White Paper

Wildfire – Vail, Colorado

Safety

Risks

Actions

Lessons learned

Stephens Park Fire, 2008

June/July 2013

Vail Fire and Emergency Services

Mark A. Miller, Fire Chief

Contents

1. Executive Summary

The 2012 fire season was an incredible awakening of just how destructive wildfire can be. In Vail, many began asking the question, “Can something as disastrous as the Waldo Canyon Fire in Colorado Springs or the High Park Fire in Fort Collins happen in Vail or surrounding areas?” The answer: *Absolutely*.

We tend to have short memories regarding the potential of wildfire, especially since we have experienced an extraordinarily wet 2013 spring in Vail. However, as we look back at the 2012 wildfire season, it will be remembered as “unprecedented**”** with a reported 4,167 fires throughout Colorado. Those fires destroyed more than 648 structures, killed 6 civilians, burned more than 384,803 acres and caused at least $538 million in property loss.

The 2013 season is now upon us, and once again, we are experiencing another unprecedented wildfire season. With the loss of over 500 homes in the recent Black Forest Fire, and new fires starting in all parts of Colorado (over 14 new fires as of this writing), one begins to wonder if this is the new norm for wildfires in Colorado.

The aim of this paper is to examine: **what we have done, what we are doing and where we are going** in wildfire mitigation and preparedness. Although this paper primarily focuses on Vail and adjacent United States Forest Service (USFS) properties, it is quite clear that the elements outlined here apply to almost all wildland urban interface (WUI) areas.

2. Abstract

Eagle County has been quite fortunate in that we have not experienced large dollar loss or acres burned in comparison to many counties throughout Colorado in recent years. In 2012, Eagle County had a total of 37 fires reported, burning approximately 684 acres. Although much of that may be due to timing and “luck” there was a great deal of collaboration, resource allocation, planning, training and due diligence that played an essential role in keeping losses to a minimum. However, it is unlikely we will ever be able to be anything but *intentional and vigilant* in our focus on mitigation and preparedness. As cliché as it is, the saying, “it’s not if, it’s when” should keep us on our toes as we enter each wildfire season.

As this paper will explore, collaboration is key. Many partners have been instrumental to our wildfire mitigation/suppression efforts. Vail Resorts, USFS, the Town of Vail including Vail Police department and Vail Fire department, Eagle County, and associated county fire/public safety agencies are tirelessly committed to assisting each other in planning for the worst. The role of Vail residents will also be highlighted as they play an integral part in wildfire mitigation. Key responsibilities for residents include: *knowing your plan for exiting/evacuating in the event of a wildfire, signing up for ECAlert, getting a Firewise inspection of your property, mitigating hazardous trees, being vigilant in notifying authorities of suspected smoke or fire in the WUI, understanding the associated dangers and realities of living in the WUI, attending local* ***Ready, Set, Go*** *meetings, and making a list (room by room) of essential items you will take in the event of immediate evacuation.*

This paper will also examine the lessons learned from the Waldo Canyon and High Park fires and recommendations outlined from the After Action Reports (AAR). These recommendations will be evaluated as to how, if, and when they can be implemented in Vail.

Simply stated, wildfire can be a colossal and largely unpredictable force of nature no matter how well we work to suppress or prevent a disastrous incident. As we have witnessed, often nature wins, and regardless of our efforts, we may fail in preventing a disastrous wildfire. It is easy to second guess and say we should have done more, or been notified earlier, or spent more, or mitigated more, but the reality is *living in the WUI has distinct disadvantages regarding wildfire and associated risks.* It is up to "us" to prepare accordingly and understand we own much of the responsibility in choosing to live in mountainous areas. Each of us must take appropriate measures to protect our lives and property. Thank you for your support and interest in partnering with us.

3. Wildfire Mitigation/Preparedness

3.1 What Have We Done/What Are We Doing?

TOV/Vail Fire Actions

The Town of Vail Forest Health /Wildland Urban Interface (WUI) plan was initiated in 2005 as a collaborative effort with several agencies, including Town of Vail, U.S. Forest Service, Colorado State Forest Service, Eagle County, Upper Eagle Regional Water Authority and Eagle River Water and Sanitation District, BLM, Upper Colorado River Interagency Fire Management, and private property owners.
www.vailgov.com/foresthealth

The plan was established with the objective of aggressive fire prevention and education in the WUI to create fuel breaks between the WUI and the wilderness areas adjacent to the Town of Vail. Additionally, cooperative fuels projects were implemented in strategic areas of the WUI, and a Community Wildfire Protection Plan (CWPP) was established in conjunction with Eagle County agencies.

The plan includes an evacuation plan (in the event of a catastrophic wildfire), a wildfire hazards rating map (figure 1 - low to extreme fire hazards areas), the implementation of a FIREWISE inspection program for homeowners, a hazardous tree removal ordinance and the hiring of a wildfire mitigation crew.

