see Figure 4):

- **Zone 0**, “Immediate Zone”, “Ember-Resistance Zone”, or “Noncombustible Zone” (0–5 feet). Zone 0 is considered the most important and includes areas immediately surrounding a structure, as well as areas under any attached decks or overhangs.
- **Zone 1**, “Intermediate Zone”, or “Lean, Clean and Green” (5–30 feet). Zone 1 adds a defensible zone that extends from Zone 0 to Zone 2. The goal of this area is to reduce the connectivity between garden beds, shrubs, and trees; removing lower branches of trees and shrubs; and creating areas of irrigated and mowed grass or hardscape between lush vegetation islands so that wildfire does not burn to the house or into the crown of trees. Plants should be properly irrigated and maintained to remove dead/dry material (Valachovic, et al., 2021). This designation also applies to the area within 10 feet of driveways, access roads, or public roads adjacent to the property.
- **Zone 2**, “Extended Zone” or “Reduce Fuel Zone” (30–100 feet+). The goal of Zone 2 is to create a fuel break that interrupts the continuous vegetative fuel path of a wildfire, minimize flame length, and keep fires on the ground by reducing ladder fuels and crown clustering.

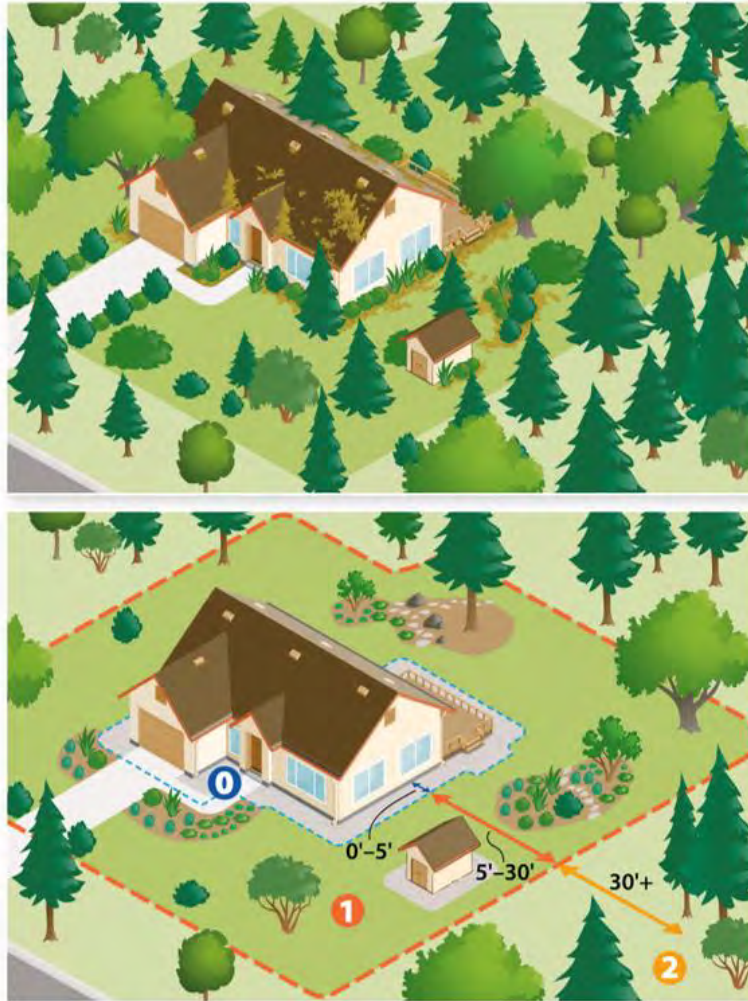


Figure 4. Before (upper) and after (lower) implementation of the three-zone defensible space strategy. While this figure shows a forested setting, the same concepts apply to other vegetation types (e.g., grass- and shrub-lands) and residential settings (Valachovic, et al. 2021).

Many federal, state, and local resources provide a range of information, guidance, and recommendations specific to each zone. See the Reference section for details. Note: Homeowners are encouraged to refer to their local fire department, other local government agencies (e.g., planning department), and other community groups (e.g., HOAs, Firewise communities, fire safe councils, and non-profits) for additional requirements and/or guidance specific to their area. Local ordinances and guidance documents can often provide more tailored and nuanced information for the region or area, and in some cases more stringent requirements.

3. Fire-Resistant Landscapes

Reducing or eliminating hazardous fuels (vegetative or non-vegetative) and maintaining the landscape within the HIZ of a structure can greatly increase its survivability. This helps not only reduce potential sources of embers, but also reduces the likelihood of wildland fuels, landscaping

and other materials directly surrounding the structure or below the structure to serve as ember receptors.

