Upper Snowmass Creek Caucus

Community Wildfire Protection Plan

2018

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Approvals

The Colorado State Forest Service has reviewed this Community Wildfire Protection Plan and approves its content and certifies it meets or exceeds Colorado State Forest Service Community Wildfire Protection minimum standards.

Reviewed By:

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Kamie Long, Colorado State Forest Service Date

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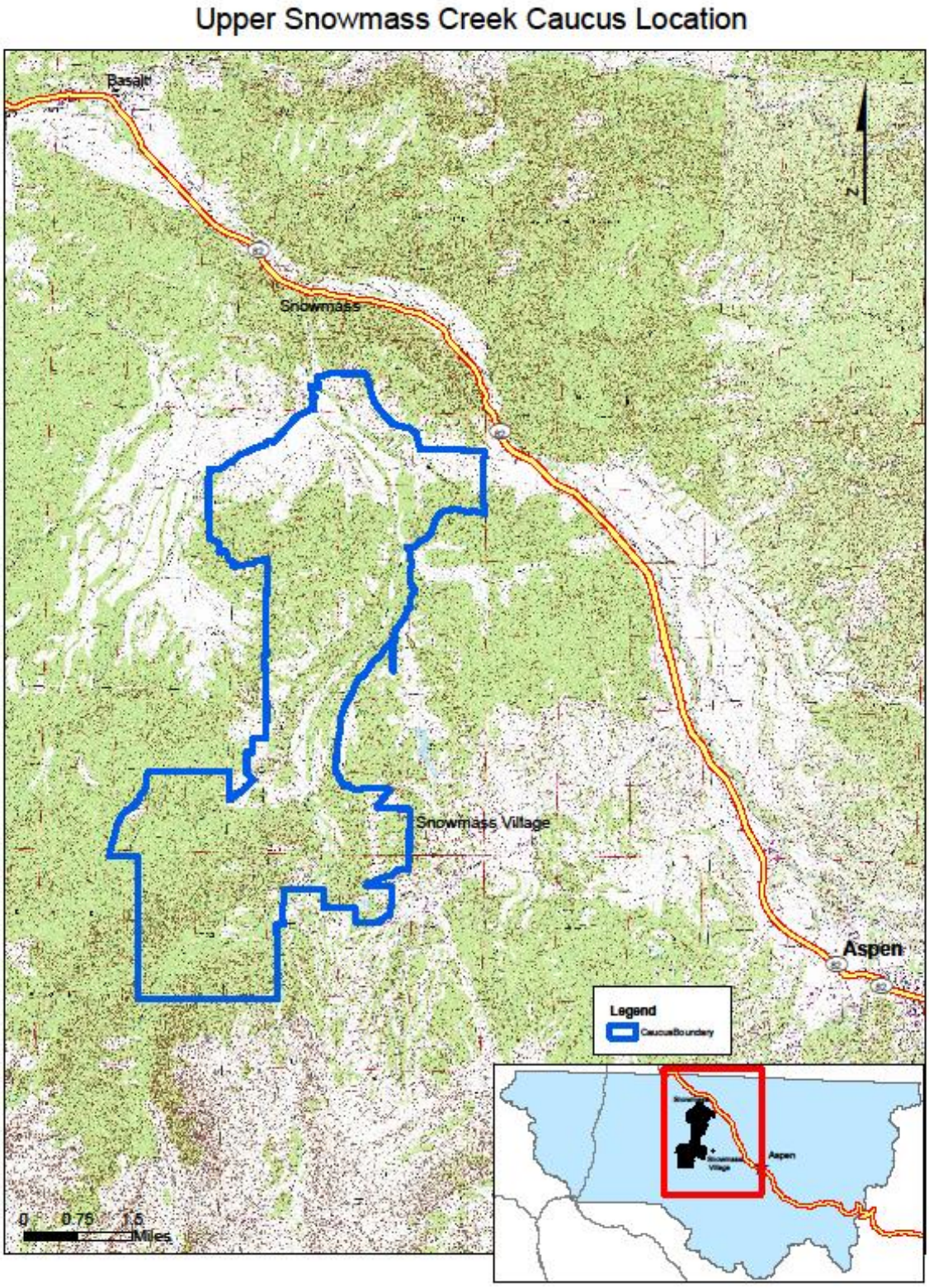
Background and History

The Upper Snowmass Creek Caucus (USCC) is located in Pitkin County, 1.25 miles south of Snowmass with access from US Highway 82, shown on Figure 1. The elevation ranges from 7,200 to 10,200 feet. Slope ranges from 10%-50%. The average annual high temperature for Pitkin County is 56 degrees Fahrenheit (F), with an average annual low of 28 degrees. The warmest months are June thru August where temperatures rise to the mid-80 degrees F. The average rainfall varies over the County, but the average rainfall per year is around 24 inches.

Vegetation across the USCC varies. The dominant vegetation in the northern portion of the USCC is dense mountain shrub species with scattered pinyon-juniper, sagebrush, grasses and forbs. The dominant shrub is Gambel oak. This area serves as winter range for both mule deer and elk. The southern portion of the USCC is comprised of mixed conifer forest and large aspen stands. Snowmass Creek runs the length of the USCC on the eastern boundary for over 8 miles. Ziegler Reservoir (12.35 acres), is located in southeastern part of the USCC and supplies Snowmass Village with water. This area is also important because it is the site of one of the most significant fossil discoveries in Colorado. The site contains both mammoth and mastodon fossils, as well as a sloth and a many other species.

Figure 1. Upper Snowmass Creek Caucus Location



The CWPP Area

This Community Wildfire Protection Plan (CWPP) covers the USCC. The total caucus area is 12,839.6 acres and consists of 204 parcels ranging in size from 0.2 acres to 978 acres. The caucus area includes several subdivisions: Shield O Mesa, Shield O Terrace, and Lazy O Ranch and Hidden Meadows. Parcels from Wildcat sub-divisions also fall within the area. Private parcels with homes have also been developed along Snowmass Creek. The area is also home to Aspen Camp, a year-round camp for youth, adults and families for those that identify as deaf, hard of hearing, deafblind, and more. Federal lands include the Bureau of Land Management and almost 3,000 acres of the White-River National Forest.

The area also includes parcels that are conservation easements and land trusts (Figure 2). Within Lazy O Ranch there is a 978 acre parcel set aside specifically as a Wildlife Conservation Area. Lazy O specifically outlines that motorized vehicles and recreational use is prohibited in the area during critical elk and deer migration periods (April 15-June 15 and October 1-December 15). Additionally, in areas where sagebrush areas where grasses and forbs have been overgrazed, seeding would occur. There are seven other conservation areas within the USCC held by Aspen Valley Land Trust and Open Space and Trails that comprise a total of 2,567.31 acres.

Table 1: Land Ownership in the Upper Snowmass Creek Caucus

Ownership	**Acres**	**Percent of Total**
Private	9,314.6	72.5%
Bureau of Land Management	583.5	4.5%
US Forest Service	2,941.5	23%
Total Acres	**12,839.6**	

