

# CENTER FIRE PROTECTION DISTRICT

## Community Wildfire Protection Plan



Land Stewardship Associates, LLC.  
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# Community Wildfire Protection Plan Center Fire Protection District

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## **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 people involved in its development. 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 and FireWise 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 ½ 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.

**Special Note:** *Most of the communities/neighborhoods spoken to in this plan are actually outside the Center Fire Protection District. They are included in this plan because the Center Fire Protection District is the most likely first responder to both structure and wildland fires for the communities. They are addressed in this plan to make sure they don't fall between the cracks as the San Luis Valley Regional CWPP effort focuses on planning at the Fire Protection District level.*



## **COMMUNITY IDENTIFICATION AND DESCRIPTION**

The Center Fire Protection District (CFPD) is located in the San Luis Valley in south central Colorado. It covers an area of approximately 106 square miles or 67,840 acres and ranges in elevation from 7,500 feet on the valley floor to over 7,800 feet in the La Garita area on its western boundary. La Garita, and Carnero Creek are the primary drainages in the FPD. The FPD's boundary lies six miles west and eight miles east of US Hwy 285. It is also ten miles north and four miles south of Colorado Hwy 112. The following vicinity map identifies the location of the area and its proximity to the remainder of the San Luis Valley.

Four Wildland Urban Interface (WUI) areas have been identified in close proximity to the CFPD. They are listed in Table 1. La Garita is the only WUI community actually within the FPD. 24,307 acres have been designated as WUI in CFPD.

The area is dominated by irrigated farmlands or high desert chico on the Valley floor and transitions to pinyon pine forest along the foothills. Ponderosa pine/Douglas-fir/aspen montane forests cover the higher elevations on the western boundary just outside the District. Ponderosa pine/Douglas-fir forests are generally dense enough to sustain a substantial crown fire resulting in a high fire risk.

Center Fire Protection District is characterized by farm communities on the valley floor with little or no interface with forested vegetation. While the valley floor may appear to have a relatively benign wildfire hazard; chico, grass and some cured agricultural crops can burn with high rates of spread and worrisome intensity.

There are also developments in the foothills that are unaffiliated with any fire protection district that rely on the CFPD, federal land management agencies and the State for whatever wildland fire protection they may be able to get.

The 250 acre Coolbroth fire of 2006 caused the evacuation of the Carnero Creek community. This fire had much more potential to spread and cause damage to structures than it finally manifested. Strong, erratic winds did not occur as first predicted by the National Weather Service.

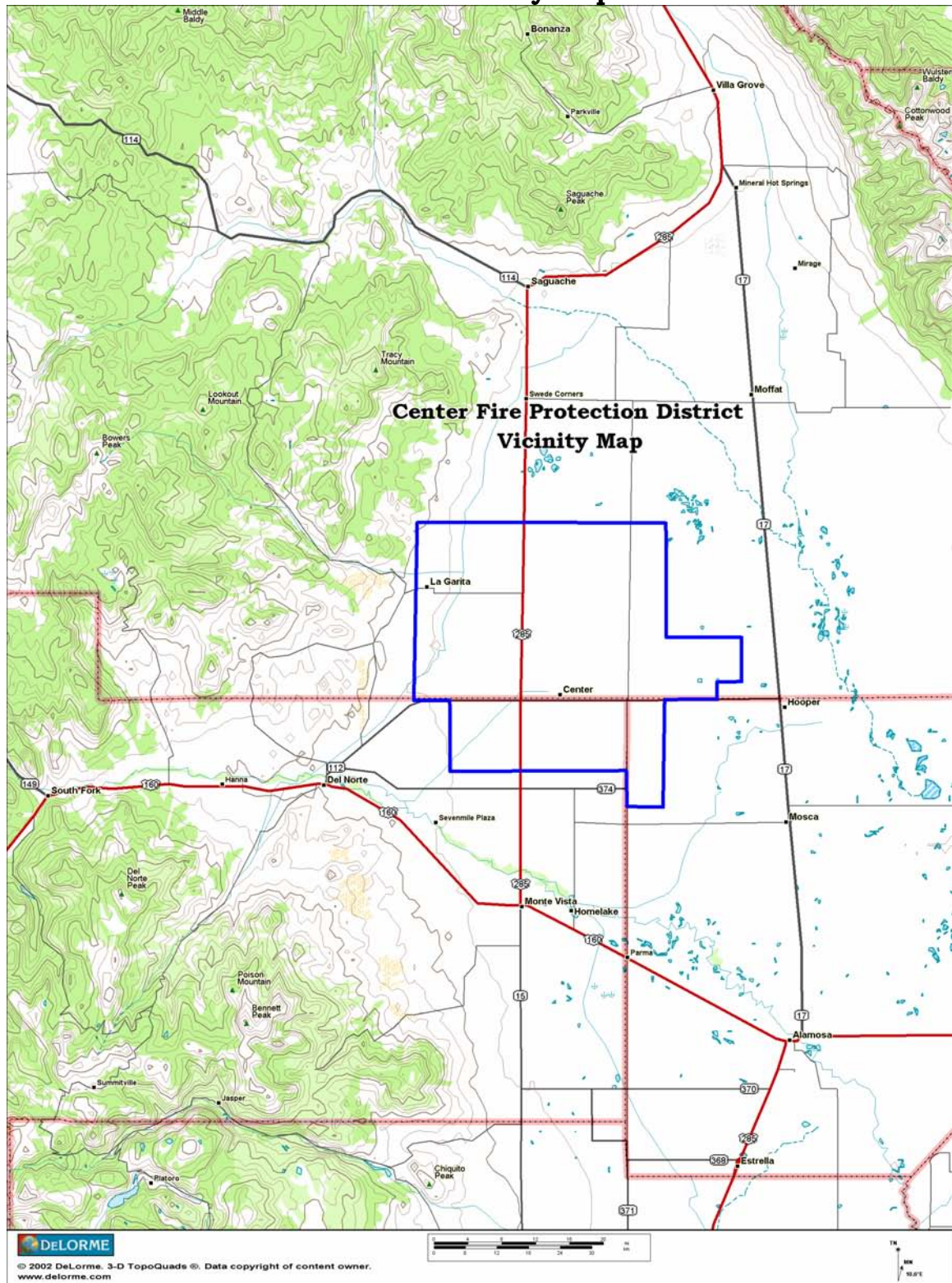
Much of the FPD is adjacent to public lands in the form of Bureau of Land Management, Colorado State Land Board, and US Forest Service.

Numerous private parcels are scattered throughout these public holdings. Many of the private tracts have been subdivided into 35 lots and have permanent and recreational home sites along with vacant land.



Structure at top of a natural chimney formed by the drainage increased the fire hazard.

## Center Fire Protection District Vicinity Map





US Hwy 285 and Colorado State Highways 112 provide primary paved access with numerous high quality County gravel roads providing access to the various neighborhoods. Road quality within subdivisions varies dramatically.

CFPD has one station located in Center. Mutual aid can be easily provided by the Alamosa, Baca Grande, Del Norte, Monte Vista, Mosca/Hooper, and Northern Saguache Fire Departments.

The initial CWPP Core Team meeting was held on August 22, 2007. Participants included members of the Center Fire Protection District, Saguache County Sheriff's Department, Bureau of Land Management, US Forest Service, and Land Stewardship Associates.

The Core Team reviewed the overall wildland fire protection situation in the FPD and discussed issues, concerns and opportunities. WUI boundaries were delineated on a map. Station wildland resource inventories were discussed and an open house for interested parties was scheduled for November 15<sup>th</sup> starting at 4:00 pm at the La Garita Trading Post. Appendix L: La Garita Open House: has a list of participants and general comments from interested parties.

**Table 1 Wildland Urban Interface Communities Adjacent to CFPD**

<b>WUI Name</b>	<b>Acres</b>
Carnero Creek	9,019
Cool Valley	3,373
La Garita Creek	5,545
North Cool Valley	6,370
<b>Total Acres</b>	<b>24,307</b>



Cool Valley



Carnero WUI

## **COMMUNITY ASSESSMENT**

The overall risk within or adjacent to the FPD from wildland fire varies from high to low depending upon a wide variety of factors. This section will discuss the facets considered that led to the overall ratings.

### **Fuel Hazards**

Dense ponderosa pine and Douglas fir stands cover mountainous portions of the planning area while grass and shrub types are found on the valley floor and foot hills. Most of the WUI areas are located at lower elevations.

Valley floor and foothills grass and shrub fuel loading are highly variable ranging from good strong fuel models 1 & 2 to sparse vegetation with considerable bare ground exposed. Irrigated agricultural land also covers substantial area on the valley floor. Fires in the denser grass and shrub types can be very difficult to control on the typical dry, windy afternoon common in the San Luis Valley. See Appendix B for a full discussion of Fuel Models

Fuel models associated with the mountainous WUIs include 1, 2, 6, and 9. All stands adjacent to structures with crown densities greater than forty percent are problematic. Continuous surface and crown fuel structure, both horizontally and vertically, render this area susceptible to torching, crown fire, and ignition by embers, even under moderate weather conditions.

The following maps showing CFPD WUIs, CFPD Wildfire Hazards and CFPD Fuel Models indicates the majority of the WUIs have a fuel hazard assessment of low but they vary from low to high. Local topography and poor access further aggravates fire behavior and control.

106°15'0"W

106°0'0"W

38°0'0"N

*Center Fire Protection District  
Wildland Urban Interface Communities  
as Identified by Core Team, 8/22/2007*

Lime Creek WUI  
Evaluated in Northern  
Saguache FPD's CWPP

Mishak Lakes WUI  
Evaluated in Northern  
Saguache FPD's CWPP

Carnero Creek WUI  
Partially Evaluated in Northern  
Saguache FPD's CWPP

*Northern Saguache Fire*

Mishak Lakes

Lime Creek

Carnero Creek

La Garita Creek

North of Cool Valley

Cool Valley

*Center Fire*





*Center*

*Del Norte Fire*

*Hooper*

*Del Norte*

*Alamosa County Fire*

-  Subdivision Boundaries
-  Center WUI Communities
-  Fire Protection Districts
-  Towns

11/12/2007

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106°15'0"W

106°0'0"W

37°45'0"N





106°15'0"W

106°0'0"W

38°0'0"N

# Fire Hazard for Center Fire Protection District



Lime Creek WUI  
Evaluated in Northern  
Saguache FPD's CWPP

285

*Northern Saguache Fire*

Mishak Lakes WUI  
Evaluated in Northern  
Saguache FPD's CWPP

Mishak Lakes

17

Carnero Creek WUI  
Partially Evaluated in Northern  
Saguache FPD's CWPP

Lime Creek

Carnero Creek

North of Cool Valley

La Garita Creek

Cool Valley

*Center Fire*


*Center*

*Del Norte Fire*


112

*Del Norte*


*Alamosa County Fire*




Subdivision Boundaries



Center WUI Communities




Fire Protection Districts




Towns


**Fire Hazard (based on Slope, Aspect & Vegetation)**



Low



Moderate



High

11/12/2007



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106°15'0"W

106°0'0"W

37°45'0"N





106°15'0"W

106°0'0"W

38°0'0"N

# Anderson Fuel Model for Center Fire Protection District

Lime Creek WUI  
Evaluated in Northern  
Saguache FPD's CWPP

Mishak Lakes WUI  
Evaluated in Northern  
Saguache FPD's CWPP

Carnero Creek WUI  
Partially Evaluated in Northern  
Saguache FPD's CWPP



Northern Saguache Fire

Mishak Lakes

Lime Creek

Carnero Creek

North of Cool Valley

La Garita Creek

Cool Valley

Center Fire

Center

Del Norte Fire

Hooper

Del Norte

Alamosa County Fire

Subdivision Boundaries

Center WUI Communities

Fire Protection Districts

Towns

**Anderson 13 Fuel Model**

	Agricultural
	1
	2
	4
	5
	6
	8
	9
	10

11/12/2007

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106°15'0"W

106°0'0"W

37°45'0"N





## **Risk of Ignition and Wildfire Occurrence**

Wildland fires have burned throughout the fire protection district ever since lightning and dry biomass has 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 drought combined with lightning to create a vegetative mosaic we enjoy today. 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. Two large, intense wildfires have burned in the San Luis Valley within the last five years. The Million fire of 2002 burned over 9,000 acres and eleven homes, while the Mato Vega Fire of 2006 burned over 13,000 acres. Both of these incidents occurred in overstocked forested areas during very dry conditions. Similar wildfires are inevitable in the CFPD. The Hells Gate fire along Carnero Creek burned 250 acres and forced an evacuation over much of the Carnero Creek WUI for two days.

