



COLORADO

**Division of Fire
Prevention & Control**

Department of Public Safety

Strategic Plan for Supporting Colorado's Fire Agencies

August 2018

Executive Summary

In 2017, there were 71,499 wildfires in the United States that burned around 10 million acres. In the last 3 years, Colorado has experienced seven of the twenty largest wildland fires in State history, including the Spring Creek Fire, which is still burning as of the publication of this report. The cost of the 2018 fire season in Colorado has already reached over \$40 million with hundreds of structures lost or damaged. Fortunately, there have been no fatalities this year, which is a testament to the diligence and professionalism of Colorado's firefighting community. The State of Colorado needs bold leadership from the Division of Fire Prevention and Control (DFPC) in order to develop and implement holistic, creative solutions to its evolving fire problem.

Recognizing that fire impacts local, county, state, and federal agencies across Colorado, DFPC convened multi-disciplinary working groups to help identify the challenges and gaps to effective fire prevention, preparedness, and suppression. The working groups then developed recommendations to address those challenges and fill the gaps to ensure that Colorado is as equipped as possible to address the State's growing fire problem.

Through this process, DFPC has identified the major challenges facing the fire service in Colorado. These challenges are centered around resource mobilization, appropriate personnel and resource availability, insufficient mitigation capability, increased risk to the public and first responders, and an ongoing reliance on traditional solutions to solve an evolving problem. The solutions presented in this report include enhanced coordination and response personnel, increased availability for critical firefighting resources, an updated fire funding model, a more proactive approach to implementing new technologies, and targeted training for the underserved firefighting agencies in rural areas.

While no one solution presented in this report will be enough to address Colorado's growing fire problem, together they will ensure that our State is leading the way in preparing for and limiting the devastating impact of future wildland fires in Colorado.

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The 2018 Spring Creek Fire in Costilla and Huerfano Counties.

Introduction

This document is a multi-year plan to bring Colorado’s firefighting capabilities to a level that more adequately addresses the State’s fire problem and the evolving needs of fire stakeholders. It is the result of multiple stakeholder meetings and working groups who identified current challenges and recommended solutions on how the State’s fire agency can provide the necessary support to prepare Colorado for the future complexities and challenges of wildland fire.

With an increase in the wildland fire problem throughout the Western United States, there is a significant need for a holistic solution that does not rely only on one component of preparing Colorado for future wildland fires. This plan reflects an “and” solution that considers not only the costs and benefits of aggressive fire suppression efforts, but also the value of mitigation, planning and coordination, and creative new technologies and policies. As the State’s lead fire agency, the Division of Fire Prevention and Control (DFPC) is tasked with supporting a multitude of stakeholders who are impacted by fire. Fire Chiefs, Sheriffs, Emergency Managers, Federal Land Managers, Policymakers, and Citizens must be willing to lean forward to address these issues that have significant impact on our State. With over 2 million Coloradans residing in the Wildland-Urban Interface (WUI) without consistency around how to create fire-adapted communities, a lack of standardized requirements around local capabilities, and an increase in wildfire occurrence and effects, the time to act is now. Because fire does not respect jurisdictional boundaries and the impact goes far beyond one agency or community, any approach to improve wildfire preparedness and response in Colorado must be inclusive and stakeholder-driven.

In producing this document, the goal of the Division of Fire Prevention and Control is to educate our partners on all the risks that wildland fire is posing to our State, clearly define the biggest challenges that the firefighting community is facing, and propose concrete solutions to address these challenges. Implementing the solutions recommended in this report will not end the wildland fire problem, but it will ensure that Colorado is better prepared to respond to and mitigate the impacts of larger and more complex wildland fires that are imminent in our future.



The Lake Christine Fire burns behind the Whole Foods in El Jebel. This fire burned 12,588 acres in July and August 2018.

Background and History

Wildland fire has always been a part of Colorado's natural ecosystem, but drought conditions, warmer temperatures, an increasing number of homes in wildland urban interface areas, and declining forest health have elevated wildland fire from a manageable natural resource problem to a growing public safety concern that has caused catastrophic damage in the last two decades. In order to address the growing fire problem in Colorado, decision makers must take a proactive approach and learn from the challenges faced by Colorado and other western states in recent years.

| Years | State Responsibility Fires (SRF) | SRF Average/ Year | FEMA Incidents | FEMA Average/ Year |
|--------------|----------------------------------|-------------------|----------------|--------------------|
| 1967-1969 | 0 | 0 | 0 | 0 |
| 1970-1979 | 1 | 0.1 | 1 | 0.1 |
| 1980-1989 | 8 | 0.8 | 1 | 0.1 |
| 1990-1999 | 15 | 1.5 | 4 | 0.4 |
| 2000-2009 | 65 | 6.5 | 32 | 3.2 |
| 2010-2017 | 56 | 7 | 17 | 2.1 |
| 2018 | 17 | 17 | 3 | 3 |
| Total | 161 | | 58 | |

| Year | State Responsibility Fire Cost* |
|------|---------------------------------|
| 2010 | \$11,150,083 |
| 2011 | \$11,281,337 |
| 2012 | \$47,537,000 |
| 2013 | \$36,891,000 |
| 2014 | \$244,000 |
| 2015 | \$0 |
| 2016 | \$15,025,000 |
| 2017 | \$6,453,000 |
| 2018 | \$40,150,000 (as of 8/17/18) |

*This data does not take into account after-the-fact FEMA reimbursement on eligible fires.

Due to concerns for a single local government's ability to afford the suppression costs associated with a large fire, a group of counties banded together in 1967 to create the Emergency Fire Fund (EFF). Participating counties agreed to pay an annual fee into a fund managed by the State that could be used to pay for fires that exceeded a participating county's capacity. This plan worked well throughout the 1970s and 1980s, when Colorado only saw 9 fires that rose to a level that qualified for EFF. As the chart to the left shows, that number has increased exponentially in the last 30 years, and the \$1 million collected by EFF each year is no longer sufficient to cover the suppression costs of large fires that occur with increasing frequency and intensity.