Figure 2. Conservation Areas and Open Space

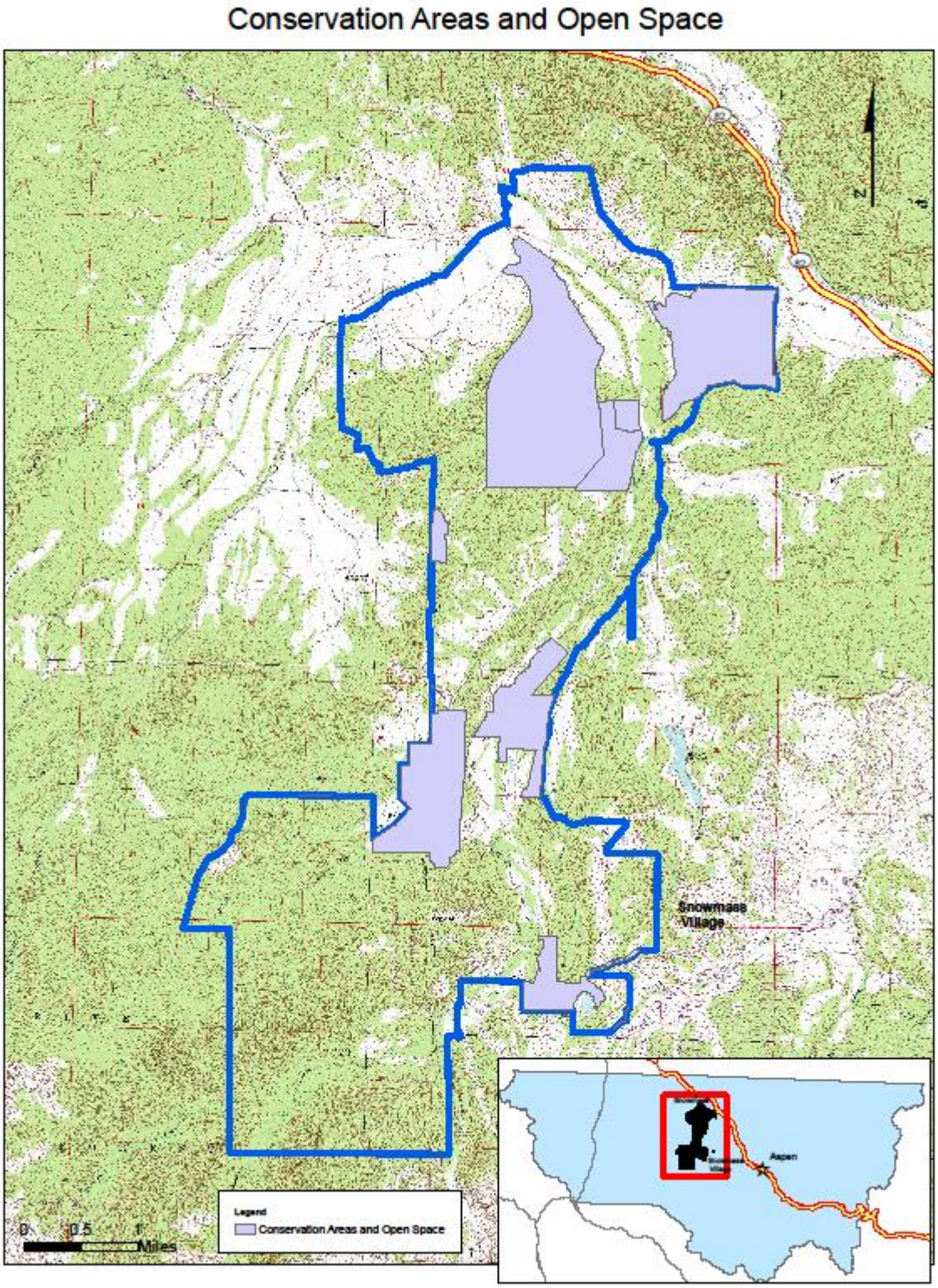


Figure 3. Ownership within the USCC

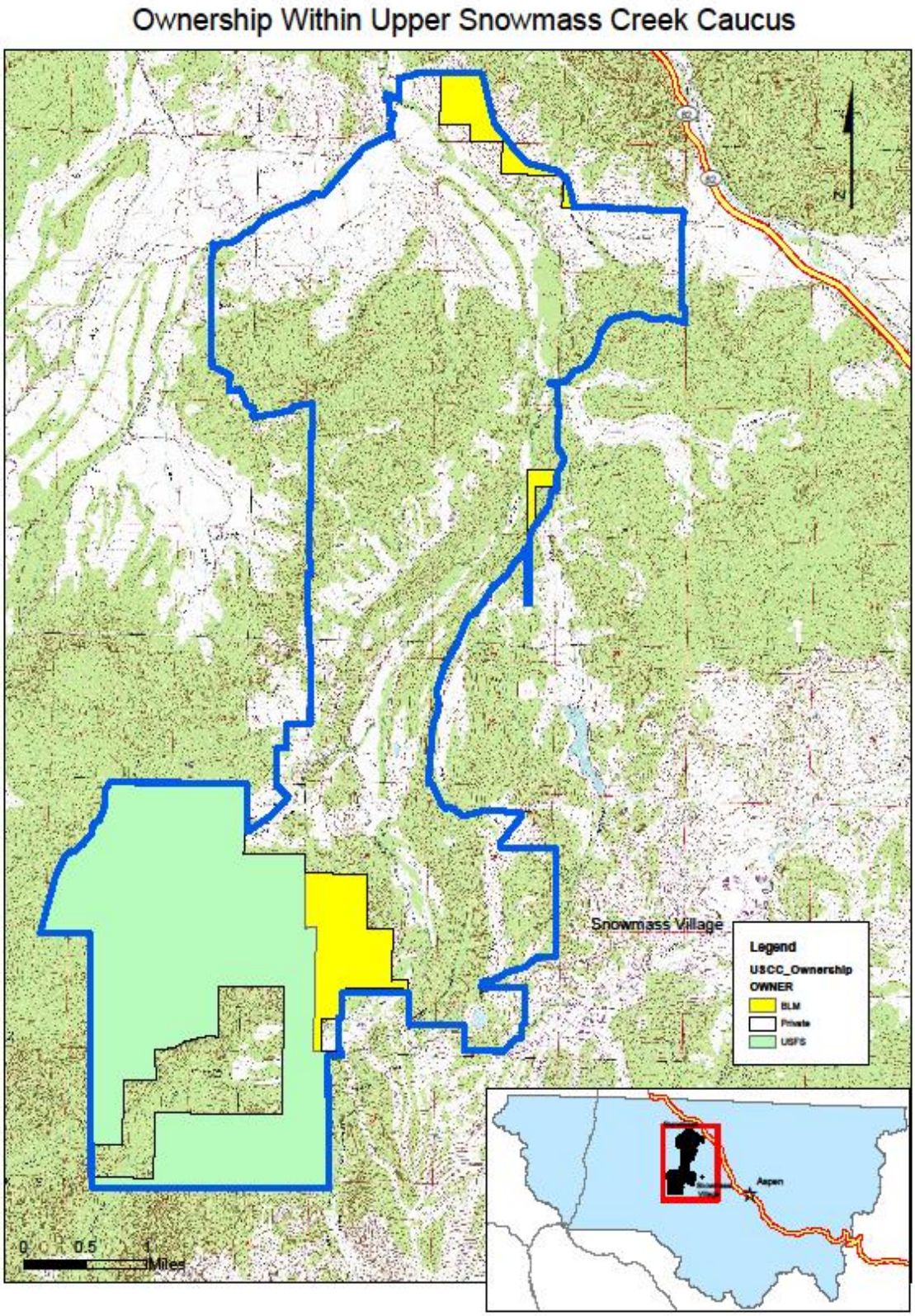
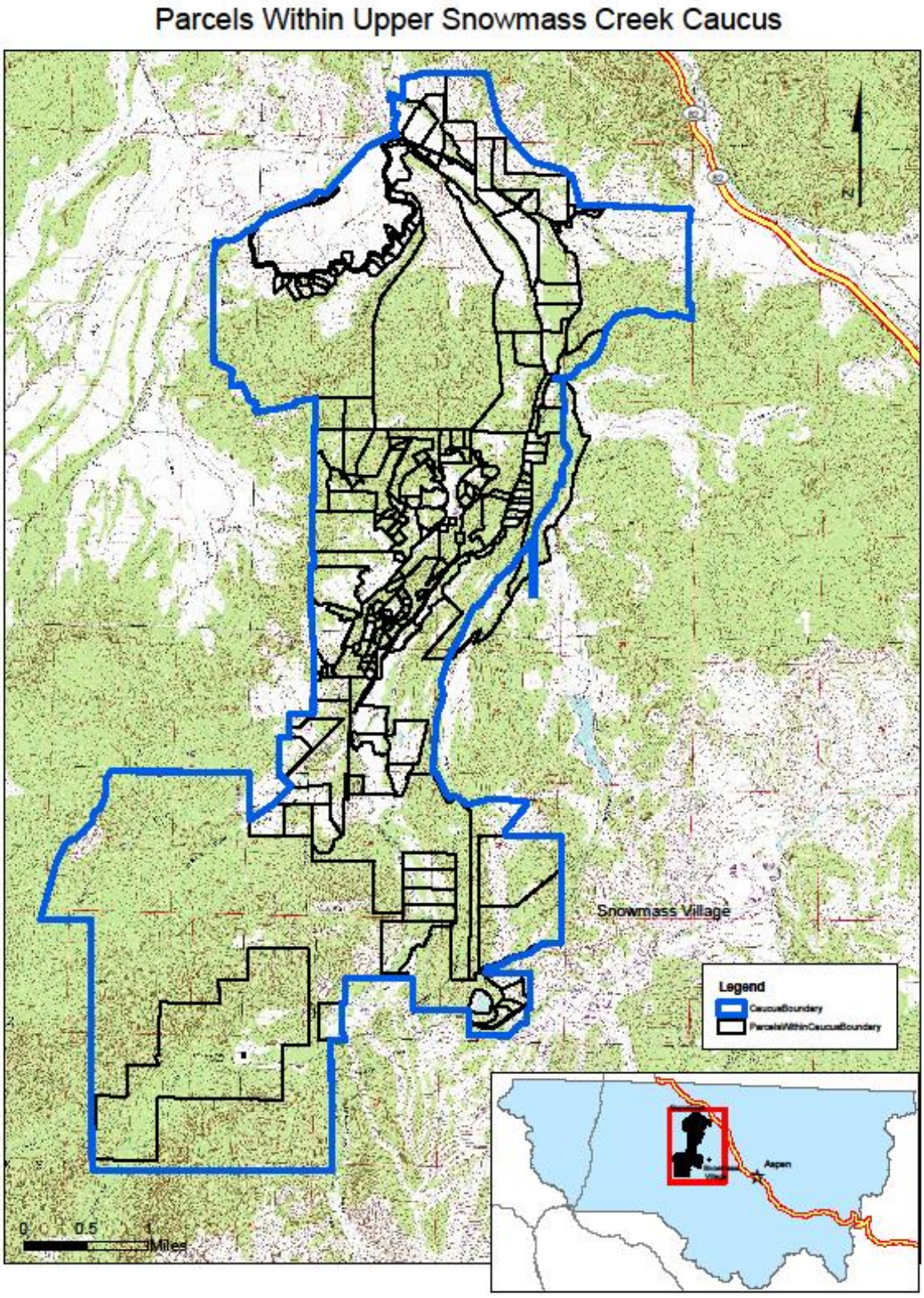


Figure 4. Landowner Parcels within the USCC



Fire Policies and Programs

The Upper Snowmass Creek Caucus Community Wildfire Protection Plan (CWPP) has been developed in response to the Healthy Forests Restoration Act of 2003 (HFRA). This legislation established unprecedented incentives for communities to develop comprehensive wildfire protection in a collaborative, inclusive process. Furthermore, this legislation directs the Department of Interior and Agriculture to address local community priorities in fuels reduction treatments on both federal and non-federal lands.

The HFRA emphasizes the need for federal agencies to collaborate with communities in developing hazardous fuels reduction projects, and places priority on treatment areas identified by communities through development of a CWPP. Priority areas include the wildland-urban interface (WUI), municipal watersheds and other local values at risk, areas impacted by windthrow or insect or disease epidemics, and critical wildlife habitat that would be negatively impacted by a catastrophic wildfire. In compliance with Title 1 of the HFRA, the CWPP requires agreement among local government, local fire departments and the state agency responsible for forest management (the Colorado State Forest Service). The CWPP also must be developed in consultation with interested parties and the applicable federal agency managing lands surrounding at-risk communities.

The HFRA also required the Colorado State Forest Service (CSFS) to establish minimum standards for development of CWPPs in Colorado, and the CSFS must approve any and all CWPPs to ensure that they meet these minimum standards (Appendix A).

This Upper Snowmass Creek Caucus CWPP ties to the Pitkin County CWPP approved in 2014 (Appendix A). This plan is consistent with the goals and strategies described in the Pitkin County CWPP, and provides further strategic and tactical direction specific to wildfire protection and mitigation for the Upper Snowmass Creek Caucus community.

Description of Partners and Committees

The USCC was established in 2016. The USCC Board is comprised of 7 people and officers are elected to the board annually. The Caucus board meets monthly. The Caucus recently completed a Master Plan (February 8, 2018) for the area, which will include the CWPP. The Caucus meeting agendas and notes can be found at: https://www.uppersnowmasscreek.com/meeting-agenda/.

The Planning Process

Interest in fire mitigation and fire mitigation work within the Upper Snowmass Creek Caucus began before the formation of the Caucus in 2016. The HOAs and individual landowners in the area have been working on fuels mitigation for over the last 15 years. The Shield-O Terrace Subdivision completed a CWPP in 2013 (Appendix B) and several landowners have utilized grants from the Colorado State Forest Service to complete fuels reduction projects. Work that has been completed is consistent with the 2014 Pitkin County CWPP (Appendix B).

Meetings with Partners

The first stakeholder meeting was held on March 28, 2017 at the El Jebel Fire Station. Representatives from the Caucus, Basalt Fire, BLM, US Forest Service, Pitkin County and the CSFS were present. The first meeting was held to discuss the need for the CWPP, potential stakeholders and interested parties. A survey (Appendix C) along with information about the CWPP was sent to residents within the Caucus.

A second stakeholder meeting was held on May 8, 2017 at the El Jebel Fire Station. Representatives from the Caucus, Basalt Fire and the CSFS were present. The steps for developing and preparing a CWPP were discussed. Basalt Fire discussed the process for completing roadside assessments using Survey 1, 2, 3 and REAL FIRE for more detailed fire risk assessments for homeowners. Other discussions included escape routes, potential safety zones and Caucus Community Education.

A third stakeholder meeting was held on August 11, 2017 at the El Jebel Fire Station. A draft of the CWPP was provided. Basalt Fire provided updates on Risk Assessments and "Safety Zones" within the USCC. The group discussed ideas for education and outreach projects for FireWise Communities as well as the overall process for becoming a FireWise Community. Goals for the CWPP and for the USCC were discussed and included developing and improving education and outreach, communication, assessments, fire mitigation, emergency preparedness and evacuation, and the becoming a FireWise Community.

A fourth stakeholder meeting was held on October 19, 2017 at the El Jebel Fire Station to discuss progress on home assessments and future event planning. A representative from Holy Cross Energy attended to discuss vegetation management and safety around power lines. Basalt fire provided an update on the home risk assessments and discussed where future assessments may be needed. The group discussed water resources within the Caucus that would be available for suppression efforts. There is a need to identify and mark dry hydrants and talking with landowners about the water sources available on their property. It is the landowners or the HOAs responsibility to fill and maintain hydrants. The group also discussed holding a 4th of July picnic. The CSFS, BLM, Forest Service and Basalt Fire would attend with educational materials and presentations about fire mitigation. Also, during that week the Caucus would hold work days for fire mitigation, such as chipping. We also discussed having Colorado Fire Prevention and Control put on a Certified Burner Class for the homeowners.

Notes from meetings can be found in Appendix D.

Goals

1. **Develop and Improve Education and Outreach:** To continue to educate the Caucus and all property owners through presentations, board meetings, partner meetings and other activities.
2. **Communication:** To continue to promote and improve communication between landowners, the county, emergency responders, state and federal agencies.

3. **Assessments:** Complete fire risk assessments on all homes and properties within the Caucus.
4. **Fire Mitigation:** To develop, prepare and implement fire mitigation projects and events.
5. **Emergency Preparedness and Evacuation:** Continue to work with Emergency Services, Pitkin Alert, homeowners and surrounding communities on emergency preparedness actions and plans and evacuation plans and routes.
6. **Work toward becoming a FireWise Community:** Work toward meeting all the criteria to become recognized and a Firewise community.
7. **Grant Money.** Begin looking for and preparing grant applications for mitigation work.

Wildfire Risk Assessment

Fire Hazard

There have been a total of 182 Federal fire ignitions within Pitkin County from 1980-2015. There have been 19 wildfire in the Snowmass Creek Watershed from 1980-2015, ranging in size from 0.1-75 acres. Of those fires 16 were on Federal lands and 4 were on private land.

Year	Acres	Cause	Fire Name
1980	944	Human	Weller
1989	136	Human	Lenado Area
2002	171	Lightning	Thompson Creek

*Data provided by BLM, Upper Colorado Interagency Fire Management Unit

There have been two documented wildfires on BLM lands within the Caucus area.