Low fuel moistures and relative humidity are common in the area, as are periods of high winds. When dry, 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 area can have profound effects upon the communities if the burn under typical rates of spread and intensity. Rapid rates of spread and long distance spotting are the norms for fires in the vicinity.

Areas classified as high to moderate fuel loading are the most worrisome. Table 2 provides fire behavior predictions for several fuel models and representative weather conditions.

**Table 2: Center FPD WUI Fire Behavior Predictions**

<b>FUEL MODEL</b>	<b>RATE of SPREAD</b> (ft/hr)	<b>FLAME LENGTH</b> (Feet)	<b>SIZE @ 1 HOUR</b> (Acres)	<b>PERIMETER @ 1 HR.</b> (Feet)	<b>SPOTTING DISTANCE</b> (Miles)
<b>1</b>	1,162	2	21	3,500	0.4
<b>(101)</b>	297	1	1	924	0.4
<b>2</b>	1,947	6	30	4,686	0.5
<b>6</b>	3,128	7	77	7,524	0.5
<b>9</b>	165	2	.4	462	0.4
<b>2/9</b>	2,376	8	43	5,610	0.5

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

In fuel model 1, grass is the primary fire carrier. Fuel model 101 is also a grass fuel model but it has much sparser and shorter grass than a typical fuel model 1. Fuel model 2 is composed of a mix of grass and shrub wherein the shrubs add fuel bed depth and fire intensity. Young dense stands of pinyon, juniper and other conifers are usually classified as fuel model 6 when the crowns will be the primary carrier of fire. Taller closed canopy ponderosa pine stands usually are classified as fuel model 9 due to the long needled litter layer that covers the ground. The combination of fuel models 2 & 9 best represents the fire characteristics manifested by fires in the vegetative mosaics found in the pine/shrub transition zone.

### **Community Values at Risk**

□ *Values* – There are four communities, “neighborhoods” or subdivisions with home sites in the CFPD WUI areas. Table 3 gives a summary of the neighborhood wildfire hazard evaluations. Many have heavy fuels nearby and around them. Others have rather light fuels in their vicinity.

Less than a third of the structures have recognizable defensible space. Many have flammable material near by, 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 G: Subdivision Hazard Evaluation Form.

**Table 3: Neighborhood Wildfire Hazard**

<b>Low</b>	<b>Moderate</b>
North Cool Valley	Cool Valley
	Carnero Creek
	La Garita Creek
	Lime Creek

□ *Access* – The primary and secondary road access within the CFPD district is good. Roads within the various neighborhoods are 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.

□ *Risk* – Because survivable space is lacking around many home sites, natural fuel continuity and steep slopes between some of the neighborhoods, it would be very difficult to protect some home sites from wildfire during periods of high to extreme fire danger.

One subdivision is of special concern to firefighters for the following reasons: It is located in the Northern Saguache FPD but Center FPD personnel are likely to be the first on the scene because they are closest.

► : **Lime Creek:**

- Bad roads
- Questionable escape routes & safety Zones
- No survivable space around structures

**Wildland fire actions during moderate and above fire danger in this development should focus on evacuating residents and taking indirect suppression action where it can be safely completed.**

□ *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 provides location of evacuation routes and other fire control features including safety zones, and guidelines for developing an evacuation plan.



Lime Creek Non-survivable home.

## Local Preparedness and Protection Capability

All Center FPD equipment is housed at the Center fire station

ITEM	#	NEEDED
Total Volunteers	31	31
Wildland Qualified	3	10
Incident Commander Type IV	0	1
Division Group Supervisor	0	0
Strike Team Leader	0	2
Wildland Firefighter	3	10
Ambulances	2	2
Brush Patrol Firefighting Type 7	1	1
Engine Fire Pumper Type 1	4	4
Water Tender Type 2 (4,000 gal.)	1	1
Water Tender Type 3 (1,750 gal.)	2	2
Water Tender Type 3 (1,450 gal.)	1	1
Brush Truck duce ½		
Portable Pumps	3	4
Fire Tool Cache	0	1 – 15 person
Hand Held Radios		
DTR	35	35
VTR	10	10
Equipment Needed	1	New Equipment Truck

□ *Water Supply* There are eight fire wells scattered throughout the FPD. Each engine carries a map that shows these wells. During the wildland fire season water is also available in many canals, ditches, Carnero & La Garita Creeks.

## **COMMUNITY MITIGATION PLAN**

The Core Team developed the following mitigation plan based on their knowledge of the wildland fire issues in the FPD and in consultation with interested parties during the November 15th Open House in La Garita. Figure 1: Center FPD Questionnaire Summary provides some insight into issues and concerns discussed at the open house. Details of the meeting are included in Appendix L La Garita Open House.

Considerable discussion revolved around improving fire protection outside the Center FPD. Most interested parties at the meeting live in a zone west of the CFPD boundary and rely on CFPD's good nature to get whatever protection they can after the FPDs priorities are taken care of. At best, initial attack from Center will be at the FPD boundary within forty five minutes to an hour. Most attendees at the open house felt that their structure would be fully involved by the time the first truck arrived.

This is not the first time fire protection has been an issue outside the FPD. Apparently there was an effort to join the CFPD a few years ago. It was not successful due to the complexity of the petition process and the unrealistic requirement that all landowners in the designated area join willingly.

The other option is to form a new Fire Protection District via a referendum. This approach is less burdensome and only requires support from a simple majority of the voters in the district.

The advantage of joining an existing district was discussed and appears to be substantial. The tax base is larger. The volunteer pool is deeper and the administrative load is not duplicated.

### **Commendations:**

Substantial money was spent on the roads in the Ghost Mine Ranch subdivision. They are a good step toward the type of roads needed in the WUI. Some grades are still too steep for easy access by structure fire engines. Driveways are even steeper, many without adequate space to turn fire apparatus around.

## Figure 1: Center FPD Questionnaire Summary

27 people attended the open house at the La Garita Trading Post.

**A.** Do you live in, or own property in an area vulnerable to wildfire?  
**73% = Yes, 27% = No**

**B.** What is your primary concern relative to wildfire in your neighborhood?

Lack of resources or slow response time = **38%**

Home or structures burning = **23 %**

Water supply = **15%**

Survivable space = **15%**

Lightning = **8%**

**C.** If you have structures on your property do you think they will survive a wildfire in their close proximity? **66% = Yes, 33% = No**

**D.** Are you familiar with the term “Survivable Space” when it comes to structures and wildfires? **73% = Yes, 27% = No.**

**E.** Are you willing to expend the labor or money to improve the probability that your structures will survive a wildland fire? **82% Yes, 18% = No.**

**F.** Would you like more information on preparing your structures for the inevitable wild fire? **87% = Yes, 13% = No** If so what format do you prefer?

**63% = Brochures and pamphlets**

**19% = Formal Workshop**

**18% = On site consultation with a person familiar with FireWise concepts?**

**G.** What suggestions do you have to reduce your community’s vulnerability to wildfires?

**67% = Form or join a fire protection district and put a station at La Garita.**

**23% = Survivable space.**

**15% = Develop reliable water supplies on the upper end of Carnero WUI and in the La Garita area.**

**NOTE:** Sum equals more than 100% because some stakeholders had several suggestions.

Table 4: Wildfire Hazard Mitigation Actions depict in detail the strategy for addressing mitigation needs in terms of fuel reduction within the CFPD. The geographic location of treatment units in Table 4 are displayed in Appendix A: Maps. The strategy basically addresses fuel treatments, both mechanical and prescribed fire, and survivable space needs in numerous areas over a several year period.

Essential to the success of the plan is the involvement of the private landowners. Implicit to the plan is “ownership of the fire problem” by private landowners. While the CFPD and CSFS have worked hard to promote 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 the 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 and develop their land however they choose.

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 private parcels are scattered across public lands the question becomes how culpable is the State, County and federal government for developments placed in naturally hazardous vegetation. In the past, private land owners have expected their public land neighbors to do most of the fire hazard reduction on lands immediately adjacent to private lands. This convenient transfer of responsibility to the public saved private land owners 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 public or private lands. 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 structures survivability. Placing firefighters in the jaws of a



fast moving, high intensity fire to save structures is not an acceptable practice today.

Reducing flammability across a large area surrounding structures, public or private, is the key to reducing structure loss. One of the most cost effective tools land managers have to treat large expanses 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 calls for applying prescribed fire to all ponderosa pine and Douglas-fir stands on public lands, within the CFPD wildland urban interface areas. This approach will also be cost effective.

Appendix A: Maps: contains maps of fuel treatment for the various CFPD WUIs. They depict locations of the suggested treatment areas listed in Table 4. Priorities for reducing fuel hazards were based on the following criteria:

*Priority 1:* Protection of structures; survivable space around structures and areas adjacent to communities.

*Priority 2:* Thin or mow fuels along roads that provide evacuation and firefighter ingress and egress.

*Priority 3:* Prescribe burn all ponderosa pine and Douglas-fir areas within and adjacent to WUIs on public lands.



Active Rx Burning



Reduced fire hazard after burn

**Table 4: Center FPD Fuel Treatment along Evacuation Routes**

WUI AREA	THINNING CONIFER MILES	THIN COST \$	MOWING SHRUBLAND MILES	MOW COST \$	TOTAL COST \$	PRIORITY
Carnero Creek	1.3	18,720	0	0	18,720	1

**Table 4A: Center FPD Recommended Prescribed Burning within WUI Areas**

WUI	DF	PP	TOTAL	\$S	PRIORITY
Carnero	2,731	0	2,731	546,200	1

**Wildfire Prevention and Fire Loss Mitigation**

Prevention strategies focus on education, burning restrictions and closure orders. The coordination of fire restrictions is detailed in County Annual Fire Operating Plans. 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 is the key to structure survival. CFPD along with Saguache County and CSFS will initiate an on going program to encourage individual landowners to redeem their responsibility while living in wildfire prone areas. This includes advocating FireWise home construction.

**Improved Protection Capability**

Stakeholders participating in the open house were very concerned about the availability of fire protection outside the FPD. Considerable time was spent exploring the various options land owners had to either be annexed into the Center FPD or establish their own, free standing fire protection district. The relative merits and pitfalls of each approach were discussed. The group did not come to any final conclusion on which

approach they preferred but they did agree that the time had come to resolve the issue.

Carnero and La Garita Creeks are usually good sources of water for wildland fire suppression. The CFPD also maintains eight fire wells in the valley bottom. Stake holders did recommend an additional fire well in the La Garita area and a cistern filled via an artesian well on the west end of the Carnero WUI. These two sources will provide both wildland fire water and structure fire water, especially in the depth of winter when creeks tend to be frozen.

### **Communications**

Radio communications within the Center FPD are good. The area is relatively small and flat. Carnero and La Garita Canyons to the west of the FPD pose special communications problems. Existing repeaters do not service these blind spots, leaving the areas without decent emergency radio options. This leaves the residents outside the CFPD without fire protection or radio coverage when the eventual emergency occurs.

There is a need to determine how to improve radio access to these two areas. It is a technical issue well outside the expertise of CFPD and perhaps not even their responsibility since the poor coverage occurs outside their boundary.

### **County Wildfire Standards for Subdivisions**

Saguache County needs to develop a set of wildfire standards that it requires when properties in fire prone areas are proposed for development. Private land development in fire prone areas should not be permitted without wildfire hazard reduction as part of the improvement. Land development without attendant fire hazard reduction exacerbates the fire hazard problem and perpetuates the expenditure of public funds to protect structures in a wildfire situation.

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 and survivable space requirements are best addressed at the time a subdivision is being designed and approved.

Colorado counties have a wide variety of wildfire hazard mitigation standards for land development. They range from no mention of wildfire issues to complex standards that stipulate specific criteria for wildfire hazard mitigation, road and driveway design, emergency water supplies, survivable space, and fire resistant structure construction. Generally the more urban forested counties have the strictest fire codes.

The “*International Urban-Wildland Interface Code*” of 2003 establishes minimum regulations for land use and the built environment in designated urban-wildland interface areas using prescriptive and performance related provisions. It is founded on data collected from tests and fire related incidents, technical reports and mitigation strategies around the world. It is a good reference to work from as Saguache County develops its wildfire hazard mitigation standards.

