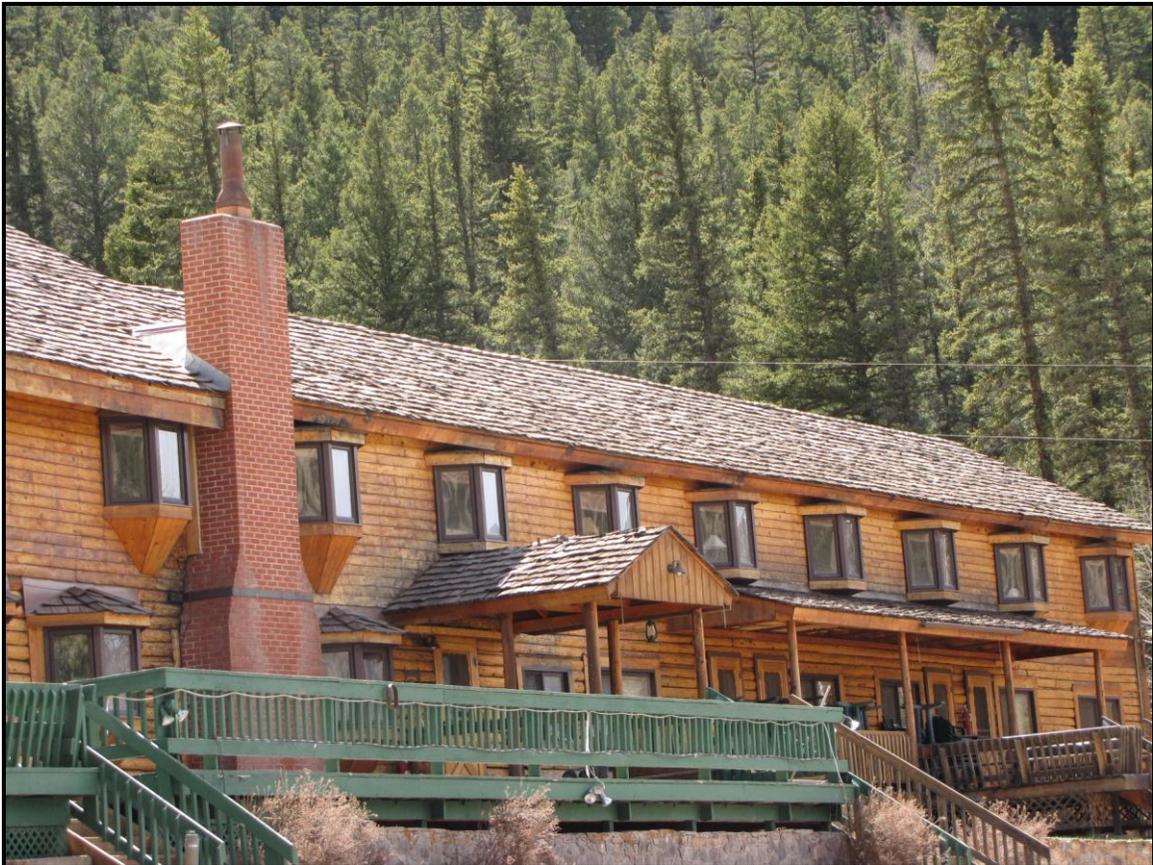


Hinsdale County

Community Wildfire Protection Plan



FOREST STEWARDSHIP CONCEPTS, LTD.

Community Wildfire Protection Plan Hinsdale County

Table of Contents:

Signature Page	2
PREFACE:	5
COMMUNITY IDENTIFICATION AND DESCRIPTION	6
Hinsdale County Vicinity Map	7
Stakeholders Meetings & Questionnaires	8
COMMUNITY ASSESSMENT	10
Risk of Ignition and Wildfire Occurrence	10
Fire Regime & Condition Class	12
Fuel Hazards	14
Local Preparedness and Protection Capability	22
COMMUNITY MITIGATION PLAN	25
Fuel Hazard Reduction	25
Home Ignition Zone	26
Structure Triage	28
Individual WUI Summaries	30
Cebolla ~ WUI Summary	31
Henson ~ WUI Summary	34
Hermit Lakes ~ WUI Summary	36
Lost Trail ~ WUI Summary	38
Lower Lake Fork ~ WUI Summary	40
Oleo ~ WUI Summary	43
Pearl Lakes ~ WUI Summary	44
Piedra/Palisades ~ WUI Summary	45
Ptarmigan Meadows ~ WUI Summary	48
Upper Lake Fork ~ WUI Summary	50
S Lazy U ~ WUI Summary	52
Historical Buildings	53
Fire Protection Outside Fire Protection Districts	54
Prescribed Burning	54
Fuel Treatments	54
Wildfire Prevention and Fire Loss Mitigation	55
Survivable Space	55
Firefighter Training	55
Communications	55
County Wildfire Standards for Subdivisions	56
Fire Control Features Maps	57
CWPP Project Coordinator:	57
State Tax Incentives for Wildfire Hazard Mitigation:	58
Slash Disposal Yards	58

IMPLEMENTATION & MONITORING	59
Implementation:	59
Potential Funding Sources.....	60
Monitoring:	62
Appendices	63
Appendix A: Maps.....	63
Appendix B: Fuel Model Descriptions.....	63
Appendix C: Fuel Hazard Reduction Guidelines.....	63
Appendix D: Evacuation Planning Guidelines.....	63
Appendix E: FireWise – A Homeowners Guide to Wildfire Retrofit.....	63
Appendix F: Fuelbreak Guidelines for Forested Subdivisions & Communities	63
Appendix G: Road & Driveway Specifications for Emergency Access ..	63
Appendix H: Hinsdale County Triage.....	63
Appendix I: Subdivision Hazard Evaluation Form	63
Appendix J: Definition of Terms	63
Appendix K: References and Publications	63
Appendix L: Potential Funding Sources.....	63
Appendix M: San Juan Ranch Estates CWPP.....	63

PREFACE:

A Community Wildfire Protection Plan (CWPP) is a local wildfire protection plan that can take a variety of forms, based on the needs of the community. The CWPP may address issues such as wildfire response, hazard mitigation, community preparedness, or structure protection – or all of the above.

The process of developing a CWPP can help a community clarify and refine its priorities for protection of life, property and critical infrastructure in the wildland-urban interface. It also can lead community members through valuable discussions regarding management options and implications for the surrounding watershed.

CWPPs also improve a community's ability to compete for grants to fund hazard mitigation projects, prevention, and preparedness education of residents in the community.

The wildland urban interface (WUI) is another term found throughout this document. It can be simply described as the geographical area where structures and other human development meet or intermingle with wildland or vegetative fuels. For the purposes of community wildfire protection planning a more specific definition is used. The Healthy Forest Restoration Act defines wildland-urban interface as:

- a.) an area extending $\frac{1}{2}$ mile from the boundary of an at risk community.
- b.) an area within 1.5 miles of the boundary of an at risk community, including any land that;
 1. Has a sustained steep slope that creates the potential for wildfire behavior endangering the at risk community,
 2. Has a geographic feature that aids in creating an effective fire break, such as a road or ridge top,
- c.) An area that is adjacent to an evacuation route for an at risk community that requires hazardous fuels reduction to provide safer evacuation from the at risk community.

COMMUNITY IDENTIFICATION AND DESCRIPTION

Hinsdale County lies in south central Colorado and contains the headwaters of the Lake Fork of the Gunnison River and Piedra Rivers on the west side of the Continental Divide and the Rio Grande River on the east side of the divide. It is 22 miles wide and 50 miles long covering 1,124 square miles or 719,278 acres.

There is an average of 300 days of sunshine with 16 inches of precipitation per year. Mean temperatures range from 15° F in January to 65° F in July. Elevations run from 14,309 feet on Uncompahgre Peak to 8,000 feet on the southern county line.

The County is 95.3% public lands with only 4.7% in private ownership. Most of the private land is associated with creeks, rivers or lakes and reservoirs. Many mining claims are scattered across the mountains, usually at higher elevations.

Table 1: Hinsdale County Landownership

Ownership	Acres	%
Private	33,785	4.7
Bureau of Land Management	124,066	17.2
Colorado Division of Wildlife	2,493	0.3
US Forest Service	558,934	77.8
Total	719,278	100

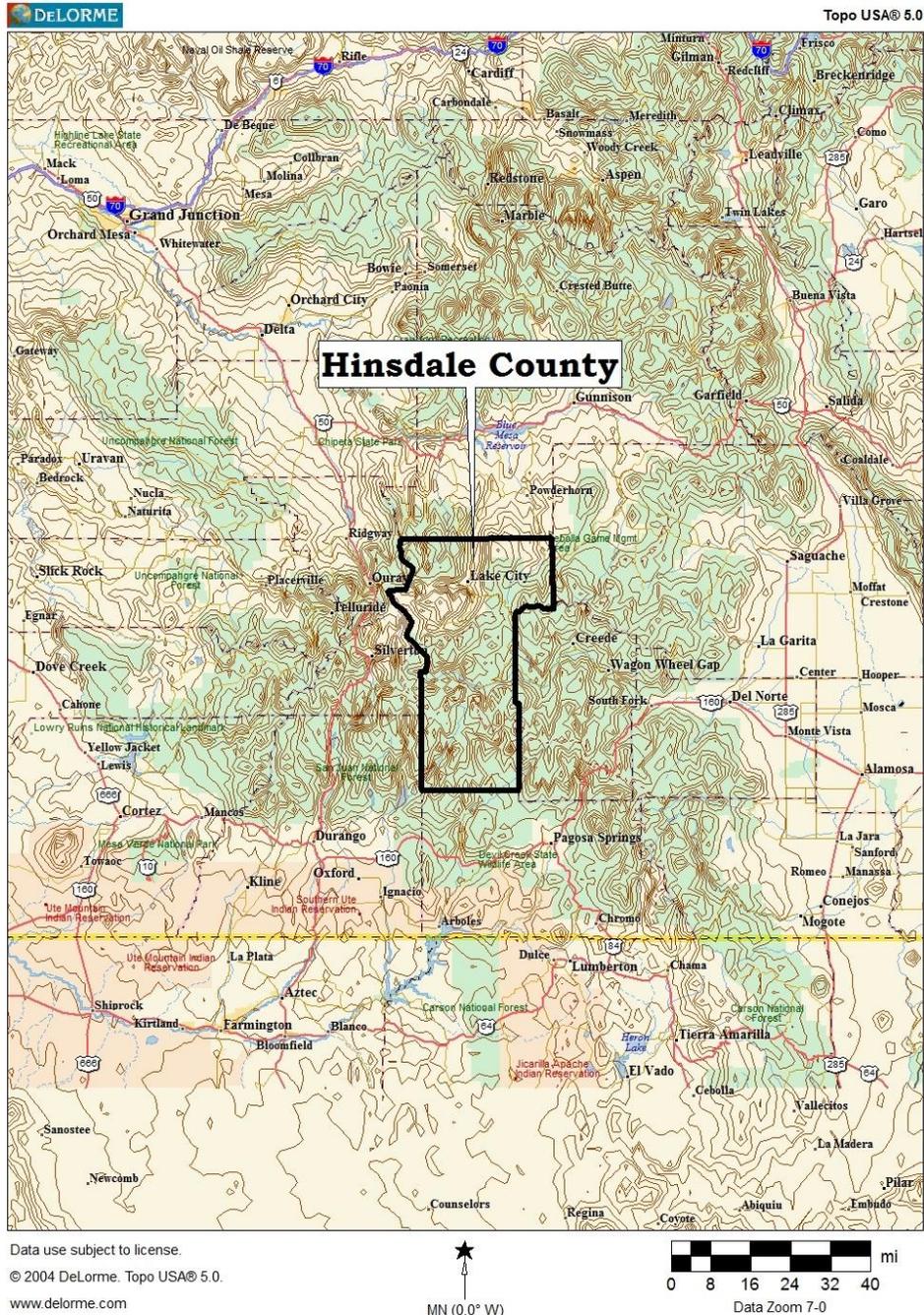
Four wilderness areas (La Garita, Powderhorn, Uncompahgre, and Weminuche) dominate 47% of the land mass within the county.

The 2000 census found 790 full time residents. 402 live in Lake City, (the county seat) with the remaining 388 residents living in more rural environs. Overall there are 0.7 people per square mile in the County. Summer time population increases dramatically to well over 2,500 visitors.

The County maintains 4 miles of paved roads and 245 miles of gravel/dirt roads. The Alpine Loop Scenic Byway is a major summer time attraction in the County. It is a 4x4 road that crosses Cinnamon and Engineer Passes, both of which are near 13,000 feet in elevation.

Total property value in Hinsdale County is \$222,512,914. There are approximately 1,300 housing units. Average home value in 2002 was \$220,471. The Count's annual budget is \$1,192,951.

Hinsdale County Vicinity Map



State Hwy 149 provides primary paved access with numerous high quality County gravel roads providing access to the various neighborhoods. Road quality within subdivisions ranges from good to poor. Driveway quality varies dramatically.

The initial CWPP Core Team meeting was held on March 9, 2010. Participants included the County Sheriff, County Emergency Services Director, Chief - Lake City Fire Protection District, and representatives from County Health Department, Hinsdale County Resident, Colorado State Forest Service, Bureau of Land Management, and US Forest Service.