Logistics

Currently the Town of Vail allocates $195,000 from Real Estate Transfer Tax (RETT) fees annually to support the mitigation crew and Forest Health plan, which includes:

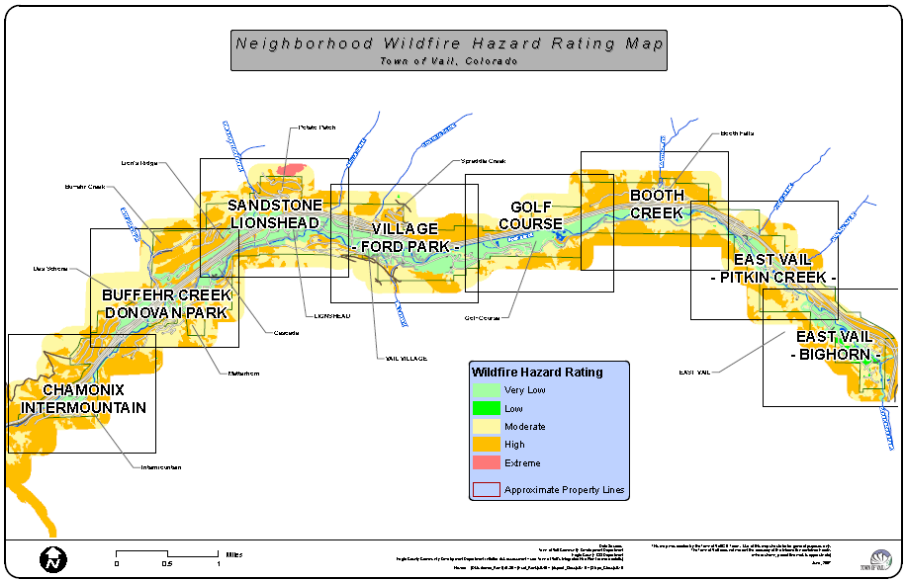
- Hiring six (6) seasonal Wildland Mitigation members (May through October) for mitigating pine beetle affected trees, providing a community chipping service for downed trees and slash, and conducting Firewise inspections.
- All equipment and applicable training for crews, public education brochures, enforcement of the dead tree ordinance, etc.
- Hosting frequent (1 -2 times annually) table-top exercises and functional exercises to test resources and network with collaborative partners.
- Providing maintenance and equipment needs for two “Type 6” brush units.
- Heli-logging operations as appropriate.

Forest Health Plan - Mitigation Crew Accomplishments, 2005-2012

- Approximately 12,500 hazardous trees have been mitigated since inception (30% – 40% via heli-logging).
- Significant improvements have been made to the defensive space around the TOV.
- Assessment and enforcement of 100% of homes in the Town of Vail (TOV) for hazardous trees has been completed. Many remaining problems need to be resolved.
- Conducted approximately 120 Firewise inspections.
- Approximately 2500 trees have been chipped and recycled.
- Approximately 2900 slash piles have been burned to reduce dead surface fuels.

- Continuous media updates and public education opportunities via web site, brochures, and public meetings have been provided.
- Replenished aspen stands where a number of stands have been identified as being in decline or over mature.
- Certified all fire department members in Red Card training (wildland).
- Conducted multiple wildland tabletop exercises.
- Collaboration, planning, communication, and training with all agencies has been frequent and on-going.
- Hazardous location map was developed (Figure 1) to prioritize mitigation efforts.
- Implemented and revised evacuation plan http://www.vailgov.com/subpage.asp?page_id=777
- Approximately 50% - 60% of the town's boundaries have been mitigated.

Figure 1 – The "yellow" areas indicate "HIGH" risk areas. RED (extreme) areas have been mitigated.



Vail Police Actions

- Re-trained dispatchers on Emergency Preparedness Network (EPN) (Reverse 911). Reviewed EPN system with other public safety agencies and provided draft scripts for evacuations. Trained VPD officers on the EPN system.
- Conducted county-wide EPN test (2012).
- Provided training on evacuations at **Ready, Set, Go** for citizens and TOV employees.

- Printed evacuation door hanger cards to identify residential units that have been contacted by officers and evacuated, distributed in patrol cars.
- Issued personal protective equipment to police personnel to assist in their safety while conducting evacuations.
- Researched evacuation policies nationwide to assist in re-writing TOV evacuation policy.
- Training was provided for police officers and code enforcement officers by the USFS on likely scenarios for a wildfire in Vail.
- Participated in countywide review and documentation of notifications systems and methods to communicate with the public during an incident.

Vail Resorts Actions

- Implemented agreement with TOV and USFS to commit up to $15,000 towards air support should mountain assets and surrounding properties be threatened due to wildfire.
- Participated in TOV Local Emergency Planning Group and the associated training exercises.
- Developed a Wildland Fire Awareness Outline which is reviewed at the beginning of each summer season and reinforced as needed during operations meetings throughout the summer.
- Purchased tree harvesting equipment in May 2010, and allocated resources during summer months to perform mitigation efforts in conjunction with the USFS.
- Contracted the clearing of 40 plus acres of beetle affected trees in several locations across Vail Mountain on National Forest lands (Summer 2012).
- Removed and disposed of several hundred “danger” trees, identified as beetle affected trees near lift lines, buildings and ski trail edges and summer trails on National Forest lands.
- Identified on-going resources (sawyers, equipment operators, etc.) for the continued removal of beetle affected trees in the coming summer months.
- Facilitated a training/tour with Vail Fire in the operation and location of snow making pumps that can be utilized for wildfire events on the lower portion of Vail Mountain.