Year	Acres	Ownership	Cause	Fire Name
2001	0.1	BLM	Lightning	
2003	48.29	BLM	Human	Snowmass Creek

*Data provided by BLM, Upper Colorado Interagency Fire Management Unit

Fuels and Potential Fire Behavior

The risk of a fire starting in or adjacent to the USCC is moderate. The potential fire intensity is dependent on the vegetation present, amount of fuel available, fuel moisture and weather. The USCC has three dominant vegetation types: oak shrubland, aspen and spruce-fir forest.

Aspen

Aspen forest make up almost 4,000 acres within the USCC. It is found scattered through the area, but the largest stands are located in the southern portion of the Caucus boundary. Aspen is a fire induced successional species that can dominate areas until replaced by conifer species. As fire reduces the overstory, it stimulates aspen shoots to sprout. High fuel moisture in aspen reduces the potential for fire to spread, but when fire weather and fuel conditions exist, aspen can

be impacted by crown fires, especially when mixed with conifer. There are small pockets within the aspen that are showing signs of Sudden Aspen Decline (SAD).

Gambel Oak

Almost 3,000 acres within the USCC is comprised of Gambel oak. Gambel oak does not burn readily except for under conditions of continued drought, or late fall and early spring when vegetation dries out. Late spring frost can kill leaves, which can cause extreme fire behavior in the late summer. Under dry and windy conditions, areas with high fuel continuity and areas with steeper slopes can produce fast moving, intense fire.

Spruce-Fir Forest

The third largest vegetation type within the USCC is spruce-fir forest. This forest type is typically found at higher elevations (8,000-12,000 feet). This vegetation type is considered a climax forest at higher elevations even with uneven-aged stands because of shade tolerance and the ability for species to repopulate gaps in the forest quickly. Spruce-fir forests are not adapted to fire because of thin bark, low branches, and the accumulation of ladder fuels. These factors increase the susceptibility to crown fires and high tree mortality. The fire return interval for fires in this ecosystem is 300 years or longer. The sub-alpine fir in the southwestern portion of the Caucus has shown die-off. There are several possibilities for the die-off, but the most common is the western spruce budworm.

Ponderosa Pine

Ponderosa pine is found between 6,000 and 9,000 feet in elevation. Within the USCC, ponderosa are scattered through the northern portion of the Caucus and are mixed with pinyon-juniper and oak shrublands. Ponderosa are adapted to low intensity fires under a normal fire regimes (2-47 year), but this depends on climate, vegetation and topography. Low intensity fires within this ecosystem allows for the elimination of competing seedlings and other vegetation. An increase in the fire return interval increases potential for the encroachment of shade tolerant species, such as Douglas fir. Douglas fir act as ladder fuels, which carry fire to the crowns of the ponderosa leading to stand replacing events.

Pinyon-Juniper Woodland

Pinyon-juniper woodlands are found in the northern region of the Caucus in the lower elevations that receive less precipitation. Much of the woodlands in the Caucus are found on steep slopes with little to no understory. Pinyon-juniper woodlands can cause high intensity stand replacing fires within dense woodlands. Juniper species have resinous wood that is flammable, in addition to having thin bark and compact crowns. Pinyons also have thin bark and flammable foliage, depending on the time of year.

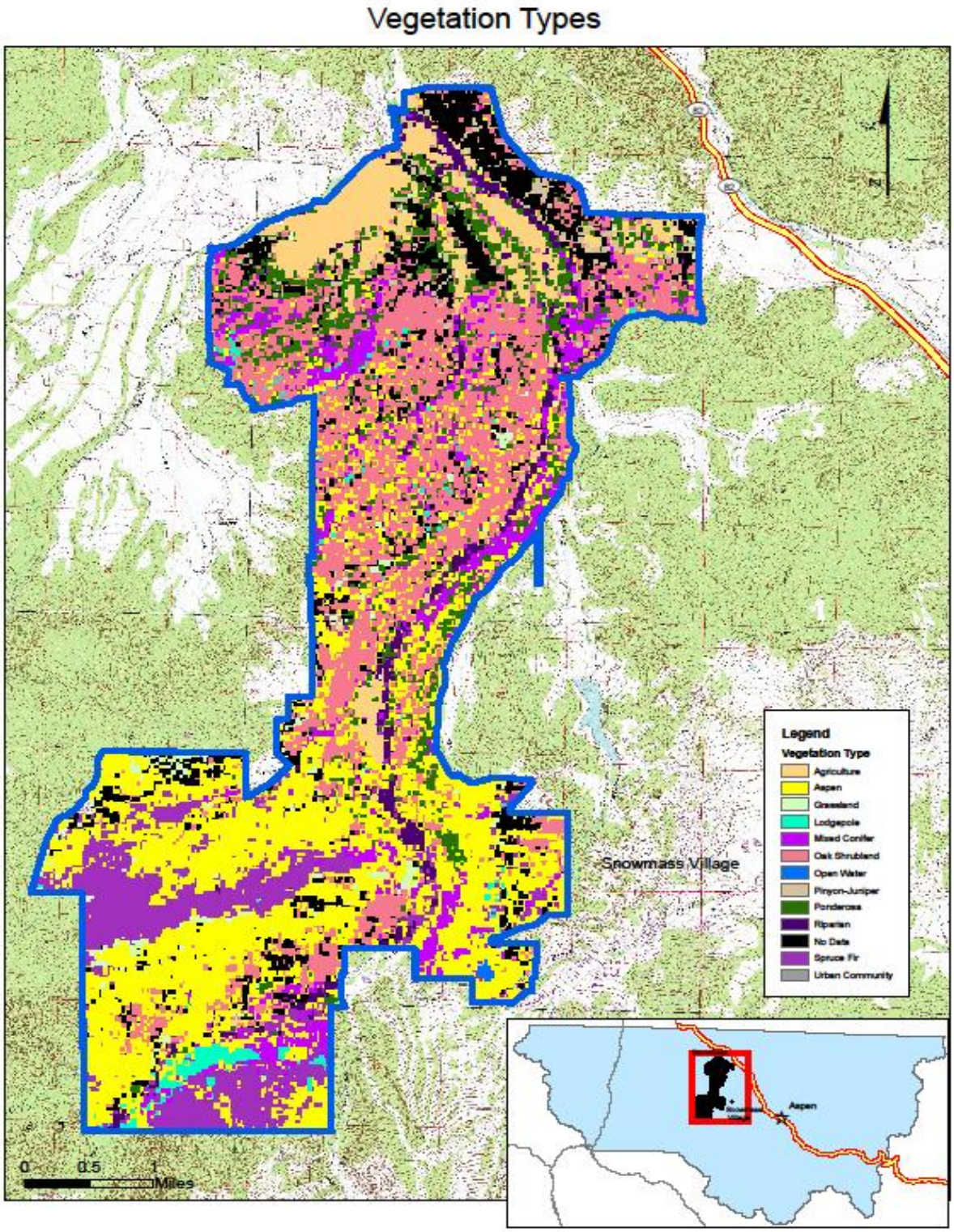
Lodgepole

The Caucus supports 165.2 acres of lodgepole pine in the southern region. The stand is currently in good condition, with no evidence of mountain pine beetle activity. There are areas south of the Caucus boundary that have infestations of mountain pine beetle. Lodgepole are fire dependent and are able to develop after hot, stand replacing fires.

Table 2: Vegetation Types at Upper Snowmass Creek Caucus

Vegetation Type	Acres
Agriculture	771.2
Aspen	3942.3
Grassland	198.5
Lodgepole	165.2
Mixed Conifer	908.5
Oak	2941.5
Open Water	9.8
Pinyon- Juniper	225.6
Ponderosa	914.3
Riparian	351.2
No Data	1276.5
Spruce-Fir	1113.5
Urban	0.2

Figure 5. Vegetation types found within the USCC. The LANDFIRE program Refresh 2008 version data, using existing vegetation type was used to compile this data used in the Colorado Wildfire Risk Assessment Portal. The data is current to 2008.

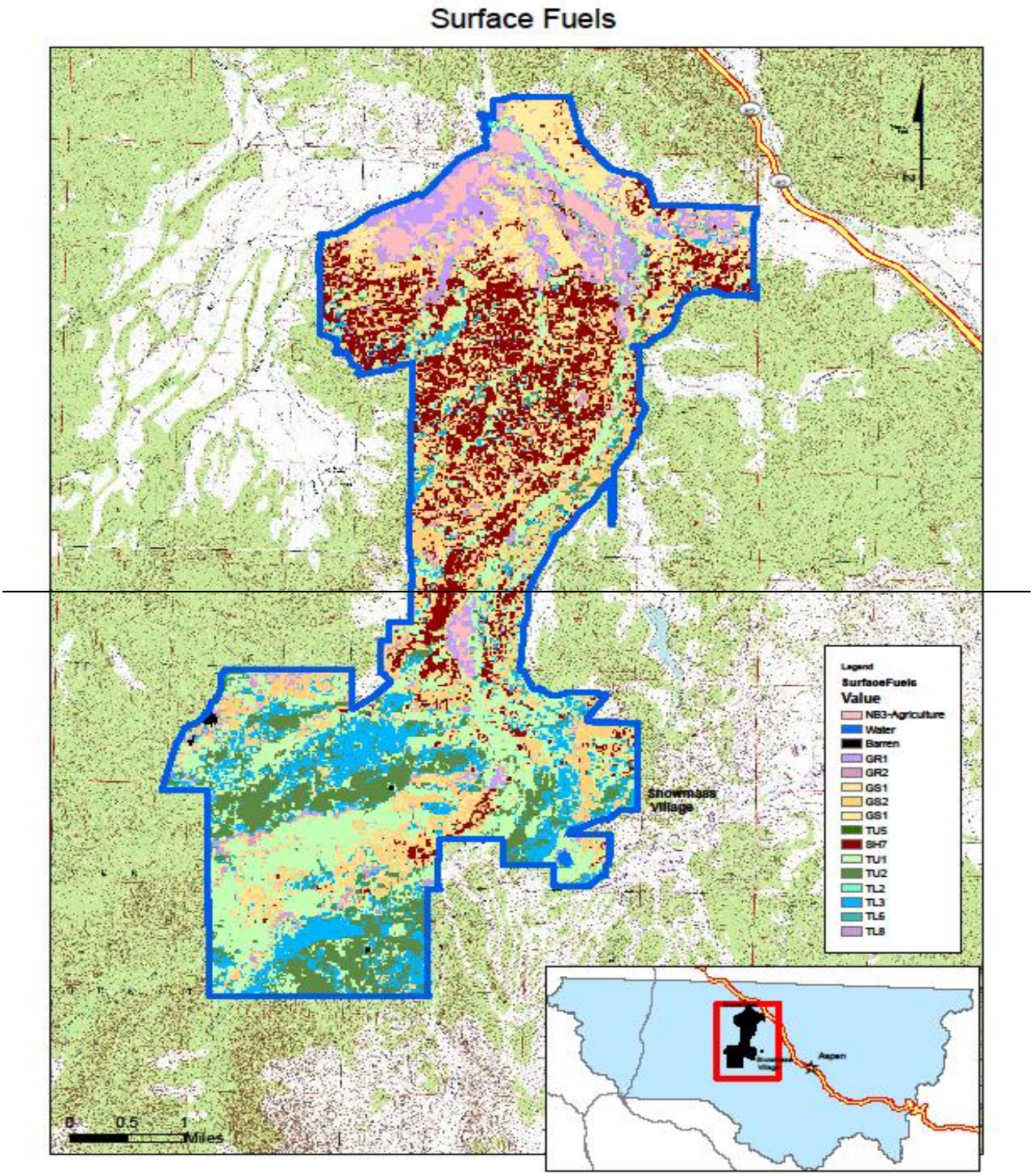


Models for fire behavior and fuels contain parameters used to calculate surface fire behavior characteristics, such as rate of spread. These parameters are used in the Rothermel (1972) mathematical model to predict fire spread in different fuel types. Fuels are classified into four groups: grasses, brush, timber and slash. Fire behavior can vary within these groups based on several factors including fuel load distribution of size class and fuel depth. Fuel models are chosen based on how a fire burns in the fuel type that is best conditioned to support the fire. Fuel model sets have been updated and the data represented in this report is from the fuel models from the Scott and Burgan 2005 models. Please reference Table 3 when reviewing the Surface Fuels Map (Figure 5).