The Core Team reviewed the overall wildland fire protection situation in Hinsdale County and discussed issues, concerns and opportunities. WUI boundaries were delineated on a map. (Table 2 lists the WUIs and acreage for Hinsdale County.) Wildland resource inventories were discussed. The Core Team met again on August 4, 2010 to refine the draft CWPP and assure universal support and commitment to the actions outline in the plan.

Table 2: Wildland Urban Interface Communities - Hinsdale County

WUI Name	Acres
Cebolla	12,216
Henson	17,633
Hermit Lakes	6,504
Lost Trail	1,811
Lower Lake Fork	40,977
Oleo	1,504
Pearl Lakes	7,839
Piedra-Palisade	16,870
Ptarmigan Meadows	6,808
S Lazy U	596
Upper Lake Fork	27,492
Total Acres	140,250

Stakeholders Meetings & Questionnaires

Interested parties meetings were held in Lake City on June 10, 2010 and in the Piedra area, following the annual south end Commissioners meeting, on June 16, 2010. Participants discussed community wildfire planning issues and reviewed maps of the WUIs showing triaged

structures and fire control features in each area. Participants were encouraged to complete a questionnaire on wildfire hazards and mitigation opportunities. Table 3 displays questionnaires results.

Table 3: CWPP Questionnaire Summary

Question	Yes	No	Total Replies
A- Do you live in, or own property in an area vulnerable to wildfire?	18	3	21
B - What is your primary concern relative to wildfire in your neighborhood: Loss of structures due to wildfire Survivable space My stuff might burn Containing wildfire Loss of property value and habitat Containment	-	-	-
C- If you have structures on your property do you think they will survive a wildfire in their close proximity?	8	12	20
D- Are you familiar with the term “Survivable Space” when it comes to structures and wildfires?	13	4	17
E – Are you willing to expend the labor or money to improve the probability your structures will survive a wildland fire?	15	3	18
F- Would you like more information on preparing your structures for the inevitable wildfire? If so, what format do your prefer? Brochure Workshop On site consultation with person familiar with FireWise concepts	17	1	18 13 7 6
G- What suggestions do you have to reduce your communities’ vulnerability to wildfire? Fire tower on the mountain Safety zones for remote people Cut more trees Clean up brush Eliminate opening burning of trash, lawns & grass Keep trees limited to predetermined space Education of residents on dangers Education	-	-	-

COMMUNITY ASSESSMENT

The overall wildfire risk within Hinsdale County varies from extreme to low depending upon a wide variety of factors. This section will discuss the facets considered that led to the overall ratings.

Risk of Ignition and Wildfire Occurrence

Over the period 1999 to 2008 there were 66 wildfires in Hinsdale County. Locations of these fires are shown on the map below.

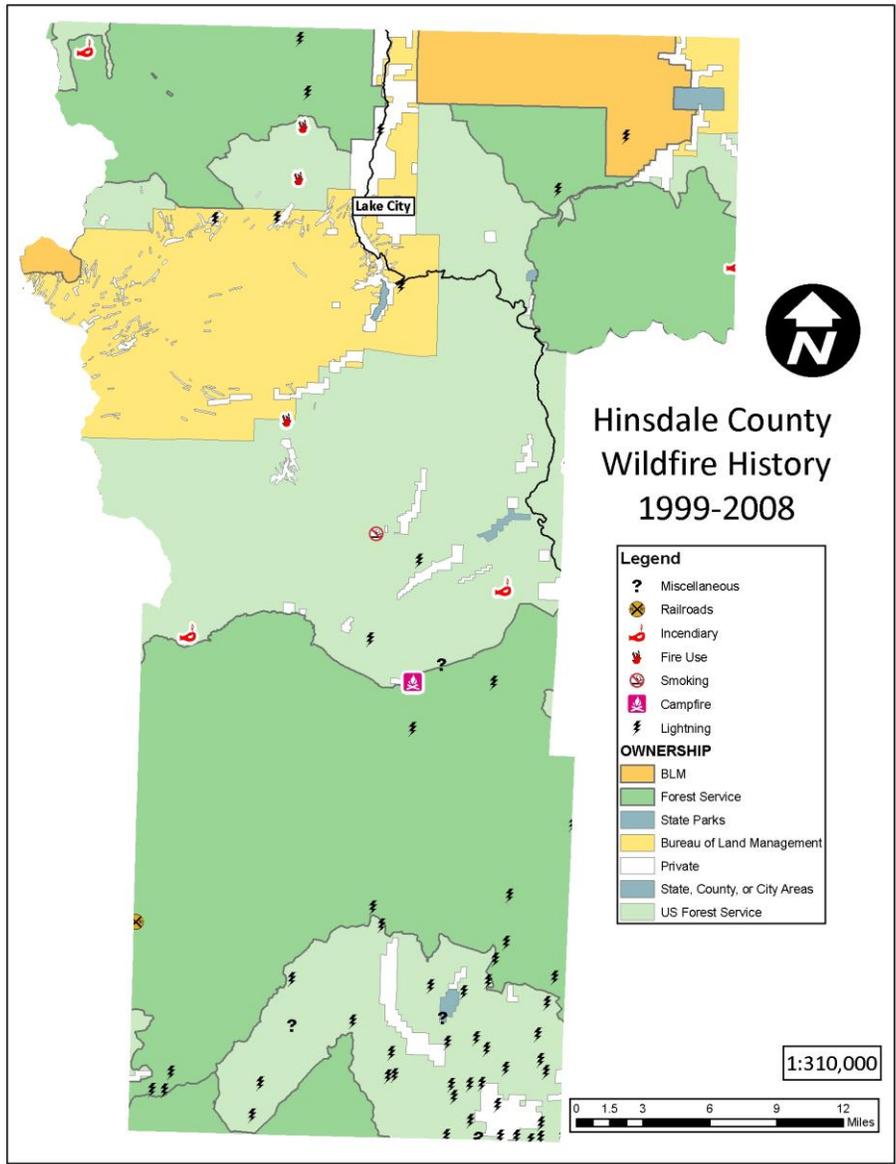


Chart 1: Wildfire Occurrence by Month & Cause 1999-2008

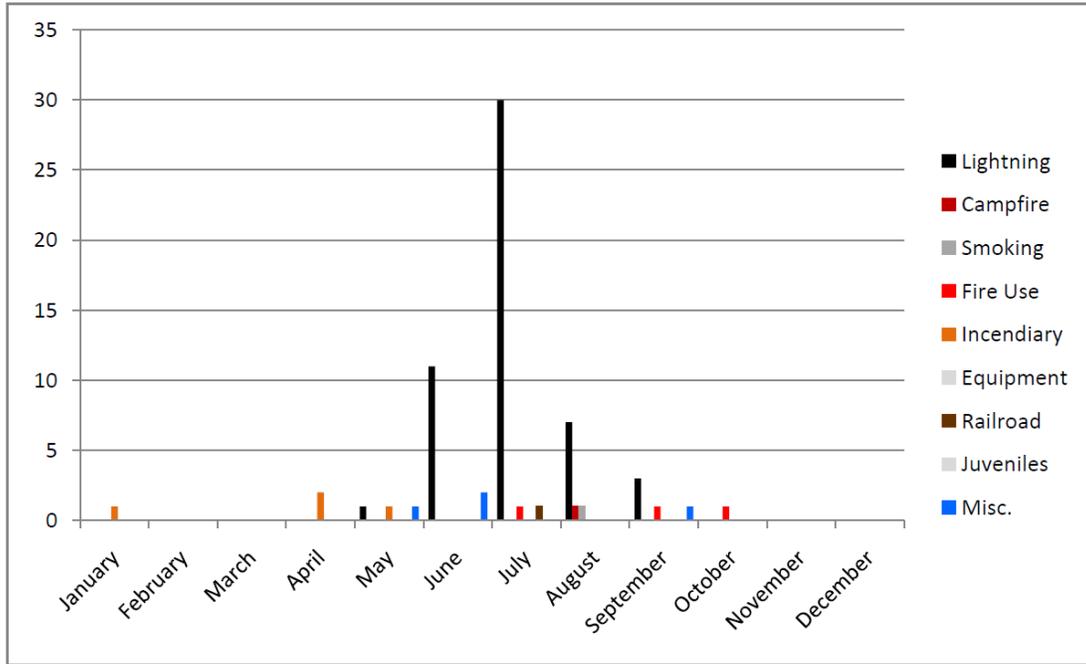
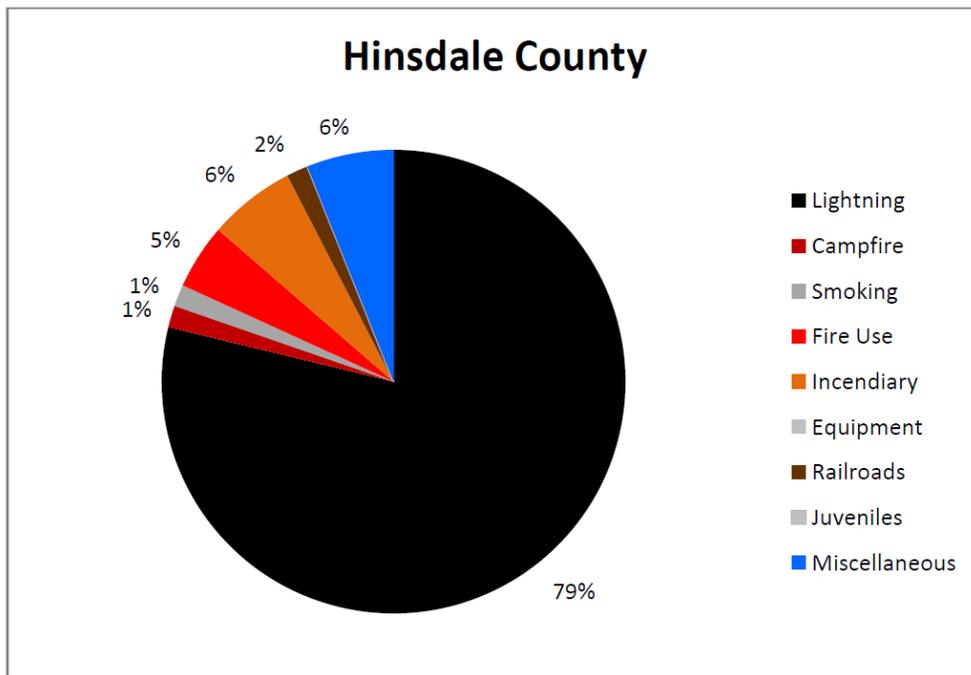


Chart 2: Wildfire Cause Distribution 1999 - 2008



The map and charts are self explanatory. This small snapshot of wildfire activity is deceiving. Fires have been a part of the landscape of Hinsdale County since lightning and dry biomass have been present on the landscape. An astute observer will note the many old fire scars in forested areas. Charred stumps, snags and large aspen stands date back to the late 1800s when lightning combined with drought to create the vegetative mosaic we enjoy today.

Fire Regime & Condition Class

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human intervention, but includes the influence of aboriginal burning. The five natural (historical) fire frequency regimes are classified based on average number years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant overstory vegetation. These five regimes include:

FIRE REGIME GROUP	FREQUENCY (FIRE RETURN INTERVAL)	SEVERITY
I	0 – 35 years	Low severity
II	0 – 35 years	Stand replacement severity
III	35 – 100 + years	Mixed severity
IV	35 – 100 + years	Stand replacement severity
V	>200 years	Stand replacement severity

A fire regime condition class (FRCC) is a classification of the amount of departure from the natural regime. The classification is based on a relative measure describing the degree of departure from the historical natural fire regime. This departure results in changes to one (or more) of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances (e.g. insect and disease mortality, grazing and drought). There are no wildland vegetation and fuel conditions or wildland fire situations that do not fit within one of the three classes.

The three condition classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the natural (historical) regime. Low departure is considered to be within the natural range of variability, while moderate and high departures are outside. Features of each condition class are defined through a qualitative description of the current state of five key ecosystem attributes: (1) disturbance regime; (2) effects of disturbance regime; (3) potential

production of smoke emissions; (4) hydrologic function; and (5) vegetative composition, structure and resilience.

Condition Class 1

The historic disturbance regime is largely intact and functioning as defined by the historic natural fire regime. The effects of insects and disease as well as the potential intensity and severity of the fire are within historic ranges, but are increasing with the length of current fire return interval. Smoke production is relatively frequent, but is low in volume and short in duration. The hydrologic functions are within normal historic range. Vegetative composition and structures are resilient to disturbances from wind, insects, disease, or fire and do not predispose the stand or its key components to a high risk of loss.

Condition Class 2

Moderate alterations to the historic disturbance are clearly evident, such as one or more missed fire return intervals. The effects of insects and disease as well as the potential intensity and severity of fire pose an increased threat to key components that define the ecosystem. Smoke production has increased both in volume and in duration and has increased potential to affect health and visibility values. Riparian areas and their associated hydrologic functions show measurable signs of adverse departure from historic conditions. Both the composition and structure of vegetation has shifted towards conditions that are less resilient and are therefore more at risk to loss from wind, insects, disease, or fire.