USFS Actions - Completed or on-going work in and around Vail

- Vail Valley Forest Health Project
- Vail Mountain Forest Health Project
- Upper Eagle Forest Health Project
- Hazardous tree mitigation on forest roads

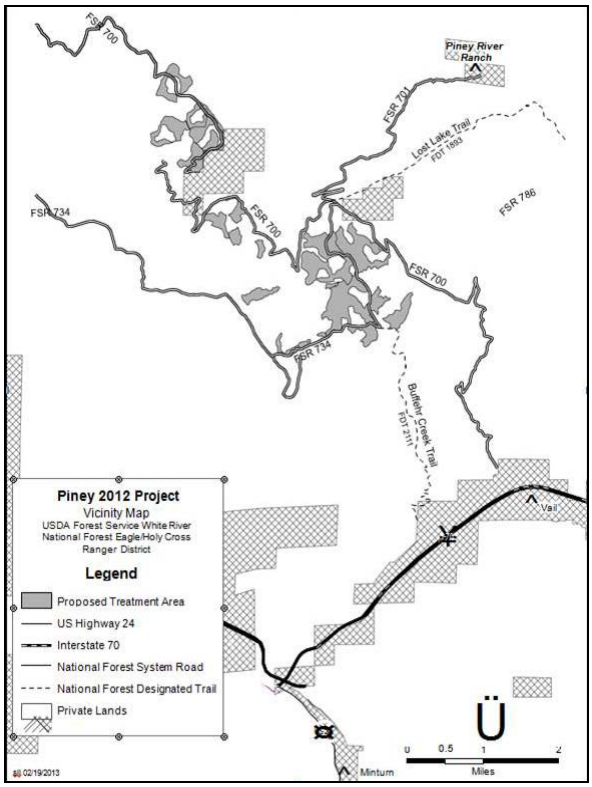
- Indian Creek Forest Health Project

Figure 2: United States Forest Service – Region 2 White River Nat. Forest

The USFS is analyzing the "Piney 2012 Project" (See Figure 3), which will treat over 914 acres in the Piney area north of the TOV. Pending decisions, the project would be completed over the next three to five years. The purpose of the project is to:

- Create favorable conditions for aspen and lodgepole regeneration following the mountain pine beetle epidemic.
- Reduce the accumulation and continuity of future heavy fuel loading over the long term by removing dead, dying and susceptible trees.
- Provide commercial forest products and/or bio-mass fuels to local industries.

Figure 3: Piney 2012 Project



Following discussions with TOV, the USFS is reviewing assessments conducted in 2005 which considered fuel reduction and forest health work in the Intermountain area to determine the feasibility of a project in the near future.

Table 1: The table below indicates the USFS net treatable acres for 2012 – (no update on what has been accomplished regarding treatable acres as of this date).

Treatable Acres in Eagle and Summit Counties

	Eagle-Holy Cross Ranger District	Dillon Ranger District	Total
Total Ranger District	595,542	309,671	905,213
Lodgepole pine Susceptible to Beetle	89,930	70,522	160,452
Wilderness and Recommended Wilderness	(19,867)	(18,660)	(38,527)
Inventoried Roadless	(32,741)	(9,424)	(42,165)
Slopes over 40%	(6,587)	(8,863)	(15,450)
High Landslide Potential	(423)	(265)	(688)
Net Potential Treatable Acres	30,312	33,310	63,622

USFS Wildfire Response Capacity

- Federal wildfire engines located in Eagle/Minturn/Dillion
- Central and West zone resources
- Rifle and Grand Junction air resources
- Heavy air tankers and Helicopter recources (national)

USFS/Local parternership response resources

- Federal/Local Fire department/fire district cooperation
- Local Incident management teams
- Pre-attack and evacuation plans
- Tabletops and full scale exercises
- Exercising the Emergency Operations Center and Grand Junction Dispatch Center (See figure 4)

Figure 4: USFS Wildfire response considerations

Eagle County/Eagle County Public Safety Agency Actions

- All Eagle County public safety agencies have been fully engaged in collaborative efforts regarding wildfire mitigation, including: on-going participation in wildfire tabletop exercises, weekly conference calls to access wildfire potential and

operations plans, wildland task force participation, frequent media releases regarding fire restrictions, etc.

- In 2005 the Eagle County **Community Wildfire Protection Plan (CWPP)** was created (amended in 2010 and revised in 2011). All County fire agencies, CSFS, USFS, BLM, Vail Resorts, Cordillera Metro District, Eagle-Vail Metro District, Eagle River Water and Sanitation District, Bellyache Ridge, Mountain Star, and Colorow HOA's contributed to the revision process. Additionally, in 2009, the Eagle County Wildfire Council was formed as the need for interagency collaboration became even more apparent. All of the aforementioned agencies are involved in the Wildfire Council.

CWPP - Fire Management Objectives: East Vail

Hazardous Fuel Reduction:
The study area is represented primarily by four fuel models (Anderson FM): FM 1, 2, 8, 10. Other fuel models exist, but not in quantities sufficient to significantly influence fire behavior in the Wildland Urban Interface. East Vail fuels vary from light to moderate loads of grasses and shrubs to dense stands of beetle-killed lodgepole pine and spruce-fir.

Defensible Space: Priority Level- High

Several homes in the study area have adequate defensible space, but many more have mature vegetation too close to the house (i.e. within the home ignition zone of 30ft). At a minimum, fuel reduction within the home ignition zone should be implemented at every home-site in East Vail.