3.1. “Recommended” or “Approved” Plant Lists

Jurisdictions often provide “approved” or “recommended” plant lists with recommendations on vegetation that has more fire-resistant characteristics given the specific climate, topography, and ecological systems in the local area. Some general characteristics of plants included on “approved” lists are (Kuhns, 2019):

- Drought-resistant
- Contain more moisture
- Contain low amounts of volatile oils and other readily flammable chemicals
- Noninvasive
- Slow growing
- Produce less litter and dead material
- Low growing
- Sustainable without supplemental fertilization

While these “approved” or “recommended” plant lists provide a starting point for creating a fire-resistant landscape, it is critical that homeowners know how to properly locate, care, and maintain their landscape. All plants, even recommended plants, shrubs, and trees, will burn given the right conditions and have the potential to become fuel during a wildfire. Also, some plants are difficult to maintain because of the amount of maintenance they require. Homeowners should understand the amount of care and maintenance required for their landscape and verify that this aligns with their available resources. Refer to best management practices below for more details.

Colorado State University Cooperative Extension Service has developed a comprehensive list of fire-resistant plant, shrub, and tree species list. These plants are available at many nurseries which, when combined with defensible space landscaping management practices, can reduce fire risk. The list includes many species attractive in suburban settings like iris, penstemon, beebalm, maples, plum, river birch, mountain ash, and lilac. (Colorado Extension Service, 1999).

Additionally, the Colorado State University Cooperative Extension Service and the Colorado Forest Service have developed plant, shrub, and tree recommendations for Colorado’s wildfire environments through the Firewise program which are appropriate to Boulder County’s wildfire risk and Wildland Urban Interface (WUI) conditions (Colorado State University Extension. Fire-Resistant Landscaping Fact Sheet 6.303 06303.pdf (colostate.edu)).

See a sample list of references provided in the box below.



Federal, State, And County Best Management Practices of Defensible Space

National Non-Government

- International Wildland-Urban Interface Code (IWUIC). (2021).
- National Fire Protection Association (2022). Firewise USA®. <https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA>
- NFPA 1140, 2022 Edition: Standard for Wildland Fire Protection
- NIST. (2022). WUI Structure/Parcel/Community Fire Hazard Mitigation Methodology. <https://nvlpubs.nist.gov/nistpubs/TechnicalNotes/NIST.TN.2205.pdf>

Federal

- USDA Forest Service. (2022). Urban and Community Forestry Program: Tree Pruning Guide. <https://www.arborday.org/trees/tips/>

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- Colorado State University (CSU). (2010): Front Range Tree Recommendation List. <https://extension.colostate.edu/docs/pubs/garden/treereclist.pdf>
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- CALFIRE. (2022). Prepare for Wildfire: Defensible Space. <https://www.fire.ca.gov/programs/communications/defensible-space-prc-4291/>

County

- Boulder County. (2011). Boulder County Community Wildfire Protection Plan: Defensible Space. <https://assets.bouldercounty.gov/wp-content/uploads/2017/02/community-wildfire-protection-plan-book-low-resolution.pdf>
- Boulder County. (2017). Your Defensible Space Slideshow. <https://assets.bouldercounty.gov/wp-content/uploads/2017/02/defensible-space-slideshow.pdf>

3.2. Hazardous or “Prohibited” Plant Lists

Many communities within high wildfire-prone areas have a list of common plants that are considered “hazardous” or “prohibited” for use. Specific guidance has not been developed for Boulder County, Colorado. However, observed highly-flammable tree types common to eastern Boulder County include species in arborvitae (cedars), Juniperus (junipers), Pinus (pines), Douglas fir, spruce, cypress, and yew. Flammable shrubs include Tamarisk, Russian Olive, sagebrush, rosemary, bitterbush and scotch broom. Ground covers such as pampas grass are also extremely flammable in dry conditions. Plants like junipers, Italian cypress, feather and fountain grasses, and ice plant are often considered hazardous due to the amount of maintenance required to manage dead thatch inside or under a green surface layer (Figure 5). Other plants like eucalyptus, palms and some manzanitas are also typically not recommended in medium- to high-wildfire risk areas due to the shedding of dry bark, leaves, fronds, and other duff that can readily ignite and spread fire (UCANR, 2022).

Common characteristics of wildfire vulnerable vegetation include:

- Low moisture content
- Volatile resins and oils, generally aromatic when crushed
- Narrow leaves or long, thin needles
- Waxy or fuzzy leaves
- Accumulates dead leaves and twigs on and/or under the plant
- Loose or papery bark
- Invasive species



Figure 5. Junipers (left) are among the least fire-resistant plants commonly used in landscaping. Their leaf structure and the volatile oils they contain make them highly flammable. Cheatgrass (right), a non-native species, is a flashy fuel meaning that it is highly flammable and can burn rapidly to spread fire and ignite other fuels.

The following publications provide general guidance and considerations for identifying hazardous or “prohibited” plants. For more site and neighborhood-specific guidance, homeowners are encouraged to reach out to their local fire department, their county forester, landscape architects, nurseries, cooperative extension agents, or other fire ecology/fire safety professionals to evaluate their landscaping design.