Condition Class 3

The disturbance regime has been significantly altered and historic disturbance processes and effects may be precluded. The effects of insects, disease, or fire may cause significant or complete loss of one or more defining ecosystem components. Episodic smoke production is unpredictable and of high volume and long duration, posing significant impacts to human health, safety and societal values. Hydrologic functions may be adversely altered, with significant increases in sedimentation potential and measurable reductions in stream flows. The highly altered composition and structure of the vegetation predispose the stand or ecosystem to disturbance events well outside the range of historic variability, potentially producing changed environments never before measured.

As described above, fire frequency or intervals between fires on a landscape play an important role in determining what vegetation will be in place and what condition it will be in. Hinsdale County has a significant range in elevation, aspect and hence a wide variety of fire regimes and condition classes. Ponderosa pine forests have experienced the most alteration of fire regime and condition class and are most prone to burn intensely. Many mixed conifer stands are similarly out of whack.

Spruce stands have been less impacted due primarily to the less frequent fire occurrence at higher elevations.

Wildfires were less prevalent during the 1900s due in part to a moister climate and to rapid initial attack of small fires. The recent increase in wildfire numbers and intensity is attributable to a prolonged drought and forest stands that are much denser and hence; more prone to hot crown fires.

Examples include:

The Million Fire of 2002 burned over 11,000 acres in Rio Grande County and destroyed 33% of the structures in Willow Park subdivision. The Missionary Ridge fire burned 70,480 acres and destroyed 83 structures. The Sand Dunes Fire of 2000 burned over 8,500 acres in one burning period and destroyed one structure in Great Sand Dunes National Park & Preserve (GSDNPP). As this plan is written the Medano wildfire in the Great Sand Dunes National Park & Preserve has burned over 6,000 acres and is expected to burn all summer long. This fire is instructive for Hinsdale County due to its steep terrain and dense forest cover. Much of the fire perimeter is dangerous due to rolling rocks and the lack of safety zones.

Fuel Hazards

Low fuel moistures and low relative humidity are common in the area, as are periods of high winds. When dry and windy conditions coincide, the stage is set for large, troublesome wildfires. Human population is increasing in the area. Fires originating in or near communities are the most immediate concern, but fires starting well beyond the boundaries of the WUI areas can have profound effects upon the communities if they burn with typical rates of spread and intensity. Rapid rates of spread and long distance spotting (1/4 to 1 mile) are the norms for fires in the vicinity under extreme drought conditions.

Areas classified as high to moderate fuel loading are the most worrisome. Table 4 provides fire behavior predictions for several fuel models under representative weather conditions common during fire season in the County.

Table 4: Hinsdale County FPD WUI Fire Behavior Predictions

FUEL MODEL	RATE of SPREAD (ft/hr)	FLAME LENGTH (Feet)	SIZE @ 1 HOUR* (Acres)	PERIMETER @ 1 HR. (Miles)	SPOTTING DISTANCE (Miles)	RESISTANCE TO CONTROL
1	8,910	5	624	4	0.6	Low
2	1,947	6	30	1.74	0.6	Moderate
8	172	1	0.2	0.08	0.6	Moderate
9	1,254	4	10	0.54	0.6	Moderate
10	713	6	4	0.33	0.6	High
11	488	4	2	0.23	0.6	High

Note: Flame lengths shaded in orange exceed the 4 foot hand crew control threshold. Crown fires are likely when canopy closure exceeds 40%.

**Assumes little, if any, effective suppression action occurs within the first hour.*

In fuel model 1, grass is the primary fire carrier. Fuel model 2 is composed of a mix of grass and shrub wherein the shrubs add fuel bed depth and fire intensity. Short needled stands of spruce and fir are fuel model 8. Taller closed canopy ponderosa pine stands usually are classified as fuel model 9 due to the long needled litter layer that covers the ground. Fuel model 9 also represents aspen stands in the fall while the fresh leaf litter layer is fluffy. Conifer stands with dead/down stems are usually classified as fuel models 10 and 11. Fuel model 11 will have more loading of the dead material on the ground.

Dense Douglas fir and spruce stands cover mountainous portions of the planning area while grass and shrub types are found at lower elevations. WUI areas cover the full spectrum of fuel hazards.

Foothills grass and shrub fuel loadings are best represented by fuel models 1 and 2. Fires in the denser grass and shrub types can be very difficult to control on the typical dry, windy afternoon common in the region. (See Appendix B for a full discussion of Fuel Models.)

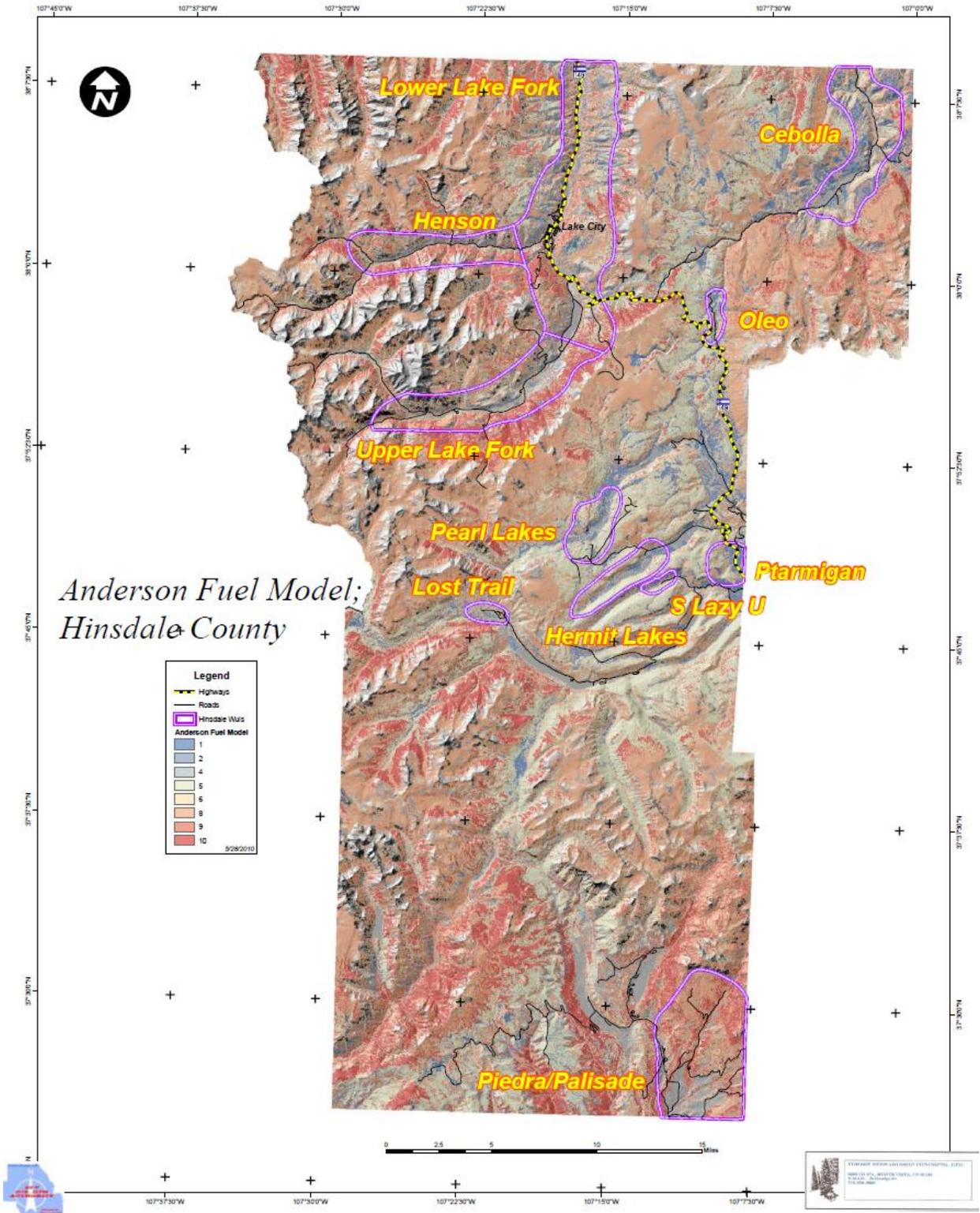
Fuel models associated with the mountainous WUIs include 1, 2, 8, 9, 10 and 11. All forest stands adjacent to structures with crown densities greater than forty percent are problematic. Continuous surface and crown fuel arrangement, both horizontally and vertically, render this area susceptible to torching, crown fire, and ignition by embers, even under moderate weather conditions.

The maps showing Hinsdale County WUIs, Wildfire Hazards and Fuel Models indicate the majority of the WUIs have a fuel hazard assessment

of moderate to high. Local topography and poor vehicle access further aggravates fire behavior and control.



Steep slopes and shrub ground cover means rapid fire spread and high fire intensities in many WUIs.



Community Values at Risk

□ *Values* – There are eleven communities, “neighborhoods”, or subdivisions with concentrated home sites in the Hinsdale County WUI areas. Table 5 gives a summary of the neighborhood wildfire hazard evaluations. Many have heavy fuels nearby and within them. Others have rather light fuels in their vicinity.

Forty five percent of the structures in these WUIs are not expected to survive a wildfire in their vicinity. Many have flammable material nearby, on the porch or under decks, increasing their vulnerability. Composition and wooden roofs tend to hold pine needles and forest debris allowing accumulations that also increase vulnerability to fire brands. Most of the structures are vulnerable to wildfire damage occurring from firebrand ignition and/or radiation ignition due to the heavy forest fuels within the area. The details of neighborhood hazard evaluations are contained in (Appendix I: Subdivision Hazard Evaluation Form.)

Table 5: Neighborhood Wildfire Hazard & Priority for Mitigation

High	Extreme
Cebolla = 7	Henson = 2
Hermit Lakes = 8	Lower Lake Fork = 3
Lost Trail = 9	Ptarmigan Meadows = 1
Oleo = 10	Upper Lake Fork = 4
Pearl Lakes = 11	
Piedra/Palisade = 5	
S Lazy U = 6	

□ *Watershed Values* – Most domestic water in Hinsdale County comes from wells. Watershed issues following a large wildfire manifest themselves in stream sedimentation with attendant fisheries problems or reservoir capacity reduction and flooding which may impact individual residences, businesses, roads, bridges and culverts. Given the rocky, heavily forested, narrow drainages common to several of the WUIs significant flooding can be expected following any large wildfires in the County.

□ *Access* – The primary and secondary road access within Hinsdale County is good. Driveway access within the various neighborhoods is much less predictable. Not all developments have more than one way into or out of the WUI, while others have two means of departure but one

is so substandard that normal passenger vehicles would not be able to use it. Roads within subdivision areas and driveways are often narrow and steep. Turnarounds are marginal or lacking. Road signs and home / cabin addresses are spotty at best. There are many dead end roads that are very hazardous during wildfire operations and evacuations.

□ *Risk* – Because survivable space is lacking around many home sites it will be very difficult to protect some them from wildfire during periods of high to extreme fire danger. Risk to firefighters trumps structure protection every time. On the other hand actual wildfire occurrence is relatively low in the northern part of the county and moderate in the southern area.

□ *Evacuation* – Evacuation planning is needed to minimize fire emergency confusion and risk to residents who might be asked to evacuate in the event of an emergency. (Appendix D Evacuation Planning Guidelines) provides location of evacuation routes and other fire control features including safety zones, and guidelines for developing an evacuation plan.