Linked Defensible Space: **Priority Level- High**
Fall Line and Columbine Dr. - Linked defensible space (contiguous with adjacent defensible space) around homes on outer edges of the community would act as a larger fuel break protecting homes in the neighborhood from ignitions caused by ember-showers generated by fires on the hillside above. Linked defensible space around homes in this area should also be created given the dense fuel loading surrounding homes in the area.

Fire Resistant Construction:
There is widespread use of fire-resistant siding and composite roofing associated with recently constructed homes in East Vail. Some wood siding exists throughout the study

area. Most houses have conventional wood decks, and many of the neighborhood's older homes have wood shake roofs. Remodels and new construction in the study area should adhere to Firewise building design and/or Eagle County's Building Requirements for Wildfire Areas.

CWPP - Fire Management Objectives: West Vail

Hazardous Fuel Reduction:

The study area is represented primarily by five fuel models (Anderson FM): FM 1, 2, 4, 8, 10. Other fuel models exist, but not in quantities sufficient to significantly influence fire behavior in the Wildland Urban Interface. West Vail fire fuels vary from light to moderate loads of grasses and shrubs on south facing slopes, to dense stands of beetle-killed lodgepole pine with significant ladder fuels (small branches from ground level on a tree to approximately eight ft. above ground level).

Defensible Space: Priority Level- High

Very few homes in the study area have adequate defensible space; most homes have mature vegetation too close to the house (i.e. within the home ignition zone of 30ft). At a minimum, fuel reduction within the home ignition zone should be implemented at every home-site in West Vail.

Maintain Existing Fuel Breaks: Priority Level- Moderate

In 2007 and 2008, Eagle County, USFS, CSFS, Town of Vail and Eagle River Water & Sanitation District partnered to accomplish objectives set forth by the Vail Valley Forest Health Project. Long-term maintenance of these treatment areas will be needed in order to maintain their effectiveness over time. Future landscape fuel reduction projects should seek to expand on these existing treatment areas.

Fire Resistant Construction

Homes built in unincorporated West Vail after 2006 have fire resistant decking, roofing and siding per the Eagle County Wildfire Regulations. Many, if not all, of the homes built in the area prior to 2006 have wood siding or roofing, and conventional (non-fire rated) decks. Remodels and new construction in the study area will have to adhere to Eagle County's Building Requirements for Wildfire Areas requiring the use of fire resistant building materials.

Eagle River Water and Sanitation District (ERWASD) Actions

The District has been extremely proactive in working with public safety agencies regarding wildfire. Vail Wildland Mitigation crews have collaborated with the district in doing extensive mitigation work around all susceptible water storage tanks and critical infrastructure. Agreements have been made which allow critical water sources to be made available in the event of a wildfire. Frequent meetings with all pertinent county agencies have and will continue to take place during the summer months to ensure consistent communication and identify current and future concerns. The district will continue to run current water restriction notices and fire danger notices in the Vail Daily newspaper.

3.2 Vail's Wildfire Future - Where are we going - Considerations

Unfortunately, the wildfire concern in Vail is not going away. Due to the on-going potential for a catastrophic wildfire season, all wildland mitigation efforts have ratcheted up over the last several years. The 2012/2013 seasons are proof that living in the WUI has its drawbacks and we all must be cognizant and responsible in doing our part to protect life and property. In addition to the aforementioned on-going efforts of all agencies, we are focusing on the following objectives/plans as we move into 2013 and beyond:

- Development of a comprehensive "triage map" for Vail, which will identify specific homes that are in the Green (defendable); Yellow (questionable); and Red (non-defendable) categories (completed by Fall 2013).
- Conduct a drill with Vail Resorts utilizing their snow making equipment to assist in suppressing a mock wildfire in early summer (2013).
- Practice a "real life" evacuation drill in Vail in which we notify residents (with several days' prior notice) that they have 30 minutes to evacuate. All residents will be encouraged to participate. Officials will time the event and conduct assessments with evacuees as to how fast/efficient they were able to follow instructions and safely evacuate.
- Begin philosophical discussions with TOV Council/staff regarding potential mandates for homeowners in regards to defensible space, including a mandate requiring all combustible (wood shake shingle) roofs to be replaced within a realistic timeframe.
- Continue mitigation efforts to protect critical infrastructure of the Eagle River Water and Sanitation District.

- Send available fire crews on in-state and out-of-state wildfire deployments in a continued effort to gain practical experience, learn from others, and generate revenue. This “real-life” practical experience is invaluable in understanding situational awareness and risk/benefit perspective. The recent, unthinkable tragedy in which 19 members of the Prescott AZ Hotshot crew perished is a somber reminder of the dangers involved in wildland firefighting, and the need for on-going training through deployments and local incident involvement.
- Work with the USFS to implement a multi-year aggressive mitigation plan for the West Vail Intermountain areas (our most vulnerable area).
- Educate and promote the ECALERT system (cell phone, e-mails, etc.) for real time notification and updates regarding major events and/or evacuation notices.
- Increase Forest Health budget for additional resources/crews.
- Implement recommendations from “lessons learned” in the Waldo Canyon fire. The “lessons learned” from the High Park fire will be evaluated when the report is available.
- Re-visit/research affordable options for constructing an “Emergency Siren Notification System” in Vail (at the direction of TOV Council).
- Consider preemptive policy of *incentivizing* home owners that have combustible roofs on their homes to replace their roof with non-combustible materials. In return, Vail Fire mitigation crews will remove hazardous tress on their property.
- Host **Ready, Set, Go** meetings to further educate residents.