Table 3. Scott & Burgen 2005 Fuel Models by Vegetation Type

Fuel Type	Description
(Agriculture)NB3	Agricultural land maintained in non-burnable condition.
(Grass)GR1	Grass is short, patchy and possibly heavily grazed. Spread rate is moderate; flame length is low.
(Grass)GR2	Moderately coarse continuous grass, average depth about 1 ft. Spread rate high; flame length moderate.
(Grass-Shrub)GS1	Shrubs are about 1 ft. high, low grass load. Spread rate moderate; flame length low.
(Grass-Shrub)GS2	Shrubs are 1-3 ft. high, moderate grass load. Spread rate high; flame length moderate.
(Shrub)SH1	Low shrub fuel load, fuelbed depth about 1 ft. some grass may be present. Spread rate very low; flame length very low.
(Shrub)SH7	Very heavy shrub load, depth 4-6 ft. Spread rate lower than SH5, but flame length similar. Spread rate high; flame length very high.
(Timber-Understory)TU1	Fuelbed is low load of grass and/or shrub with litter. Spread rate low; flame length low.
(Timber-Understory)TU5	Fuelbed is high load conifer litter with shrub understory. Spread rate moderate; flame length moderate.
(Timber Litter)TL3	Moderate load conifer litter. Spread rate very low; flame length low.
(Timber Litter)TL6	High conifer litter; light slash or mortality fuel. Spread rate low; flame length low.
(Timber Litter)TL8	Moderate conifer litter; small herbaceous load. Spread rate moderate; flame length low.

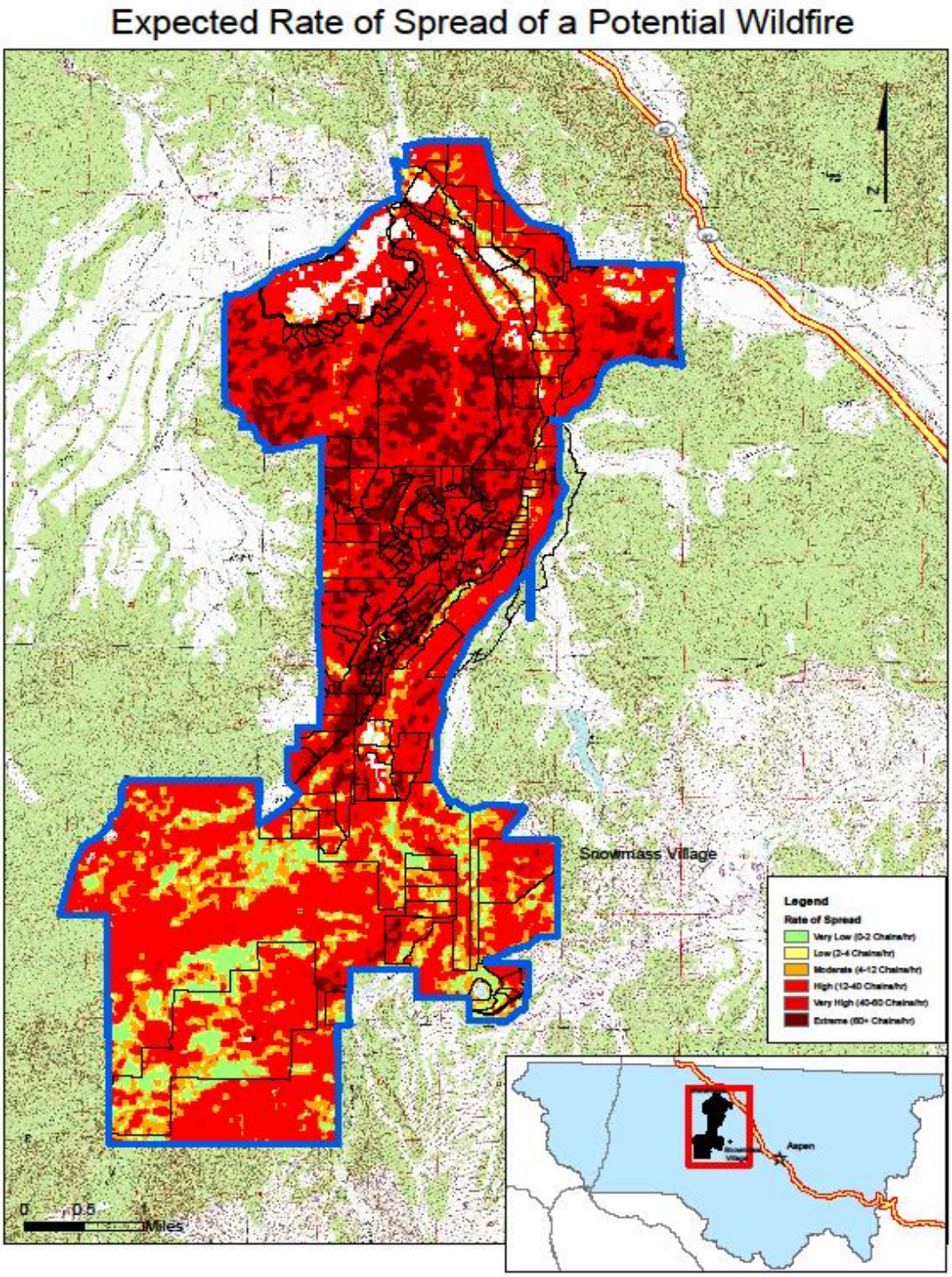
Figure 6. Surface Fuels within the USCC. Surface fuels, or fire behavior fuel models, contain parameters used by the Rothermel (1972) surface fire spread model to calculate surface fire behavior characteristics that include rate of spread, flame length, fireline intensity, and other fire behavior metrics. The LANDFIRE program Refresh 2008 version was used to compile this data for the Colorado Wildfire Risk Assessment Portal.



The rate of spread is the speed with which a fire moves in the horizontal direction across a landscape, expressed in chains per hour (ch/hr). Rate of spread is influenced by fuels, weather and topography. The characteristic rate of spread is the typical or representative rate of spread of a potential fire based on a weighted average of four percentile weather categories: low, moderate, high and extreme. Within the USCC, the highest predicted rate of spread would occur in areas with Gambel oak. The data shown in Figure 6 represents the predicted maximum rate of spread of the fire front.

Fire modeling using the Interagency Fuel Treatment Decision Support System (IFTDSS) was run by the U.S. Forest Service for the USCC. IFTDSS is a web-based software and data integration framework that uses existing and newly developed fire and fuels software for fuels planning and analysis. It allows for the simulation of fire behavior and fire effects using the applications FlamMap, Behave, FOFEM and Consume. The model uses the "worst case scenario" parameters for potential fire behavior. A summary report and the output data can be found in Appendix E.

Figure 7. Expected rate of spread of potential wildfire in the USCC. Data from the Colorado Wildfire Risk Assessment was used and the measurement represented is the maximum rate of spread of the fire front in chains per hour.



Structure Vulnerability

Wildland Urban Interface (WUI) is the area where man-made improvements, such as homes, are built close to or within natural terrain and flammable vegetation, and where there is a potential for wildland fire (Figure 7). The index for the data is based on housing density data and flame length data. Within the USCC the area of highest risk is within the sub-divisions of Shield O Mesa and Shield O Terrace and on the outer edges of Ziegler Reservoir near Snowmass Village.

Wildfire Risk Assessment Elements

A random survey of eighteen homes within the Caucus were assessed by the Basalt and Rural Fire Protection District using Survey 123. Survey 123 is a GIS based data gathering system. For this assessment the survey included gathering information on specific criteria that corresponds to a numeric value that allows fire risk to be calculated. Diagrams explaining these elements can be found in Appendix F. Certain elements that may make a home more vulnerable to wildfire are given more weight when considering risk. Defensible space and roofing materials are the two most significant survey criteria. From the assessment, nine homes were found to be within the high to extreme categories based on the assessment criteria. Seven of the eighteen homes fell

within the moderate risk category. The following are elements which are considered when reviewing homes for risk:

Addressing: Correct, visible and reflective addressing is crucial for response efforts. Having reflective, contrasting addressing that is easily visible that can be seen during a wildlife event with smoky conditions enables responders to identify homes.

Ingress/Egress: Having multiple ways in and out or homes and neighborhoods reduces the risk of becoming trapped by fast moving wildfires. It is important to know and identify primary and secondary ingress/egress routes. Fire department knowledge of residential areas where there is only one point of access is important for pre-planning evacuation, suppression activities and firefighter safety.

Driveway Width: Driveways are assessed with approximate shoulder to shoulder measurements with the distance between overhanging obstructions and the driveway. It is important for firefighters to know they are able to safely get in and out of an area with any type of firefighting equipment.

Dangerous Topography: A home's location relative to dangerous topography can affect survivability during a wildfire. Steep slopes or other topographic feature where wildfires can move quickly and increase intensity can impact wildfire behavior.

Background Fuel: The type of fuel and fuel density surrounding a home can affect fire behavior and intensity. This assessment criteria focuses on the fuel on the land surrounding the property. Grassy, open areas or meadows may have fast moving, but low intensity fires, where an area that has a high density of trees or brush may have a higher intensity fire.

Defensible Space: Defensible space is "an area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire towards the structure." Having defensible space is one of the "primary determinants of the home's ability to survive a wildfire" (CSFS Creating Wildfire-Defensible Zones: Fire-12). Whether or not a home has adequate defensible space is a factor that wildland firefighters take into consideration when deciding where to stage resources. It is also important to remember that during a large wildfire event, resources are often limited. Having defensible space can increase the survivability of a home without firefighter intervention.

Roofing Material: Roofing material has been proven to be a primary factor in a home's survivability during wildfire event. Class A, non-combustible roof construction increases a home's survivability, whereas wood shake shingle roofing material increases a home's wildfire risk drastically.

Siding Material: Whether a home's siding is made out of combustible material or a non-combustible material also effects survivability. Vinyl/ wood siding is more likely to fail or ignite than a heavy log, stucco or composite siding material.

Other Combustibles: Firewood piles, patio or deck furniture, propane tanks and other combustibles near a structure can be factors that compromise a home's resistance to wildfire.

These materials are often found stacked under elevated decks which can cause the deck to ignite and compromise the structure.

Decks and Fences: Decking and fencing material have proven to add potential vulnerability to a home's resistance to wildfire. Combustible fencing attached to a structure can become the conduit for a home to ignite. Maintaining wood decks can make them less combustible than an unmaintained dry deck.

The complete assessment report by Basalt and Rural Fire Protection District can be found in Appendix F.

Relative Risk

The wildfire risk assessment results are a demonstration of relative risk; meaning that the risk ratings are based on the level of risk within Upper Snowmass Creek Caucus for specific homeowners and not an absolute risk rating. These risk ratings do not reflect or inform insurance rates or policies. Each insurance provider utilizes their own underwriting guidelines. An 'EXTREME' rating versus a 'LOW' rating is not an absolute indicator of whether a home will burn or survive in a wildfire event. Factors such as response, weather, etc. will influence a specific homes outcome during a wildfire. The risk ratings and subsequent risk reduction recommendations are intended to provide educational information to the Upper Snowmass Creek Caucus in order to help better prepare for a wildfire event.

The following map (Figure 8) depicts the results of the wildfire risk assessment.