Archuleta County provides a good example for Saguache County to emulate. The following information, extracted from Archuleta County’s Planning and Zoning guide and their Road and Bridge Standards, is suggested as a starting point for consideration:

*5.2.2.4 Wildfire Hazard Areas:*

*The County shall not approve any development if the proposed project is located in an identified wildfire hazard area, or is suspected by the County to be in a wildfire hazard area, unless the developer can submit adequate evidence, prepared by a qualified professional forester, that the proposed project meets the following criteria:*

*5.2.2.4.1 Any project in which residential activity is to take place shall be designed to minimize significant hazards to public health and safety or to property.*

*5.2.2.4.2 All projects shall have adequate roads for emergency service by fire trucks, fire fighting personnel, and firebreaks or other means of mitigating conditions conducive to fire.*

*5.2.2.4.3 Precautions required to reduce or eliminate wildfire hazards shall be provided for at the time of initial development.*

*5.2.2.4.4 The project will adhere to the Guidelines and Criteria for Wildfire Hazard Areas promulgated by the Colorado State Forest Service.*

*5.2.2.4.5 Consideration shall be given to the recommendations of the Colorado State Forest Service, resulting from review of a proposed project in a wildfire hazard area.*

*5.3.9 Fire Protection System:*

*If the project is within an existing fire protection district, written confirmation is required that current fire code requirements have been met. If outside a fire protection district a fire protection plan shall be reviewed by the Saguache County Sheriff, Fire Chief of the appropriate Fire Protection District or other qualified individual. The County shall not approve any project without implementation of an adequate fire protection plan.*

Archuleta County Road and Bridge Standards that relate specifically to emergency vehicle access include maximum grades by road type and the following wording scattered throughout the document:

*Where cul-de-sac road are approved turnouts shall be provided. Bulb type turnarounds shall have a minimum road surface of 90 feet in diameter and minimum right-of-way of 110 feet in diameter. An alternative to the bulb type turnaround is the use of hammerhead turnaround.*

*The maximum length of roads ending in turnarounds shall be 600 feet in areas with a high wildfire hazard and 1,000 feet in all other areas. When a variance from this standard is requested at least one of the following shall be provided:*

- a. central water service,*
- b. an alternative water supply acceptable to the local fire authority,*
- c. monitored residential sprinklers in all residences on the cul-de-sac.*

*In addition, turnouts may be required when a variance is requested.*

*Driveway Widths: The dimensions of driveway widths and centerline curve radii shall be as shown in Table 27-12.*

*Single family residence driveways in excess of 400 feet in length shall provide an adequate turnaround for emergency equipment within 150 feet of the dwelling unit. Driveways serving multi family, industrial or commercial development shall provide a turnaround as specified in Figure 27-7 if the driveway has a dead end.*

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

- At least two ways into and out of the subdivision
- Adequate driveways with turn-arounds suitable for use by fire fighting 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.

### Strategic Recommendations:

CFPD 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. This staff would work with the Center Fire Protection District and the Office of Emergency Management to improve policies and regulations related to wildfire hazards in the Land Development Code and provide onsite FireWise consultations to WUI residents.

**Table 5: Implementation Items, Priority & Cost**

<b>MITIGATION ACTION</b>	<b>PRIORITY</b>	<b>ESTIMATED COST (\$)</b>
Designate a lead person and core group to put energy and research into joining the Center FPD or establishing a new fire protection district to address the fire protection needs for the area west of La Garita.	1	20,000
Provide FireWise information to all property owners with structures on their land and new property owners and applicants for building permits	2	1,000/ yr
Work with County Commissioners on wildland fire standards for development	3	8,000
Conduct one FireWise workshop for WUI residents.	4	800
Provide interested parties with FireWise on site consultations. (@ \$150 each) estimate 50 consults over next 5 years.	5	7,500
Wildland firefighter training for CFPD personnel. Get 7 more firefighters qualified as FF2	6	7,000
Develop two additional reliable water sources: 1 near La Garita and 1 on western end of Carnero WUI.	7	15,000
Thin and mow along WUI evacuation routes	8	18,720
Improve natural vegetation resistance to wildfire using prescribed burning.	9	546,000
Improve radio communications in the canyons west of the FPD.	10	10,000

**NOTE:** The first 4 priorities and priorities 7 & 10 will best be accomplished via a part time CWPP coordinator.

## IV. IMPLEMENTATION & MONITORING

### **Implementation:**

Table 6: Action Plan for Completing the CFPD 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 purpose of hiring and possibly cost- sharing a 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 Coordinators roles will be to:

- Strengthen public understanding, acceptance and participation in CWPP operations and improvement projects.
- 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 operations and/or activities.



**Table 6: Action Plan for Completing the Center FPD CWPP**

<b>MITIGATION ACTION</b>	<b>TARGET DATE</b>	<b>ASSIGNED TO</b>	<b>COMPLETED</b> ✓
Designate a lead person and core group to put energy and research into joining the Center FPD or establishing a new fire protection district to address the fire protection needs for the area west of La Garita.	February 15 2008	CWPP Coordinator To facilitate designation by County Commissioners	
Provide FireWise information to all property owners with structures on their land and new property owners and applicants for building permits	May 15, 2008 and ongoing	CWPP Coordinator	
Work with County Commissioners on wildland fire standards for development	9/15/2008	CWPP Coordinator	
Conduct one Fire Wise workshop for WUI residents	9/15/2008	CWPP Coordinator	
Provide interested parties with on site FireWise consultations. (@150 each) estimate 50 consults in next five years	Ongoing	CWPP Coordinator	
Wildland firefighter training for CFPD personnel. Get 7 more firefighters qualified as FF2	6/15/2008	Russell Brown	
Develop two additional reliable water sources: 1 near La Garita and 1 on western end of Carnero WUI.	7/30/2008	CWPP Coordinator	
Thin & mow along WUI evacuation routes.	1,000 acres/year	CWPP Coordinator	
Improve natural vegetation resistance to wildfire using prescribed burning	1,000 acres/year	Brian Garcia and Sid Hall	
Improve radio communications in the canyons west of the CFPD.	12/15/2008	CWPP Coordinator	

**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 more homes to become survivable. 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: Saguache County Triage**