The cost of wildland fire suppression in Colorado has grown exponentially with the increased occurrence of large fires, but the State's approach to preparing for and paying for them has not fully adapted to address this growing issue. The average upfront, gross State cost for large fire suppression only is just over \$18 million per year. The \$1 million that counties contribute to the Emergency Fire Fund is often spent on the first qualifying fire of the season in March or April. In 2018, the entirety of EFF was spent on the Mile Marker 117 Fire in El Paso County in April. As of August, 2018 is already the third most expensive fire season in Colorado's history.

Although fire suppression costs are typically what is reported when a large fire occurs, these costs only make up a fraction of the total cost of wildland fire. A study of the 2002 Hayman Fire estimated the total cost at \$207,700,049, of which suppression costs only accounted for \$42,279,000, or about 20 percent.

| Total Costs of 2002 Hayman Fire | | | | |
|---|--|---|--|---|
| Suppression Costs (Federal, State, Local) | Other Direct Costs (Property Loss, Utility Loss, Facility and Resource Loss) | Rehabilitation Expenses (Denver Water, USFS, USGS) | Impact Costs (Tax revenue losses, business losses, reduced value of surviving structures) | Special costs (Ongoing health impacts, Losses to Wilderness) |
| \$42,279,000 | \$93,270,034 | \$39,930,000 | \$2,691,601 | \$29,529,614 |

Further compounding the problem, other secondary impacts from wildfires include flooding and damage to critical infrastructure like watersheds. The Colorado River alone provides water for drinking, agriculture and hydroelectric power for over 40 million Americans, including the cities of Las Vegas, Los Angeles, Phoenix, Tucson, and San Diego.

The following example shows the secondary impacts that wildfires can have on Colorado watersheds: The 1996 Buffalo Creek and the 2002 Hayman fires burned almost 150,000 acres in the Denver Water Board's most critical watershed, the South Platte. 80% of Denver Water's water supply (including water from Dillon Reservoir across the Continental Divide) travels through this watershed into a terminal reservoir, Strontia Springs, before being delivered to customers in the Denver Metro area. After the Buffalo Creek Fire, a two-inch rainstorm dumped large quantities of debris into the reservoir (including propane tanks, toilets, and large logs), interrupted service for 2 months, and brought 1 million cubic yards (40 years' worth) of sediment and debris into the Strontia Springs Reservoir. Denver Water spent over \$27 million on water quality treatment, sediment and debris removal, and operational challenges at the treatment plant following these two fires. As a result of the Hayman fire, state and federal agencies spent over \$42 million on fire suppression, and the US Forest Service spent over \$37 million to restore and stabilize impacted forests. 16 years later, Denver Water continues to incur costs from continued soil erosion and sedimentation into their reservoirs.

Many of the non-suppression costs of a large wildland fire are impossible to quantify. These include legal costs, deaths, injuries, health impacts, environmental impacts, timber and agricultural losses, general economic impacts, supply chain impacts, utility, transportation and government service interruption, housing market impacts, and evacuation costs. A holistic look at the effects a large wildland fire has on a community is necessary to understand the critical importance of better preparing for these devastating events.

Historical data presents a clear picture of the increasing danger of large fires and climatologists predict that the problem is only going to get worse. Fire seasons are now an average of 78 days longer than they were in the 1970s and the United States burns twice as many acres as it did forty years ago. Additionally, scientists predict that, nationwide, it will double again by 2050, which means that Colorado wildfires could burn 500 percent more acres than they do today. This increase is partially driven by an estimated 50 fewer days of snowpack and a four-degree Fahrenheit increase in the average temperature across the West.

WHY ARE WE HAVING MORE LARGE AND DESTRUCTIVE WILDFIRES?

A lot of researchers and practitioners have attempted to understand why our fire problem continues to get worse. While there is no single cause, there are several proposed explanations:

- Aggressive fire suppression strategies in 20th century
- Climate change (increased temperatures, less precipitation)
- Declining forest health (insect outbreaks, lack of management, overgrown areas)
- Population growth in wildland urban interface (WUI) areas

State Wildland Fire Management History and Capabilities

In 1955, the Colorado State Legislature created the Colorado State Forest Service (CSFS) under Colorado State University to better manage Colorado's forest health. In 2012, after a recognition that wildland fire had evolved from a natural resource problem to a public safety problem, HB 12-1283 transferred wildland and prescribed fire responsibilities from the CSFS to the newly formed Colorado Division of Fire Prevention and Control (DFPC) in the Department of Public Safety. After the devastating fire season in 2012, the General Assembly commissioned a report on the feasibility and logistics of developing a Colorado Firefighting Air Corps. In 2014, Senate Bill 164 provided the guidance and funding for a state-of-the-art aviation program consisting of two State-owned Multi-Mission Aircraft (MMA), contracts for helicopters and Single Engine Air Tankers (SEAT), and a mandate to stand up a new research and development program, the Colorado Center of Excellence for Advanced Technology Aerial Firefighting. In 2017, DFPC replaced its State-owned Type 6 Fire Engines with Type 3 Engines, thereby modernizing its engine fleet and increasing the capabilities of staff to respond to incidents in support of local jurisdictions.



Type 6 Engine has a minimum capacity of 150 gallons of water



Type 3 Engine has the ability to carry 600 gallons and a higher performance pump, while maintaining a short wheelbase and greater maneuverability.

While the Governor's Office and the Legislature have been great supporters since 2012 of DFPC's efforts to revolutionize firefighting with new equipment and resources, there are still several challenges facing Colorado's fire service that will require significant legislative, financial, and policy support.

Division of Fire Prevention and Control Today

MISSION: To serve and safeguard the people and protect the property, resources, environment, and quality of life in Colorado.

VISION: To be the Nation's premier state fire organization by acting with foresight, providing bold leadership, enhancing our partnerships, and exemplifying the highest level of professionalism in fire prevention and protection, while building a safe and supportive work environment for our employees.