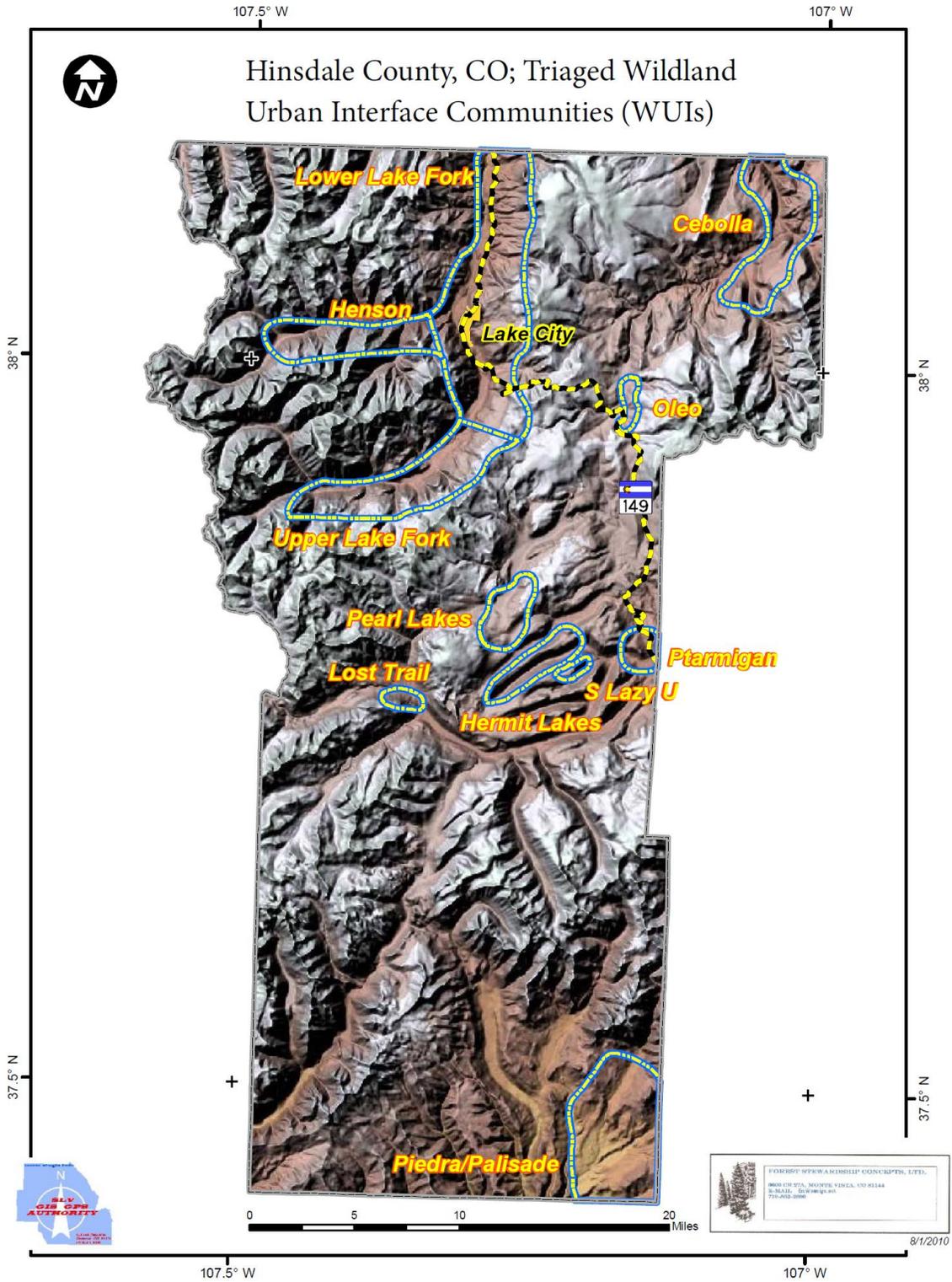
In many cases sheltering in place may be a better option than attempting to notify and evacuate the occupants of sparsely developed areas like Henson, Cebolla, Lost Trail and Piedra-Palisade.

Once a family realizes their best option for surviving a wildfire is staying home they look at their property differently. To shelter in place one must have a good safety zone around their home and a very fire resistant structure. Fire shutters and cisterns are the norm. Once the flaming front passes, the occupants can go outside and take action on any smoldering embers near the structure.



Local safety zones are an alternative to evacuation that needs to be considered for areas where notification of occupants is time consuming and fire spread rates are high.

Heavy dead-down fuels along evacuation routes pose serious threats during periods of high fire danger.



Local Preparedness and Protection Capability

Hinsdale County has one fire station in Lake City. Lake City FPD (LCFPD) has 14 volunteer firefighters. None of them have been through basic wildland firefighter training. The Lake City Fire Protection District is legally described as an area within a five mile radius of the fire station. Portions of Henson, Upper and Lower Lake Fork WUIs and all of Lake City proper are within the LCFPD. All other WUIs are not within any fire protection district and rely on assistance from adjacent fire protection districts.

Table 6: Hinsdale County Wildland Fire Suppression Resources

TYPE RESOURCE	TYPE	# ON HAND	# DESIRED
Lake City Fire Rescue			
Personnel		14	
Wildland firefighters (Carded)		0	1 squad
Engine 93 1,000 gal - 1,500 gpm	1	1	
Engine 91 500 gal - 1,250 gpm	1	1	
Engine 94 400 gal - 450 gpm	2	1	
Engine 96 1,500 gal - 250 gpm	3	1	
Engine 92 250 gal - 250 gpm	6	1	
Engine 95 250 gal - 250 gpm	6	1	1
Tender 4,000 gal		1	
Personnel & Equipment Transport		1	1
Wildland fire tool cache			
Colorado State Forest Service			
Wildland Firefighters (Carded)		2	
Power saw kit		1	1
Wildland fire tool cache	10 person	1	
Bendix/King handheld radios		3	
Drip Torches		2	
BLM/USFS (North End)			
Wildland Firefighters (Carded)		?	
Engine 671	6	1	
Engine 672	6	1	
Power saw kit		2	
Portable pump kits	Mark III	4	
Portable holding tanks	1,000 gal	1	
Wildland fire tool cache	25 person	1	
USFS - San Juan NF			
Wildland Firefighters (Carded)		11	
Type 4 Engine		1	
Type 6 Engine		1	
Pagosa Fire Protection District			
Wildland Firefighters (Carded)		6-8	
Type 6 engine w/ Type 1 Tender	6 & 1		

TYPE RESOURCE	TYPE	# ON HAND	# DESIRED
USFS – Rio Grande NF (1.5 hr Response Time)			
Wildland Firefighters (Carded)		3	
Type 6 Engine		1	

Table 6a: Mineral County FPD Resources

ITEM	# ON HAND
Total Volunteers	20
Wildland Firefighters	0
1975 Type 6 250 gal.	1
1984 Ford Tender 4,000 gal.	1
CSFS Tanker 1,000 gal.	1
Engine Type 1	2
1990 Portable Pump Truck 500 gpm	1
Portable Tanks (4,000 gal)	1
Portable Pumps (High Pressure) Floto Pumps	0
Floating strainers	0
1" CJRL fire hose	500'
VHF Radios (hand / mobile)	20/7
DTR Radios (hand / mobile)	23/7
Fire Wells	0

Mineral County does respond to fires in Hinsdale County on a cooperative basis when resources are available. Initial attack times can be as much as two hours.

Table 7: Anticipated Wildfire Response Times:

Wildland Urban Interface Area	Response Time (Minutes)
Cebolla	45
Henson	25
Hermit Lakes	35
Oleo	50
Lost Trail	75
Lower Lake Fork	30
Pearl Lakes	45
Ptarmigan Meadows	30
Piedra/Palisade	30
S Lazy U	35
Upper Lake Fork	30

□ *Water Supply:* The Lake Fork of the Gunnison River and Piedra Rivers and many of their tributaries are all reliable sources of water year round. During dry spells other creeks in the area may have reduced flows to the point that they are difficult to draft out of. There are numerous springs, ponds, ditches and a few lakes throughout the area. Reaching them to draft water can be problematic with large fire apparatus.

Fire wells are another option for providing water for wildfire suppression. They are reliable sources of water in the winter when rivers, creeks and ponds are frozen in the winter. Currently Hinsdale does not have any fire wells.

Dry hydrants are also good sources of water in the winter as long as they have inlets below ice level. Location and maintenance of dry hydrants is critical to their long term usefulness. Dry hydrants installed in rivers often get rocks and sediment deposited over the inlet pipe which significantly impacts maximum flows of the hydrants. They can become plugged over a short period of time if not installed properly.

COMMUNITY MITIGATION PLAN

The Core Team developed the following mitigation plan based on their knowledge of the wildland fire issues in Hinsdale County. The strategy basically addresses survivable space needs with some fuel treatments on public lands.

Essential to the success of the plan is the involvement of the private landowners. Implicit in the plan is “ownership of the fire problem” by private landowners. While Hinsdale County, CSFS, BLM & USFS have promoted survivable space and land management, private landowners must accept responsibility for completing work on their own lands. Incorporated in the private land treatments is the task of working with individual landowners to improve survivable space in the ignition zone around buildings.

Fuel Hazard Reduction

One of the best ways to reduce structure loss in the wildland urban interface is to avoid placing structures in close proximity to flammable vegetation. However, it is unlikely that development in the WUI will decline as long as property owners have the right to live in forested areas without land use codes that require wildfire mitigation measures.

The other option is to reduce the intensity of wildfires that will burn through areas surrounding structures. Much of this responsibility falls on the homeowner, developer and future purchasers. When isolated developed parcels are scattered across forested lands the question becomes how culpable are State and County governments for developments placed in naturally hazardous vegetation.

In the past, private land owners have expected someone else to do most of the fire hazard reduction on lands immediately adjacent to subdivisions. This convenient transfer of responsibility to someone else saved developer’s and individual homeowner’s money and allowed them to have a more “*natural setting*” around their home. When the inevitable fire burns across the landscape it does not discriminate between developed and undeveloped land. Crown and spot fires have a way of neutralizing well intended, limited scale, fuel reduction projects. A well tended forest a half mile from a structure may reduce the intensity of a fast moving wildfire but it will not significantly improve survivability of structures in developments that have not completed their own fire hazard reduction work.

A long overdue movement is in the wind. WUI fires are very expensive and dangerous. Wildland fire agencies are starting to expect folks to tend to their structure's survivability. Placing firefighters in the path of a fast moving, high intensity fire to save structures is not an acceptable practice today.

Reducing flammability around all structures is the key to preventing structure loss. The Colorado State Forest Service and FireWise program have excellent brochures on all facets of structure fire hazard mitigation.

Home Ignition Zone



*Figure 3—The **home ignition zone** includes the home and an area surrounding the home within 100 to 200 feet. The potential for ignition depends on the home's exterior materials and design and the amount of heat to the home from the flames within the home ignition zone. Firebrand ignitions also depend on the home ignition zone either by igniting the home directly or igniting adjacent materials that heat the home to ignition.*

Recent research into the cause for loss of homes during wildfires indicates that home ignitability and immediately adjacent wildland fuels, are the principal causes of home losses during wildland/urban interface fires. Key items are flammable roofing materials (e.g. cedar shingles) and the presence of burnable vegetation (e.g. ornamental trees, shrubs, wood piles, and pine needle accumulation) immediately adjacent to homes (Cohen, 1999).

The home ignition zone includes a home and its immediate surroundings within 100 to 200 feet of the structure. Fuel conditions within this zone, to a large degree, will determine whether a home will survive a wildfire. High intensity fire behavior beyond the home ignition zone generally does not transfer enough energy directly to ignite a wooden structure.

Fuels surrounding a home within the home ignition zone principally determine the potential for directly igniting the home. Firebrands lofted from extreme wildfires must land on a structure to be an effective ignition source. If firebrand ignitions occur in the fuels surrounding a home, then those fuels determine the home's ignition potential. Thus, regardless how far firebrands travel, a home's exterior materials, design and fuels in the home ignition zone determine its ignition potential from firebrands.

The primary and ultimate responsibility for home wildfire protection lies with private homeowners, not public land management agencies. It is critical that special attention be given to removing fuels in the home ignition zone as well as preparing a defensible space around structures to improve their chances of surviving a wildfire. This includes insuring that there are no combustible materials like concentrations of pine needles, dry grass, hay or straw, firewood, deck furniture, open windows, open vents, household trash, flammable materials such as gasoline, diesel or paint thinners, paper boxes, and fabrics near the structure or in the home ignition zone for fire brands to land on. In the past few years research has found that a significant number of homes destroyed in wildfires burned as the result of the presence of combustible materials within the home ignition zone. Some homes burned as long as 8 hours after the fire front passed.

Structural modifications can lower a home's vulnerability to wildfire. Metal roofing, stucco, cement siding, screens over vents and under decks are all likely dramatically improve its chances for survival.

Structure Triage

Triage in the community wildfire protection plan context is the determination of priorities for action during a wildfire. The process historically has rated the likelihood that wildfire personnel can safely and successfully defend a structure while it is being threatened by a wildfire.

There is one serious flaw in this approach; it assumes that there will be adequate resources available to take some form of meaningful fire suppression action to defend the structure. When more than one structure is imperiled by a wildfire in a rural setting it is highly unlikely a local volunteer fire department will have sufficient apparatus and personnel to “protect” multiple structures simultaneously. Mutual aid in rural Colorado may take several hours to get to the fire ground.

Assigning a defensible rating to a structure can also lull homeowners into complacency if they think the local fire department will make Herculean efforts to save their home. In most instances the structure will have to survive on its own.

To avoid creating any false impressions about the ability of wildfire suppression personnel to protect every structure regardless the magnitude of the incident in Hinsdale County, a structure’s chance of surviving a wildfire were rated as probable or not probable. This approach is much more realistic and should encourage property owners to look at their homes in a new light.

Many factors are considered when assigning a survivability rating to a structure. The triage process is highly subjective. Wildfire behavior and structure interactions are not well suited to a clear cut “yes” or “no” analysis. The table below describes criteria used to determine structure survivability. The factors have been extracted from the Wildfire Hazard & Risk Assessment score sheet found in “Living on the Edge” (Troy & Kennedy 2007) and is based on NFPA 1144 standards.

It is important to understand that there are no guarantees a structure with a “probable” survival rating will be standing after an intense wildfire occurs. Similarly occasionally structures with a “not probable” survival assessment may endure a wildfire in spite of all rational analysis.

The survival rating is simply a reliable indicator of a probable outcome following a very dynamic, chaotic, unpredictable event. The rating has been assigned by an individual with over forty years of wildland fire experience considering the criteria below to make the prediction.