4. Lessons learned from Waldo Canyon Fire

4.1 After Action Review (AAR)

On Saturday June 23, 2012, a fire was reported in the Pike National Forest, approximately three miles west of Colorado Springs. The fire burned 18, 247 acres over 18 days, and was reported fully contained on July 10, 2012. At the time, the Waldo Canyon Fire was the most destructive fire in Colorado history, destroying 347 homes and damaging many others. Two individuals lost their lives as a result of the fire.

The After Action Report (AAR) issued by the City of Colorado Springs focuses on all city departments and divisions that supported the city’s response.

Although the list of issues/analysis/recommendations is *exhaustive,* this report identified key recommendations that are applicable to Vail/Eagle County. The complete AAR was 110 pages in length. In an effort to keep this report brief, the following recommendations do not include the issues/analysis portion of the AAR.

4.2 Recommendations

Communications Recommendations

- Conduct training to ensure that there are personnel able to fulfill the Communication Unit Leader position for multiple operational periods.
- Develop a large incident, multi-agency communications plan (ICS 205) incorporating VHF and 800 MHz radio systems that can be easily adapted during a future incident.
- Develop a system to notify city employees of critical incident updates using both personal and work issued equipment and varied methods (i.e. text messages and email to personal email accounts).
- Review existing city cellular contract and the associated coverage in the WUI area.
- Review coverage maps and contact vendors, as needed, to discuss deficiencies in cellular service in the WUI area. Establish contacts and/or contracts with vendors to provide immediate emergency services and equipment during an incident; test these services for coverage prior to an incident.
- Create an incoming phone number to the EOC that can roll over to multiple lines.

Planning Recommendations

- Create job checklists/aides to be used in conjunction with the plans.
- Revise existing job checklists/aides.
- Conduct training and exercises on the job checklists/aides. Through the city's CAPS volunteer program, train volunteers to work as scribes for key personnel during the incident. These scribes can document and share information, as necessary in real time with other agencies and personnel.
- Provide additional training to first responders on the use of ICS forms.
- Facilitate the flow of information with ICS forms during events.
- Ensure that ICS forms are readily available to personnel during an incident.
- In accordance with ICS, develop a multi-operational period staffing plan for each city department to ensure that there is adequate rest and coverage for personnel for the duration of the incident.
- Conduct ICS training for individuals to ensure there is coverage in key positions for multiple operational periods.

Community Preparedness and Participation Recommendations

- Develop additional methods to deliver community preparedness

training/messaging throughout the community in order to reach a broad and diverse audience.
- Utilize community volunteers to develop and conduct community preparedness activities.
- Develop a local Volunteer Organizations Active in Disasters (VOAD) chapter that can mobilize community organizations during a disaster. These organizations can be the conduit for volunteer mobilization during an incident.

Operational Coordination Recommendations

- Develop a comprehensive organization chart early during the incident to ensure that span of control in positions is appropriate for the incident and is adequate for effective incident management. Early in the incident, develop staff depth in key positions.
- Develop an immediate staffing rotation plan to ensure rest times for staff during extended incidents.
- Provide training to city personnel and volunteers to ensure that they are equipped for necessary staff relief/support.
- Provide further comprehensive training to staff on their respective roles in the EOC and on the interface with the Incident Command Post (ICP).
- Replace all computer equipment in the EOC and ensure that is updated regularly.
- Ensure that the EOC has liaison personnel for all geographically disparate areas of the incident (partner agency EOCs, IMT, ICP, etc.) and conduct regular liaison briefings to ensure that EOC staff has the most recent information from the field and vice versa.
- Ensure that a mechanism is in place to deliver current IAPs, to include maps, to each staging location and ensure that personnel at those locations are trained in how to read and present a prepared IAP, extracting relevant information out of multiple IAPs for the intended audience.

Critical Resource Logistics and Distribution Recommendations

- Ensure that personnel have provisions, especially rehydration provisions, sufficient for a 24-hour period. Coordinate early with the Salvation Army to develop a feeding plan for all areas and locations of the incident. This plan needs to include timelines and a process for reporting how many personnel in the field and at each location require food.
- Develop a plan for delivering food to personnel working in active fire zones. Delivery personnel need appropriate PPE and vehicles.

- Provide training and resource materials (e.g. Flow charts) that document the resource ordering process during EOC activation.
- Ensure, to the extent possible, that all vendors and/or City departments are aware of this process and redirect resource requests to the EOC that are not from the EOC.

Responder Safety and Health Recommendations

- Update information regarding PPE caches and ensure that the caches are readily available in a time of need.
- Develop a plan to ensure that emergency response personnel receive adequate rest, work consistent shifts, and receive breaks and rehabilitation (food and supplies).
- Fire Recommendation: During significant incidents covering multiple operational periods, assign dedicated personnel to the incident and apply an alternative work schedule for them. Depending on the incident type, this alternative work schedule could be consistent with what is used for both wildfire deployments and by federal IMTs incorporating a 2:1 (16:8 hour) work/rest ratio
- Evaluate the need for post - incident critical stress debrief and/or peer support for first responders and support personnel.
- Develop an ICS Organization Chart for the incident to ensure that there is an Incident Safety Officer and an Accountability Officer assigned. These two positions will account for all safety needs for personnel who are working the incident.