**Appendix I: Subdivision Hazard Evaluation Form**

**Appendix J: Definition of Terms**

**Appendix K: References and Publications**

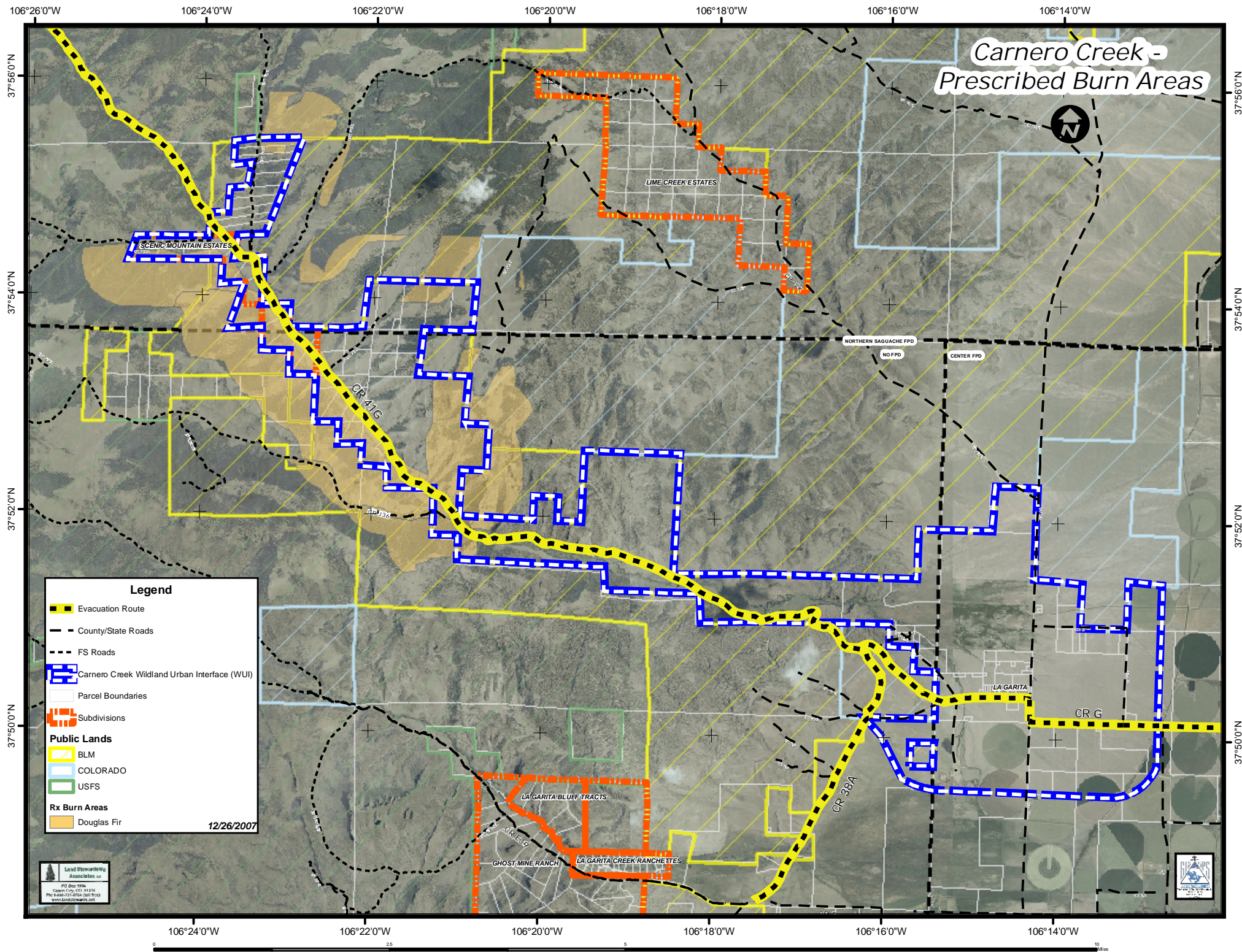
**Appendix L: La Garita Open House**

## **APPENDIX A – Maps**

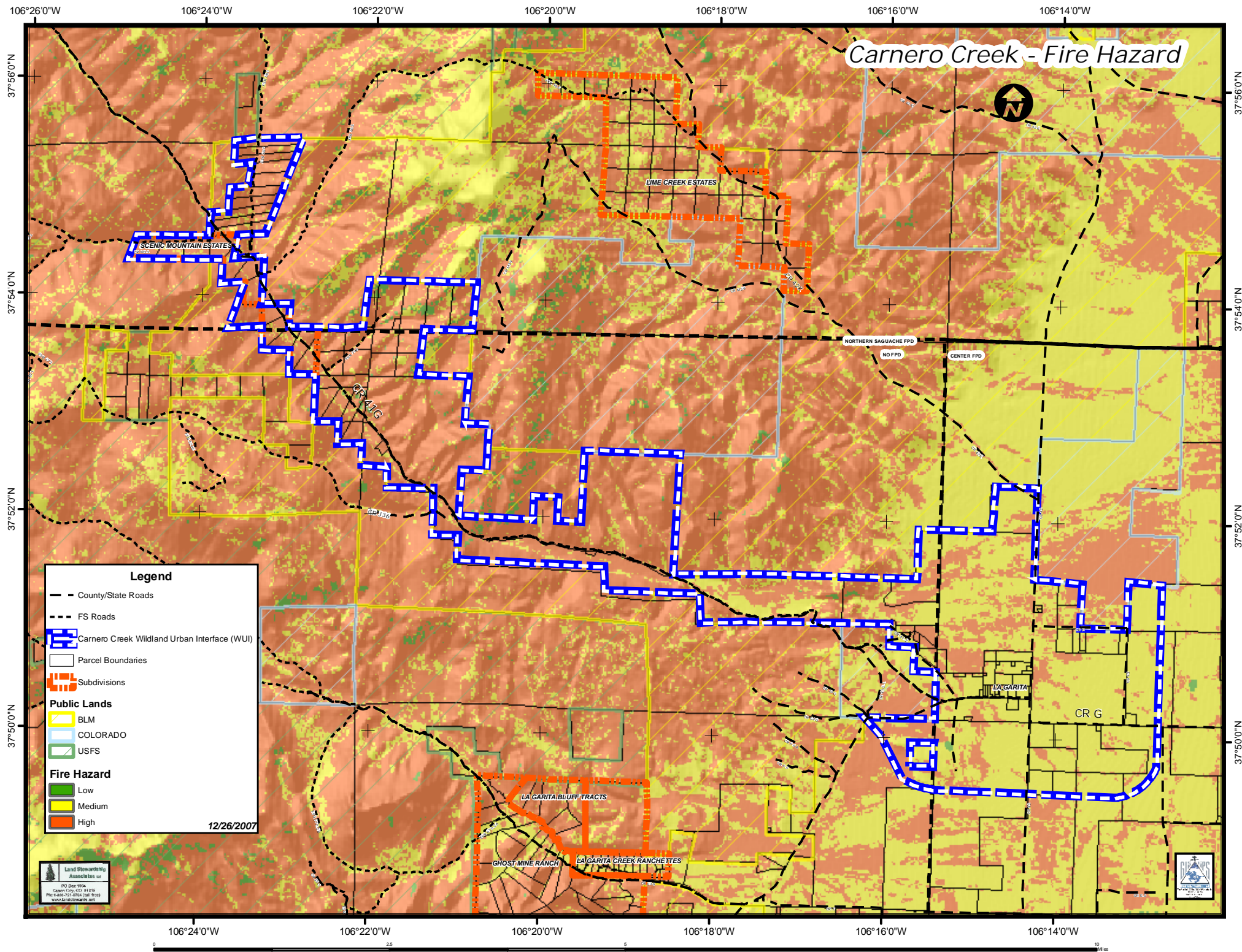
Fire Hazard

Prescribed Burn Areas and Suggested Evacuation Routes

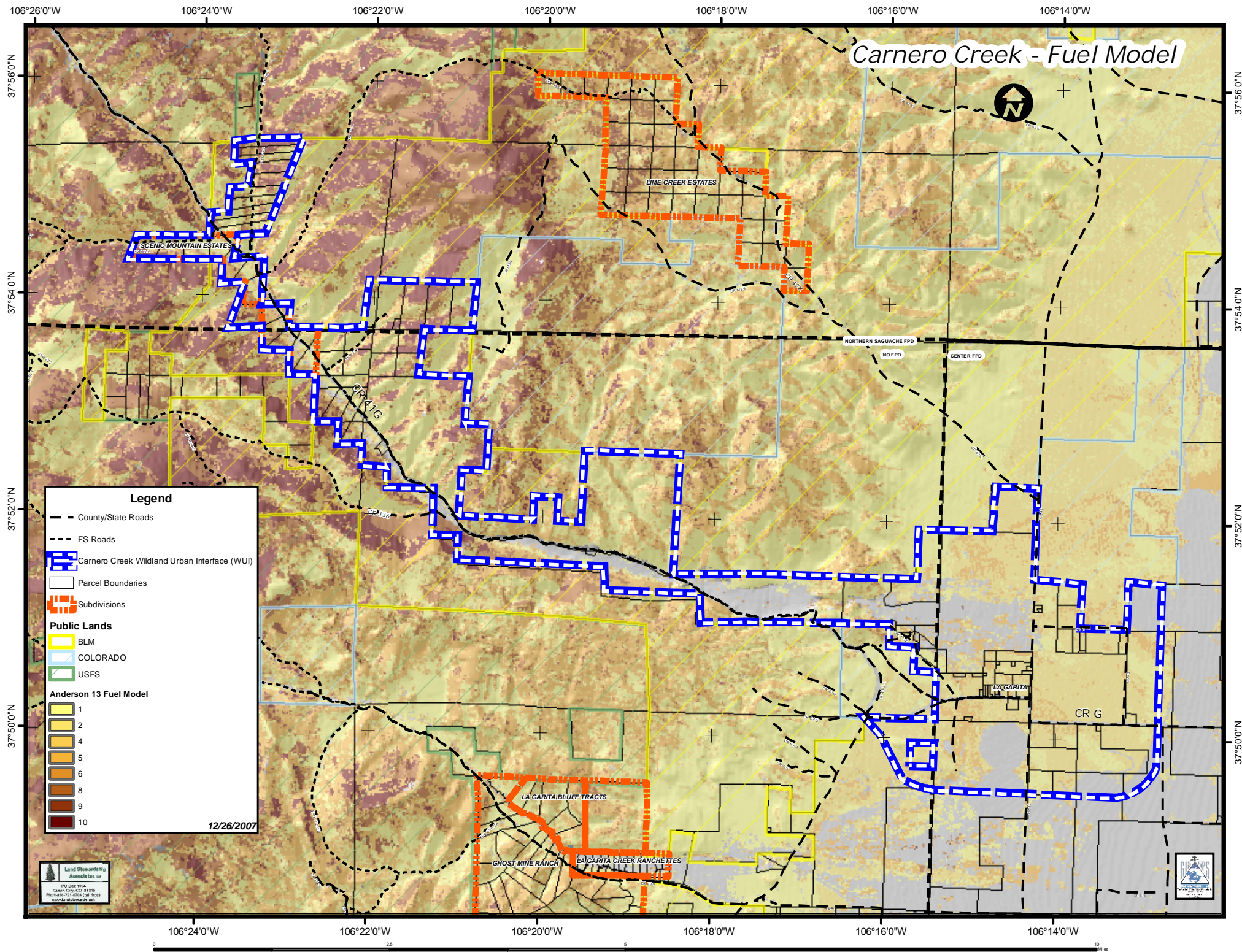




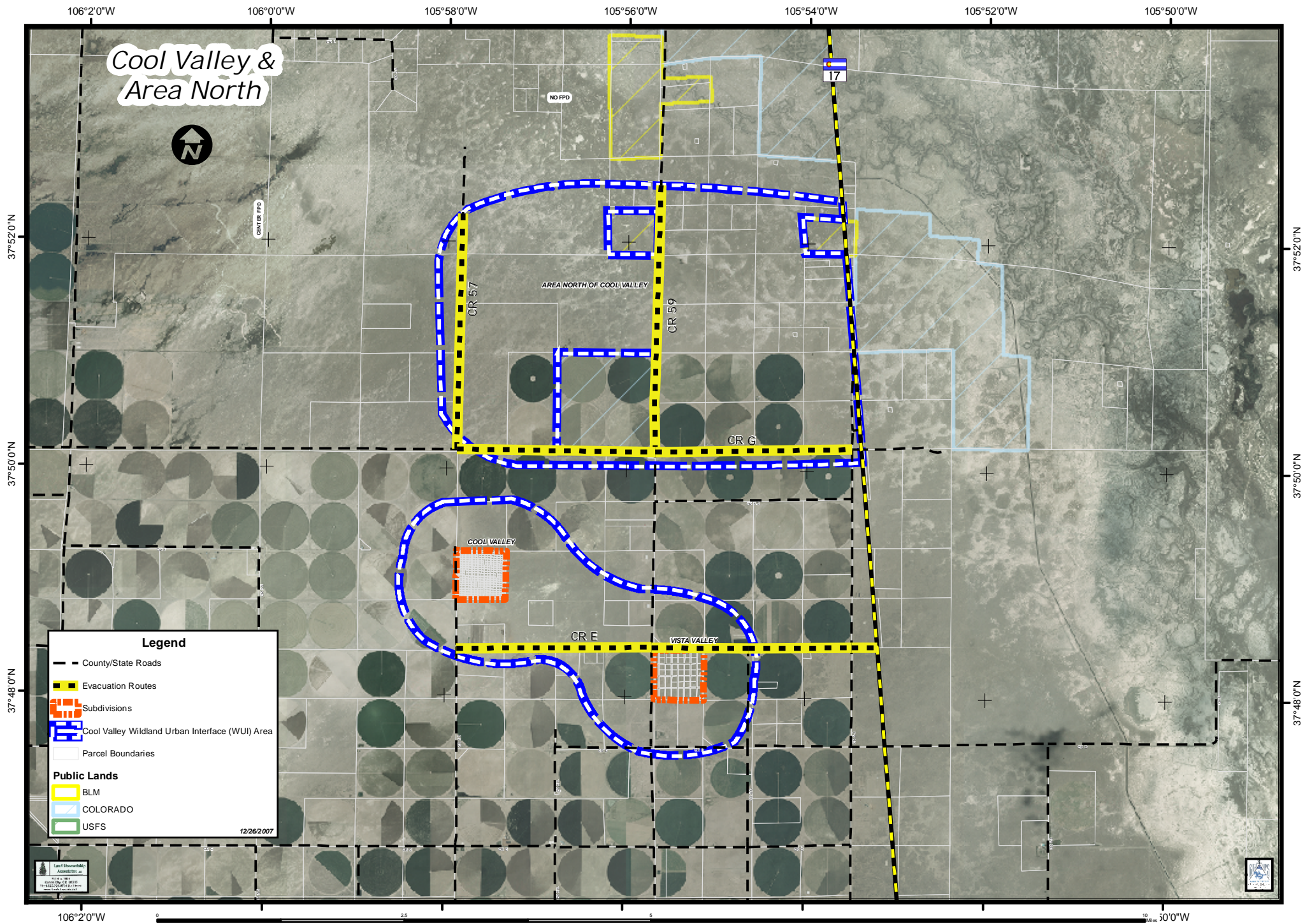














# Cool Valley & Area North - Fire Hazard



CENTER FPD

NO FPD

17

CR 57

AREA NORTH OF COOL VALLEY

CR 59

CR G

COOL VALLEY

CR E

VISTA VALLEY

## Legend

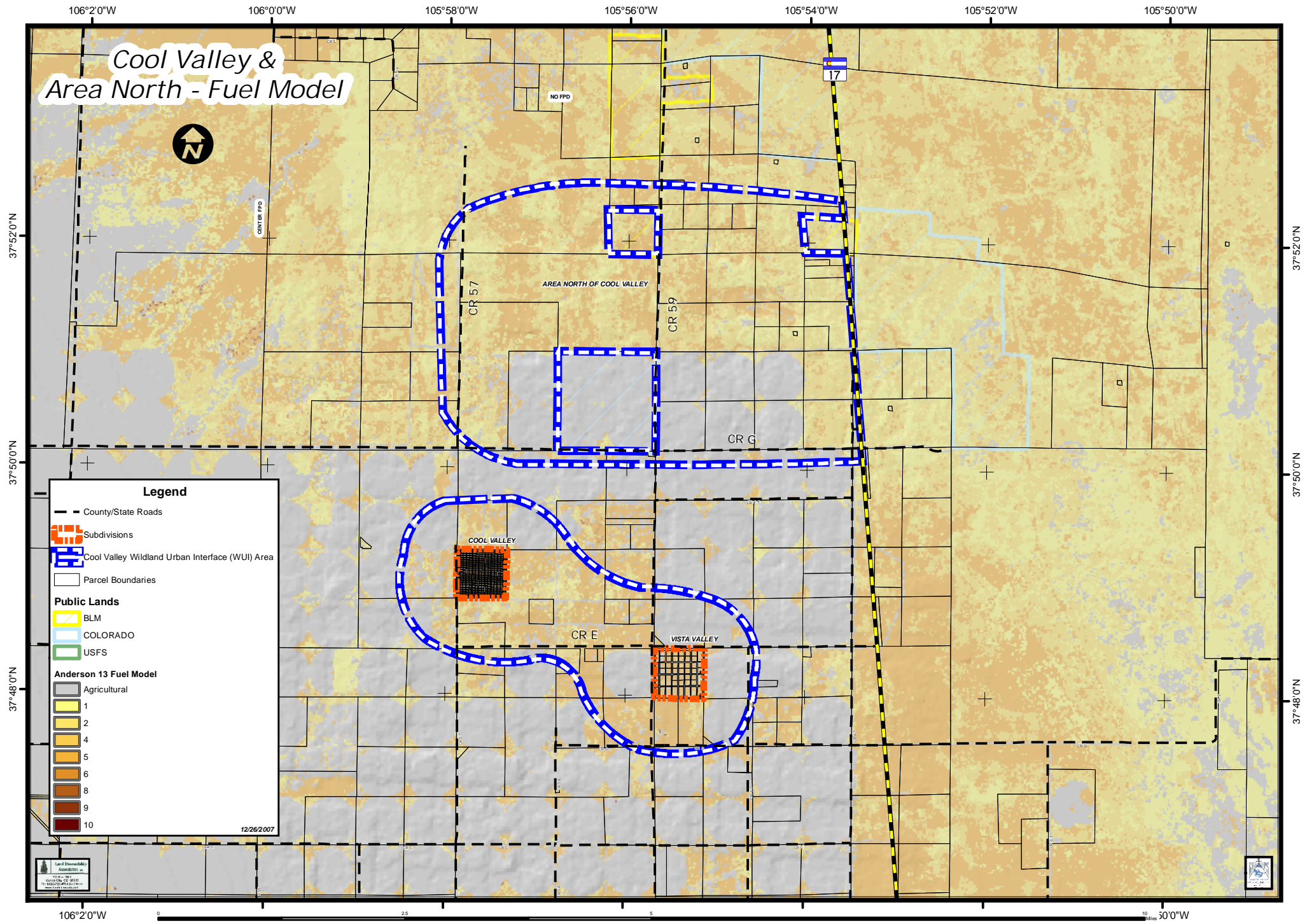
- County/State Roads
- Subdivisions
- Cool Valley Wildland Urban Interface (WUI) Area
- Parcel Boundaries
- Public Lands**
  - BLM
  - COLORADO
  - USFS
- Fire Hazard**
  - Low
  - Medium
  - High