Table 8: Survivability Criteria

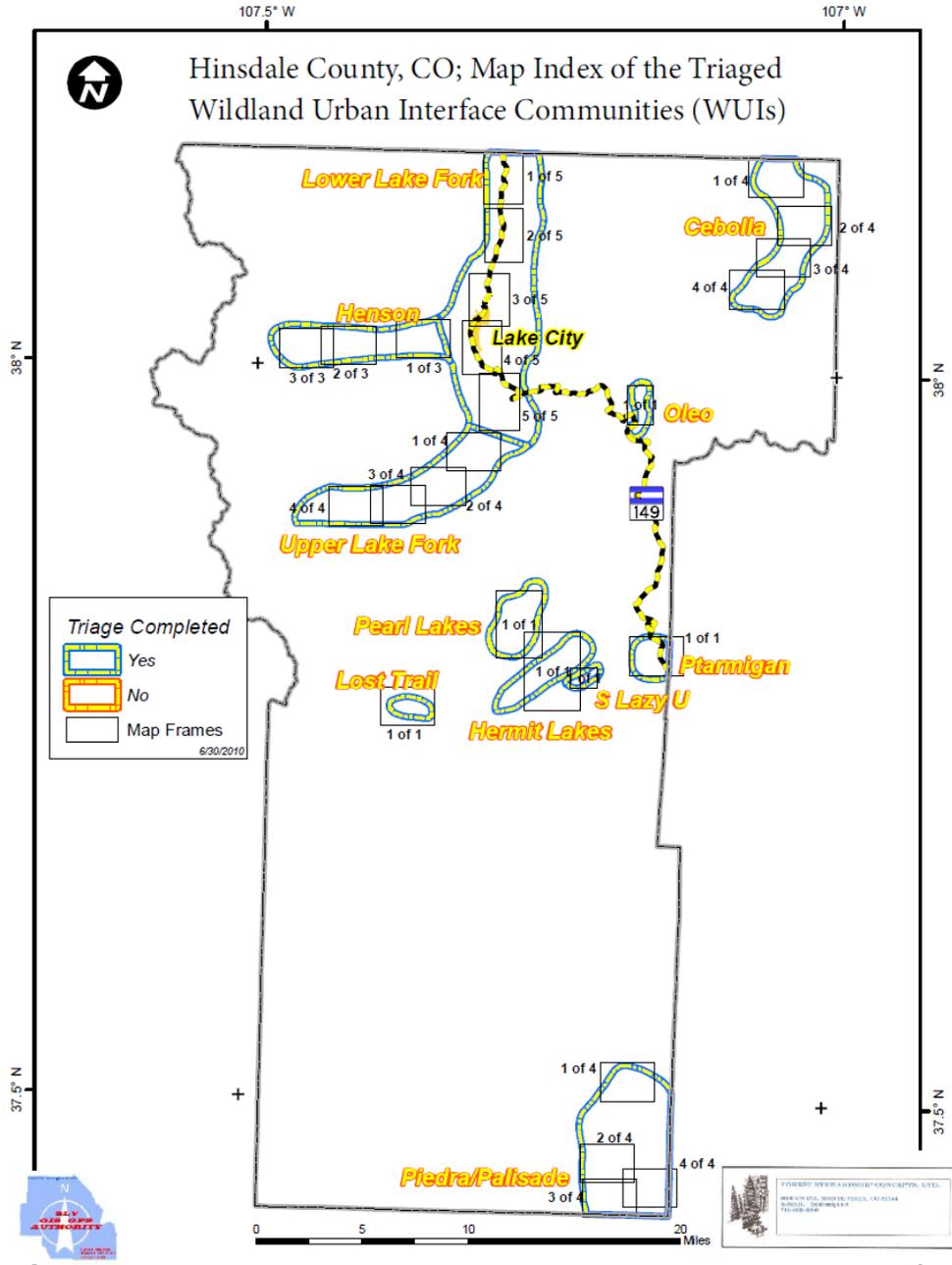
PROBABLE	NOT PROBABLE
Vegetation light ~ Anderson fuel models 1 & 2	Vegetation medium to heavy &/or slash. Anderson fuel models 8, 10, 11, 9
Defensible space >70 feet	Defensible space <71 feet
Slope <20%	Slope >21%
Topographic features minimize fire behavior	Topographic features adversely affect fire behavior
Area not exposed to unusually severe fire weather or strong dry winds	Areas exposed to unusually severe fire weather or strong dry winds
Separated from adjacent structures that can contribute to fire spread	In close proximity to structures that can contribute to fire spread
Class A & B roofing	Class C or non-rated roofing
Non-combustible/fire resistive siding, eaves & deck or combustible deck with no debris underneath	Combustible siding and deck
Building set back from slope appropriate distance	Building close to or overhanging slope
No fire wood and other combustible human plunder in close proximity to structure	Fire wood and other combustible human plunder on deck or within close proximity to structure
Hazardous materials appropriate distance away	Hazardous materials close to structure

Criteria shaded in light yellow automatically drop survivability to Not Probable. Non shaded criteria often influence survivability and cumulatively may predispose a structure to Not Probable survivability status.

NOTE: You will find that access, escape routes, turnarounds, safety zones and water supply are not factored into the survivability rating. These items are important for firefighter safety but do not influence structure survivability. Remember fire control personnel will most likely not be defending the structure; it will have to go it alone. Safety concerns and limited availability of firefighting resources preclude active intervention to protect structures.

Individual WUI Summaries

The following individual WUI summaries speak to issues within the various wildland urban interface areas in Hinsdale County.



All maps are available on the San Luis GIS/GPS Authority website and can be downloaded at your convenience by going to <http://www.slvgis.info/Hinsdale/Hinsdale.html>. A complete set of WUI maps has also been provided in a legal size binder marked as Appendix A.

Cebolla ~ WUI Summary

Size: 12,216 acres # Structures: 93 Overall Fire Hazard: High

Description: Of the 93 structures in the Cebolla WUI area 75% are expected to survive a wildfire passing through the area while 25% will most likely be destroyed.

Grass is the primary fuel model close to structures in the area. Some land is irrigated pasture most of the summer while upland areas have grass that is cured during most of the year. There are a few structures located in proximity to forested fuel types on the northern end of the WUI.



*Upland grass fuels
Open grass/pine/rock*



Forest on north facing slopes



Transition from grasslands to heavy forest fuels

Fire hazard within the Cebolla WUI varies from low to high. Irrigated pastures are unlikely to burn during the fire season. Upland areas dry

out early in the summer and can burn rapidly when pushed by winds or influenced by steep slopes. Fortunately most structures are located in close proximity to agricultural operations.

Water is abundant in the Cebolla WUI. It can be drafted at each of the bridges crossing Cebolla Creek and from several ponds near County Road 50 which traverses the full length of the WUI. The open nature of the WUI allows for helicopters to land on numerous benches. Many of the ponds are deep enough to be used for helicopter bucket operations. The parking lot at the Cebolla Creek State Wildlife Area is a good staging area. No unusual aviation hazards are present in the WUI. Safety zones are abundant in the irrigated pastures and can also be quickly created by burning a patch in the grass.

The Cebolla WUI is a long way from initial attack resources. It is served by one county road. While the road along the river does provide ingress and egress from the north and south there is really only one logical evacuation route out of the area in the event of a serious wildfire and that is to the north - down drainage. Residents in the WUI should probably plan to use one of the irrigated pastures for a safety zone if the area is threatened by a fast paced wildfire.

The Powderhorn Wilderness is immediately adjacent to private lands on the west side of much of the Cebolla WUI. This tends to complicate aggressive wildfire suppression and fuel mitigation projects. Some prescribed burning is allowed to mitigate wildfire hazards.

The first priority and most likely way to mitigate wildfire hazards to structures in the WUI is for each landowner to create survivable space for all their structures and remove fire wood from close proximity of the structures during fire season.

Some broadcast under-burning of the forested areas in and adjacent to the Cebolla WUI can reduce wildfire intensity and have beneficial ecological effects. It may be difficult due wilderness constraints.

Cebolla WUI Wildfire Hazard Mitigation Actions

Priority	Action	Responsibility
1	Mitigate wildfire hazards within the structure ignition zone.	Private land owners'
2	Prescribe burn on BLM property to reduce ground fuels and reduce fire intensity adjacent to private lands. The priority for this work is low to moderate within the County.	BLM personnel

Maps: All maps are available on the San Luis GIS/GPS Authority website and can be downloaded at your convenience by going to <http://www.slvgis.info/Hinsdale/Hinsdale.html>. A complete set of WUI maps has also been provided in a legal size binder marked as Appendix A.

Henson ~ WUI Summary

Size: 17,633 acres # Structures: 43 Overall Fire Hazard: Extreme

Description: Of the 43 structures in the Henson WUI area only 12% are expected to survive a wildfire. The other 88% will probably be destroyed during any fire that threatens multiple structures.

The large aspen stands in the Henson drainage date back to the wildfires that burned in the 1890s across much of Colorado. These stands are constant reminder of fires historical role in ecosystem dynamics. Fires have been a part of the natural order for eons and will continue to be a factor in the future.

The WUI contains a rich vegetative mosaic with mountain meadows, aspen, Douglas-fir, spruce, bristle cone pine and riparian corridors containing willow, alder, spruce and grass. These vegetation types are represented by fuel models 1, 2, 8, 9, 10 & 11. See the discussion of fire behavior for an idea of how these fuel models will burn under difficult wildfire conditions. Considerable rock is also found in the Henson WUI. Its presence will tend to ameliorate fire spread and intensity.

Overall fire hazard in the Henson WUI is extreme, due primarily to the steep terrain and dense forest cover. Even much of the aspen in the area has an understory of common juniper that will burn very hot during dry periods. Normally aspen stands are thought to slow a wildfires progress across a landscape. Unfortunately abundant common juniper compromises an aspen stands wildfire mitigating effects.

Common juniper under aspen stands dramatically alters fire behavior in aspen stands.



Water is abundant in Henson Creek and can be drafted from several sites in the drainage. Portable pumps can be used to fill fire apparatus as needed.

There are two areas well suited for safety zones in the WUI. One is a meadow at the far western end of the area and the other is created by the road cut and rock slides on the eastern end of the WUI.

Evacuation of the Henson WUI will be difficult. Notifying residents will take considerable time and there is only one way in and out of the area.

There are several historically significant structures in the canyon that deserve special consideration during a wildfire episode. Foaming, gelling or wrapping the structures in fire shelter material should be planned.

Mitigation Actions: Sign the two existing safety zones and make sure residents, firefighters and sheriffs’ deputies know where they are. Establish an evacuation plan for the area that has time frames and procedures for notification.

Henson Wildfire Hazard Mitigation Actions

Priority	Action	Responsibility
1	Sign safety zones and make their presence known to Henson Creek residents.	Hinsdale County Emergency Manager
2	Mitigate wildfire hazards within the structure ignition zone.	Private land owners’.
3	Develop a Memorandum of Understanding with the Lake City Fire Protection District to provide wildfire protection for the Henson WUI.	Hinsdale County Sheriff



This historical building is a fire trap waiting for ignition.

Maps: All maps are available on the San Luis GIS/GPS Authority website and can be downloaded at your convenience by going to <http://www.slvgis.info/Hinsdale/Hinsdale.html>.

A complete set of WUI maps has also been provided in a legal size binder marked as Appendix A.

Hermit Lakes ~ WUI Summary

Size: 6,504

Structures: 70

Overall Fire Hazard: High

Description: The Hermit Lakes (HL) WUI is on the eastern side of the Continental Divide and is surrounded by the Rio Grande National Forest. Access is gained from State Hwy 149 and Forest Road 515. Of the 108 structures within this WUI, 80% are expected to survive.

Grass is the primary fuel type in the WUI with spruce along the toe of the slope and willows in moist zones along the creek and lake shorelines. Fuel models 1, 8, 9 and 10 are found on site.

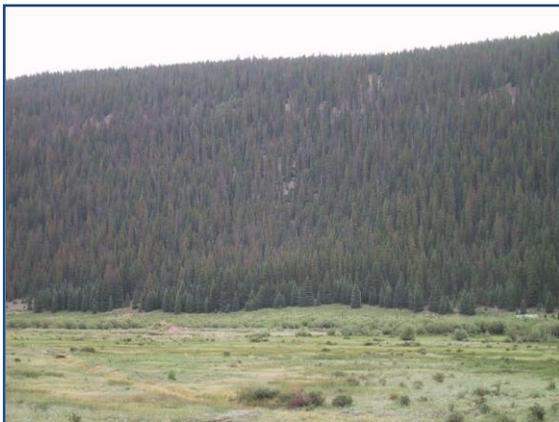
Water is abundant within the WUI. There are numerous places fire apparatus can draft water from the lakes and ponds. Several grassy fingers of land protrude into the lakes providing excellent safety zones.

The primary factor influencing structure survivability in the Hermit Lakes WUI is storage of firewood on decks or next to structure walls.

Actions to mitigate fire hazard at Hermit Lakes should focus on appropriate storage of firewood during the fire season.

Hermit Lakes Wildfire Hazard Mitigation Actions

Priority	Action	Responsibility
1	Mitigate wildfire hazards within the structure ignition zone.	Private land owners'.
2	Develop a Memorandum of Understanding with the Mineral County Fire Protection District to provide wildfire protection for the Hermit Lakes WUI.	Hinsdale County Sheriff



Spruce bark beetle is killing many trees on the steep slopes within the Hermit Lakes WUI.