Emergency Public Safety and Security Recommendations

- Advise the public that CSPD is providing security in the evacuated and pre-evacuated areas 24 hours a day.
- Explore the possibility of training and utilizing additional city staff to provide support to law enforcement officers working on the safety and security aspects (i.e. Streets Division assisting with road blocks, traffic direction).
- Conduct advanced ICS training for first responders, Command and General staff.
- Deploy more resources to provide inter-perimeter patrol at the onset of the evacuation order to include voluntary, pre-evacuation, and mandatory evacuation notices. These roving patrol resources would be deployed along with evacuation traffic control.

Fire Incident Response Support Recommendations

- Develop a comprehensive personnel accountability tracking system for large - scale incidents and mandatory recall situations.

Evacuation and Re-Entry Recommendations

- Consider using street names as borders as well as using the names of neighborhoods.
- Make maps of the evacuated areas available immediately through a variety of methods and modes (e.g., media, handouts at public locations, etc.).
- Ensure that first responders have immediate access to maps and decisions regarding evacuations. Information sharing can be achieved by the recommendations. Explore the ability to provide evacuation maps to smart phones and other portable devices.
- Establish a re-entry task force early in the incident after the initial evacuations are ordered. This task force would be the single point of contact to assess the need for anyone wishing to gain entry during the mandatory evacuation and once the evacuation has been lifted.
- Divide the attendees for large meetings and/or announcements by geographical neighborhood when separating groups (such as the UCCS community meeting on 28 June).
- Assess the capabilities of evacuation software applications designed for public safety and implement relevant solutions for law enforcement.
- Review the available options for gathering data as soon as possible on an affected area. This may include contracting flight services to take aerial photos and/or overlaying this information on existing data layers.

Emergency Public Information Recommendations

Twitter was effective in providing immediate information to the public and, through monitoring the PIOs in the JIC (Public Information Officers and Joint Information Center) could easily correct any misinformation.

- Develop a city Crisis Communications Team that works with the regional Crisis Communications Network (CCN) to refine public information plans and procedures.
- Consolidate all public information functions and personnel under the Colorado Springs Communications Department.

- Develop a JIC plan for the city, ensuring that this plan defines roles and responsibilities for all JIC functions and how city PIOs will organize under this structure.
- Work with regional CCN to help participants identify and receive PIO and JIC training as needed.
- Coordinate the provision of PIO training with city staff to ensure that there is depth in this position and identify additional trained local PIOs to supplement city Communications staff as necessary.
- Develop pre-scripted evacuation messages and provide more detail, especially whether the evacuation is emergent or not. If the evacuation is emergent, reiterate pertinent information such as: Traffic plan information such as contra flow out of a neighborhood or on main arteries.
- Use text messaging instead of calls on cell phones to keep lines open for emergency calls.
- Take one car to keep your family together and help reduce traffic and cell phone congestion.
- Work with local media and advocates for the deaf and hearing impaired community to provide closed captioning and interpreters during emergency incidents.
- Create a fixed facility JIC location within a city building that has adequate equipment and connectivity for all organizations that may need to respond to a multi-agency incident. Of key importance for this facility is: Landline telephones with predetermined telephone numbers, and capability to monitor multiple television stations simultaneously and to record press conferences and other key information reported by the media.
- Devise a plan to ensure that plans can be immediately emailed to the JIC and provide the JIC facility with the equipment necessary to print the maps on plotter paper. For redundancy, develop a plan for hand delivery of maps to the JIC facility that should be located in close proximity to the EOC.

4.3 Waldo Canyon AAR Conclusion

In October of 2012, Senators Udall and Bennet sent a letter to USDA Secretary Vilsak requesting a comprehensive and scientific review of the Waldo Canyon fire. A similar request will be made for the High Park fire. This type of study will provide insight into the interdependencies that existed among the various local, state and federal response agencies throughout the duration of the fire and how the environment influenced the fire behavior. The City of Colorado Springs fully supports this request and is prepared to

actively participate in a further holistic review of the Waldo Canyon Fire, understanding that the USDA study would complement this AAR (Waldo Canyon).

Key questions in the request to the USDA included:

- Influence beetle killed trees played in the High Park fire?
- Influence specific fuel treatments (defensible space, etc.) played in reducing fire intensity, damage, etc?
- Influence the Community Wild Fire Protection Plan played in overall management and losses of these fires, etc?

4.4 Fire Adapted Communities Coalition Assessment (Waldo Canyon)

The Fire Adapted Communities coalition also conducted an assessment of the Waldo Canyon fire and came up with the following conclusion:

- Mitigation work conducted in the high risk areas of the community (prior to the fire) was credited with helping the fire department achieve an 82 percent save rate. As an example, the cost benefit ratio for the Cedar Heights neighborhood was 1/257; $300,000 was spent on mitigation work and $77,248,301 in losses were avoided. However, it should be noted that changes in fire weather behavior such as wind shifts could have resulted in higher fire losses.
- Ember ignition via ignition of combustible materials in or near the home was significant.
- Home to home fire spread was a major issue.
- Wildland fire-to-home ignition was influenced by location of home on slope and fuel treatments or lack of slope leading to the home.
- Individual homeowners must take responsibility for fortifying their property against wildfire damage by taking appropriate measures to incorporate noncombustible building materials and construction details.
- The community tax base is significantly impacted by the widespread damage and destruction of homes and businesses during wildfires. This has economic consequences for all residents.