References for Restricted Invasive Plants (Boulder County, Colorado)

- Boulder County. (2021). Boulder County Invasive Plants 2021 Yearly Report.
- Boulder County, Colorado. <https://assets.bouldercounty.gov/wp-content/uploads/2020/05/weeds-annual-report.pdf>
- Typical invasive trees within Boulder County include: Trees of Heaven, Russian Olive, and Tamarix.
- Other plants that are on Boulder County's List A Watch list include: Mediterranean Sage, Rush Skeletonweed, Myrtle Spurge, Purple Loosestrife, Hairy Willow-herb, Orange Hawkweed, Spotted Snapweed, Yellow Flag Iris, Garden Loosestrife, Yellow Toadflax, Leafy Spurge, and Japanese Knotweed (Boulder County, 2021).

3.3. Landscape Design and Layout – Make Wildfire Resiliency Attractive

A homeowner's landscape can be tailored to reduce the likelihood of ember ignition, fire intensity, and spread of fire to a home. Methods such as mosaic planting and fuel breaks can greatly reduce radiative exposures, high-severity fires proximate to the home, and ultimately increase the probability that a structure will survive a wildfire. When done well, landscaping around a home can be both fire-resistant and achieve a variety of other goals (e.g., aesthetics, soil retention, healthy and native ecosystems, temperature control, flood control). See Figure 6.



Figure 6. Examples of Fire-Resistant Landscapes, including Mosaic Design Features. (Left Photo Credit: CALFIRE, 2022b)

From a fire-prevention perspective, reducing connectivity or continuity of vegetation by creating islands of vegetation or mosaic patterns by increasing spacing between trees and shrubs can limit the spread of fire (Valachovic et al. 2021). Clustered trees and shrubs that are continuous over large areas provide an uninterrupted path, which enables wildfire to gain intensity and spread rapidly. In a WUI setting, this can potentially increase wildfire exposure to homes in intermix zones, and into the developed parts of a community. Landscape designs can also incorporate fuel breaks using pavers and other noncombustible materials. In addition to general spacing, homeowners should reduce the amount of ladder fuels in their landscaping. Ladder fuels are low-growing vegetation such as tall grasses, shrubs, and tree branches, both living and dead that can more readily ignite in a wildfire and lead to ignition of taller vegetation.

Figure 7 illustrates some of the concepts used in successful defensible space development. See the References section for more information. Additional site-specific landscape design guidance is available from the local fire department, county forester, landscape architects, cooperative extension agents or other fire ecology/fire safety professionals.

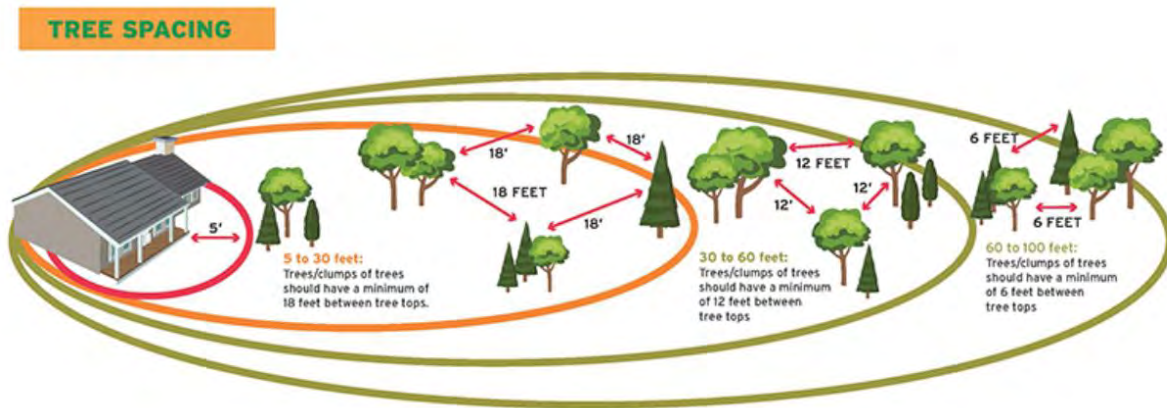


Figure 7. Prescriptive Tree Spacing Guidance (Reproduced from NFPA's website, ©NFPA 2022).

3.4. Best Management Practices – Any Plant Can Burn!

Choosing appropriate plants for landscaping will still require maintenance throughout the HIZ. Plants require water, trimming, and sometimes removal to reduce the hazard that vegetative fuels pose during a wildfire. Best management practices, even for the same species of plant, can vary depending on site topography and local weather and climate conditions (Figure 8). Strategies used by residents and landscapers to alter influences on flammability (e.g., pruning and plant establishment methods), impacts to plant vigor versus flammability, and other landscaping objectives still need development and industry standardization.

Due to the large variety and detailed nuances of plant flammability, homeowners are encouraged to reach out to local experts (e.g., fire departments, local universities, landscape architects and local fire ecologists) to evaluate their vegetative landscape and how best to manage the vegetation surrounding their home.