This home is vulnerable to fires coming down the slope.



Willows compromise the survivability of this structure during the fall or severe drought periods.

Maps: All maps are available on the San Luis GIS/GPS Authority website and can be downloaded at your convenience by going to <http://www.slvgis.info/Hinsdale/Hinsdale.html>. A complete set of WUI maps has also been provided in a legal size binder marked as Appendix A.

Lost Trail ~ WUI Summary

Size: 1,811 acres # Structures: 42 Overall Fire Hazard: High

Description: The Lost Trail WUI is a long way from Hwy 149 and may be difficult to evacuate. County road 520 provides one way in and out of the WUI. Of the 42 structures located in the WUI, 55% will probably not survive a wildfire in the neighborhood.



Grass, willows, aspen and spruce cover the Lost Trail WUI. Fuel models 1, 2, 8, 9, 10 & 11 are found on site. Overall fire hazard is high in the WUI.

Aspen is abundant in and around Lost Trail. It is normally expected to slow fire progress. Aspen stands depend on disturbance to propagate and thrive. The aspen stands around Lost Trail date back to the 1890, a period of drought and wildfire activity.

Water is abundant in the Rio Grande River and Lost Trail Creek. Some of the open meadows in the area provide good safety zones if timely evacuation cannot be accomplished.

An uninhabited portion of the Lost Trail WUI lays on the south side of the Rio Grande River in the Weminuche Wilderness. Vegetative types in the area don't lend themselves to fire hazard mitigation via prescribed burning. The river will most likely be the first line of defense for wildfire threats coming out of the wilderness.

The primary factor influencing structure survivability in the Lost Trail WUI is firewood storage near structures. No wildland fuel management projects are planned in the vicinity of Lost Trail.

Lost Trail Wildfire Hazard Mitigation Actions

Priority	Action	Responsibility
1	Mitigate wildfire hazards within the structure ignition zone.	Private land owners.
2	Develop a Memorandum of Understanding with the Mineral County Fire Protection District to provide wildfire protection for the Lost Trail WUI	Hinsdale County Sheriff

Maps: All maps are available on the San Luis GIS/GPS Authority website and can be downloaded at your convenience by going to <http://www.slvgis.info/Hinsdale/Hinsdale.html>. A complete set of WUI maps has also been provided in a legal size binder marked as Appendix A.

Lower Lake Fork ~ WUI Summary

Size: 40,976 acres # Structures: 493 Overall Fire Hazard: Extreme

Description: The Lower Lake Fork is the largest Wildland Urban Interface area in Hinsdale County in terms of both acres and number of structures. It also surrounds the town of Lake City urban area.

Approximately 38% of the structures in the WUI are not expected to be standing following a wildfire in the vicinity. This figure does not include the many structures within the urban area that will undoubtedly be ignited when blowing embers land in woodpiles or on shake shingle roofs.

Fuels in the Lower Lake Fork (LLF) WUI include grasslands, open pine stands, spruce and Douglas-fir. Fuel models 1, 2, 8, 9, 10 & 11 are found in the WUI.

Steep slopes dominate much of the terrain. Fast moving ground and crown fires will be the norm during periods of high fire danger. Sparse ground cover on the Slumgullion landslide does offer some protection on the southern end of the WUI. West facing slopes are generally open grass with tendrils of forest scattered on north facing side drainages. This pattern mitigates crown fires along this aspect in the WUI.

Fire hazard within the WUI is extreme based on NFPA 1144 hazard and risk criteria.

A 115 KV power line comes into the WUI from the north and terminates at a substation above Lake City. The line is owned and operated by the Gunnison County Electric Association. It is an aviation hazard for low flying fixed wing or rotor winged firefighting aircraft. Power lines are also known to cause wildfires. If the line happens to be damaged during a wildfire, power supply will northern Hinsdale County will be interrupted for an undetermined period of time.

Evacuation notification can be done using reverse 911 phone calls. Hwy 149 runs through the WUI and provides evacuation options both north and south of the WUI.

Water is abundant. The Lake Fork is accessible in many locations. Pressurized hydrants are common near Lake City. Ponds and a few dry hydrants are also scattered throughout the WUI.

San Juan Ranch Estates developed a CWPP 2009 with the assistance of Colorado State Forest Service. They are actively working on its implementation. The BLM has thinned approximately 100 acres in the area. Over sixteen lots have been mitigated with another thirteen in progress or scheduled.

Issues within the WUI are typical of most WUIs in Colorado. Firewood stacked near structures is one of the most common factors limiting structure survivability in the Lower Lake Fork WUI.

Lower Lake Fork Wildfire Hazard Mitigation Actions

Priority	Action	Responsibility
1	Mitigate wildfire hazards within the structure ignition zone.	Private land owners.



Fuel Model 2 carries fire readily.

Wildfire hazard mitigation in San Juan Ranch Estates.



Shake shingles and firewood stored under structure set the stage for destruction by wildfire.

Maps: All maps are available on the San Luis GIS/GPS Authority website and can be downloaded at your convenience by going to <http://www.slvgis.info/Hinsdale/Hinsdale.html>. A complete set of WUI maps has also been provided in a legal size binder marked as Appendix A.

Oleo ~ WUI Summary

Size: 1,504 acres # Structures: 16 Overall Fire Hazard: High

Description: Oleo WUI is just off of State Hwy 149 on the west side of Spring Creek Pass along forest road 729. 56% of the structures in the WUI are expected to survive a wildfire. The La Garita Wilderness lies on the east side of the WUI.

Firewood on decks or against exterior walls is one survivability issue. There are also four structures tucked back in dense forest cover that need serious wildfire mitigation efforts to thin the home ignition zone.

Oleo is a long haul from any of the existing fire stations in the area. Initial wildfire suppression efforts will take time. Water is available in the WUI but not abundant. It is a short drive to Hwy 149. It provides escape routes north or south out of the area.



La Garita Wilderness from Oleo access road.

Maps: All maps are available on the San Luis GIS/GPS Authority website and can be downloaded at your convenience by going to <http://www.slvgis.info/Hinsdale/Hinsdale.html>. A complete set of WUI maps has also been provided in a legal size binder marked as Appendix A.

Oleo Wildfire Hazard Mitigation Actions

Priority	Action	Responsibility
1	Mitigate wildfire hazards within the structure ignition zone.	Private land owners'.
2	Develop a Memorandum of Understanding with the Mineral County Fire Protection District to provide wildfire protection for the Oleo WUI.	Hinsdale County Sheriff

Pearl Lakes ~ WUI Summary

Size: 7,839 acres # Structures: 70 Overall Fire Hazard: High

Description: Pearl Lakes is located off of State Hwy 149 at the end of forest road 516. 50% of the structures are expected to survive a wildfire in the area.

Water is abundant, with many easily accessible locations for fire apparatus to fill their tanks. There is a good safety zone near the developments headquarters. Grass dominates the WUI with some forested ground around the perimeter. The main fuel models are 1 and 10.

Firewood stored on decks and next to structures is the key wildfire survivability issue in the Pearl Lakes WUI.



Firewood stored under the deck compromises an otherwise effective home ignition zone.

Maps: All maps are available on the San Luis GIS/GPS Authority website and can be downloaded at your convenience by going to <http://www.slvgis.info/Hinsdale/Hinsdale.html>. A complete set of WUI maps has also been provided in a legal size binder marked as Appendix A.

Pearl Lakes Wildfire Hazard Mitigation Actions

Priority	Action	Responsibility
1	Mitigate wildfire hazards within the structure ignition zone.	Private land owners'.
2	Develop a Memorandum of Understanding with the Mineral County Fire Protection District to provide wildfire protection for the Pearl Lakes WUI.	Hinsdale County Sheriff

Piedra/Palisades ~ WUI Summary

Size: 16,870 acres # Structures: 155 Overall Fire Hazard: High

Description: The Piedra/Palisades (PP) WUI lies on the south side of the Continental Divide against the Weminuche Wilderness. 155 structures were triaged with 57% expected to be destroyed by a wildfire in the neighborhood.

Grass, ponderosa pine, Douglas-fir, white fir, aspen, spruce and cottonwood/willow vegetation types are present in the WUI. Some of the larger meadows are irrigated. Fuel models include 1, 2, 8, 9, 10, and 11.



Ladder fuels will send ground fire into the crowns.

Fire hazard and risk are high in the PP WUI. Wildfire occurrence is much higher on the south side of the Continental Divide in the vicinity of the WUI than in northern portions of Hinsdale County. Warm/dry mixed conifer stands also readily carry fire. Slopes are generally milder than other WUIs in the county. Recent mortality in conifer stands aggravates expected wildfire behavior in the Palisades area.

Many non-survivable structures are surrounded by grassy meadows and on first glance appear to not have any survival issues. Firewood and other combustible material, in close proximity, compromises survivability of these structures. Attention to some of the simplest principles of hazard mitigation will improve the prospects of survivability for these structures. Dense crown cover over structures is of special concern in the Sportsman's Resort area.



Heavy crown cover and needles on roof are serious hazards.

Abundant water sources, safety zones and irrigated meadows provide firefighters with many options for fire control. Archuleta County road 631 will serve as the primary evacuation route. It is a long way to Pagosa Springs and paved roads from the PP WUI. The most effective rapid evacuation plan will be to have residents take refuge in one of the many wet meadows in the WUI. When time permits, encouraging residents to go to Pagosa Springs is still the most logical option. Logistical support for evacuees will be much easier to satisfy in town.

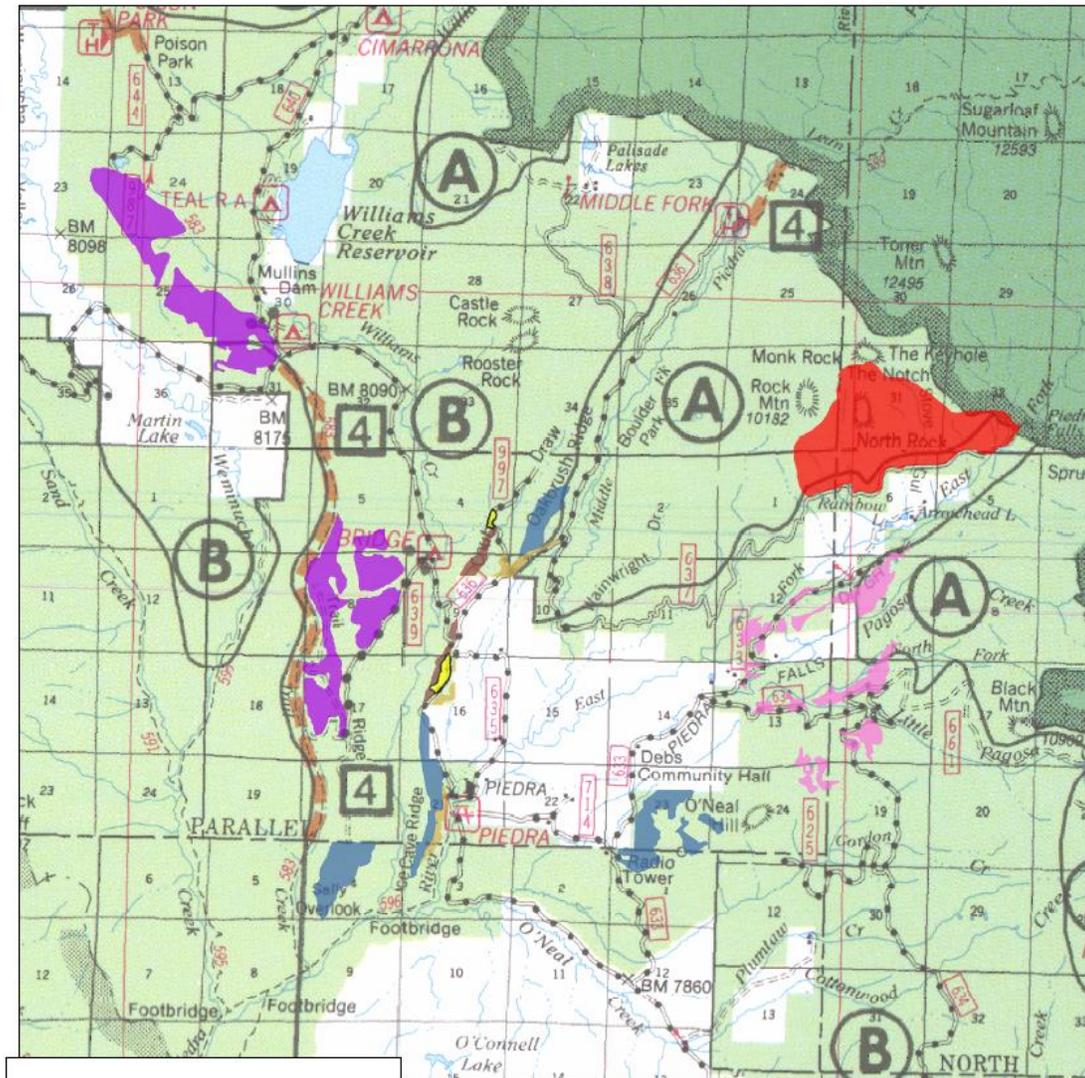
The San Juan National Forest has done some wildfire hazard mitigation and forest health restoration in the WUI and has plans for more. See the map titled “Pagosa District Fuels Reduction Projects in Hinsdale County” on page 47 to get an idea of the work that has been done and is planned in and around the PP WUI.