Photo from BFRFD

Figure 8. Risk Assessments

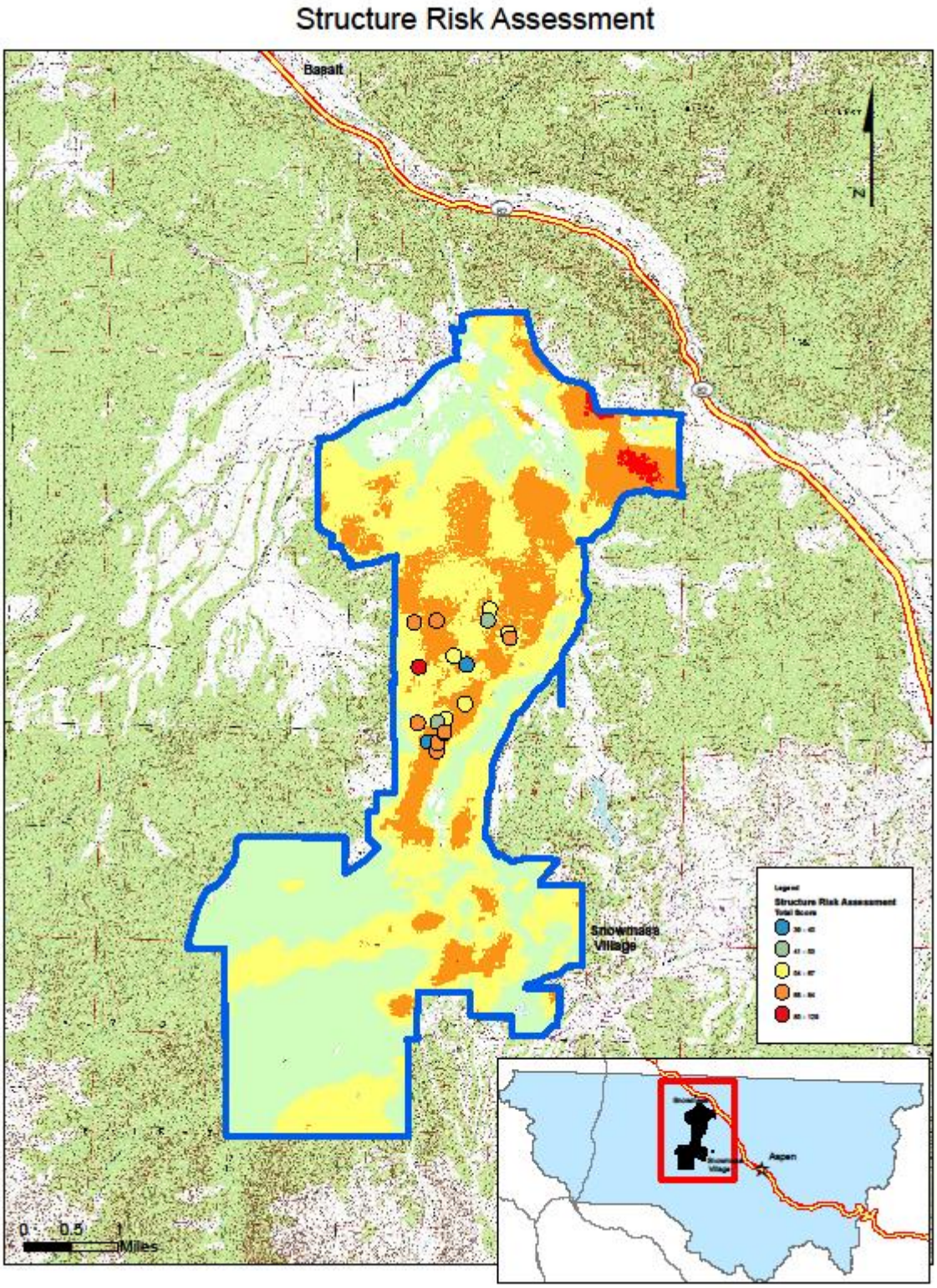
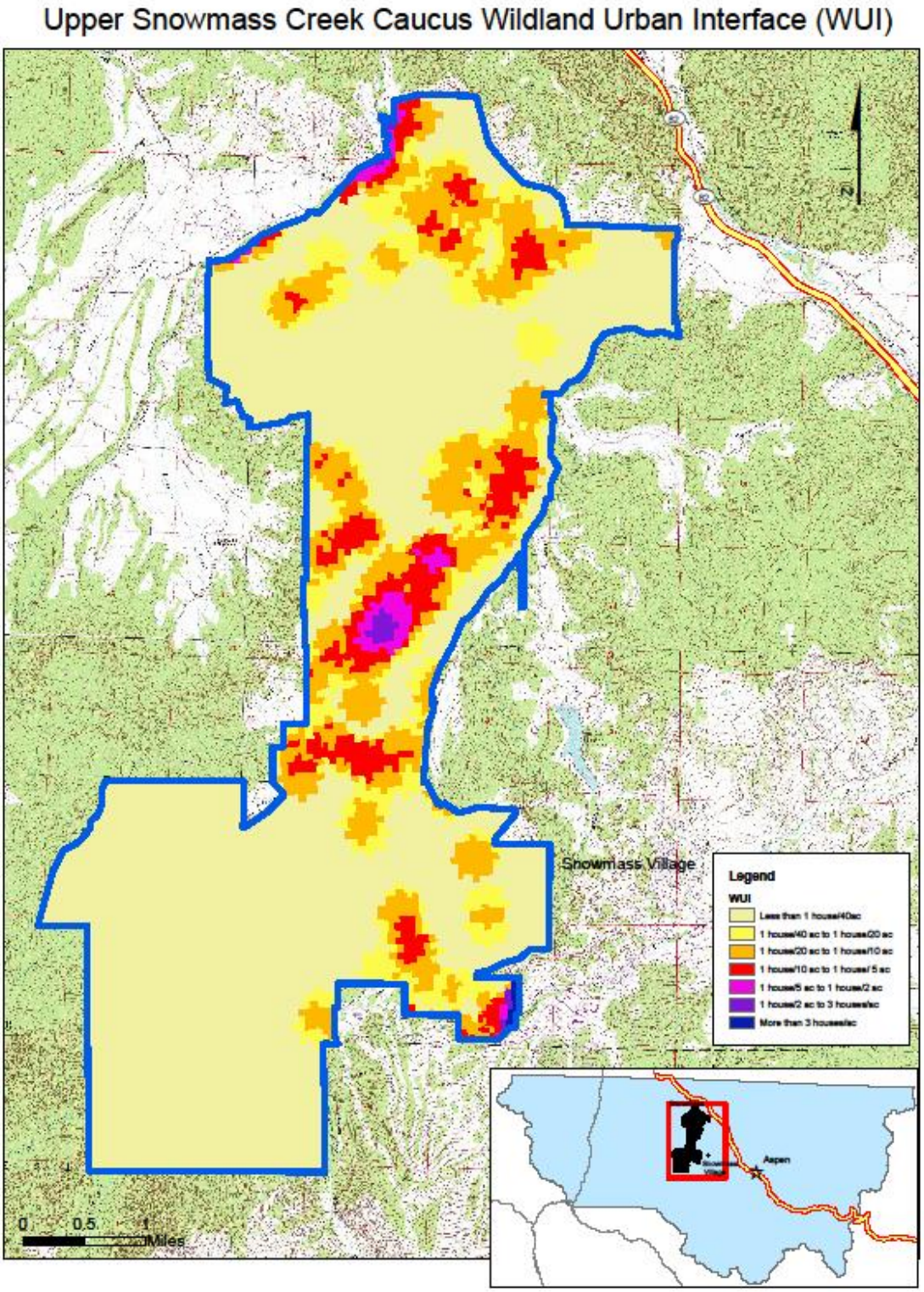


Figure 9. Wildland Urban Interface (WUI) Risk for the USCC. The Risk Index layer from the Colorado Wildfire Risk Assessment Portal. To calculate the WUI Risk Index, housing density data was combined with the flame length data and response functions.



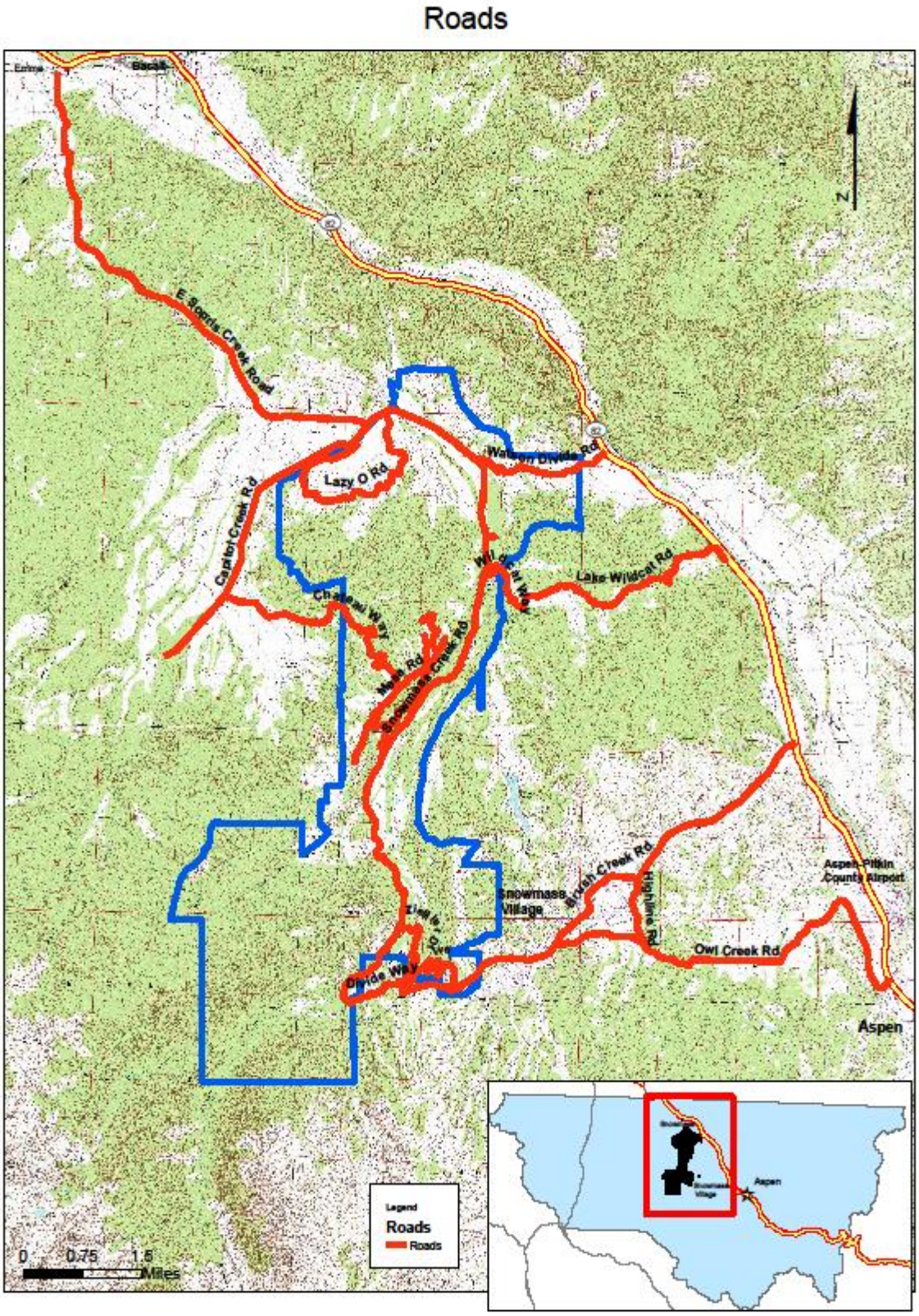
Infrastructure and Emergency Access

Roads

Snowmass Creek Road is the main access to the Caucus area. It can be accessed off of Highway 82 in Snowmass or from the Watson Divide Road (Figure 8). Snowmass Creek Road is paved for 5.1 miles and then turns into a gravel road within the USCC. Once the road enters the White River National Forest it becomes a 4-wheel drive road and dead ends. Snowmass Creek Road is the main evacuation route for the Caucus area. The road is narrow in sections with dense vegetation on both sides. The southern exit route for the community is Snowmass Creek Road to Ziegler Drive Way, which connects to Divide Road and comes out in Snowmass Village. Ziegler Drive Way is a narrow dirt road, with dense vegetation on both sides of the road through private lands.

Snowmass Creek Road. Photo from Jan Martin.

Figure 10. Access roads for the USCC.



Escape Routes and Safety Areas

The primary evacuation route for the USCC is Snowmass Creek Road. Snowmass Creek Road is paved for 5.1 miles and then turns into a gravel road within the USCC. It is narrow in places with areas of dense vegetation on both sides of the road. East Sopris Creek Road and the Watson Divide Road are the main entrance and exit routes that connect to Highway 82. Mesa Road, Old Pond Road and Shield O Road are the main access roads for Shield O Mesa and Shield O Terrace subdivisions. These roads are steep, narrow and have dense vegetation on both sides of the road. Work has been done on these roads with widening and pullouts in spots. Vegetation thinning has also been done in previous years, but two way traffic is still difficult.