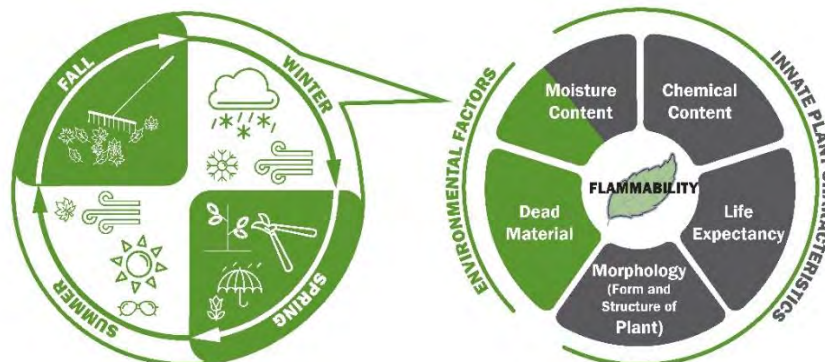


Figure 8. Factors to consider throughout seasons in the year for maintaining defensible space (Sustainable Defensible Space, 2022).

4. How to Increase Home Survivability Without Firefighters

During a major wildfire incident, firefighters and other first responders will likely be unable to “defend” most residential properties. As seen during and after the Marshall Fire (and most major wildfires in the U.S.), the severity and scale of the incident limited the opportunity and safety of first responders to contain or suppress the wildfire let alone defend threatened structures and neighborhoods. Therefore, homeowners are encouraged to develop and maintain appropriate defensible space and structural hardening provisions to ensure that their home and property have a greater chance of survival without relying on the presence of firefighting interventions.

Remember to implement the following methods to protect your home from wildfire:

- Develop and maintain defensible space or alternative risk mitigations where site restrictions exist
- Work with adjacent property owners to develop and maintain “communal defensible space”
- Select, locate, and maintain recommended fire-resistant plants, shrubs, and trees throughout your property
- Develop and maintain a fire-resistant landscape (e.g., tree/shrub spacing, mosaic design), and where necessary, consult a local wildfire specialist, fire department personnel, fire ecologist or fire landscape architect
- Monitor and evaluate your home ignition zone annually and prior to core fire season(s)
- Ask your local fire department, fire safe council or other local wildfire resiliency organization such as Wildfire Partners (<https://wildfirepartners.org/>) to inspect your home and property
- Develop and maintain structural hardening provisions (see Marshall Fire MAT document *Homeowner's Guide to Reducing Risk of Structure Ignition from Wildfire*)

5. What if Your Property Has No Space?

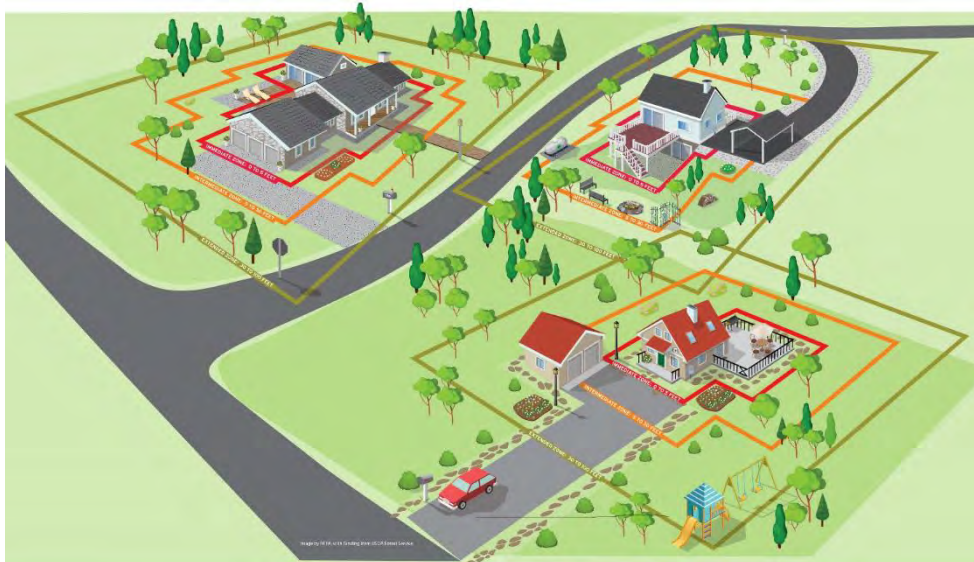
As was observed in the Marshall Fire and numerous WUI fires in recent years, significant damage and loss of property can result from fire spreading from structure-to-structure and not necessarily from the wildlands or open space to the structure. Structure-to-structure fire spread (or urban conflagration) increases in likelihood when homes are closely spaced (e.g., within 60 feet of another structure). This is already recognized in building codes and standards in fire separation requirements. However, most existing codes provide exceptions that allow residential homes to be within 5 feet from a property line (or roughly 10 feet to another home). In some high wildfire jurisdictions, local wildland/WUI fire ordinances have been adopted that require 20 or 30 feet of separation from the primary home to the property line to limit structure-to-structure fire spread, in

addition to the typical defensible space requirements described earlier. While this may be possible for new construction, for most existing properties achieving 30 feet of separation let alone the 100 feet of defensible space is not possible, leaving homeowners unable to achieve prescriptive defensible space measures or optimum wildfire resiliency. The following provides homeowners with guidance on approaches to take to where building setbacks, property line constraints or other practical challenges limit the ability to achieve 100 feet of defensible space or 20–30-foot setbacks to the property line.