Piedra/Palisades Wildfire Hazard Mitigation Actions

Priority	Action	Responsibility
1	Mitigate wildfire hazards within the structure ignition zone.	Private land owners.
2	Develop a Memorandum of Understanding with the Pagosa Fire Protection District to provide wildfire protection for the Piedra/Plaisade WUI	Hinsdale County Sheriff
3	Continue to implement the planned fuels reduction projects in the PP WUI area.	Pagosa Ranger District personnel.

Maps: All maps are available on the San Luis GIS/GPS Authority website and can be downloaded at your convenience by going to <http://www.slvgis.info/Hinsdale/Hinsdale.html>. A complete set of WUI maps has also been provided in a legal size binder marked as Appendix A.

Pagosa District Fuels Reduction Projects in Hinsdale County



Legend

Hinsdale Fuel Reduction Projects

TREATMENT, STATUS

- Hand Thin and Pile, Complete
- Hand Thin and Pile, In Progress
- Hand Thin and Pile, Planned
- Masticate and Biomass Removal, Planned
- Mechanical Thin and Removal, Contracted
- Mechanical Thin and Removal, Proposed
- PRESCRIBED BURN, Proposed

The USFS attempts to use the most current and complete geospatial data available. Geospatial data accuracy varies by theme on the map. Using this map for other than their intended purpose may yield inaccurate or misleading results. The USFS reserves the right to correct, update or modify geospatial inputs without notification.



SW, July 9, 2010

Ptarmigan Meadows ~ WUI Summary

Size: 6,808

Structures: 52

Overall Fire Hazard: Extreme

Description: Ptarmigan Meadows is the most problematic WUI in Hinsdale County. Vegetation is thick, driveways are narrow and steep, while adequate turn around space for fire apparatus is lacking. 73% of the structures are not expected to survive a fire in the area.

Thick stands of spruce, aspen and grass will support rapid fire growth and high intensity crown fires. Fuel models 1, 8, 9, 10 & 11 are found in the WUI.



Fire hazard is extreme based on NFPA Wildfire Hazard & Risk criteria.

A good sized pond provides water for fire suppression.

Evacuation can be accomplished via Hwy 149, just outside the development gate, with two directions for escape.

Firewood under the deck creates ideal kindling for structure ignition.

There are many issues within the Ptarmigan Meadows WUI. Driveways are steep, narrow and have little room for turning fire equipment around.

Dense forest is immediately adjacent to many structures.



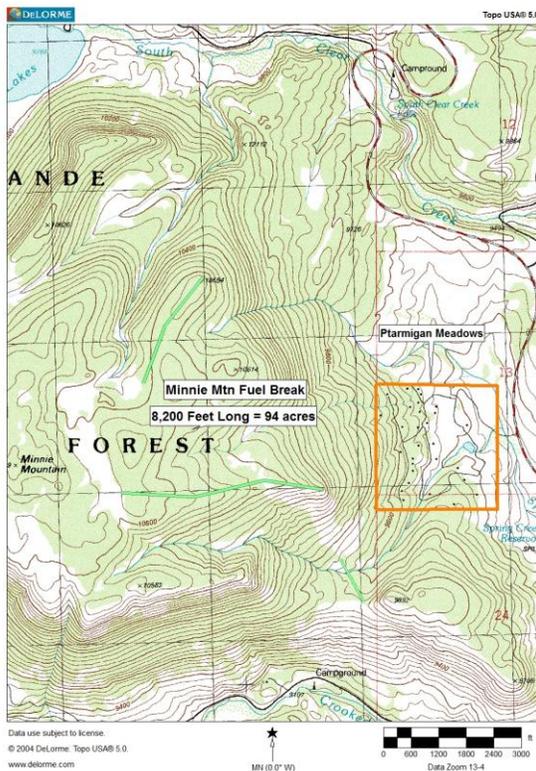
Thick forest on steep slopes guarantees high intensity wildfires.

Standard mitigation actions apply in this WUI including: Survivable space, Water sources, Access – driveways, roads, turnarounds.

When survivability of the structures in Ptarmigan Meadows reaches 65% the Rio Grande national forest will develop a fuelbreak on the south side of the subdivision. This will improve the chances of controlling or reducing the intensity of a wildfire before it reaches the structures. It is futile to do the work until a majority of the structures are in good enough condition to survive on their own.

Ptarmigan Meadows Wildfire Hazard Mitigation Actions

Priority	Action	Responsibility
1	Mitigate wildfire hazards within the structure ignition zone.	Private land owners’.
2	Develop a Memorandum of Understanding with the Mineral County Fire Protection District to provide wildfire protection for the Ptarmigan Meadows WUI.	Hinsdale County Sheriff
3	Create a shaded fuelbreak south of the subdivision when 65% of the structures in Pearl Lakes are survivable.	Rio Grande National Forest



Maps: All maps are available on the San Luis GIS/GPS Authority website and can be downloaded at your convenience by going to <http://www.slvgis.info/Hinsdale/Hinsdale.html>. A complete set of WUI maps has also been provided in a legal size binder marked as Appendix A.

Upper Lake Fork ~ WUI Summary

Size: 27,492 # Structures: 108 Overall Fire Hazard: Extreme

Description: The Upper Lake Fork (ULF) WUI covers the area above Lake San Cristobal all the way to Sherman. BLM Road 3306 provides primary access. Of the 108 structures triaged in the WUI 52 (48%) are not expected to be standing when the next large wildfire passes through the country.

Riparian vegetation dominates the Lake Fork of the Gunnison River. Willows, alders, grassy meadows and occasional aspen groves combined with spruce cover the valley bottom. Hill sides are steep with thick spruce and sub-alpine fire occupying the northerly aspects. Aspen/common juniper, Douglas-fir, limber and bristle cone pines are found on south facing slopes. The aspen stands are remnants of large fires during the 1890s. Fuel models in the WUI include 1, 2, 8, 9, 10 and 11.

Fire hazard in the WUI is extreme due to the mix of topography, fuels and structure conditions. Evacuation notification timing will be a key concern if/when a fire runs into the WUI. Side roads and driveways are narrow, steep and have some very tight switchbacks. The road system seriously limits fire apparatus access.



Steep, narrow driveways with minimal room to turn around fire apparatus are abundant throughout the County.

Existing fire control features include a meadow on the far western end of the WUI that will serve as a good safety zone and a 3,340 foot long airstrip surrounded by ponds that is good heliport and safety zone. Water is abundant in the WUI in both ponds and the Lake Fork River.

Issues within the ULF WUI include poor survivable space, firewood in close proximity to structures, poor access off the main road and very steep topography.

Standard mitigation actions apply in this WUI including; Survivable space, Water sources, Access – driveways, roads, turnarounds.

Focus on hazard mitigation around structures and improve driveway widths and turn around space. Sign the safety zone on the west end of the WUI and make its presence known to residents.

Upper Lake Fork Wildfire Hazard Mitigation Actions

Priority	Action	Responsibility
1	Sign Safety Zones at the ATV staging area and landing strip	CWPPPC
2	Mitigate wildfire hazards within the structure ignition zone.	Private land owners’.
3	Develop a Memorandum of Understanding with the Lake City Fire Protection District to provide wildfire protection for the Upper Lake Fork WUI.	Hinsdale County Sheriff

Maps: All maps are available on the San Luis GIS/GPS Authority website and can be downloaded at your convenience by going to <http://www.slvgis.info/Hinsdale/Hinsdale.html>. A complete set of WUI maps has also been provided in a legal size binder marked as Appendix A.



Steep, rocky canyon walls preclude effective fuel treatments for wildfire hazard mitigation in many Hinsdale County WUI areas.

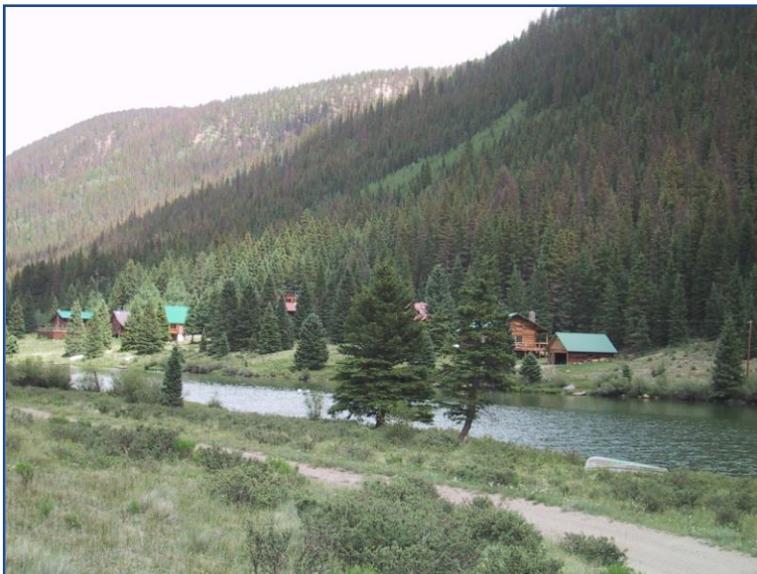
S Lazy U ~ WUI Summary

Size: 596 acres # Structures: 54 Overall Fire Hazard: High

Description: The S Lazy U WUI is reached off of State Hwy 149 and forest roads 520 & 521. It is nestled in a tight canyon with dying spruce along the steep north facing slope. Approximately 53% of the structures are expected to survive a wildfire in the vicinity.

Grass dominates the valley floor with heavy spruce forest on the south side of the canyon. Fuel models 1, 8 & 10 best represent how fires are likely to behave in this WUI.

Firewood stored on decks or near structures is the primary fire hazard issue. Water is readily accessible.



Note the reddish cast to the tree crowns. This forest is dying and will be problematic in the future.

Maps: All maps are available on the San Luis GIS/GPS Authority website and can be downloaded at your convenience by going to

<http://www.slvgis.info/Hinsdale/Hinsdale.html>. A complete set of WUI maps has also been provided in a legal size binder marked as Appendix A.

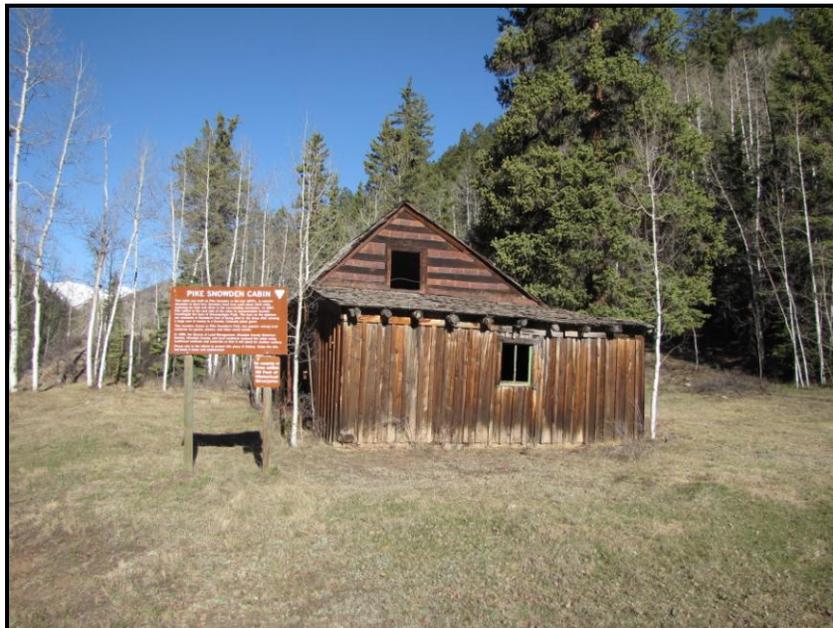
S Lazy U Wildfire Hazard Mitigation Actions

Priority	Action	Responsibility
1	Mitigate wildfire hazards within the structure ignition zone.	Private land owners'.
3	Develop a Memorandum of Understanding with the Mineral County Fire Protection District to provide wildfire protection for the S Lazy U WUI.	Hinsdale County Sheriff

Historical Buildings

There are many historical buildings scattered throughout the County. They are a treasured and imperiled resource. Most have shake shingle roofs in keeping with the architectural norm of the times. These roofs predispose the structures to destruction during the next major wildfire in their vicinity. County residents are reluctant to change the roofing material because it will compromise historical authenticity.

Special efforts will be required to protect any historically significant structures during a wildfire in their neighborhood. Fortunately most such structures are located in openings. There are several techniques to protect them. They can be wrapped in fire shelter material, foamed or a sprinkler system can be set up to shroud them in water. All these approaches take time and preplanning.



Protecting historical structures from wildfire adds complexity to any incident.

Fire Protection Outside Fire Protection Districts

Many WUIs within Hinsdale County are not within a fire protection district. Fire protection is provided by adjacent protection districts on a fee basis. When a structure fire occurs in the WUI the homeowner is charged for whatever services the responding FPD provides. When a wildfire threatens a WUI outside the Lake City FPD, personnel and equipment respond, as available, and bill the County Sheriff for the services provided.