12/26/2007

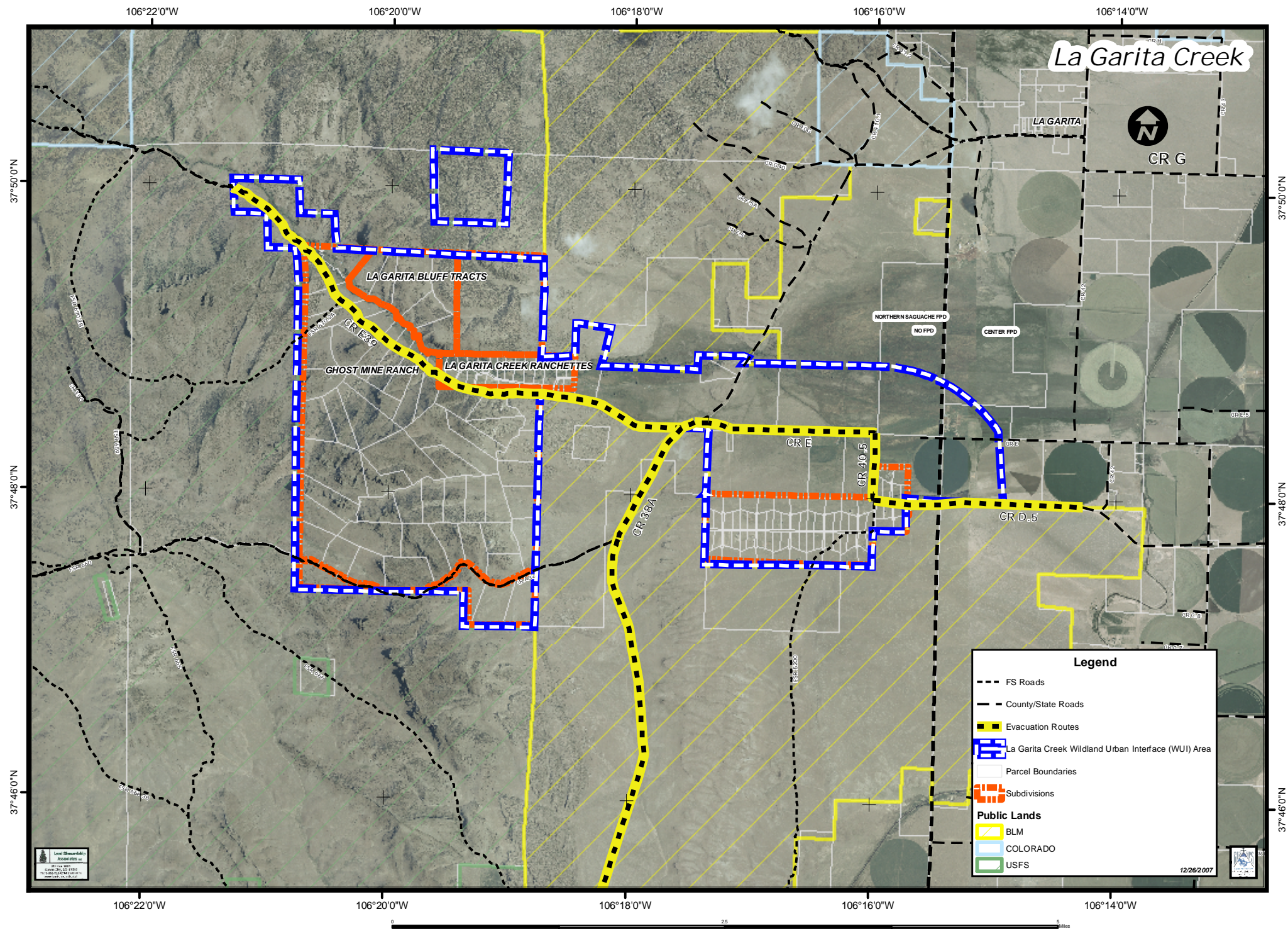


106°2'0"W 0 2.5 5 10 30'0"W

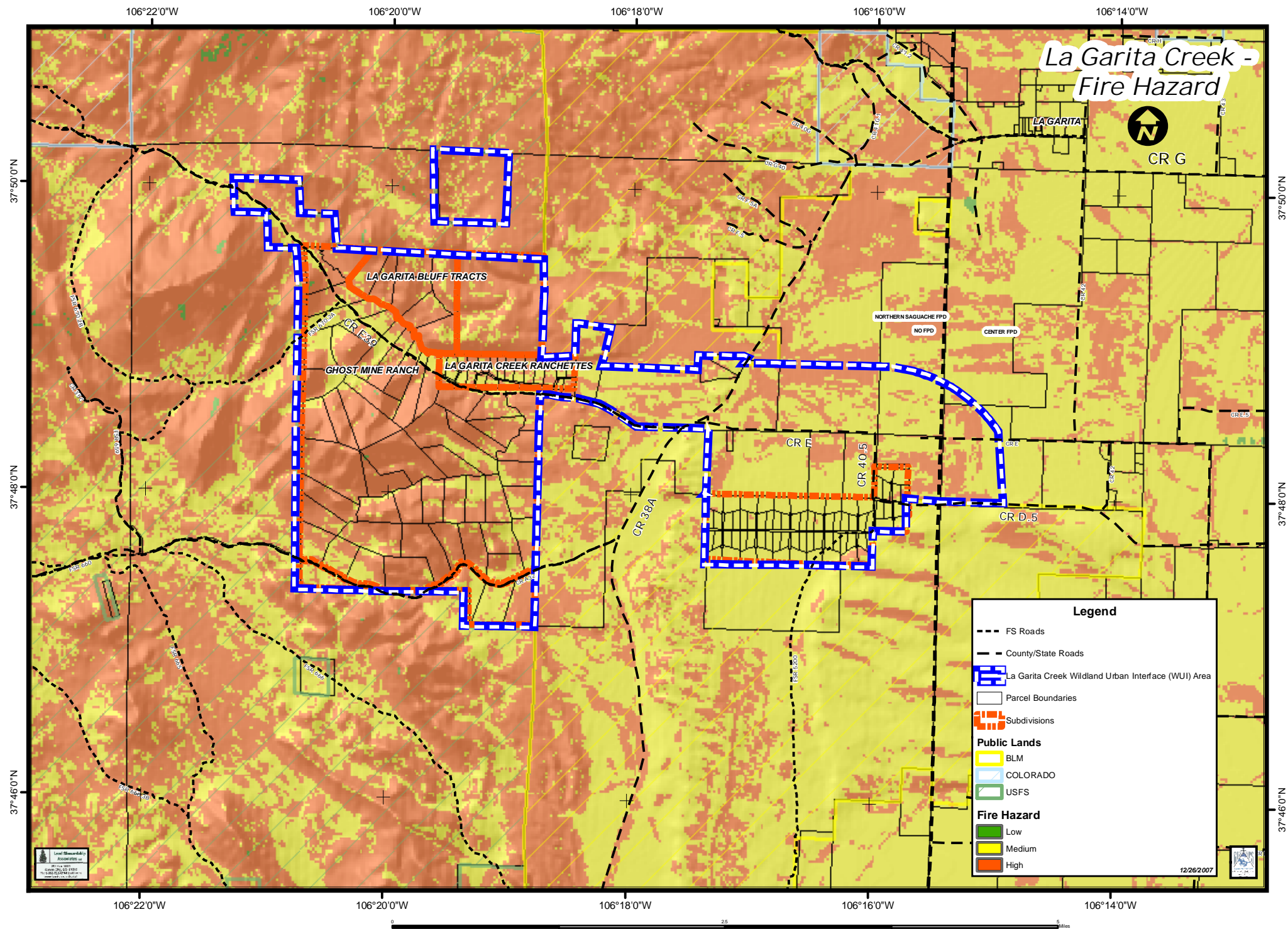
# Cool Valley & Area North - Fuel Model

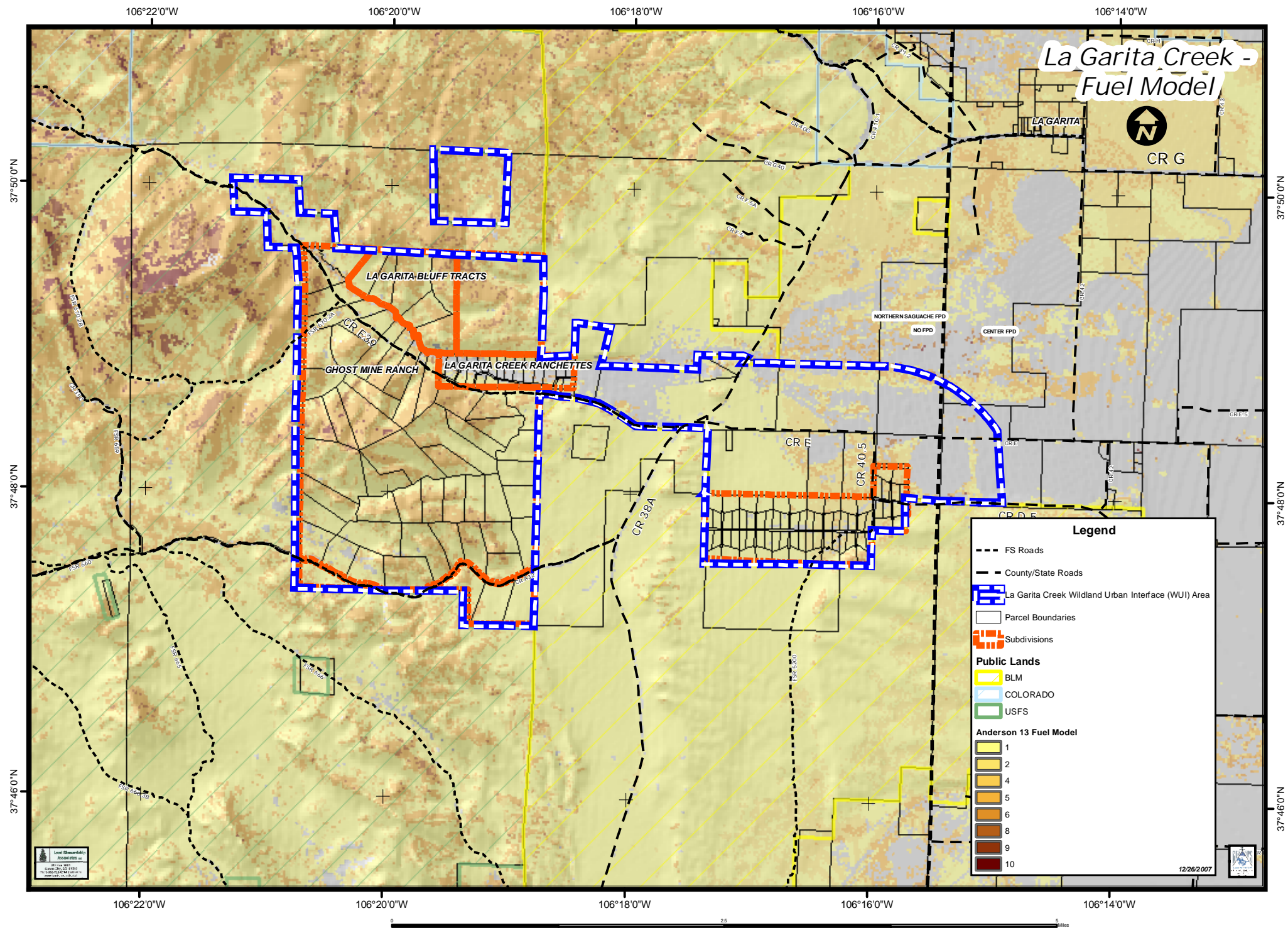














## **APPENDIX B – Fuel Model Descriptions**

The primary fuels within the Center Fire Protection District (FPD) are forested land, shrub areas and grasslands. The area is dominated by irrigated farmlands or high desert chico on the Valley floor and transitions to pinyon pine forest along the foothills. Ponderosa pine/Douglas-fir/aspen montane forests cover the mid-slope while Engelmann spruce and alpine meadows are found at the higher elevations. Ponderosa pine/Douglas-fir forests are generally dense enough to sustain a substantial crown fire resulting in a high fire risk.