VALUES: Service, Integrity, Loyalty, Honor

Major Programs

The Division of Fire Prevention and Control is made up of 6 Sections, each providing a unique fire-related service to its stakeholders in Colorado.

Professional Qualifications and Training Section

This Section manages the voluntary firefighter certification program for structural firefighters, tests and trains firefighters in accordance with national standards, and administers grants for the fire service. This section manages two mobile live fire training units and one mobile driver simulator unit, both of which provide rural communities with access to training that has previously been unavailable.

Fire and Life Safety Section

The Fire and Life Safety Section manages the fire suppression registration and certification program, the public school and junior college construction and inspection program, the healthcare facilities construction and inspection program, the fireworks program, and several other smaller programs to ensure that fewer institutional fires burn in Colorado, and when they do, the people of Colorado are safer from that threat. Inspectors from the Fire and Life Safety section can be found throughout the State ensuring that hospitals have working fire alarms and that school buildings are safe for Colorado's children.

Fire Investigations Section

The Fire Investigations Section was transferred from the Colorado Bureau of Investigation (CBI) in 2018. Both CBI and DFPC have a statutory mandate regarding fire investigations, and both agencies agreed that DFPC was a better fit for this program. One arson investigator and Riley, the arson dog, travel the State investigating, reporting, and testifying on the cause and origin of fires.

Support Services Section

The Support Services Section houses many of DFPC's administrative assistants and other personnel essential to the Division's mission. Support Services staff are located at DFPC's main headquarters in Lakewood and provide support to each of the Sections.

Colorado Center of Excellence for Advanced Technology Aerial Firefighting

The Center of Excellence was created by Senate Bill 14-164 and is focused on researching, developing, and deploying new tactics, techniques, and procedures to improve aerial firefighting efforts. The establishment of a research organization within DFPC has ensured that Colorado will always be on the forefront of improving our operational firefighting capabilities.

Wildland Fire Management Section

The priority mission of the Wildland Fire Management Section (WFMS) is to provide support, service, and assistance to counties and local fire agencies, in addition to filling resource and incident management gaps where they occur. Wildland fire management in Colorado is an interagency partnership among local, state and federal agencies. As the lead state agency for fire, DFPC works with local, state, and federal agencies to coordinate wildland fire management on a statewide basis. Wildland fire crosses jurisdictional boundaries and exceeds the capabilities of individual agencies, which necessitates a cooperative, interagency approach for successful and effective wildland fire management. WFMS provides a variety of programs and services in wildfire preparedness, planning, suppression, and response.

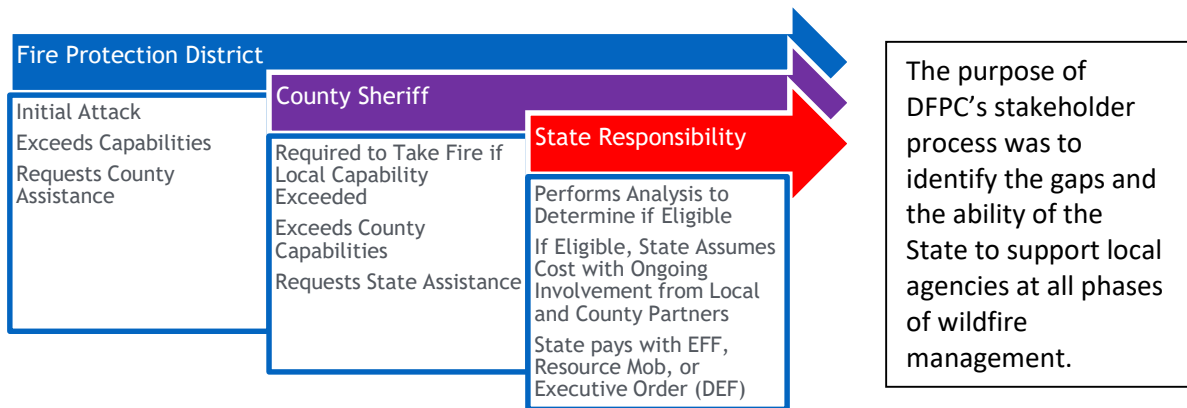
Preparedness: A strong preparedness program is the foundation for successful wildland fire management, and is accomplished through our Fire Management Officers (FMOs) and other staff. The basis of these programs is State law and a series of agreements with county, state, and federal agencies, which provide the authorities and framework for successful cooperative, interagency wildfire management. FMOs facilitate and coordinate multi-agency planning, including county and state level operating plans, and facilitate dispatching and response for wildfire incidents. WFMS staff provide assistance and support for wildland fire training and qualifications, including the administration of the Incident Qualification System (IQS) and facilitating entry of county and local fire agencies into the Resource Ordering and Status System (ROSS). This allows those resources to participate in the National Response Plan and be available for incidents in Colorado and across the country if needed.

Prescribed Fire Management: by statute, DFPC is the lead state agency for prescribed fire. Programs and services provided by WFMS include: certified burner programs and training; technical assistance in project design, planning and implementation; and providing qualified overhead and other resources to assist state and local agencies with implementation of prescribed fire.

Response: The focus of DFPC's response and incident management program is on early detection and reporting of fires, and rapid initial attack on those fires that need suppressed. DFPC accomplishes this with a variety of resources and programs:

- **Multi-Mission Aircraft (MMA):** 2 state-owned, fixed wing aircraft based in Centennial, with WFMS Mission Sensor Operators to operate the technology. The MMA and crew perform fire detection, extended attack surveillance and support, and other non-fire missions when needed and appropriate.
- **Helicopters:** DFPC currently contracts for 2 Type II helicopters each for 120 days per year. The aircraft are based in Canon City and Montrose, with each location having a 10-person WFMS helitack crew. The aircraft and crews perform a variety of tasks including recon, transport of personnel and supplies, water delivery, and non-fire missions when needed and appropriate.
- **Single Engine Air Tankers (SEAT):** DFPC currently has 150-day exclusive use (EU) contracts for 2 SEATs that are pre-positioned around the State based on fire indices and activity. In addition, DFPC has Call-When-Needed (CWN) contracts with 2 other vendors to supplement the EU aircraft when needed.
- **Large Air Tankers and Very Large Air Tankers:** DFPC currently has CWN contracts in place with Global Super Tanker and Air Strike. These contracts provide options to enhance Colorado's response capacity, but availability of aircraft is not guaranteed and DFPC does not have a dedicated funding source for their operation.