5.1. Where 100 Feet of Defensible Space is Limited

Where 100 feet of defensible space next to wildlands, open space, or adjacent properties is not available, homeowners are encouraged to consider the following strategies:

1. Work with neighbors and other adjacent property owners to ensure that common defensible space considerations are implemented between and adjacent to structures on both properties within Zones 0–2 within their own property lines (Figure 9).



**Figure 9. Communal defensible space boundaries.
(Reproduced from NFPA's website, ©NFPA 2022)**

2. Prioritize localized structural hardening measures on the sides of the home with insufficient separation to adjacent properties, such as:
 - Replace existing vent covers with 1/16-inch wire mesh or an approved ember and flame-resistant vent. Some jurisdictions have “pre-approved” products such as CALFIRE’s Building Materials Listing Program (<https://osfm.fire.ca.gov/divisions/fire-engineering-and-investigations/building-materials-listing/bml-search-building-materials-listing/>). Local building and/or fire officials have discretion to approve products.
 - Replace combustible siding with non-combustible or ignition resistant materials (e.g., fiber cement, stucco).

- Replace combustible decking with non-combustible decking.
 - Remove all combustible non-vegetative features (e.g., ornamental grass, trash bins, sheds, pergolas, gazebos, wood piles, vehicles).
 - Replace single-pane window with double-paned or tempered-laminated glazing.
 - Replace combustible fences with non-combustible materials (e.g., concrete, masonry, metal), particularly for fences that attach to a neighbor's combustible fence.
3. Provide structural hardening measures for the entire home (e.g., upgrading to a Class A roof). Refer to Marshall Fire MAT document *Homeowner's Guide to Reducing Risk of Structure Ignition from Wildfire*.
 4. Prioritize the reduction of receptive fuel beds around the entire home from ember attack. Refer to Fire Resistant Landscapes section above.

Hardening structures and parcels to reduce risk of ember exposure and mitigating the major fire pathways that lead wildfire toward residences can be the most important way to protect high-density communities (Maranghides et al, 2022). See *Marshall Fire Mitigation Assessment Team: Mitigation Strategies to Address Multi-Hazard Events*. Refer also to other federal, state, and local references for more details.

5.2. Where 30 Feet of Property Line Setback is Limited

Where 30 feet of setback to the property line is not possible for practical reasons (e.g., parcel dimension or size, topographic limitations, or other easements), homeowners are encouraged to provide additional fire-safety enhancements to their home to reduce the likelihood of structure-to-structure fire spread. The following are potential options (Figure 10):

- Install a six-foot, solid, noncombustible property line wall or fence (e.g., brick, masonry, or concrete masonry unit walls) to minimize ember transmission, radiation, and other forms of heat transfer from adjacent properties. Note: This is more effective for grass and shrubland landscapes.
- Install five to ten feet of noncombustible material (e.g., pavers, gravel) horizontally around the home. Where there is significant hardscaping around the home, additional measures may be needed to limit potential drainage or flooding issues.
- Prioritize localized structural-hardening measures on the side of the structure with less than 30 feet of setback (e.g., replace combustible siding with non-combustible siding). Refer to bullet point 2 in the above section.
- Provide additional structure hardening such as installing or upgrading exterior walls, windows, vents, and under-eaves areas of the home to be fire-resistance rated (e.g., 1-hour rated).

Homeowners may need to contact a licensed contractor or design professional for assistance. Refer to Marshall Fire MAT document *Decreasing Risk of Structure-to-Structure Fire Spread in a Wildfire* for details.



Figure 10. Examples of additional structural hardening and defensible space features where 30 feet of setback to the property line is not feasible.

6. Monitor and Evaluate Your HIZ

In addition to the measures described above, it is critical that homeowners periodically monitor and evaluate the defensible space and structural hardening provisions in their property's HIZ. A thorough HIZ assessment identifies potential wildfire vulnerabilities that could result in damage or total loss of a structure. These assessments should be performed by the property owner in consultation with wildfire/fire safety professionals (e.g., fire engineers, fire department prevention officers) or other trained individuals (e.g., Firewise USA®), members of the local fire safe council, Wildfire Partners (<https://wildfirepartners.org/>) or those who have taken a recognized HIZ assessment course, such as NFPA®: Assessing Structure Ignition Potential from Fire). The reference section highlights resources which outline best practices for conducting HIZ assessments for defensible space, including the Colorado State Forest Service's Home Ignition Zone Checklist.

There are numerous best management practices (BMPs) for parcel and community-level vegetation management available at the Federal, State, and County levels. For example, the Colorado State

Forest Service has published recommendations for homeowners to prepare the HIZ of their property for wildfire.