5. Town of Vail Action Steps Regarding Waldo Canyon Recommendations

It is sufficient to say that many of the lessons learned/recommendations outlined in the Waldo Canyon AAR are ***relevant and applicable*** to Vail/Eagle County. Authorities will look at each recommendation to determine how we are doing and identify action steps to improve deficiencies.

Early notification and efficient evacuation issues are a common thread in all major wildfire incidents. In order for people to evacuate to safety, they need to receive the warning, understand the warning, and know if it applies to them. When wildfire comes to the urban setting (WUI), it is residents' duty to mitigate and be prepared, and it is the TOV/Government's duty to help them.

5.1 Specific TOV Wildfire Concerns

Intermountain and West Vail

- Areas of particular concern - Winds could drive fire quickly to the east.
- Aspen stands may provide some buffering in the summer season.
- Thick forests.
- Good water volume (positive).
- Fire most likely moving uphill.
- Back burn an option (USFS/BLM).
- Evacuation – complex and resource taxing.

Game Creek

- Provides some buffer to south of West Vail – large aspen population.

Ski Area

- Provides good buffers and reinforcement potential.

Main Vail

- Village and Lionshead areas have limited wildfire concerns, and many options for shelter in place. However, there is potential for building to building fire spread in

the event of a wind driven fire. There should not be a false sense of security just because it is not directly in the WUI.

- Residential areas north of Village and Lionshead are susceptible and vulnerable, although good buffers, aspen stands and low volume of dead trees are positives.

East Vail

- South – comprised of healthier spruce, aspen and fir population that is more resistant to fire spread.
- Steep slope would discourage downward fire spread.
- North – gets more southern exposure (drying it out) – intensity of finer fuels provides easier knockdown opportunity.
- Dead aspen stands may not provide sufficient buffering. Beware of fuel loads in aspens (heavy and light).

Buffehr Creek

- Dying and decaying lodgepole pine with light fuel (grass) component.
- Prevalent wind activity.
- Green conifer canopy has crown fire potential.
- Lack of defensible space.
- Large spot fire potential.
- Significant evacuation concerns (one way in/one way out).
- Prepare for evacuation regardless of size of fire (early and immediate).
- Egress for residents may be walking out the backside.
- Possible “protect in place” safety zones near and in tennis court area.
- Air support an hour away – multiple hose lays are essential.
- Fires to the west of Buffehr Creek is reason to evacuate all Buffehr Creek residents due to potential spread. Evacuation and traffic concerns are high priority.

Note – most principals in Buffehr Creek area remain constant throughout Vail, although most have better evacuation opportunities (multiple ingress/egress).

6. What We Are Doing Well

While we have much work, training, preparation, and educating to do, the TOV is relatively well prepared. We have a unique collaboration between the USFS and all relevant Eagle County agencies. In this, we can find some comfort. The support of the TOV Council and management has allowed the Vail Wildfire Mitigation crew to be in its eighth successful season. Crews are always available within the TOV, and are also available to deploy on out-of-state wildfires. This not only brings revenue to the TOV, but more importantly it gives firefighters the much needed practical experience they will need if and when the fire is in our own backyard.

The fact we have a true partnership with Vail Resorts in their financial commitment to supporting air attack operations on Vail Mountain, is significant. Training and collaboration with Vail Resorts employees is on-going and focused.

The commitment to holding wildfire table-top exercises on a frequent basis continues to identify strengths and weaknesses. Crews are continuously training to improve skills, area familiarization, and appropriate prioritized action steps.

7. Conclusion

Wildfires are dynamic disasters, but years of research show that they have at least one static quality: Regardless of the setting, they are forever posing challenges when it comes to **evacuation and prevention**.

The unpredictability of fire makes it difficult for officials to provide everything at exactly the right moment, said Kathleen Tierney, of the National Hazards Center at the University of Colorado in Boulder.

Hurricanes typically give several days of warning. Tornados only give a few minutes – same with fire. After more than 40 years of research by the center into fire evacuations, the inherent problems have not changed, Tierney said. Warning challenges are extraordinary due to the nature of fire dynamics and lack of timely warnings, and adequate information which plagues wildfire victims again and again.

“If smoke is coming, don’t wait for a call,” said Michelle Steinberg, Firewise Communities program manager for the National Fire Protection Association. “If you

assume that someone is going to knock on your door with lots of time, which may not happen, it's not a good idea to wait and see." The "wait and see" mentality tends to predominate in evacuation situations, said Steinberg. "In order for people to evacuate safely, they need to receive the warning, understand the warning, and know that it applies to them," she said. "This is immensely challenging to get all parts of that warning right."

Residents have a responsibility - to mitigate and be prepared, including:

- Know your plan for exiting/evacuating in the event of a wildfire.
- Sign up for ECAlert.
- Get a Firewise inspection of your property.
- Mitigate hazardous trees – be diligent about creating defensible space.
- Be vigilant in notifying authorities of suspected smoke or fire in the WUI.
- Understand the associated dangers and realities of living in the WUI.
- Attend local ***Ready, Set, Go*** meetings.
- Make a list (room by room) of essential items you will take in the event of immediate evacuation.