- **Engines and Squads:** DFPC has 7 engines and 1 five-person squad located at multiple locations around the state. They provide initial and extended attack assistance to local, county, and federal agencies when requested. These resources also perform a variety of training, fuels management, prescribed fire, and other fire program functions. The engines also assist with all-hazard and other responses in addition to wildland fire. The squad provides the overhead positions for 20-person handcrews and utilizes military veterans and local fire agency personnel to form these crews for extended attack operations.
- **Fire Management Officers (FMO):** 12 FMOs provide technical support and assistance on ordering of resources, tactics, and management of incidents to local fire agencies and county sheriffs.
- **Funding Support:** DFPC manages and/or provides funding support for large fires (Emergency Fire Fund, Resource Mobilization Fund, and Disaster Emergency Fund) and initial attack through the Wildfire Emergency Response Fund (WERF) and the Colorado Firefighting Air Corps (CFAC) programs. See Appendix A for a breakdown of funds that support wildland firefighting.



The USDA Forest Service, Bureau of Land Management and other federal agencies also contribute resources to the firefighting effort. Unfortunately, when other Regions of the country are facing an active fire season, resources are often assigned to other Western States and unavailable for use in Colorado. Data is not readily available on the number of requests over the past several fire seasons that went unfilled because resources were busy fighting fires outside of Colorado. Fire activity in the Western United States continues to increase in acres burned and complexity on an annual basis, regularly exceeding the number of available resources on a national level. In 2017, the US was at preparedness level 4 for 37 days and preparedness level 5 for 38 days. At preparedness level 4, shared resources are heavily committed. At preparedness level 5, national resources are fully committed and the potential for emerging significant wildland fires is high and expected to remain high in multiple geographic areas. This trend illustrates the importance for Colorado to have a minimum number of resources under our operational control to ensure the State's baseline needs are met.

Fire seasons are longer and wildland fires are more destructive than ever before. While the fire problem in Colorado has grown significantly, the preparedness and response capabilities have remained static. Unless the State takes a proactive approach to preparing for the future of wildland fires, we will continue to see extreme fire events that threaten our citizens, the economy, our watersheds, and the firefighters who are tasked with protecting us.

Process

In the fall of 2016, DFPC embarked on a strategic planning process to update and establish mission, vision, values, goals, and expectations. The purpose of this process was to begin planning and working towards the future of the organization to better address Colorado's evolving fire problems and customer needs. During this process, over 300 surveys were completed by stakeholder organizations, and nearly 200 stakeholders participated in workshops to drive the vision and direction of the young organization. The discussions and feedback stimulated new conversations at the DFPC Wildfire and Prescribed Fire Advisory Committee on the changing Colorado fire situation and how traditional fire programs and the DFPC's support of local agencies needed to change to meet new needs.

Further illustrating the growing problem, Tennessee experienced catastrophic fires in November of 2016, and California experienced record-breaking fires in October and December of 2017, emphasizing the reality that a traditional approach was not adequate to address a rapidly changing problem in the wildland urban interface. If we are to minimize the loss of life and property as a result of wildland fire, while still promoting the use of fire as a tool, a new approach will be necessary.

In November of 2017, based on stakeholder feedback, after-action-reviews of recent fire events, and internal assessments, DFPC developed a list of critical issues and needs for improved state support to local communities and increased overall capacity to manage wildland fire within Colorado. This included identified gaps in the capabilities of existing wildland fire programs. These gaps were vetted and expanded upon at the DFPC Wildland and Prescribed Fire Advisory Committee meeting in December of 2017. Since wildfires impact local, county, state, and federal agencies, it was determined that Colorado needed a stakeholder-driven approach to develop solutions to adequately address the State's wildfire problem.

DFPC solicited nominations from local fire, sheriff, emergency management, and dispatch agencies from across the state to participate in Work Group sessions to develop recommendations and solutions that meet local needs and expectations. In addition, leadership from the US Forest Service and Bureau of Land Management were invited to attend to ensure interagency continuity in planning and direction.

Over 80 individuals from around the State expressed interest to participate in the process. 43 participants from multiple disciplines were selected to keep the work groups at a manageable size, and to maximize geographic representation from all parts of the State. Four work group sessions were held to discuss the issues, brainstorm solutions, and develop recommendations. In addition to the primary work group meetings, the process, issues, and intent were presented around the State at a series of locations to ensure that local feedback was received from all areas of the state. Local sessions were held in La Junta, Alamosa, Durango, and Steamboat Springs in the spring of 2018. An additional meeting was held with subject matter experts to discuss dispatch and mobilization issues. In total, 114 individuals from 84 agencies participated in the process. A list of work group participants and meeting attendees can be found in Appendix C. The intent of this process was to agree upon the fire service's biggest challenges and develop meaningful solutions to the identified problems. Overall, the work groups were successful in developing meaningful, consensus recommendations for the majority of the identified issues.

Challenges

The following challenges have been identified as a result of the 2016 strategic planning process, multiple after action reviews from fires in Colorado and other states, and the 2018 Wildland Fire Advisory Committee working group meetings. While not listed in priority order, each issue presents a unique challenge to Colorado's ability to respond to the growing fire problem.