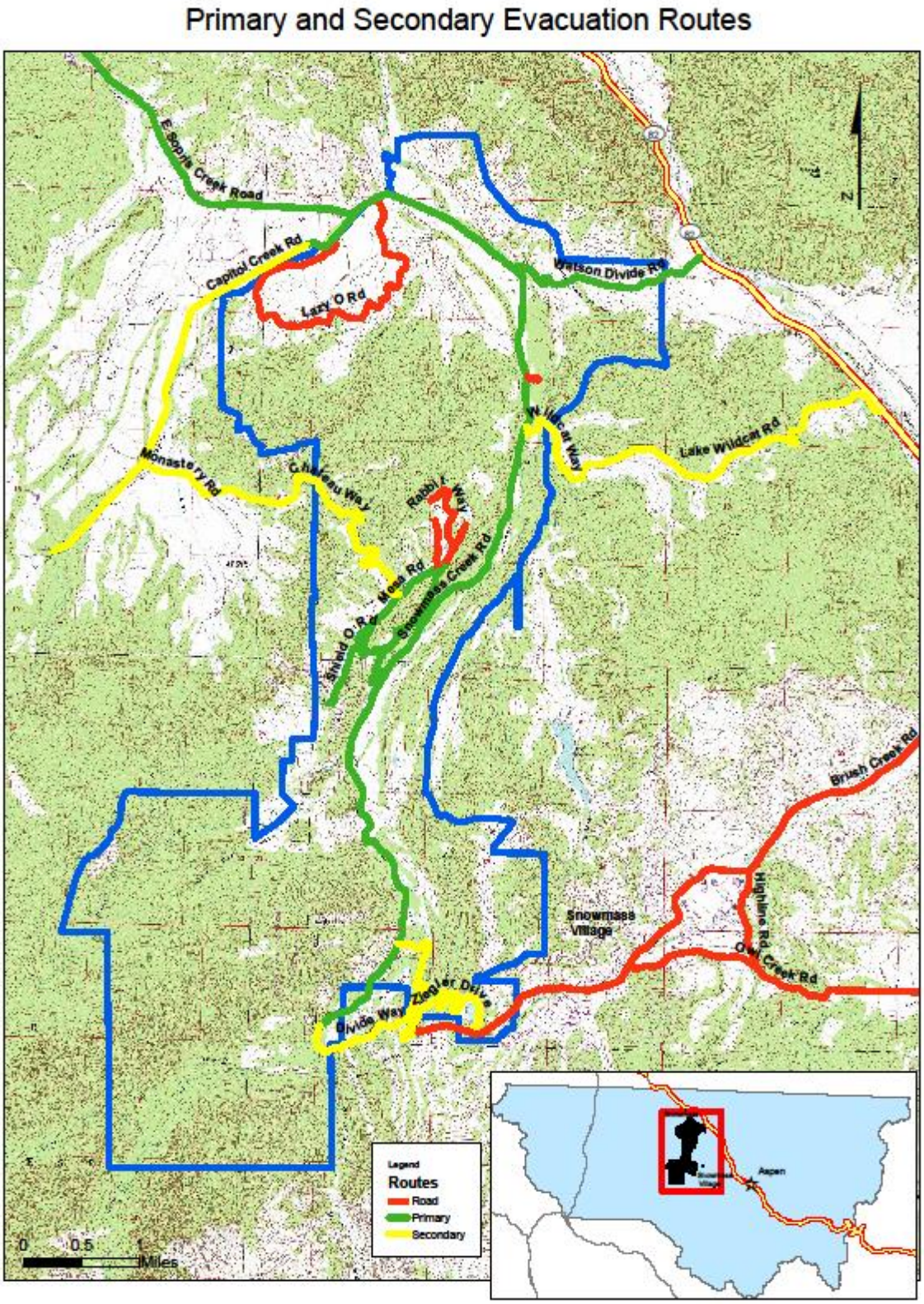
Four secondary routes were identified by Basalt and Rural Fire Protection District and the members of the USCC. The secondary routes are narrow 4-wheel drive roads with dense vegetation, and are in poor condition. The routes also cross private lands and are gated and locked. Wildcat in coordination with Pitkin Alert is able to open their gate remotely in case of an emergency. It is important to note that it is important that homeowners practice evacuations and become familiar with all routes and terrain.

Basalt and Rural Fire Protection District along with members of the USCC have identified and evaluated areas that could be potential safety areas in the event of a wildfire. It is important to note that while these areas have been identified, during wildfire events what is considered a safety area may change due to fire activity and that these areas should be used as a last resort.

According to the Fireline Handbook and the Incident Response Pocket Guide (IRPG), 2010 edition, a safety zone can maintain a separation distance of four times between the firefighter and the maximum continuous flame length on all sides (in other words, from the center of the safety zone). For example, sustained 10 foot flame lengths require a radius of 40 feet or a safety zone of approximately 80 feet in diameter. Using these standards, a three-acre safety zone is necessary to accommodate a three-person engine crew facing 50 foot flame lengths. This is about the size of three football fields if they were configured into a square. The area will need to be larger to account for other conditions such as winds and steep slopes.

When establishing a safety zone it is important create an area that's devoid of combustibles and fuels. Avoid setting up a safety zone in or near a house, a house is not a safety zone. Safety zone size calculations are based on radiant heat, which is also what, under certain conditions, can cause a structure to ignite. Homes that have a front yard large enough to meet the guidelines given above, with a lush, short-mowed and green lawn, are good as (if not better than) having to travel to a remote safety zone. The house must have defensible space around it and is therefore a defensible structure, one that an engine crew could stay with and protect while the flame front passes.

Figure 11. Primary and Secondary Evacuation Routes



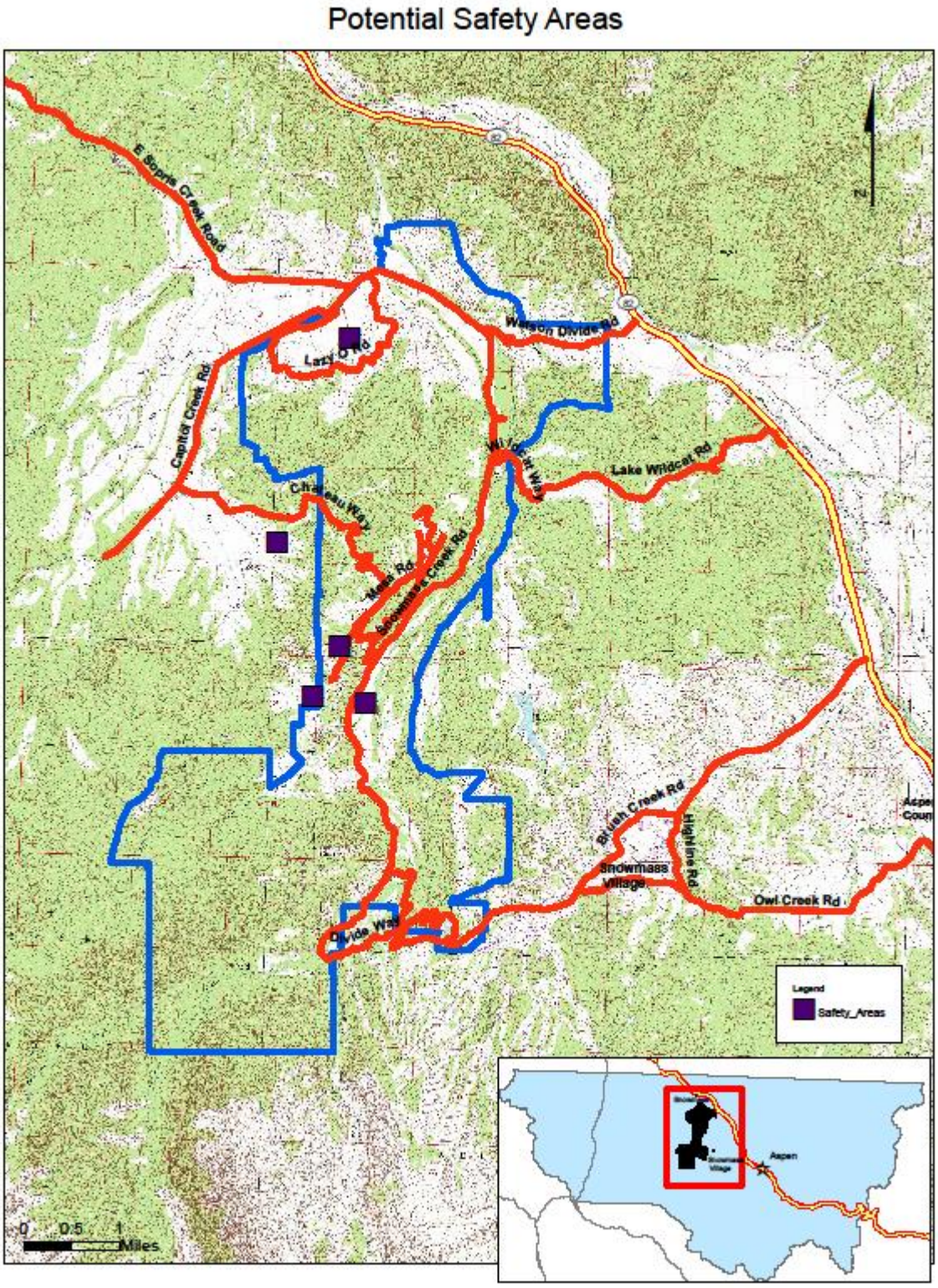
Mesa Road

Photo from BFRFD

Mesa Road to Old Pond Way

Photo from BFRFD

Figure 12. Potential Safety Areas in the USCC



Power Lines

Power lines are common throughout the WUI and can ignite wildfires different ways. Two most common are downed lines and vegetation contact, such as a tree falling on a line.

Holy Cross Energy is the not-for-profit, member owned electrical cooperative that provides electricity and other energy products and services to Pitkin County as well as Eagle, Garfield, Mesa and Gunnison counties.

Holy Cross Energy has developed a vegetation management plan than serves as a guide while preforming vegetation management along power lines. The complete guidelines can be found in Appendix G. Additionally, their website provides vegetation management information, information on planting trees and safety tips.

The Caucus has expressed an interest in the possibility of underground power lines in areas that have a risk of vegetation falling on them or in areas with high wind events that could cause down lines.

Water Resources

Within the USCC there are several alternative water supply systems that emergency responders may use in the case of a wildfire (Table 4). The USCC, HOAs and homeowners are responsible for filling and maintaining these resources. Dry hydrants are non-pressurized and are designed for use in drafting applications. The dry hydrants within the Caucus will be tested by Basalt Fire and Rural Fire Protection (BFRFP) and labeled appropriately. For dry hydrants and tanks within the Caucus with unknown capacity, the Caucus will work with BFRFD to determine size. The Caucus also plans to work with homeowners to identify other available water sources on their properties.

The USCC also contains 23 stream miles of Snowmass Creek, which is a perennial stream. There are also 22.7 miles of intermittent streams or bogs which may have water during certain times of the year or after precipitation events. There are 3 reservoirs, 1 lake and 43 ponds within the USCC, including Ziegler Reservoir (Figure 11). Wildcat Reservoir is located slightly over a mile east of the USCC boundary. The ponds in the USCC are dependent on seasonal moisture and may not have water year round.