Best Practices for Conducting HIZ Assessments for Defensible Space

- NIST WUI Structure/Parcel/Community Fire Hazard Mitigation Methodology. <https://nvlpubs.nist.gov/nistpubs/TechnicalNotes/NIST.TN.2205.pdf>
- NFPA 1140, 2022 Edition: Standard for Wildland Fire Protection
- NFPA® "Assessing Structure Ignition Potential from Wildfire" training.
- Fire Adapted Communities Learning Network. <https://fireadaptednetwork.org/>
- Colorado State Forest Service Home Ignition Zone Checklists. <https://csfs.colostate.edu/wildfire-mitigation/home-ignition-zone-checklists/>
- IBHS, How to Maintain Your Home's Defensible Space. <https://wildfireprepared.org/article/how-to-maintain-your-homes-defensible-space/>
- Society of Fire Protection Engineers: Virtual WUI Handbook. <https://www.sfpe.org/wuihandbook/home#about-handbook>



FEMA Fact Sheets for Defensible Space in The Home Ignition Zone

FEMA Technical Fact Sheet Series FEMA P-737: *Home Builder's Guide to Construction in Wildfire Zones*. https://defensiblespace.org/wp-content/uploads/2021/01/FEMA_2008_P-737-Home-Builders-Guide-to-Construction-in-Wildfire-Zones.pdf

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Appendix B. Wildfire Hazard Conditions and Scores Used in the Community Assessment Tool

SCORING: CATEGORIES, PARAMETERS, AND VALUES¹

“The Model”

The Overall Hazard Score for each neighborhood is comprised of three hazard assessments. The ‘Suppression Hazard’ comprises 20 percent of the Overall Wildfire Hazard Score.

The ‘Environmental’ and ‘Structural’ Hazards each make up 40 percent, totaling 100 percent.

The environmental and structural hazard assessments are worth more since those are areas where communities can more easily make improvements, versus suppression, which is predominantly determined by FPD capacity and other factors beyond their control.

Structural Hazards: 40 Percent of Overall Hazard Score

A total of 10 risk factors were evaluated for the **STRUCTURAL HAZARD**.

- Roofing material is the most heavily weighted among the structure hazards, comprising 19.2 percent of the STRUCTURAL HAZARD SCORE.
- Ventilation Soffits and Siding are each second highest weighted factors for the STRUCTURAL HAZARD (14.2 percent each).
- Underskirting and Wooden Attachments each contributed 11.7 percent to the STRUCTURAL HAZARD score.

Assigned Score	Factors & Conditions	Percent Contribution to Category	Percent Contribution to Overall
	Roofing Materials	19.20	7.68
1.0	> 75% of homes have metal, tile or class A asphalt or fiberglass shingles		
10.0	50 to 75% of homes have metal, tile or class A asphalt or fiberglass shingles		
23.0	< 50% of homes have metal, tile or class A asphalt or fiberglass shingles		
	Ventilation Soffits	14.20	3.00
1.0	> 75% of homes have non-combustible ventilation soffits with mesh or screening		
5.0	50-74% of homes have non-combustible ventilation soffits with mesh or screening		
9.0	< 50% of homes have non-combustible ventilation soffits with mesh or screening		

¹ Timmons Group

Assigned Score	Factors & Conditions	Percent Contribution to Category	Percent Contribution to Overall
	Siding	14.20	5.68
1.0	> 75% of homes have non-combustible siding		
8.0	50-74% of homes have non-combustible siding		
17.0	< 50% of homes have non-combustible siding		
	Underskirting	11.70	4.68
1.0	> 75% of homes have skirting underneath raised floors/decks		
8.0	50-74% of homes have skirting underneath		
14.0	< 50% of homes have skirting underneath		
	Wooden Attachments	11.70	4.68
1.0	> 75% of homes have NO Wooden Attachments		
8.0	50-74% of homes have NO Wooden Attachments		
14.0	< 50% of homes have NO Wooden Attachments		
	Debris on Roof and/or Gutters	7.50	3.00
0.0	No		
9.0	Yes		
	Building Setback	5.80	2.32
0.0	Not applicable		
4.0	Greater than or equal to 30 feet from slope		
7.0	Less than 30 feet from slope		
	Propane	4.20	1.68
0.0	> 30 feet from the house and surrounding vegetation maintained		
5.0	Fewer than 30 feet from the house and/or surrounding vegetation not maintained		
	Electric Utilities	3.30	1.67
0.0	Electric Underground		
1.0	Electric Overhead drop maintained		
5.0	Electric Overhead drop not maintained		
	Non-Combustible Zone	3.30	5.67
1.0	> 75% of homes/outbuildings have 5-foot non-combustible zone adjacent to structures		
9.0	50 – 74% of homes/outbuildings have 5-foot non-combustible zone adjacent to structures		

Assigned Score	Factors & Conditions	Percent Contribution to Category	Percent Contribution to Overall
17.0	< 50% of homes/outbuildings have 5-foot non-combustible zone adjacent to structures		
	TOTAL Possible Points for the Structural Hazard Score	120	40.01
	Total Possible Points for the Overall Wildfire Hazard Score	120/300 = 40% of Overall Hazard Score	

Surrounding Environmental Hazards: 40 Percent of Overall Hazard Score

A total of eight factors were evaluated for the **Surrounding Environment Hazard**

- **Predominant Vegetation** is the most heavily weighted among the Environmental Surrounding Hazard factors comprising 25 percent of the ENVIRONMENTAL HAZARD SCORE.
- **Defensible Space** is second highest contributor to the ENVIRONMENTAL HAZARD SCORE (22.5 percent).
- **Adjacency to Wildlands** was the next highest contributor to the ENVIRONMENTAL HAZARD SCORE (12.5 percent).