This arrangement leaves many landowners with no formal commitments for fire protection. Forming a new district or joining an adjacent fire protection district are both options to solve this problem. Both these options require substantial, broad based community support and people willing to be trained and serve as volunteer firefighters.

Currently the Sheriff does not have any agreements with Lake City, Mineral County or Pagosa fire protection districts for mutual aid or assistance. The Sheriff will develop memorandums of understanding with all three fire protection districts providing services within the County outlining services they are willing to make available outside their fire protection district boundaries.

Prescribed Burning

One of the most cost effective tools land managers have to treat large expanses of wildland is prescribed burning. Prescribed fire is an appropriate tool to reduce fire hazard and at the same time promotes long term vegetative health. This plan recognizes the value of prescribed burning and supports its use in reducing landscape level wildfire hazards in the county.

Fuel Treatments

Landscape scale fuel treatments to facilitate structure protection are not feasible in most of Hinsdale County. Steep rocky slopes preclude mechanical and hand crew operations. A fuelbreak south of Ptarmigan Meadows and some limited activity in the Piedra-Palisade area are the exception to this norm. Wilderness proximity to the WUIs further complicates wildfire hazard mitigation near several WUIs in the County.

Wildfire Prevention and Fire Loss Mitigation

Prevention strategies focus on education, burning restrictions and closure orders. There is a need to improve the process of initiating and coordinating fire restrictions. The best and most favored approach is to develop uniform actions based on the National Fire Danger Rating System adjective ratings. In depth discussions about thresholds for various restrictions can occur during the winter and be automatically triggered when fire hazard warrants, without a flurry of last minute phone calls. Prearranged actions take a lot of the hassle out of the implementation of fire restrictions and facilitate communications among cooperators.

Survivable Space

Survivable space is the key to structure survival. Hinsdale County FPD along with CSFS will initiate an ongoing program to encourage individual landowners to redeem their responsibility while living in wildfire prone areas. This includes advocating FireWise home construction.

Once the home ignition zone is in good condition it will need occasional maintenance to continue to provide the expected protection.

Firefighter Training

Currently none of the Lake City Fire Protection District volunteers have training in wildland firefighting techniques. The BLM has offered to provide basic wildland fire training courses S130 & S190 during the winter of 2010/2011 when most volunteers may have time for the training.

Communications

Hand held radios are an important communications tool during wildland fire control activities. Firefighters are often scattered across the fire area and not necessarily in close proximity to their trucks. Communication between the lookout and personnel on the fireline is critical. Lake City FPD recently converted to digital radios as directed by the FCC. They are pleased with the digital radios which seem to work well in their situation.

Having a repeaters located on Bristol Head and Peak HN 171 provides good coverage for Hinsdale County. They need five additional VHF/800 DTR radios to have adequate radio distribution among the volunteers.

County Wildfire Standards for Subdivisions

Hinsdale County currently has some wildfire hazard mitigation requirements in their Unified Land Development Code, Section 5.5.3 (Wildfire Hazard Areas). The code directs landowners to submit an application to the Fire Protection District for determination of the wildfire hazard severity on the parcel they plan to develop. If the wildfire hazard is medium or above the FPD is to provide recommendations or specific appropriate mitigation measures. The code also requires residential construction in areas covered by woods, brush or grasslands to minimize the potential for the structures to be ignited by fire or for the structure to ignite surrounding structures or vegetation. It goes on to describe vegetation management within two zones around the structure. It also states that: all property owners with structures in an area with wildfire hazard rating of medium or above are responsible for proper maintenance of defensible space. This includes modifying or removing flammable vegetation, keeping leaves, needles, and removing other dead vegetative material annually from roofs of structures.

Private land development in fire prone areas needs to be sensitive to road and driveway standards that facilitate emergency vehicle access and turnaround. Land development without access for fire apparatus and other emergency vehicles exacerbates the fire hazard problem and perpetuates the expenditure of public funds to protect structures in a wildfire situation.

Section 5.6 Roads of the Hinsdale County Unified Land Development Code establishes road and driveway standards for new construction. It does not address those facilities constructed prior to the adoption of the code. The standards do a good job of describing reasonable road widths, grades and cul-de-sacs for public roads. The driveway standards allow for 16% grades and do not require adequate turnaround space.

Many of the basic wildfire hazard issues such as poor access i.e.; one way ingress and egress, steep/narrow road grades, cul-de-sac diameter, vegetative flammability, building construction, roofing materials and survivable space were not in effect when the vast majority of the structures in Hinsdale County were constructed. Encouraging improvements in older developments and structures is an important function of this plan.

The County can take a significant step in reducing structure losses from wildfire by stipulating the following suggested improvements in the building permit process from the NFPA standards:

- At least two ways into and out of a subdivision
- Adequate driveways with turn-abounds suitable for use by firefighting equipment
- Street signs constructed of non-flammable materials
- Addresses that are posted at the intersection of the main road and the driveway
- Propane tanks that are at least 75 feet from structures
- Fire resistant siding and roofing materials
- Chimneys and stove pipes will have caps and spark arrestors

These few requirements will have substantial impacts on survivable space and first responder efficiency.

It is probably time for Hinsdale County to consider expanding standards to address access. There are good examples of rural counties in Colorado dealing with the subdivision wildfire interface.

Fire Control Features Maps

The maps included in this CWPP contain information vital to wildland fire operations. They show: triaged structures, water sources, hydrants, safety zones, aviation hazards, staging areas and helispots. When printed on weather proof paper and organized in a booklet format the information is invaluable to wildfire suppression efforts. They can improve communications and planning tasks. They are tough enough to be carried in first responder vehicles and can be updated or replaced as needed for a reasonable price.

The 11 WUIs are covered by 63 maps 8.5" x 17" or 17"x 22" each. Maps will be reproduced on an aerial photo and a topographic base.

CWPP Project Coordinator:

Hinsdale County relies on volunteers to provide all the fire services for a large area. Adding additional work such as FireWise consultations and working with County Commissioners to improve planning, zoning, road and bridge standards will increase the workload for this dedicated but over-committed group.

We recommend funding a part time CWPP project coordinator for the first few years to jump start implementation of the plan.. This staff will work throughout Hinsdale County to provide onsite FireWise consultations to

WUI residents and develop grant proposals for various action items. Title III funds and State Fire Assistance Grants are two viable sources for funding this position. See Appendix: L Potential Funding Sources for more details.

State Tax Incentives for Wildfire Hazard Mitigation:

House Bill 1110 created a five year program from 2009 to 2014 that allows landowners to deduct the actual costs of their wildfire mitigation, up to \$2,500 from their state income tax. The program allows each landowner to get credit for fifty percent of the cost of wildfire mitigation up to a total of \$2,500. To get the full credit the total mitigation costs must be \$5,000 or greater. The work must be done in accord with an existing Community Wildfire Protection Plan to qualify.

Colorado State Forest Service will be administering the program and verifying the actual work completed. This is a good incentive for individual landowners to improve survivable space around their structures. They can get their personal labor recognized at a decent hourly rate.

Slash Disposal Yards

Improving survivable space within the home ignition zone will create significant amounts of slash and combustible residue. Larger material can always be used as firewood. The Hinsdale County Landfill is one place the smaller material can be disposed of. It is a long haul from some areas of the County. Placing this biomass in a landfill may be a waste of valuable landfill space. One way to reduce the space the slash occupies is tub grinding at the landfill before the slash is buried. It could then be available for landscaping purposes to those willing to come haul it away. Ground biomass makes good mulch.

The Ptarmigan Meadows POA has established a slash disposal concentration point for wildfire hazard mitigation waste. The large pile will be burned during the winter following a heavy snow.

Other communities in the State have created locations where wildfire mitigation slash has been concentrated and then chipped for compost or burned during the winter following a snow storm that reduced fire hazard. These options should be considered along with more local site specific opportunities to provide reasonable means for slash disposal following wildfire mitigation work.

IMPLEMENTATION & MONITORING

Implementation:

Table 9: Action Plan for Completing the HC CWPP; identifies the responsibilities and tasks necessary to accomplish the job at hand. The priorities and responsibilities have been negotiated and agreed to by Core Team and various named individuals.

The Core Team will

- Seek funds for the County to hire a contractor to serve as the CWPP coordinator (implementation manager) who, among other things, would do the following:
 - Provide the leadership needed to implement this plan.
 - Establish a wildfire prevention attitude in the community.

The CWPP Project Coordinator's roles will be to:

- ✓ Strengthen public understanding, acceptance and participation in projects defined in the CWPP.
- ✓ Ensure follow-up to commitments by the community, or within the community, and on behalf of the Center FPD goals.
- ✓ Facilitate Core Team operations. This group will act as an advisory board to represent the community as a whole. This entity would do the following:

Set priorities, develop and administer fund raising activities, interact with and coordinate with County, coordinate with State and Federal agencies on behalf of the community as a whole, and ensure follow up on all recommendations and/or activities.

Potential Funding Sources

Finding funds to implement CWPPs can be a challenge. There are at least two notable opportunities readily available to Hinsdale County that should be explored in detail. See Appendix L: Funding Sources for detailed information.

State Fire Assistance funds – Application was submitted on August 4, 2010.

Secure Rural Schools and Community Self-Determination Act (Public Law 110-343).

Title III funds (USFS) may be used to:

(1) carry out activities under the FireWise Communities Program to provide homeowners in fire sensitive ecosystems education and assistance with implementing, techniques in home siting, home construction, and home landscaping that can increase the protection of people and property from wildfires;

(2) reimburse the participating county for search and rescue and other emergency services, including firefighting that are performed on Federal land after the date on which the use was approved and paid for by the participating county; and

(3) develop community wildfire protection plans in coordination with the Secretary of Agriculture.

Table 9: Action Plan for Completing the Hinsdale County CWPP

PRIORITY	MITIGATION ACTION	TARGET DATE	ASSIGNED TO	COMPLETED ✓
1	Provide FireWise information to all property owners with structures on their land and new property owners and applicants for building permits	11/15/10	County Assessor & CWPPPC	
2	Hire a contract CWPP Project Coordinator .	5/1/11	BOCC	
3	Conduct S-130/S-190 basic wildland firefighter training for Lake City FPD	2/15/11	Chris Barth	
4	Develop MOUs with Lake City, Pagosa Springs and Mineral County Fire Protection Districts to provide mutual aid assistance for WUIs not currently not included in a fire protection district	4/25/11	Sheriff	
5	Sign Safety Zones for Henson, Upper Lake Fork, Piedra-Palisade, Lost Trail	4/15/11	CWPPPC	
6	Conduct one FireWise workshop for WUI residents.	7/15/11	CWPPPC CSFS BLM USFS	
7	Provide interested parties with on site Home Ignition Zone consultations.	Ongoing	CWPPPC CSFS	
8	Create slash disposal yards near each WUI.	4/15/11	CWPPPC	
9	Update Evacuation Plans	4/15/11	County Health & Emergency Management Departments	
10	Print 10 sets of fire control features maps for first responders' vehicles.	2/15/11	CWPPPC	
11	Install "No Outlet" signs at the beginning of all dead end roads.	8/15/11	POAs & Hinsdale Co. Road-Bridge Dept.	
12	Acquire 2 Floto Pumps, 500' of 1½ " fire hose and two floating strainers.	4/15/11	Fire Chief LCFPD	
13	Pursue garnt to purchase 5 new VHF/800DTR radios	1/15/11	Fire Chief LCFPD	
	<i>Continued on next page</i>			

PRIORITY	MITIGATION ACTION	TARGET DATE	ASSIGNED TO	COMPLETED ✓
14	Pursue grants to acquire a new type 6 WUI engine	2/15/11	Fire Chief	
15	Mitigate fire hazards along the 115 KV powerline coming into the county from the north.	7/15/11	Gunnison County Electric Association	
16	Reduce ground fuel loading and crown fire potential on State and Federal lands in and adjacent to WUIs	8/15/15	CSFS BLM/USFS	
17	Construct shaded fuelbreak west of Ptarmigan Meadows when 65 % of structures are survivable.	?	Rio Grande NF	
18	Work with the County Commissioners to develop a Land Use Codes that address wildfire hazard mitigation and road standards that facilitate fire apparatus access.	3/15/15	CWPPPC	

Monitoring:

Monitoring progress is a crucial part of seeing any plan through to completion. Given the values at risk it will be important to assess accomplishments on an annual basis. We expect that execution of actions described in this plan will reduce wildfire damage to structures in Hinsdale County. The Core Team should revisit the CWPP and associated accomplishments every two years and make adjustments to the plan as needed.

Appendices

Appendix A: Maps

Appendix B: Fuel Model Descriptions

Appendix C: Fuel Hazard Reduction Guidelines

Appendix D: Evacuation Planning Guidelines

Appendix E: FireWise – A Homeowners Guide to Wildfire Retrofit

Appendix F: Fuelbreak Guidelines for Forested Subdivisions & Communities

Appendix G: Road & Driveway Specifications for Emergency Access

Appendix H: Hinsdale County Triage

Appendix I: Subdivision Hazard Evaluation Form

Appendix J: Definition of Terms

Appendix K: References and Publications

Appendix L: Potential Funding Sources

Appendix M: San Juan Ranch Estates CWPP