### **Fuel Model 1**

Fire spread is governed by the fine, very porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through the cured grass and associated material. Very little shrub and timber is present, generally less than one third of the area.

### **Fuel Model 101**

Is also a grass fuel model but it has much sparser and shorter grass than a typical Fuel Model 1.

### **Fuel Model 2**

Fire spread is primarily through the fine herbaceous fuels, either curing or dead. These are surface fires where the herbaceous material, in addition to litter and open sagebrush contribute to the fire intensity. Open shrub lands that cover one-third to two thirds of the area may generally fit this model; such stands may include clumps of brush that generate higher intensities and that may produce firebrands.

### **Fuel Model 6**

Fire spread is primarily through dense shrubs with juniper and pinyon pine that ranges in height from 6 to 15 feet. There are occasional pockets of debris distributed throughout the unit. Fires require moderate winds, greater than 8 mph at mid flame height. Fire will drop to the ground at low wind speeds, if there is no ground slash, or at openings in the stand.

### **Fuel Model 9**

Fires run through the surface litter faster than model 8 and have longer flame height. Concentrations of dead-down woody material will contribute to possible torching out of trees, spotting and crowning. The pure stands of aspen represent this model. In the fall, after the associated grass and forbs have cured, this fuel will burn more intensely and is temporarily more of a threat.

## **APPENDIX C – Fuel Hazard Reduction Guidelines**

### ***MINIMUM TREE SPACING – RULE OF THUMB***

***Strive to reduce crown density to 40% or less.***

**Ponderosa Pine/Douglas Fir: Convert stem diameter from inches to feet and add 7 more feet.**

**Example:** A Ponderosa Pine 8” in diameter at DBH will have a spacing of 8 feet plus 7 feet for a total of 15 feet to the next tree.

Tree spacing does not necessarily need to be even. In fact, the fuel treatment area will look more natural if the spacing varies and small clearings are intermingled with small groups of trees. The important focus should be on breaking up fuel continuity – both horizontally and vertically.

If trees are very tall in relationship to their diameters, implement the thinning work over a long enough time to allow the standing trees to develop their wind firmness and resistance to snow bend. Thinning when trees are small helps reduce prevent these vulnerabilities. Thinning in patches and designing the thinning to minimize wind effect can be done depending on location. All of these can be used but can best be accomplished with the assistance of an experienced forester.

An important part of fuel hazard reduction is removal of the ladder fuels; particularly when adequate thinning cannot be accomplished. Therefore, the following is important to do within a timber canopy.

- ✓ Prune trees to 6 or 10 feet above the ground, depending on slope, leaving at least 1/3 live tree crown
- ✓ Remove tree reproduction from under the canopies of remaining trees
- ✓ Remove sagebrush, oak or any other flammable brush from under the canopies of remaining trees. Reduce the size and height of remaining clumps of brush
- ✓ Remove all dead forest debris within defensible space and fuelbreak areas.
- ✓ Reduce concentrations of dead forest debris within other areas
- ✓ Remove trees recently killed by mountain pine beetle\* or other disturbances within defensible space and fuelbreak areas.

- ✓ Reduce numbers of trees recently killed by mountain pine beetle\* or other disturbances in other areas. Only 1 to 3 dead trees per acre are needed for wildlife habitat purposes

**\*Note:** *Proper slash disposal procedures should be implemented to avoid attracting Mountain Pine or other bark beetles to the project area.*



## **APPENDIX D – Evacuation Planning Guidelines**

### **Background**

The growth of urban development in forested wildland areas in recent years has resulted in a potentially hazardous situation. People are attracted to forested areas seeking solitude and to escape the pressures of everyday life. Large land holdings have been subdivided into small, affordable acreages for cabin sites or remote homes. The new generation of small lot landowners value individual trees and have often built their cabins under the cover of or within these overstocked forests. Cabins are constructed on prominent points or ridge tops for the view or they are tucked into the forest canopy seeking solitude. In order to minimize the impact of their presence on the land driveways are often narrow with inadequate opportunities to turn around at the building site. At the same time, wildfires have been aggressively suppressed allowing dead fuels to accumulate to alarming levels and young trees to establish in high densities. These ladder fuels provide a “leg up” for a wildfire to burn into the tree crowns and move rapidly under windy conditions. Little attention has been paid by landowners to the potential destructive capacity of an uncontrolled wildfire.

In an emergency wildfire situation that threatens the lives and property of residents in the area, the Center Fire Protection District, in consultation with the county sheriffs, fire suppression teams and land managing agencies, may recommend that residents evacuate to a safe area. Prior evacuation planning is essential to implement this action effectively.

By definition, evacuation is a protective action—moving people from a place of danger to a place of relative safety. It is a temporary mass movement of people that collectively emerges in coping with threats to area residents and visitors.

An Evacuation Plan will facilitate the orderly evacuation during an emergency wildfire situation. Step by step actions provide critical information and guidance for fire suppression and law enforcement personnel during an emergency situation. Each subdivision, home site development area or land owner association should be strongly encouraged to develop an evacuation plan for their area that identifies potential evacuation routes and critical information (locked gates, inadequate bridges, etc) for a variety of wildfire threat scenarios.

### **Critical Contacts**

Saguache County Sheriff	719-655-2525
Saguache County Emergency Manager	719-588-4527
Colorado State Patrol	719-589-5807
Colorado State Forest Service	719-587-0915
Colorado Division of Wildlife	719-587-9600
Rio Grande National Forest, Saguache Ranger District	719-655-2547
Pueblo Interagency Fire Center/Fire Dispatch Center	719-553-1600
	719-553-1613
Federal Emergency Management Agency	303-235-4900
Local News Media     KSLV   Radio	719-852-3581
KGIW   Radio	719-589-6644
KRZA   Radio	719-589-8844

## **APPENDIX G – Road and Driveway Specifications for Emergency Access**

### **Roads serving one dwelling unit shall meet the following:**

- A. Roadway shall be a total of 14' in width, including a 10' all-weather travel surface and 2' shoulders (each side). Curves and turn a rounds should have a minimum of a 30' radius at centerline.
- B. Road grade should generally not be over 7 percent. A maximum grade 10 percent to 12 percent grade would be acceptable for short distances not over 150 feet.
- C. If the driveway is less than 50' the above (A and B) do not apply.
- D. If the length of the road exceeds 150', a turnaround shall meet (template 1 or 2) standards.

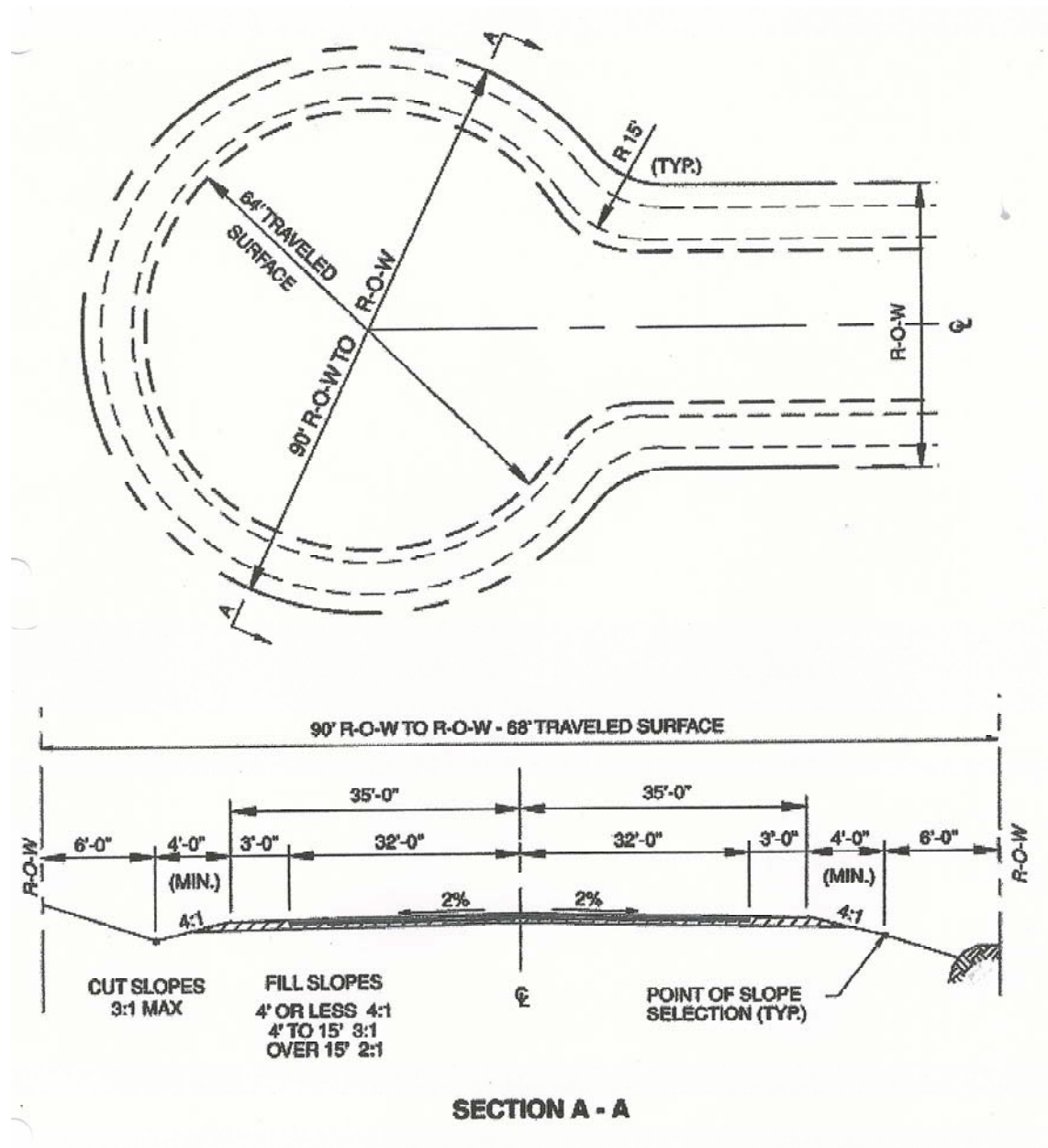
### **Roads serving more than one dwelling shall meet the following:**

- A. Roadway shall be a total of 20' in width, including a 16' all weather travel surface and 2' shoulders (template 3) to 16 units, or a total width of 14', including a 10' travel surface, with 2' shoulders on either side and pullouts at 150' intervals in accordance with (template 4).
- B. A total roadway width of 24', including an 18' paved surface and 3' shoulders in accordance with (template 3) for roads serving 16 or more dwellings, or one or more non-residential units.
- C. Grades shall be the same as for one dwelling roads/driveway identified above.
- D. If the length of the driveway is less than 50' then A and B above does not apply.
- E. If the length exceeds 150', a turnaround shall be provided in accordance with (template 1 or 2).