Assigned Score	Factors & Conditions	Percent Contribution to Category	Percent Contribution to Overall Hazard
	Predominant Vegetation	25.00	10.00
5.0	Light (grass)		
10.0	Medium (brush)		
20.0	Heavy (timber, overgrown sage, Pinyon/Juniper with dead/down, etc)		
30.0	Extreme / Slash (Any Combination of contiguous Light, Medium, Heavy)		
	Defensible Space	22.50	9.00
0.0	Lean, Clean and Green Zone (5-30 ft) and Reduced fuel Zone (30-100 ft) OBVIOUS THROUGHOUT community		
5.0	Fuels are sparse amongst structures		
13.0	Fuels light/moderate amongst structures		
27.0	Fuels heavy/extreme amongst structures and other urban materials are present		
	Slope	10.00	4.00
0.0	Slope 0% - 5%		
5.0	Slope 6% - 10%		
7.0	Slope 11% - 30%		
12.0	Slope > 31%		

Assigned Score	Factors & Conditions	Percent Contribution to Category	Percent Contribution to Overall Hazard
	Structure to Structure Ignition	5.00	2.00
0.0	No Possible Structure to Structure Ignition		
6.0	Possible Structure to Structure Ignition		
	Topographical Features	5.00	2.00
0.0	No topographical features adversely affect wildland fire behavior		
6.0	Topographical features adversely affect wildland fire behavior (box canyons, chimneys, etc.)		
	Adjacency to Wildlands	12.50	5.00
0.0	Not adjacent to wildlands with accumulated fuels		
15.0	Adjacent to wildlands with accumulated fuels		
	Undeveloped Lots with restricted access and/or not maintained	10.00	4.00
0.0	Fewer than 10% of lots are undeveloped		
4.0	10% to 30% of lots are undeveloped		
7.0	31% to 50% of lots are undeveloped		
12.0	Greater than 51% of lots are undeveloped		
	Electric Transmission Lines	10.00	4.00
0.0	No above ground electric transmission lines present		
3.0	Above ground electric transmission lines are maintained		
12.0	Above ground electric transmission lines are NOT maintained		
	TOTAL Possible Points for the Environmental Hazard Score	120	40.00
	Total Possible Points for the Overall Wildfire Hazard Score	120/300 = 40 % of Overall Hazard Score	

Suppression Hazard: 20 Percent of Total Risk Score

A total of 10 factors were evaluated for the **Suppression Hazard**.

- Water Supply is the most heavily weighted among the SUPPRESSION hazards comprising 16.6 percent of SUPPRESSION HAZARD Score
- Ingress and Egress is the second highest contributor to the SUPPRESSION HAZARD Score (15.0 percent).
- Road Width, Street Signs, and Local Response Resources each contributed 10 percent to the SUPPRESSION HAZARD score.

Assigned Score	Factors & Conditions	Percent Contribution to Category	Percent Contribution to Overall
	Ingress and egress	15.00	3.00
0.0	2 or more roads in/out with ZERO response/evacuation complexity		
3.0	2 or more roads in/out with SLIGHT response/evacuation complexity		
6.0	2 or more roads in/out with MODERATE/HIGH response/evacuation complexity		
9.0	One road in and out (entrance and exit is the same)		
	Road Width	10.00	2.00
0.0	Road width is > 24 feet		
3.0	Road width is > 20 feet and < 24 feet		
6.0	Road width is < 20 feet		
	Road Accessibility	8.40	1.68
0.0	Surfaced road		
2.0	Non-surfaced road, grade less than or equal to 5%		
4.0	Non-surfaced road, grade greater than 5%		
5.0	Non-maintained dirt road		
	Secondary Road Terminuses	6.60	1.32
0.0	Roads ends in a cul-de-sac, diameter > 100 feet		
2.0	Roads ends in a cul-de-sac, diameter < 100 feet		
3.0	Dead end roads <200 feet long		
4.0	Dead end roads >200 feet long		
	Street Signs	10.00	2.00
0.0	Present throughout, four-inch lettering high, non-flammable and reflective		
3.0	Inconsistent throughout, four-inch lettering, non-flammable and reflective		
5.0	Present or inconsistent but wooden, non-reflective, or lettering less than inches		