A lack of regional coordination inhibits the ability to provide adequate initial attack response to fires throughout Colorado

Currently Colorado has a wide variety of dispatch centers that provide service at the county, municipal or special district level. In addition to these local 911 centers, 6 interagency dispatch centers work with local, state, and federal agencies for wildland fire incidents, and the State Emergency Operations Centers (SEOC) is activated as needed to assist with larger scale mobilizations. Neither the Interagency Centers nor the SEOC are 24/7/365 operations. Resource mobilization in Colorado is often referred to as a "system of systems" that are not connected and often not well understood or utilized. The need for improved dispatching and state-wide coordination during the initial attack stage was identified by the Work Groups as a common issue on rapidly escalating wildfires, as well as other fire and EMS incidents across the state.

A 2013 LEAN process conducted by DFPC, the Division of Homeland Security and Emergency Management (DHSEM), Interagency Dispatch Centers, and local agencies recommended the increase of state level coordination and mobilization capabilities in order to address issues that routinely occur during the early stages of rapidly developing incidents. Support to local agencies prior to statewide and interagency mobilizations has been identified as a key gap since 2012.

DFPC, DHSEM, and the Colorado State Fire Chiefs (CSFC) have agreed that mutual aid resource utilization is a fire service and local agency issue. DFPC and CSFC have focused on improved utilization of existing resources on escalating incidents when immediate mutual aid has been exhausted and prior to the arrival of resources via large-scale resource mobilization. Current capabilities and processes to achieve this across the State are limited at best, non-existent in some areas, and generally not well known or understood.

Current Staffing Models do not Match the Extended Fire Season

As outlined above, fire "seasons" are now 78 days longer than they were 40 years ago. When resources were transferred to the Division in 2012, it inherited a traditional wildland firefighter staffing model comprised primarily of seasonal and temporary employees. The fire season in Colorado has changed and we have experienced large fires in every month of the year

proving the “traditional” staffing model to be inadequate, with greatly reduced capacity from November through March. Response and support personnel staffing models need to be adjusted to match the changing fire problem. More effective staffing is needed to ensure response capability on a year-round basis, increase capacity to implement prescribed fire and mitigation projects, and improve employee recruitment, retention and professional development opportunities.

Recent Examples of Non-Traditional Wildland Fires

| Fire | Start Date | Declared Out Date | Location | Notes |
|--------------------------------------|------------|-----------------------------|----------------------------------|---|
| Beaver Creek | 6/19/2016 | 11/30/2016 | Jackson County, CO | 38,380 acres. Actively burned for 100+ days |
| Hayden Pass | 7/8/2016 | 10/6/2016 | Fremont County, CO | 16,526 acres. Actively burned for 60+ days |
| Beulah Hill | 10/3/2016 | 10/8/2016 | Pueblo County, CO | 5,232 acres. WUI fire in October |
| Junkins | 10/27/2016 | 12/29/2016 | Pueblo & Custer Counties, CO | 18,423 acres. Extreme fire behavior requiring an IMT1 and dozens of handcrews in November |
| Logan | 3/6/2017 | 3/8/2017 | Logan County, CO | 32,564 acres. Inability to graze land again for years. Family ranches out of business. |
| Sunshine | 3/19/2017 | 3/21/2017 | Boulder County, CO | City of Boulder imminently threatened. Limited aviation and handcrew resources available. |
| Great Smoky Mountains Complex | 11/28/2016 | 12/9/2016 | Gatlinburg, TN | Burned 17,904 acres; destroyed more than 2,400 structures; 14 fatalities |
| Northern California Wildfires | 10/8/2017 | 10/31/2017 | Northern California | Burned 245,000 acres; destroyed more than 8,900 structures; 41 fatalities |
| Thomas Fire | 12/4/2017 | 1/12/2018 | Southern California | Burned 281,893 acres; destroyed more than 1,063 structures; 2 fatalities |
| Spring Creek | 6/27/18 | Not contained as of 8/21/18 | Costilla & Huerfano Counties, CO | 2 nd largest fire in Colorado history; burned 108,045 acres; human caused; destroyed more than 200 homes |

Statewide Mitigation Capability is Inadequate

Although there is no single fix to the fire problem in Colorado, research shows that intentional mitigation work through prescribed fire, creating defensible space, hazardous fuels treatments and actively managing forests can have a significant impact on keeping wildland fires small and manageable and protecting values at risk. Most notably, in 2018, the Buffalo Mountain Fire in Summit County and the Golf Course Fire in Grand County did significantly less damage to area homes due in part to aggressive mitigation efforts designed to create fuelbreaks around subdivisions. These successes were also due to aggressive initial attack efforts by aviation resources and the firefighters in those areas, further demonstrating the need for a holistic solution. The Forbes Park subdivision in the San Luis Valley had also implemented significant fuels treatment projects, but the extreme fire behavior on the Spring Creek Fire demonstrated that values at risk cannot always be protected under extreme conditions.

More than 2 million Coloradans live in the wildland-urban interface, a number that continues to increase. It is ultimately the responsibility of those residing in the wildland-urban interface to protect their land, property, and local values at risk from the threat of wildland fire. Creating fire-adapted communities requires partnerships between private citizens, government entities at the local, state, and federal levels, and private entities. In Colorado, 66% of the 24 million forested acres in the State are on federal land. Federal fuels management programs do not have the jurisdiction to treat forests on private lands, and there are significant operational challenges that limit where treatments are feasible. Additionally, the costs of thinning to comply with FireWise requirements can reach up to several thousand dollars per acre, a cost that may be prohibitive for both private citizens and government entities. Additionally, prescribed fire projects are limited by available resources, air quality constraints and short burn windows, planning limitations, and other landscape conditions and conservation priorities. While mitigation efforts must be a part of the solution, Colorado cannot rely solely on mitigation to solve the wildland fire problem it faces.