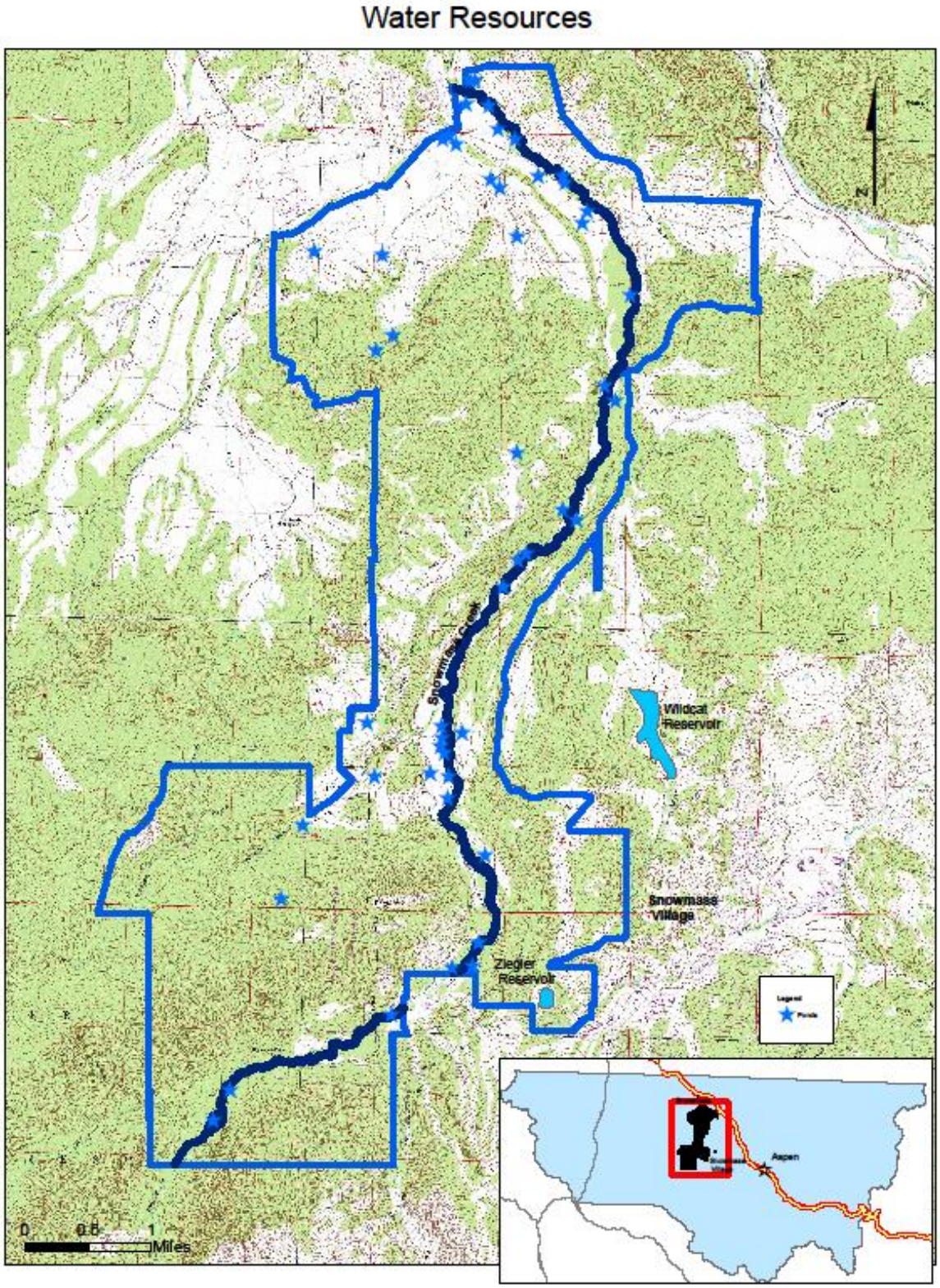
Table 4. Available water sources for fire suppression.

Type	Size	Location
Dry Hydrant	Unknown	Charlie Way
Dry Hydrant	5,000 gallons	Chateau Way
Dry Hydrant	1,000 gallons	Chateau Way
Dry Hydrant	5,000 gallons	Old Pond Way
Tank	20,000 gallons	Shield O Road
Dry Hydrant	10,000 gallons	Shield O Road
Dry Hydrant	10,000 gallons	Shield O Road
Dry Hydrant	Unknown	Snowmass Creek Road
Pond	Unknown	Snowmass Creek Road
Dry Hydrant	18,000 gallons	Snowmass Creek Road
Dry Hydrant	5,000 gallons	Snowmass Creek Road
Pond	Unknown	Snowmass Creek Road
Dry Hydrant	20,000 gallons	Snowmass Creek Road
Tank	8,000 gallons	Snowmass Creek Road
Tank	Unknown	Snowmass Creek Road
Pond	Unknown	Snowmass Creek Road
Dry Hydrant	20,000 gallons	Snowmass Creek Road
Dry Hydrant	Unknown	Watson Divide Road

*Data provided by Basalt Fire & Rural Fire Protection District

Photo from https://www.uppersnowmasscreek.com/photo-gallery/

Figure 13. Water Resources within the USCC

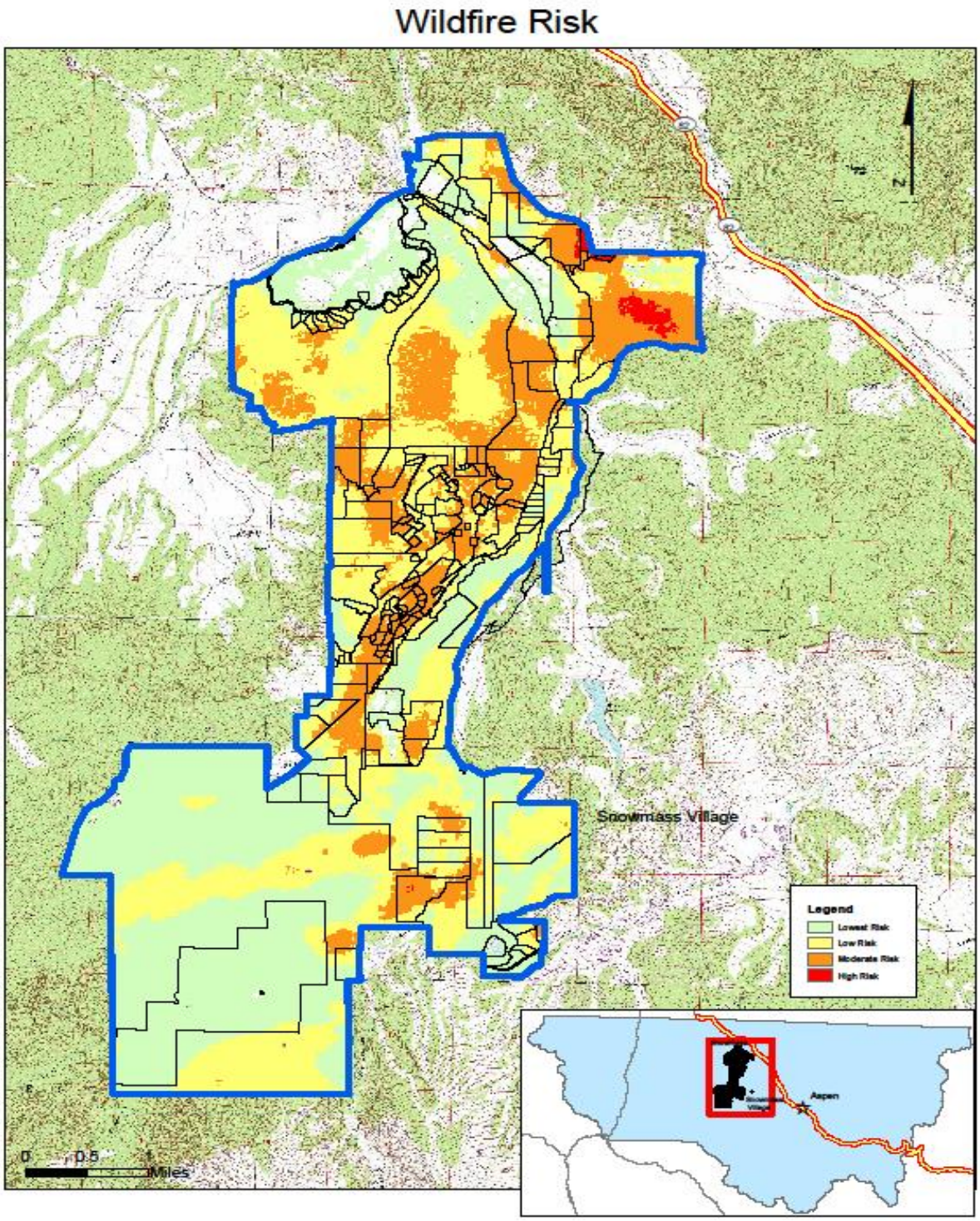


Fire Risk

Wildfire risk for the USCC was identified using the Colorado Wildfire Risk Assessment Portal (Figure 9). The wildfire risk represents the possible loss or harm occurring from wildfire. Risk combines the likelihood of a fire occurring with those areas of the most concern that are adversely impacted by fire. Fire effects is one of the key components for calculating risk. The purpose of fire effects is to identify areas that have important values or assists that would be adversely impacted by a wildfire. Elements that are typically included are where people live, infrastructure, forest assets, riparian asses and drinking water value. Figure 9 represents the Wildfire Risk within the USCC. Areas with the highest risk within the USCC were found in areas with dense Gambel oak on the steeper slopes.

Riparian assets were identified as important resource values for the USCC (Figure 10). Snowmass Creek is a perennial stream that flows the length of the Caucus. Snowmass Creek is lined with cottonwood, which can be killed with high severity fires. Other minor drainages within the USCC exist on steeper slopes, some in areas that are prone to erosion due to soils. Loss of vegetation in riparian areas and along drainages can lead to more severe erosion and sedimentation into waterways and potential community water sources.

Figure 14. Wildland Fire Risk for the USCC.



Values at Risk

The population of the USCC is a mix of full-time and part-time residents, with the highest populations existing in the summer months and during winter ski season. Many of the properties also support horses and other livestock. Aspen Camp has around 1,000 people annually with the highest number of visitors in the spring (300 people) and fall (400 people). There are a total of 161 appraised structures within the USCC area. The number of structures on each residential parcel ranges from 1-6. The properties within the boundary are of high value.

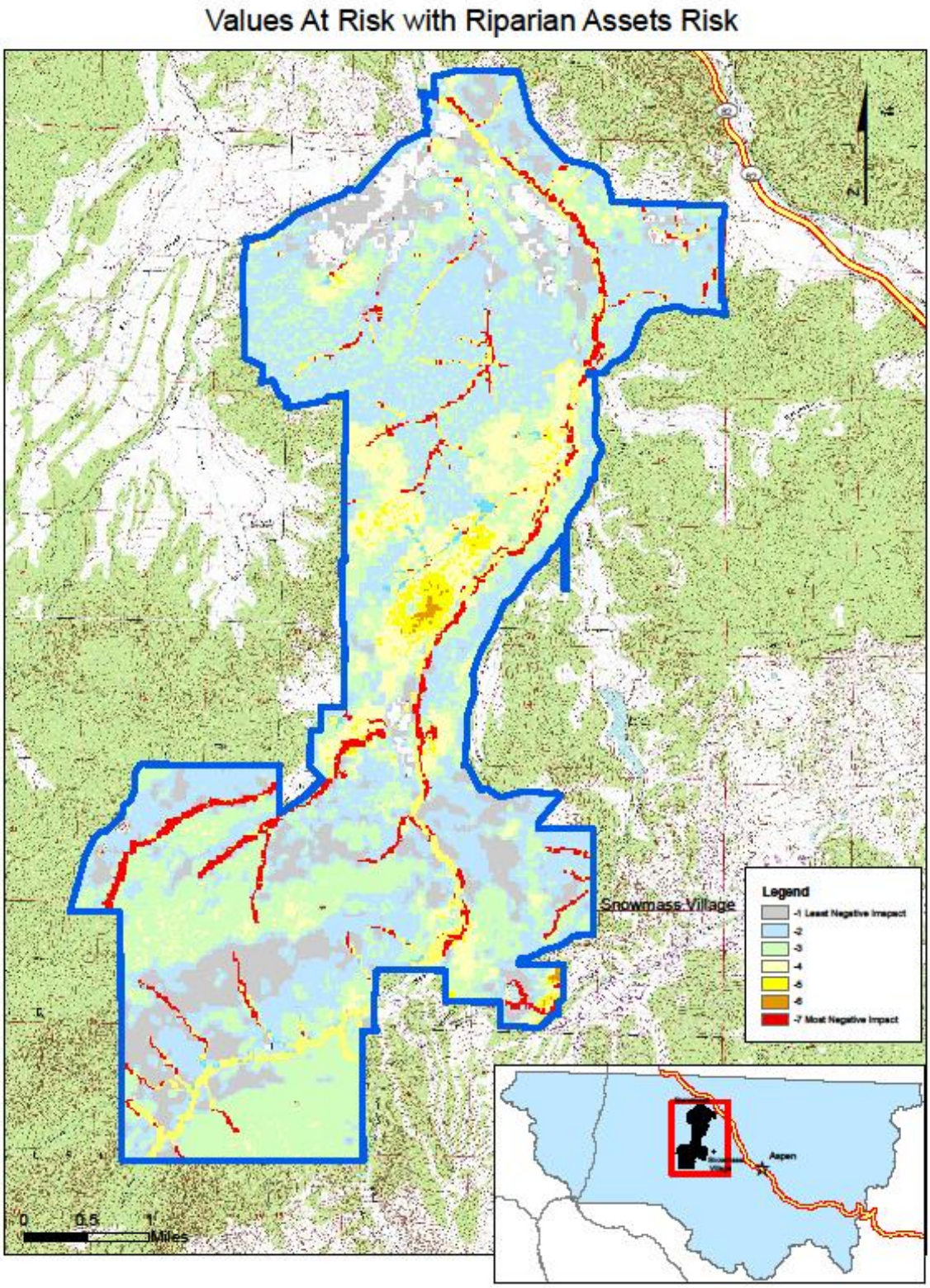
Other valuable resources within the USCC is Snowmass Creek and critical winter range for elk and mule deer. Figure 10 represents the values at risk, which is an overall rating that combines the risk ratings for WUI, forest assets, riparian assets, and drinking water importance areas. The calculation are based on response functions. This method assigns a net change in the value of a resource or assets based on the susceptibility to fire of different intensity levels.