Assigned Score	Factors & Conditions	Percent Contribution to Category	Percent Contribution to Overall
6.0	Not present		
	Driveways	8.40	1.68
0.0	Average driveway allows access to homes		
5.0	Average driveway restricts access to homes		
	Water Supply	16.60	3.32
0.0	Pressurized hydrants spaced less than 1000 feet apart		
1.0	Pressurized hydrants spaced more than 1000 feet apart		
5.0	Dry Hydrant(s) / Draft available within the community		
5.0	Other accessible sources within community (pond, lake, etc.)		
7.0	Water sources located within 4 miles of community (incl heli dip sites)		
10.0	No water sources in or within 4 miles of the community		
	Geographic Features	8.30	1.66
0.0	No notable geographical features present to hinder fire suppression		
5.0	Suppression efforts hindered by geographical features (i.e. slope, cliffs, soil type, rock, draws, drainages, water)		
	Local Response Resources	10.00	2.00
0.0	5 miles or less from Agency with Response Authority fire department -- STAFFED		
4.0	5 miles or less from Agency with Response Authority fire department -- VOLUNTEER		
6.0	More than 5 miles from Agency with Response Authority fire department (STAFFED or VOLUNTEER)		
	Community Organization (Governance)	6.70	1.34
0.0	HOA present and has organizational structure for sustained fire prevention and mitigation efforts		
2.0	HOA present but lacks organizational structure for sustained fire prevention and mitigation efforts		
3.0	GID present but lacks organizational structure for sustained fire prevention and mitigation efforts		
4.0	Lacks organizational structure for sustained fire prevention and mitigation efforts		
	TOTAL Possible Points for the Suppression Hazard Score	60	20.00 %
	Total Possible Points for the Overall Wildfire Hazard Score	60/300= 20 % Overall Hazard Score	

Appendix C. Guidelines for Effective Collaboration

Successful collaboration may include some or all of the following features:

Include Diverse and Balanced Stakeholder Representation. Potential stakeholders include local property owners, local governments, tribal representatives, industry groups, conservation groups, academics, scientists, and the interested public. Collaborative organizers should make a reasonable effort to include balanced representation from relevant interests in the collaborative process.

Establish Clear Expectations and Goals. The collaborative process itself should be open, accessible, and tailored, as much as possible, to participants' needs. Meetings should be civil and respect the ideas of all participants. Participants should agree on how they are going to collaborate and develop clearly articulated and achievable goals for action. Commitments made during collaboration should be honored.

Collaborate Early and Often. Collaboration is enhanced when participants are involved at all stages of project planning. This includes the identification of issues and concerns, potential project areas, the development of alternatives, project design, and where applicable, implementation and post-treatment monitoring.

Strive for Maximum Transparency in the Decision-Making Process. The criteria that will be used by decision-makers to select a final project or alternative should be made clear to the participants and the decision making process that will be used to apply the criteria should also be transparent and understood by all. There should be flexibility in the decision-making process to allow for multiple options to be considered.

Encourage Stakeholders to Function as Representatives. Participants in collaboration should serve as a liaison between the collaborative group and the interests they represent and, when appropriate, advocate within their constituency for the agreed upon plan, project, or activity. Communication between the entities should be enhanced as a result of the collaborative effort.

Foster Long-Term Participation. Collaboration will yield longer-term benefits if participants maintain regular communication and active participation in the collaborative process and are committed to staying engaged through completion of the plan, project, or activity. New stakeholders should be added when appropriate.

Recognize Time Frames and Resources. Participants in collaboration should mutually agree on ways to accomplish their objectives within reasonable time frames and in consideration of resource limitations.

Enhanced Decision-Making. Collaboration should be conducted in a way that complements and informs formal decision-making.

Appendix D. Fire Adapted Nevada FAN



What is a Fire Adapted Community?

A Fire Adapted Community (FAC) is more likely to survive a wildfire. An FAC proactively prepares for the threat of wildfire so they require little to no assistance from firefighters. If communities are interested, they can become a “Firewise USA® community”. The Firewise USA® program is a part of FAN’s efforts to prepare communities for wildfire. Benefits of being a Firewise USA® community are a reduction in insurance rates and scoring higher in the grant rating process to obtain funds toward fuels reduction efforts around their community.

What is Fire Adapted Nevada?

Fire Adapted Nevada (FAN) is a multi-agency partnership involving federal, state, county, and local agencies, non-profit organizations and private entities. FAN’s goal is to support communities as they become fire adapted.

How does FAN support communities?

FAN assists communities in creating Community Wildfire Protection Plans (CWPPs) to identify and address wildfire risks. FAN supports community-driven actions to decrease these risks, including, technical assistance on plant and tree selection, and chipping days. The program can also provide equipment (e.g., chippers) and crews to help the community reduce risks posed by overgrown bushes, dead and downed trees, and other hazards. Grant opportunities and educational materials are available through FAN as well. FAN connects communities to resources. We attend community meetings/events, and provide outreach and educational presentations along with peer-reviewed, researched based materials. We also assist communities with the Firewise USA® application process.

What is the Role of Fire Protection Districts/Departments?

Fire Protection Districts and departments are integral to FAN as they are typically the first to respond to any incident. Their involvement in preplanning, project planning, Community Wildfire Protection Plans (CWPPs), community meetings, evacuation plans and overall interaction with community members greatly helps any incident and community response to a wildfire. Individual districts and departments may determine additional responsibilities in support of FAN objectives.

How to participate in FAN?

If you would like to become a Firewise USA® Nationally Recognized Community, or like to know more about becoming fire adapted, contact the Fire Adapted Nevada Coordinator, Kelli Nevills.

Contact FAN:

Kelli Nevills

Fire Adapted Nevada Coordinator
901 S. Stewart St. Ste. 1001
Carson City, NV 89701
knevills@forestry.nv.gov
775-684-2519



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