Mitigation activities, specifically pile and broadcast burning, are best suited to be implemented during the late fall, winter, and spring months, when there are limited to no staff to conduct the work. A recent study on prescribed fire across the west found that a “lack of capacity and funding, and challenges sharing resources across agencies were the most significant barriers to accomplishing more prescribed fire” (Schultz, 2018). Currently, DFPC has one employee who is dedicated to the planning and implementation of prescribed fire projects, and he relies on the handful of qualified, permanent employees to assist with implementation during the limited burn windows outside the core fire season. DFPC has developed a list of priority prescribed projects in conjunction with Department of Natural Resources that identifies over 2,020 piles and approximately 18 broadcast burns covering over 14,158 acres that need to be completed. With existing resources, the number of needed projects will continue to grow while only limited progress can be made on existing projects. Due to limited staffing, only two broadcast burns have been completed in the last year with around 550 acres treated. A large pile burning project requires at least 80 hours for planning and development and an additional 20 person days (in the form of a burn boss and three engine personnel for 5 days) for the actual

burn initiation. With the majority of current DFPC firefighters only available for 8 to 9 months a year, it is difficult to meet the required number of resources during the limited burn windows available. Prescribed fire can be an effective tool in mitigating wildfire risk, but without additional resources, greater flexibility in budgets and agreements, and the ability to utilize creative solutions, the impact of prescribed fire and other mitigation techniques will continue to be minimal.

Appropriate Firefighting Resources are Frequently Unavailable

In addition to a lack of response resources during the core fire season, there is an overall lack of resources available to match the extended fire season. The vast majority of aviation assets, handcrews, engines, and dispatch facilities are only available on a seasonal basis. The unavailability of these resources outside of the “traditional fire season” jeopardizes the safety of the public and firefighters, resulting in improvisation and band-aid solutions rather than applying appropriate long-term solutions. Examples of this include:

- National Preparedness Levels 4 and 5 – federal, interagency, and many state resources are assigned to other parts of the country leaving Colorado with limited resources during these time periods
- DFPC contracted helicopters are currently under overlapping 120-day contracts, resulting in up to 6 months a year when no State helicopters are available and another 2 to 3 months when only 1 State helicopter is available
- DFPC contracted SEATs are currently under overlapping 150-day contracts, resulting in up to 6 months a year when no Exclusive Use State SEATs are available.
- DFPC MMAs are State-owned and available year-round, but due to the original staffing model and funding limitations, staffing is not always available for 24/7 operations, quick call back times in the winter months, or to have two sensor operators on each flight.
- The State currently does not have access to dedicated large air tankers or air attack platforms. These resources are often in high demand and short supply nationally, and Colorado has to rely on resources under federal contracts.
- DFPC currently has a CWN contract for VLAT services with Global Super Tanker Services, but that resource has operating under contract with California this summer.
- DFPC currently has a CWN contract for Large Air Tanker Services with Air Strike, but that resource does not have guaranteed availability to Colorado due to the nature of the CWN contract.
- Federal and interagency 20-person handcrews are typically only available from May through October, leaving limited to no available crew resources to perform suppression and mitigation activities for the remainder of the year.

Responders and the Public Face an Increasing Risk due to the Threat of Wildland Fire

The changes to Colorado's "asbestos forest" and wildland urban interface problems expose the public and firefighters to greater risks. More and more evacuations, explosive fire behavior, lack of training resources, and an ever increasing "do more with less" expectation have elevated responder risk to an unacceptable level. Nationally, firefighting efforts are executed utilizing an approximately 70% volunteer workforce, and 30% career workforce. Having adequate training and education to responders, at a time that meets their schedule, is critical for their safety, and their success. Additionally, land use planning has proven successful in many areas to help decrease the threat to responders and public by ensuring homes have adequate defensible space and homeowners are prepared for the threat of wildland fires, but these measures have only been implemented in certain jurisdictions in Colorado.

Traditional Firefighting Methods are Ineffective but Still being Utilized

The fire service is a very traditional profession. While many of our traditions are cherished, not all are appropriate or still valid. As described above, we need to adapt to the changing fire problem and be more collaborative in our efforts with the multiple stakeholders impacted by fire. In addition, technology is changing the way every business is conducted and the fire service needs to embrace new technology, test new methods, and educate and implement those that are appropriate to have a positive impact on all of our challenges. As stated in one of the working group meetings, "Many of these items can be corrected with coordination and understanding by fire service leaders and responders, and with the support and leadership from the State. We do not have a technology problem, we have people problems, which require building relationships and trust."

Another example of the traditional approach is how large fires are funded in Colorado. The current large fire funding model was established in 1967 and has not been updated since. The only 'dedicated' large fire funding source in Colorado is the approximately \$1 million dollars generated by voluntary contributions to the Emergency Fire Fund by 42 of the 64 counties. The fund is typically depleted early in the year on the first 1 or 2 incidents, requiring Executive Orders authorizing additional funding out of the Disaster Emergency Fund (DEF) and other sources for the remainder of the year. Past fire activity and costs clearly show that the current model is inadequate for the current situation.

| Year | Annual County EFF Assessments | # of EFF Incidents | Fire Suppression Costs to EFF | Fire Suppression Costs to Executive Order | Gross Total State Fire Suppression Costs |
|--------------|-------------------------------|--------------------|-------------------------------|---|--|
| 2010 | \$1,000,121 | 3 | \$1,587,983 | \$8,200,000 | \$11,150,083 |
| 2011 | \$ 999,997 | 11 | \$611,831 | \$10,360,000 | \$11,281,337 |
| 2012 | \$1,000,004 | 16 | \$1,549,196 | \$46,035,000 | \$47,536,800 |
| 2013 | \$1,000,001 | 9 | \$1,501,800 | \$36,020,600 | \$36,890,600 |
| 2014 | \$1,000,001 | 1 | \$244,000 | \$0 | \$244,000 |
| 2015 | \$1,000,000 | 0 | \$0 | \$0 | \$0 |
| 2016 | \$1,029,011 | 6 | \$2,750,000 | \$12,275,000 | \$15,025,000 |
| 2017 | \$1,030,710 | 10 | \$1,030,710 | \$5,422,290 | \$6,453,000 |
| TOTAL | \$8,059,845 | 56 | \$10,267,930 | \$118,312,890 | \$128,580,820 |