Table 5. Potential Wildfire Losses

Low Wildfire Hazard Area			Moderate Wildfire Hazard Area			High Wildfire Hazard Area		
Number of Parcels	Number of Structures	Avg. Value	Number of Parcels	Number of Structures	Avg. Value	Number of Parcels	Number of Structures	Avg. Value
85	80	$2,737,813	114	78	$1,405,199	4	3	$6,960,525

*Average Values are based on the 2017 Pitkin County Assessors reports.

Figure 15. Values at Risk with Riparian Assets.



Emergency Management

Protection Capabilities

Fire protection for this area is provided by the Basalt and Rural Fire Protection District (BRFPD). The BRFPD is comprised of four stations, all of which store vehicles and equipment. The closest fire station to the USCC is Station 44 located off of Snowmass Creek Road by Lazy O Ranch. This Station is supported by Station 42, located in El Jebel approximately 10 miles north on Highway 82. Basalt and Rural Fire Protection District also has a mutual aid agreement with the neighboring Snowmass Wildcat Fire Department for response to the area.

Table 6. Resources Available at Station 44

Resource	Specifications
Engine 44	2013 International 4WD Type 1 Engine
	1500 GPM Pump
	1500 Gal. Water Tank
	Class A Foam System
Tender 44	Lockwood/GMC Pumper/Tender
	1000 GPM Fire Pump
	1200 Gal. Water Tank
Brush 44	Ford/Fouts F-550 type 6x brush truck
	120 GPM Fire Pump
	300 Gal. Water Tank
	6 Gal. (injected Class A Foam System
Mass Casualty Trailer	

Table 7. Resources Available at Station 42

Resource	Specifications
Engine 42	E-One/International All-Wheel Drive Pumper
	1250 GPM Fire Pump
	750 Gal. Water Tank
	30 Gal. (injected) Class A foam system
	80 cfm Compressed Air Foam System (CAFS)
	120 GPM auxiliary fire pump
Tender 42	Saulsbury/Spartan Pumper/Tender
	1500 GPM Fire Pump
	2200 Gal. Water Tank
Brush 42	Ford/Fouts F-550 Type 6 Brush Truck
	120 GPM Fire Pump
	300 Gal Water Tank
	12 gal (injected) Class A foam system
Engine 40	2013 International 4WD Type III Engine
	500 gallon Water Tank
	500 GPM Pump

	Class A Foam System
Ranger 42	Polaris 6-Wheel Drive UTV
Medic 42	Ford/Lifeline Ambulance
	Type 1 Advanced Life Support Ambulance
	4 Wheel Drive
Medic 40	Chevrolet/McCoy Miller Ambulance
	Type 1 Advanced Life Support Ambulance
	4 Wheel Drive
Utility 42	GMC Suburban
	Type 1 Advanced Life Support Ambulance
	4 Wheel Drive
HazMat 42	Hazardous Materials Response Cargo Trailer
Squad 42	Ford E-450/Champion
	Swiftwater Rescue/Incident Command Vehicle

In addition to the above resources, Pitkin County has implemented the Pitkin Alert System. The alert system allows residents to sign-up to have information about emergencies and other important community news sent to them via text message, phone calls or emails.

Mitigation and Implementation Plan

Education and Community Outreach

In 2013, Ready, Set, Go brochures were distributed to homeowners as part of the development of the Shield O Terraces CWPP. In the spring of 2017, a homeowner survey, information about the CWPP, and other information on reducing risk of wildland fire through www.PitkinWildfire.com and www.csfs.colostate.edu/wildfire-mitigation was sent to the residents in the Caucus area (Appendix C). In July 2017, Ready, Set, Go brochures were handed out at the annual Caucus picnic.

This plan recommends the following Education and Community Outreach

1. **Continued Education and Information** It is recommended that information is provided to homeowners within the USCC throughout the year, especially during the fire season. Information should be sent in the spring to remind homeowners about maintaining defensible space around homes and structures. Fire Danger rating signs should be installed in key locations to notify owners of the current fire danger during the fire season.

2. **Community Workdays** Shield O Mesa and Shield O Terraces have held community workdays to collaborate on fuels reduction and mitigation projects. It is recommended that these workdays continue and that, upon completion of each workday, an evaluation be made of the current conditions and that goals be set for the next work day or the upcoming year. The Caucus is currently planning an education and workday in July 2018. Partners including the CSFS, BLM, USFS and BRFD will be on hand to discuss

fire prevention and mitigation and landowners will work on fuels reduction along roads and properties. Efforts to partner with Pitkin County on projects would be beneficial.

3. **Fuel break and Defensible Space** Without the occurrence of natural fires, vegetation will continue to grow and become decedent. It is imperative that fuel breaks be created and maintained along roads, especially those identified and egress routes. Additionally, all defensible space created by individual landowners should be maintained.

Fuels Reduction

The desired future condition of the Upper Snowmass Creek Caucus is a safer community, with less risk of a catastrophic wildfire. In the past, residence in the Shield O Terrace area have performed annual mitigation work to improve fuel breaks along the main Shield O Terrace Road and branch roads including Casey Court, Blue Sage Lane and Old Pond Way. Two 10,000 gallon water storage tanks for fire suppression were installed along the Shield O Road. In 2013, a project to improve existing fuel breaks along approximately 5,000 feet of main roads within Shield O Terrace was completed. The project included removing vegetation and chipping. Individual landowners have also completed hazardous fuels reduction projects on their property.

Recommended Future Projects

General Guidelines: The first priority for property owners is to create good defensible space within the home ignition zone. Homeowners can begin to create defensible space by referring to the following publications (found in Appendix H):

1) **CSFS Quick Guide Series, Fire 2012-1** *Protecting Your Home From Wildfire: Creating Wildfire-Defensible Space Zones*
2) **CSFS** *Home Fire Protection*
3) **CSU Extension #6.305** *FireWise Plant Materials*
4) **CSU Extension #6.303** *Fire-Resistant Landscaping*

Preparedness: As identified in the Pitkin County CWPP (Pr1), improving road signs and posted address numbers is an important part of being a prepared community. Many of the homes within the CWPP do not have clearly visible or reflective house numbers, which reduces response time of emergency responders. Clearly identifying roads and homes in the community is recommended.

Fuel break Maintenance: A fuel break (or shaded fuel break) is an easily accessible strip of land that varies in width, in which fuel density is reduced by thinning vegetation, pruning trees and removing ladder fuels. Maintaining or creating fuel breaks along roads, driveways and property lines is an important part of creating a defensible space. Residence along Snowmass Creek Road have voluntarily removed hazardous fuels along the road and their properties to facilitate a safe escape route. The Caucus would like to partner with Pitkin County for future projects to maintain fuel breaks along the roads.

Mitigation on Undeveloped Parcels: Undeveloped parcels are susceptible to potential wildfires. Working with landowners within the community to reduce potentially hazardous fuels within these parcels is important to reduce the potential for fires and to mitigate any potential unintentional starts.

Mitigation on Adjacent Properties: Working collaboratively with adjacent landowners, including the BLM and US Forest Service on mitigation projects and fire prevention.

Policies and Covenants

The USCC is located within Pitkin County and is subject to all county development regulations and fire restrictions that may be imposed by the Board of County Commissioners, the County Sheriff, or Emergency Services.

Monitoring and Evaluation

It is imperative for the improved safety and wildfire preparedness of the USCC that the actions listed in the plan are implemented, and individual property owners are encouraged to implement their own wildfire mitigation. This is a "living" document that requires periodic monitoring, evaluation, and revision. Monitoring and evaluation will be accomplished through the flowing tasks. The CWPP is for recommended voluntary action and places no requirements upon its parties. Its effectiveness will be contingent upon actual implementation of the plan and the projects identified herein.

Annual Report. The USCC will provide an annual report to the homeowners and the CSFS. The report will include accomplishments, proposed projects and potential project funding sources.

Monitor Mitigation. The CSFS will monitor all wildfire mitigation projects that are covered by related grants, as required.

Track Volunteer Hours. The USCC will track volunteer hours on community work days, which can be used as an in-kind match on grant requests.

Review CWPP. The USCC will conduct an annual review of the CWPP, measure progress by degree of accomplishment of mitigation benchmarks, and make adjustments to the plan in the form of revisions. Any revisions will be forwarded to the USCC board, homeowners and the CSFS.

Update CWPP. The CWPP will be updated as needed. Updates will include projects that have been completed and new or anticipated projects.

Monitoring and evaluation of outreach, education and mitigation efforts within the USCC and its WUI are an important part of the CWPP. The monitoring and evaluation actions, responsible parties, and frequency, are shown below.

Table 8. Monitoring and Evaluation Matrix

Party	Action	Frequency
USCC Board	Annual report to the Caucus, homeowners and Colorado State Forest	Annually
CSFS USCC	Monitoring of mitigation status for projects covered by grants Track volunteer hours on community workdays	As Required Annually
USCC and Partners	Inspection of recommendations for the Caucus, including roadways, driveways and defensible space	Bi-Annually

Appendices and Links

Appendix A. Community Wildfire Protection Plan Standards

Appendix B. Shield O Terrace and Pitkin County CWPPs

Appendix C. Homeowner Survey

Appendix D. Meeting Notes

Appendix E. IFTDSS Output Report

Appendix F. Risk Assessment Report

Appendix G. Holy Cross Vegetation Management

Appendix H. Colorado State Forest Service and Colorado State University Publications

1) CSFS Quick Guide Series, Fire 2012-1 *Protecting Your Home From Wildfire: Creating Wildfire-Defensible Space Zones*
2) CSFS *Home Fire Protection*
3) CSU Extension #6.305 *FireWise Plant Materials*
4) CSU Extension #6.303 *Fire-Resistant Landscaping*

Colorado State Forest Service

https://csfs.colostate.edu/

Colorado State Forest Service CWPPs

https://csfs.colostate.edu/wildfire-mitigation/colorado-community-wildfire-protection-plans/

Colorado's Major Tree Species

https://csfs.colostate.edu/colorado-trees/colorados-major-tree-species/

FireWise USA

https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA/Become-a-Firewise-USA-site

Holy Cross Energy

https://www.holycross.com/

Lazy O Ranch Wildlife Protection Easement

https://www.lazyoranch.com/wp-content/uploads/2015/05/lazy_o_ranch_wildlife_easment.pdf

Preparing a Community Wildfire Protection Plan

http://static.colostate.edu/client-files/csfs/pdfs/FINAL_Revised_CWPP_Minimum_Standards_111309.pdf

Pitkin County CWPP

https://csfs.colostate.edu/media/sites/22/2014/02/PitkinCountyCommunityWildfireProtectionPlan-Update2014.pdf

Pitkin Emergency Information and Pitkin Alert

https://www.pitkincounty.com/290/Emergency-Information

Pitkin County Wildfire Information

www.PitkinWildfire.com

Shield-O Terrace Subdivision CWPP

https://csfs.colostate.edu/media/sites/22/2016/08/Shield-O-Terrace-CWPP-Nov.-2013.pdf

Upper Snowmass Creek Caucus

https://www.uppersnowmasscreek.com/