### **Driveway approaches and private road intersections with public roads shall meet the following:**

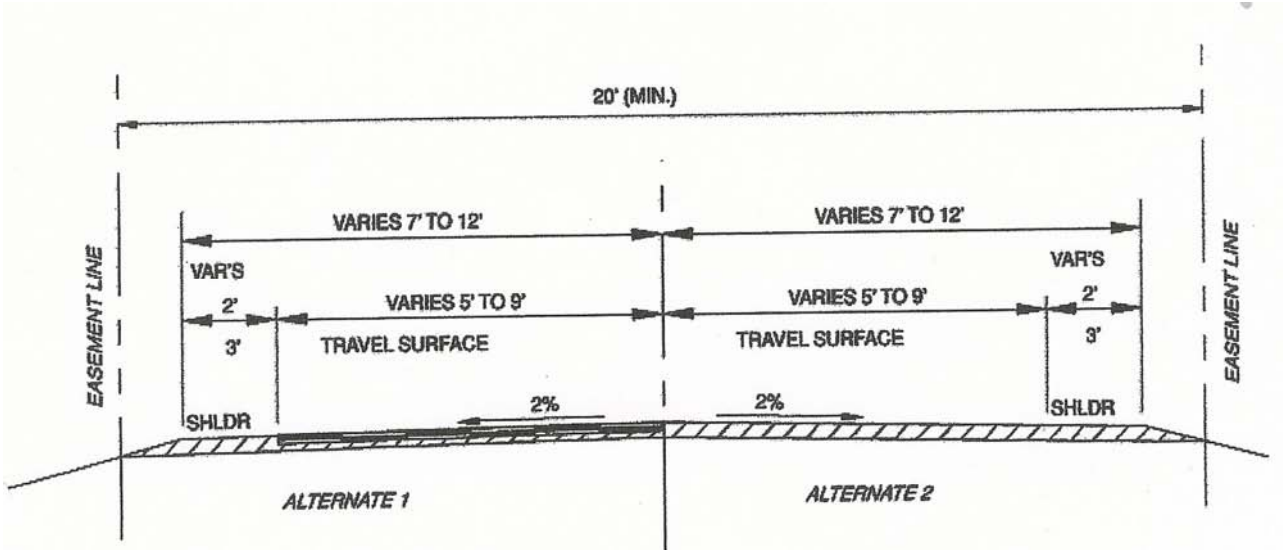
- A. Driveway approaches and private road intersections with public roads must comply with (template 5).

# TEMPLATE 1 – Cul-de-sac

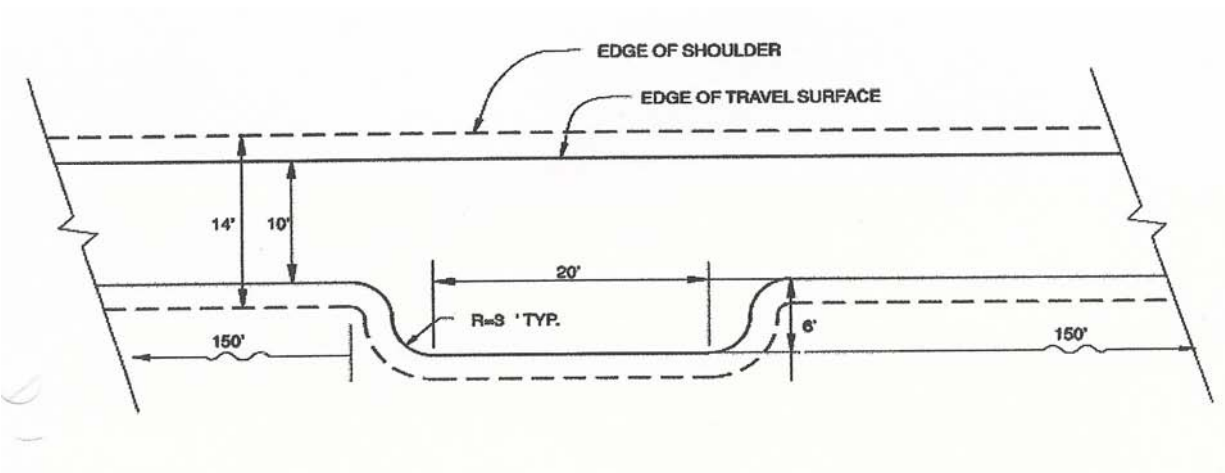


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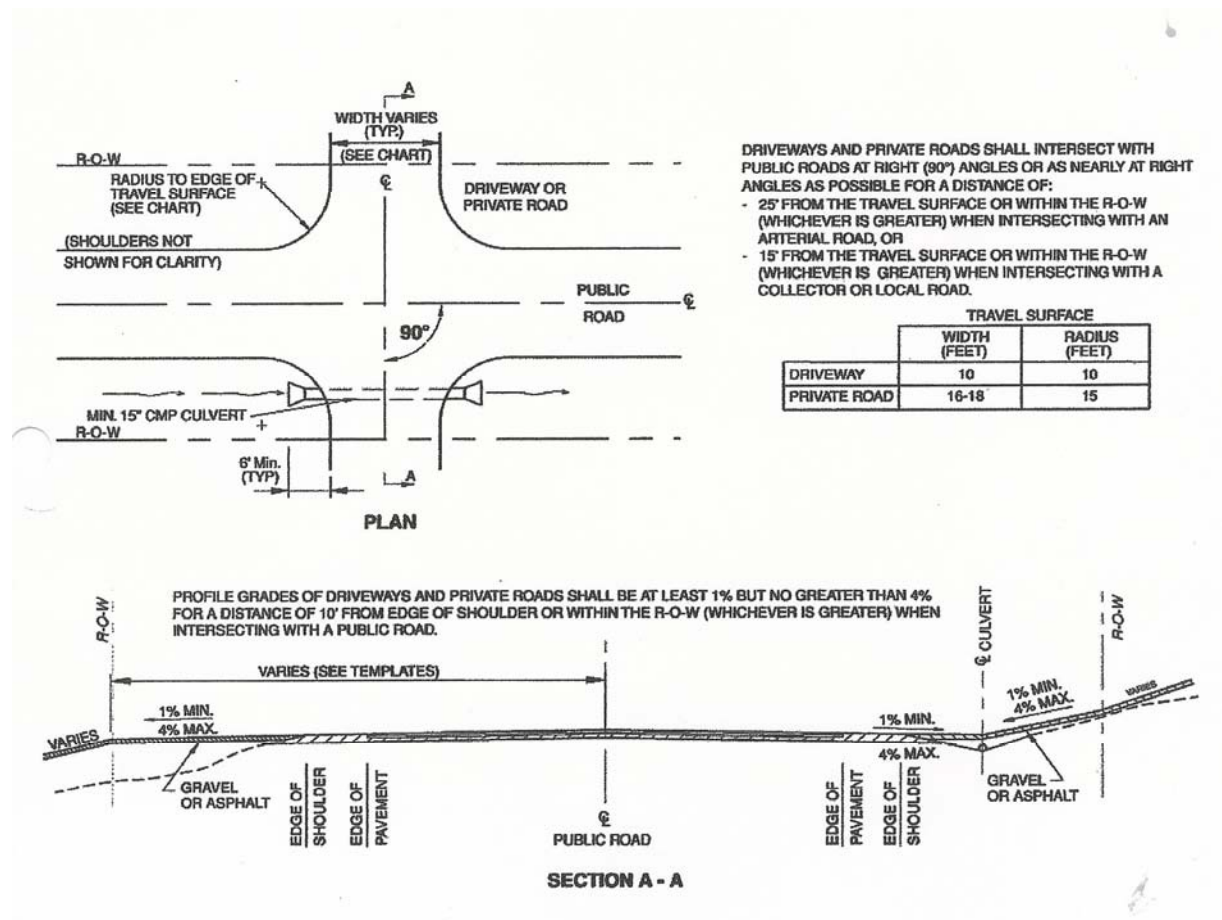
### TEMPLATE 3 – Private Road



### TEMPLATE 4 – Pull Out for Private Road



## TEMPLATE 5 – Driveway Approaches for Roads



	KSPK Radio	719-589-2666
Red Cross		719-589-4567
Local Towing Services	Center	719-754-3963
Great Sand Dunes National Park		719-587-0916

### **Check List When Potential for Evacuation Exists**

- 1) Close back country roads and trails at trail heads
- 2) Post on bulletin boards information regarding fire danger
- 3) Set up a local Information Center where residents and visitors can access up-to-date information and status regarding wildfires that pose a threat to the area
- 4) Provide routine updates on wildfire conditions for local radio and television stations as the threat increases
- 5) When the fire suppression team and land managing agencies (US Forest Service and Colorado State Forest Service) believe evacuation may become necessary, notify the Saguache County Sheriff and County Emergency Manager
- 6) Fire suppression team and land managing agency managers should meet and coordinate with the Sheriff and County Emergency Manager to decide if an evacuation is necessary. The decision to evacuate should be made and implemented well before the evacuation needs to be complete. Local conditions and the fire's rate of advance will dictate timing and trigger points
- 7) The Sheriff, after consultation with the land managing agencies and County Emergency Manager makes the decision to evacuate the threatened area and implements the actual evacuation
- 8) Notify residents and visitors of the Order to Evacuate
  - Siren to alert visitors in the back country Law enforcement patrol vehicles with public address systems announce evacuation order
  - House-to-house verification that threatened home site developments are completely evacuated
  - Law enforcement vehicles and ATVs drive back country roads and trails to assure evacuation
  - Use one color flagging to mark secondary roads/trails at their junction with the primary road (evacuation route) when notification is in progress then change to another color when verification is complete on that road/trail.
- 9) Drive evacuation routes installing free standing traffic control signs at key road intersections and opening locked gates or cutting fences to allow exit.
- 10) CSFS notify Federal Emergency Management Agency (FEMA)
- 11) Notify Colorado State Patrol Assign law enforcement to direct traffic at critical road junctions

The officer in charge of the evacuation will make the decision regarding which evacuation route to use at the time. Depending on the situation the decision may be to use any or all of the routes to evacuate the threatened area.

### **Emergency Evacuation Routes**

Primary emergency evacuation routes are suggested but should be validated with landowners and land management agencies involved prior to the onset of an emergency need for evacuation. These primary evacuation routes should provide multiple opportunities for evacuating traffic to exit the area. Hazardous fuel concentrations should be treated along primary evacuation routes by creating shaded fuelbreaks to reduce canopy cover to 40 percent or less and treat slash and combustible debris within 200 to 300 feet of either side of the road. Tributary roads should be identified in local developments and treated similarly to facilitate a safe and orderly evacuation.

WUI COMMUNITY	WAYS IN & OUT	ROAD IDENTIFIERS
Carnero Creek	2	CR 41G north or south, CR 38A to CR G to Hwy 17
Cool Valley North	2	CR 57, CR 59 to CR G to Hwy 17
Cool Valley	1	CR E to Hwy 17
La Garita Creek	2	CR 39 to CR 38A, CR D.5 to CR40.5 to CR E to CR 38A south



## **Estimated Time to Implement an Evacuation**

The decision to evacuate a threatened area must be made well in advance of the time the fire is expected to threaten residents, visitors and facilities.

## **Fire Behavior and Evacuation Timing**

Spread Component (SC) is the key fire danger component to monitor. The spread component is a numerical value derived from a mathematical model that integrates the effects of wind and slope with fuel bed and fuel particle properties to compute the forward rate of spread at the head of the fire. Output is in units of feet per minute. A spread Component of 31 indicates a worst-case, forward rate of spread of approximately 31 feet per minute.

The inputs required in to calculate the SC are wind, slope, fine fuel moisture (including the effects of green herbaceous plants), and the moisture content of the foliage and twigs of living, woody plants.

Since characteristics through which the fire is burning are so basic in determining the forward rate of spread of the fire front, a unique SC table is required for each fuel type.

When considering spotting, the rich diversity of fuel types scattered throughout the County, and the likelihood of wind, it may be prudent, when fire danger is Very High, to consider starting an evacuation process when fires are burning within 10 miles of down-wind subdivisions or home site development areas (urban interface area). Knowing the SC for the most prevalent fuel type between where the fire is and where the home site developments are can best refine this judgment call. With a SC of 44 a fire will cover 2 miles or more within 4 hours. If the SC is 22 the fire will cover at least one mile within 4 hours and 2 miles within 8 hours. If the SC is 11 the fire will cover two miles within 16 hours. If the SC is 5 the fire can cover two miles within 32 hours.

Remember the lessons of some Colorado fires:

- The Buffalo Creek Fire ran nearly eleven miles in 4.5 hours
- The Hayman Fire ran at least 16 miles in one afternoon

## **Timing**

Evacuation planning needs to take into account how long it will take to notify residents that an evacuation is necessary, how long it will take for them to get ready and start driving out of the area and then how long it takes to actually drive to a safe area. This determination should be made locally for each development area or subdivision and then validated before it is used during an emergency.

Every situation will be different but it is reasonable to estimate the minimum time required to be no less than 4 hours to complete the process. As much as three hours may be required to notify residents and visitors and get them started moving and another hour to get everyone out of the area. Residents and visitors closest to the advancing threat should be notified first. Once they are driving out of the area it will take them up to an hour in most cases to exit the area if traffic is flowing at a rate of 10 to 20 miles per hour.