Recommended Solutions

Solution #1: Improve Statewide Dispatching and Resource Mobilization Capabilities to Match Colorado's Fire Season

Currently, Colorado has a wide variety of local dispatch centers that provide service at the county, municipal and special district level. In addition to these local 911 centers, 6 interagency dispatch centers are staffed seasonally to work with local, state, and federal agencies specifically on wildland fire incidents and the State Emergency Operations Center (SEOC) is activated as needed to assist with larger scale mobilizations. Neither the Interagency Centers nor the SEOC are 24/7/365 operations. The local dispatch centers, interagency dispatch centers, and SEOC are not always connected and the lack of communication and coordination among these resources is often a point of frustration for those managing emerging incidents. The need for improved dispatching and statewide coordination during the early stages of escalating fire and EMS incidents was identified by the Work Groups as a common issue across the State.

DFPC, DHSEM, and the Colorado State Fire Chiefs (CSFC) have agreed that mutual aid resource utilization is a fire service and local agency issue. DFPC and CSFC have been focused on improved utilization of existing resources on escalating incidents when immediate mutual aid has been exhausted and prior to the arrival of resources via large-scale resource mobilization (interagency and/or state). Current capabilities and processes to achieve this across the state are limited at best, non-existent in some areas, and generally not well-known.

Work Group Recommendations:

- 1) Improve capacity for regional and statewide resource coordination to address issues that routinely occur during the early stages of escalating incidents
- 2) Increase year-round, consistent capacity for large-scale mobilizations on extended attack incidents

Solution #2: Increase Fire Management Staffing and Capacity

DFPC wildland fire field staff currently consists of 10 Regional Fire Management Officers (FMOs) and 2 supervisory Area FMOs. Each Regional FMO is assigned 5 to 10 counties and is the point of contact for county and local agencies for all things wildland fire including: subject matter expertise, training, qualification systems, planning and preparedness, agreements, prescribed fire, incident response and assistance, and assessment for funding and management of large fires. In addition, the Wildland Fire Management Section (WFMS) is the largest Section in DFPC, but, until recently, had no administrative support staff.

The need for more field staff has been consistently identified by DFPC and stakeholders as an important need. Issues and concerns with the current number of FMOs include: fatigue

from busy fire seasons and constant on-call schedules, limited ability to provide all requested services to local partners, and limited capacity to fulfill agency duties and provide overhead and supervision on local fires.

Work Group Recommendations:

- 1) Increase the current number of FMOs to meet the identified needs of local and county agencies and increase coordination with federal agencies
- 2) Change the DFPC field structure from the current East and West Areas model, to a quadrant model. Increase DFPC fire management staffing by 16 total positions to increase the number of FMOs within each Region, add 2 additional supervisory FMOs, and 4 Program Assistant positions (1 for each of the supervisory FMOs). See Appendix B for the new quadrant regions.

Solution #3: Develop DFPC Squad and Handcrew Capacity

The majority of current DFPC firefighter appointments are for full-time work 8 or 9 months out of the year. This staffing approach is based on the historical model of a traditional fire season that occurs in the summer months. Issues with this staffing model include limited ability to respond to wildfires in non-core fire season months or to implement mitigation projects on a year-round basis. DFPC has experienced issues with not being able to staff engines and/or complete prescribed fire projects in non-core fire season months. In addition, current permanent part-time employees have limited time/ability for training and professional development during the winter. In addition to impacts on wildfire programs, this limits employee's ability to obtain training and maintain certifications in wildland fire, much less to obtain additional certification and training in other hazards.

Handcrew capacity in the Rocky Mountain Area (RMA) and Colorado is limited at best. All of the federal and interagency 20 person handcrews in Colorado are either Type 1 Hotshot crews that are a national resource and absent from state for long periods of time, or are multi-agency put together crews for extended attack and are not typically available for initial attack and the early stages of an incident. Outside of the Colorado Department of Corrections (DOC) handcrews, there are no pre-formed, non-federal handcrews in the Colorado. DOC handcrews are a highly valuable resource, but are restricted to Type 2 capabilities due to limitations with their crew member cadre. In addition, both the DOC and interagency crews are often not available from October through April, when we have had and will continue to have large wildland fires in Colorado.

Currently DFPC has a single 5-person squad in Ft. Collins. The squad has been in place for 2016 and 2017. One purpose of the squad is to work with military veterans (Veteran's Conservation Corps and Team Rubicon) to provide training and opportunities to respond to wildland fires. The squad can serve as a stand-alone resource for wildland fire response, and they can also form the supervision and leadership for a 20-person handcrew by adding veterans, federal, state, county, and local personnel. The squad also provides resources for the planning and implementation of prescribed fire and fuels mitigation projects. DFPC has

recently established training standards which will allow the squad to assist and provide support with Search and Rescue and other all-hazard operations when needed.

Work Group Recommendations:

- 1) Create eight, ten-person Wildland Fire Modules and place two in each quadrant. Modules can be combined to form four 20-person Type 2 Initial Attack State handcrews. Maximize the number of permanent employees for year-round capacity and to improve recruitment and retention.

Solution #4: Expand Current Helicopter, Air Tanker, and Multi-Mission Aircraft Capabilities to Match Colorado's Growing Fire Season

The current DFPC aviation program has been in place since 2014. The program has proven to be highly successful and provides support and assistance to local, county, and federal agencies across the state. Stakeholder input, after action reviews, and internal assessments have identified lessons learned and several areas for improving program effectiveness.