Reality - most of Vail lies within the "High Risk" category for wildfires. We (public safety agencies) will continue a sustained, aggressive - but reasonable approach towards forest health and wildfire mitigation; including prescribed burns (when appropriate and safe), managed wildfires and collaboration with partners. As outlined in the "considerations" portion of this paper, the "triage" map may prove to be one of the most realistic and helpful indicators for home owners in identifying specific properties in Vail that are in the most difficult to defend category (red/yellow), vs. those that are easier to defend due to defensible space, good access, and favorable geographic considerations (yellow/green). It is imperative that those who own properties in the red or yellow categories understand the associated risks and take necessary actions in regards to wildfire mitigation, and the protection of life and property.

Simply stated, it is imperative that we adopt a *"community"* approach to wildfire mitigation. It can happen here. Remember –*"fortune favors the prepared."*

8. References/ Contact info/ Websites

Miller, Mark, Fire Chief – Vail Fire and Emergency Services;
mmiller@vailgov.com; 970-477-3474

Neely, Dave, District Ranger – Eagle/Holy Cross Ranger District;
dneely@fs.fed.us; 970-328-5860

Fire Adapted Communities; http://fireadapted.org/

Steinberg, Michelle; Firewise Communities program manager – National Fire Protection Association.

Tierney, Kathleen; Natural Hazards Center – University of Colorado, Boulder;

City of Colorado Springs – Waldo Canyon – "Final After Action Report";
release date – April, 3 2013.

Preliminary Report on 2012 "Wildfire Season in Colorado";
January 16, 2013

Colorado Division of Fire Prevention and Control;
http://dfs.state.co.us

"Eagle County Wildfire Protection Plan" – revised 2011;
http://www.eaglecounty.us/Building/Wildfire/Overview/?terms=CWPP

"Town of Vail Forest Health Plan"; www.vailgov.com/foresthealth

"Town of Vail Wildland Urban Interface defensible space plan";
http://www.vailgov.com/subpage.asp?page_id=525

"Town of Vail – Mountain Pine Beetle";
http://www.vailgov.com/subpage.asp?page_id=695

"Town of Vail Wildfire Hazard Mapping";
http://www.vailgov.com/subpage.asp?page_id=786

"Vail Evacuation Plan";
http://www.vailgov.com/subpage.asp?page_id=777

"Town of Vail Dead Tree Ordinance";
http://www.vailgov.com/docs/dl_forms/Ord_No_23_Series_2007.pdf

www.ECAlert.org

9. Appendix A

National Significant Wildland Fire Potential Outlook

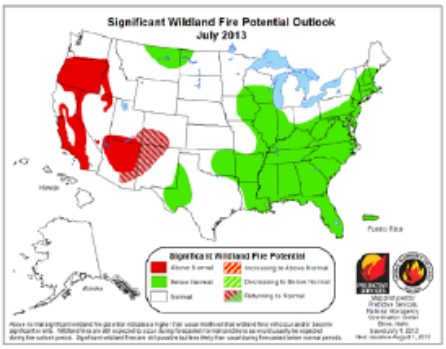
Predictive Services
National Interagency Fire Center

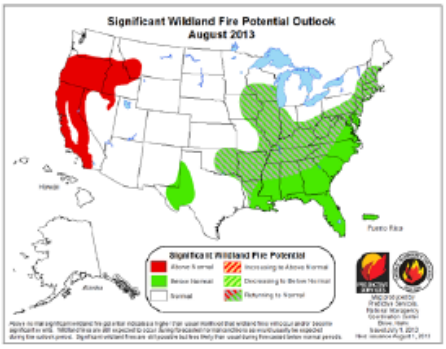
Issued: July 1, 2013
Next Issuance: August 1, 2013

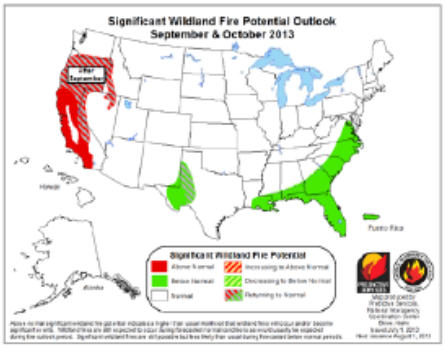
Outlook Period – July, August and September through October

Executive Summary

The July, August and September through October 2013 significant wildland fire potential forecasts included in this outlook represent the cumulative forecasts of the eleven Geographic Area Predictive Services Units and the National Predictive Services Unit.







July
- Long term drought across the West coupled with hot and dry weather in early July will nullify gains from recent precipitation and raise fire potential across portions of Oregon, Idaho, Nevada, and Northern California.

- Southern California, southern Utah, Arizona, New Mexico and Colorado will continue to experience extremely dry conditions and be at risk of significant fires.

- The East will remain moist with normal to slightly below normal temperatures through July.

August
- Heat and normal summer precipitation in the West will keep above normal fire potential across most of California and Oregon, and parts of Washington, Idaho, Montana and Nevada.

- Fire potential in the East will remain below normal along the Gulf and Atlantic coasts while returning to normal in the upper and mid-Mississippi, Ohio and Tennessee Valleys.

September and October
- Above normal significant fire potential will continue for much of coastal and interior California while returning to normal by October over the Sierras, Oregon, and parts of Idaho and Nevada.

- Below normal significant fire potential will remain across the Southeast Coast from Louisiana to Virginia. Parts of West Texas will also remain below normal.

10. Appendix B