Driving time should be measured on each of the potential evacuation routes by driving at a conservative speed depending on road conditions and how many people are expected to be evacuated to approximate how long it would take to drive the route during an evacuation providing traffic was moving at about that rate. The following table displays the type of information that needs to be incorporated in the Evacuation Plan.

### **Travel Time for Evacuation Routes**

Beginning Point	Ending Point	Time Required	Miles Traveled	Average Speed

**GPS Locations for Critical Features and Facilities** – This table provides GPS coordinate locations for critical points referred to.

Feature	GPS Location

### **Recommendations**

- Negotiate agreements with neighboring private land owners and land managing agencies to allow evacuation across their property on their roads and through their locked gates.
- Negotiate an agreement to thin fuels along the evacuation route between the subdivision or home development area and safe areas.
- Upgrade roads on evacuation routes by widening curves, providing water bars to prevent erosion and thinning fuels along these emergency exits.
- Construct and store freestanding “Fire Exit Directional Signs” or “Evacuation Route” for use in marking evacuation routes.
- Develop a specific evacuation procedure and assign responsibilities to County staff.

## **APPENDIX H – Saguache County Triage**

### **STRUCTURE TRIAGE**

**Triage** is the determination of priorities for action during an emergency. This describes a concise decision making process that will be used if/when a wildfire threatens multiple structures simultaneously within Saguache County. It will be done rapidly and on the move.

**Structure:**

Roof Type?  
Debris on Roof?  
Propane Tank?

Siding?  
Fire Brand Traps?  
Flammable Clutter?

**Defensible Space:**

Is There Any?  
Water Supply?

Adjacent Fuel Type ?  
Access?

**Current & Expected Fire Behavior?**

**Available Firefighting Resources?**

**Firefighter Safety:**

Escape Routes?

Safety Zones ?

Quickly determine the status of each threatened structure and make decisions!

Clearly communicate the priorities and firefighter evacuation criteria!

Be ready to live with your decisions, they will be second guessed after the threat is over.

**Your first priority is to live to fight fire another day!!**

# SUBDIVISION FIRE HAZARD RATING

NAME \_\_\_\_\_ DATE \_\_\_\_\_  
 SIZE (acres) \_\_\_\_\_ # LOTS or HOMES \_\_\_\_\_  
 RATING \_\_\_\_\_ COMMENTS \_\_\_\_\_

## A. Home Site Development Area Design

1. Ingress/Egress
  - Two of more primary roads 1\_\_
  - One road 3\_\_
  - One-way in, one-way out 5\_\_
2. Width of primary road
  - 20 feet or more 1\_\_
  - 20 feet or less 3\_\_
3. Accessibility
  - Road grade 5% or less 1\_\_
  - Road grade 5% or more 3\_\_
4. Secondary road terminus:
  - Loop roads, cul-de-sacs with outside turning radius of 45 feet or greater. 1\_\_
  - Cul-de-sac turn-around radius less than 45 feet. 2\_\_
  - Dead-end roads 200 feet or less in length 3\_\_
  - Dead-end roads greater than 300 feet in length. 5\_\_
5. Average lot size:
  - 10 acres or larger 1\_\_
  - Larger than 1 acre, but less than 10 acres. 3\_\_
  - 1 acre or less 5\_\_
6. Street Signs:
  - Present 1\_\_
  - Not Present 5\_\_

## B. Defensibility

1. Fuel Load Between Home Sites:
  - Light 1\_\_
  - Medium 5\_\_
  - Heavy 10\_\_
2. Defensible Space for Individual Homes:
  - 70% or more of sites 1\_\_
  - 30 % or more of sites 3\_\_
  - Less than 30 % of sites 5\_\_

## C. Home Ignition Zone

- Thorough Litter and Debris Clean Up:
- 70% or more of sites 1\_\_
  - 30% to 69% of sites 4\_\_
  - 10% to 29% of sites 7\_\_
  - 0% to 9% of sites 10\_\_

## D. Roofing Materials (prevalent within area)

- Class A rated (metal) 1\_\_
- Class B rated (composition) 3\_\_
- Class C rated (wood) 5\_\_
- Non-rated (pine needles & debris) 10\_\_

## E. Fire Protection - Water Source

- 500 GPM hydrant within 1000 ft. 1\_\_
- Hydrant farther than 1000 ft or draft site. 2\_\_
- Water source 20 minutes or less (round trip) 5\_\_
- Water source farther than 20 minutes, and 45 minutes or less round trip. 7\_\_
- Water source farther than 45 minutes round trip 10\_\_

## F. Existing Building Construction Material (most common within subdivision)

- Noncombustible siding/decks 1\_\_
- Noncombustible siding with combustible decks 5\_\_
- Combustible siding and decks 10\_\_

## G. Utilities (gas and/or electric) (most common within subdivision)

- All underground utilities 1\_\_
- One underground, one above ground 3\_\_
- All above ground 5\_\_

## Total For Area

=====

Rating Scale:     Moderate Hazard     40 - 54  
                          High Hazard         55 - 74  
                          Extreme Hazard      75+

## **APPENDIX I–Subdivision Fire Hazard Ratings**

## APPENDIX J – Definition of Terms

**Appropriate Management Response (AMR)** - Specific actions taken in response to a wildland fire to implement protection and fire use objectives identified by appropriate government agency. AMR allows for a full range of strategies to be applied, from an intense full suppression response to wildland fire use. The first response decision to be made is whether to have a suppression oriented response or to allow the fire to burn for predetermined benefits.

**Confinement Response-** The suppression-orientated strategy employed in appropriate management response where a fire perimeter is managed by a combination of direct and indirect actions and use of natural topographic features, fuels, and weather factors. These strategies and tactics could include perimeter control.

**Defensible Space-** Area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire towards the structure. It also reduces the chance of a structure fire moving from the building to surrounding forest. Defensible space provides room for firefighters to do their jobs.

**Disturbance-** A discrete event, either natural or human induced, that causes a change in the existing condition of an ecological system.

**Energy Release Component (ERC)** - An index developed through the National Fire Danger Rating System. ERC then is an indicator of dryness in the fuel, is a fuel loading based rate that predicts how much energy f fire will produce both from its consumption of available fuel and through its residence time. ERC, and 1000 hour time lag fuel moisture has been used in dry climates to track seasonal drying trends.

**Escape Fire Situation Analysis (EFSA)** - If a wildfire has escaped initial attack EFSA is the process the agency administrator or acting uses to determine the best suppression strategy for achieving appropriate suppression that best meets resource objectives.

**Fire Management Plan (FMP)** - A strategic plan that defines a program to manage wildland and prescribed fires. The plan could be supplemented by operational plans, prescribed fire plans, hazardous fuels reduction, and prevention plans.

**Fire Use** - The combination of wildland fire use and prescribed fire application to meet specific resource and landowner objectives.

**Fuel Treatment** - Programmed and contracted to reduce or change fuel loading or type on a site. Can be accomplished by mechanical, chemical or fire use.

**Full Response** - A suppression response action that can include: control lines surrounding the entire perimeter, (hot spot and cold trail may be considered completed line) including any spot fires, protection of interior islands, burn-out of fuels adjacent to control lines and mop-up to a standard adequate to hold under high fire intensity conditions. Full response objectives are based on safe yet aggressive approach to achieve containment of the fire by the beginning of the next burn period. Fire behavior may dictate, at least temporarily, the utilization of natural barriers or indirect strategies. These strategies and tactics would include direct control.

**Haines Index** - Lower atmosphere stability index (LASI) developed by Donald Haines. The index relies on two variables: dryness and stability/instability. On a scale of six, three points are given to dryness and three to the stability or instability of the atmosphere. Both these variables have a pronounced affect on extreme fire behavior. In the scaling, a 6 is extreme, 5 are high, 4 are moderate, while 3 to 1 are low.

**Initial Attack** - An aggressive suppression action consistent with firefighter and public safety and values to be protected.

**Initial Management Area (IMA)** - The size of an IMA may be adjusted based on fire behavior predictions, weather forecasts, site analysis and risk assessment. The IMA becomes fixed as an MMA once a wildland fire is placed under a stage III implementation plan.

**Insurance Services Office (ISO) Rating** - An overall fire services rating developed for use in determining insurance premiums for residential and commercial property. Factors such as fire alarm systems, equipment, training, availability of water (hydrants), etc. are used to develop the rating. The rating is on a scale of class 1 to class 10, with 1 providing the best public protection and 10 providing the lowest public protection. See [www.iso.com](http://www.iso.com) for more details.



**Maximum Management Area (MMA)** - The firm limits of management capability to accommodate the social, political, and resource impacts of a wildland fire. Once an approved Wildland Fire Use plan is established the MMA is fixed and not subject to change. If MMA determination is exceeded, the fire will follow the Wildland Fire Situation Analysis (WFSA) process.

**Mitigation Actions** - Those on-the-ground activities that will serve to increase the defensibility of the Maximum Manageable Area (MMA); check, direct, or delay the spread of fire, and minimize threats to life, property, and resources. Mitigation actions may include mechanical and physical non-fire tasks, specific fire applications, and limited suppression actions. These actions will be used to construct fire lines, reduce excessive fuel concentrations, reduce vertical fuel, and create black lines.

**POL** – Stands for “Products Other than Logs” thinning to harvest poles and posts and firewood.

**Polygon** - A planning sub-unit within a fire planning area that represents similar resource values and landowners objectives, fuel conditions with associated fire behavior, Social/Political concerns and economic considerations. Polygons are categorized as A, B, C, and D areas.

**Preparedness** - Activities that lead to a safe, efficient, and cost-effective fire management program in support of land and owners management objectives through appropriate planning and coordination.

**Prescribed Fire** - Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist prior to ignition.

**Prescribed Fire Plan** - A plan required for each fire application ignited by management. It must be prepared by qualified personnel and approved by the appropriate agency administrator prior to implementation. Each plan will follow specific direction and must include critical elements and how to mitigate each element.

**Prescription Guidelines** - guidelines used to show upper and lower reaches of a prescription.

**Spread Component (SC)** - An index developed through the National Fire Danger Rating System. The index provides predicted rate of spread of a fire (in chains per hour) from inputted information on the fuel complex and weather information collected from a local Remote Automated Weather System (RAWS) site.

**Suppression Constraints** - A limitation placed on suppression forces to minimize adverse affects to the environment due to fire suppression activities. An example would be restricting the use of heavy equipment in certain areas.

**Suppression Oriented Response** - A range of responses to a wildland fire, which range from full response to confinement of the fire. It may also include periodically checking fire status and fire behavior.

**TSI** – Stands for “Timber Stand Improvement” thinning to stimulate growth and improve residual tree health

**Wildfire** - An unwanted wildland fire.

**Wildland Fire** - Any nonstructural fire, other than prescribed fire, that occurs in the wildland. This term encompasses fires previously called both wildfires and prescribed natural fires.

**Wildland Fire Implementation Plan (WFIP)** - A progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a wildland fire being managed for resource benefit.

**Wildland Fire Situation Analysis (WFSA)** - A decision-making process that evaluates alternative management strategies against selected safety, environmental, social, economic, political, and resource management objectives.

## **APPENDIX K – References and Publications**

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**Comment:** This should be 2005.

## **Appendix L: La Garita Open House 11/15/2007**

Twenty seven people gathered at the La Garita Trading Post on the afternoon of November 15<sup>th</sup>, 2007. They were very interested in the Center FPD CWPP and had plenty of thoughts about wildland fire and fire protection in general. Gerald Myers, 1<sup>st</sup> Assistant Chief for Center FPD, provided a wealth of information on establishing or joining a Fire Protection District. Mike Spearman, Saguache County Commissioner, provided some encouragement and background to the group.

Core Team members present included: Russell Brown – Chief, Gerald Myers – 1<sup>st</sup> Assistant Chief, Sid Hall – USFS and Jim Webb – LSA.

Most the interested parties had property outside the Center Fire Protection District. They were interested in survivable space and improving their overall fire protection situation.

Items mentioned during the meeting included:

- ✓ Fire station at La Garita
- ✓ Establishing a new Fire Protection District vs. petitioning to joining Center
- ✓ Staffing, training and operational aspects of fire protection districts.
- ✓ Cisterns or large tanks at homes for fire protection purposes
- ✓ Survivable space (how can they improve theirs)
- ✓ Road maintenance and improvement
- ✓ Radio and phone communications.

We will make sure that all these items are covered in the CWPP. You can anticipate a draft CWPP for you review by mid December.

Jim Webb  
11/19/07