Work Group Recommendation:

- 1) Helicopters: Transition to a Government Owned/Government Operated (GO/GO) model with two Type 1 helicopters with 20-Person Helitack Crews and one Type 3 helicopter with a 12-Person Helitack Crew, all with year-round availability.
- 2) SEAT: Develop a training and reimbursement program for agricultural aerial applicators to assist local agencies during initial attack. Increase current SEAT contracts from 5 months to 7 months.
- 3) MMA: Increase staffing to ensure that one MMA is available to fly within 30 minutes of a request year round with two sensor operators on board. Upgrade sensor technology to improve MMA capabilities. Increase training flights to pair with education and awareness efforts for local agencies on MMA use.
- 4) Large Air Tankers: Evaluate and fund options to work with other agencies and private vendors to bring state-managed large air tankers into Colorado during periods of high fire potential and activity.

Solution #5: Increase capacity to provide wildfire and all-hazard engine support to local communities and increase capabilities to mobilize strike teams and task forces across the state

The current DFPC engine program has proven successful in providing enhanced capacity to local communities with assistance, support and response for both wildland and all-hazard incidents. DFPC has 7 fire engines stationed around the State. 5 of these engines (Berthoud, Lyons, Gilpin County, Golden, and Rifle) are co-located and jointly staffed with local fire districts that provide facilities and a firefighter. The other 2 engines (Alamosa and Montrose) are staffed fully with DFPC employees. A drawback of the current program is that daily assistance is generally limited to a small number of fire districts and local agencies in the State, simply due to the small number of available engines.

DFPC engines can provide wildland fire and all-hazard response and assistance to local agencies on a year round basis. In addition, these engines can assist with prescribed fire and fuels work, training and other DFPC fire management programs. Engine crew personnel could also assist DFPC FMOs with initial coordination and response, and serve as incident management leadership and supervision when needed. A primary function of these engines could be to work with local fire agencies to develop, identify, train and exercise pre-formed engine strike teams and task forces to enhance initial response on a regional and state-wide basis. When needed and local agencies are unavailable, DFPC engines from multiple regions could be combined into strike teams and taskforces for response across the state.

Any future additions of engine resources should be focused on regions outside the Denver-metro area. Base staffing for a DFPC engine should consist of 5 DFPC personnel, with local agencies providing employees and/or volunteers to supplement staffing. The primary reasons for providing 5 DFPC firefighters on each engine is to allow for 7-day effective coverage, and that fire agencies in the more rural areas of Colorado where these engines would be the most valuable do not have employees and/or funding to contribute additional employees.

Work Group Recommendation:

- 1) Convert current permanent part-time DFPC firefighters to permanent full-time firefighters to improve response, mitigation, and fire program capacity on a year-round basis.
- 2) Evaluate and build customized solutions for engine resources based on the needs of local agencies
- 3) Increase current State-owned engines from 7 to 24 total. Locate six State-owned engines in each quadrant to increase the assistance available to local agencies. Cooperatively staff engines with local fire department personnel when available and fully staff engines with State personnel in high-needs rural areas.

Solution #6: Develop a more robust and sustainable model for initial attack and large fire funding and severity pre-positioning

As explained in the above section on State wildland firefighting resources, the only funding mechanisms currently available for wildland fire are limited to response once an incident occurs. Other than DFPC base program budgets, there is not an option to locate and pre-position resources prior to an incident occurring. Severity funding could be used to more effectively locate aviation, equipment, and overhead resources prior to incidents occurring. This would keep available resources in Colorado for enhanced initial attack capacity rather than losing those resources to incidents in other states. An added benefit of a severity fund to pre-position resources is the opportunity for local fire department personnel to receive critical wildland fire training and obtain additional qualifications.

There is currently no mechanism outside of the \$1 million generated by the Emergency Fire Fund for large fire funding. After that fund is depleted, the Division of Fire Prevention and

Control must request large fire funding support from the Governor's Office through the Executive Order process.

Work Group Recommendation:

- 1) Develop an annual budget for large, state-responsibility fires based on previous year's fire activity. The fund would have a maximum cap and if the cap were exceeded due to slower fire years or FEMA reimbursements, the additional funds above the cap would be utilized for mitigation or other preparedness programs. In extreme years, additional funding above the budgeted amount would be requested through Executive Orders. A key component of any model needs to include local agencies and counties investing in their own preparedness programs and capacity to respond to wildfires.
- 2) Develop and fund a severity program to support local fire agencies and counties by pre-positioning resources across the state based on fire potential and activity.
- 3) Using other western states as guidance, identify and recommend creative, alternative funding sources for large fire funding, severity funding, and other state fire assistance.
- 4) Develop a statutory fire commission that is tasked with solving the remaining existing challenges and helping identify creative ways to continue to improve Colorado's fire service. A statutory commission will ensure that appropriate and dedicated stakeholders are consistently coming together to provide proactive recommendations on current and emerging issues impacting the fire service.

Solution #7: Support DFPC Center of Excellence (CoE) Research to More Efficiently Meet the Needs of Colorado's Fire Community

The Colorado Legislature provided a service unique to Colorado when creating the Center of Excellence for Advanced Technology Aerial Firefighting. Other state fire agencies frequently comment on the value of having a proactive research entity that is fully committed to increasing the efficiency, effectiveness, and sustainability of Colorado's firefighting resources. The CoE has an annual budget of just under \$800,000, most of which is paid toward the researchers employed there, so there is little money left for product testing and technology transfer into the wildland firefighting space. Since Colorado has already taken a proactive approach in identifying new solutions, it is imperative that the CoE receive adequate support to ensure its research can be implemented in firefighting efforts.

Work Group Recommendation:

- 1) Continue to fund the CoE research and implementation of new technology into wildland firefighting
- 2) Increase CoE funding to support field testing and field implementation of unmanned aircraft systems, the Android Tactical Awareness Kit, and other critical projects.
- 3) Task two members of each DFPC Wildland Fire Module with the role of CoE liaison to ensure research and new technology developed at the CoE are being utilized in operational firefighting.

Solution #8: Provide Additional Fire Training in Rural Areas

The majority of fire departments in the state have limitations on the quantity and quality of training available to them. Constraints include, but are not limited to facilities, availability of qualified instructors, funding, and available time, especially for rural volunteer fire departments at which staff is typically at a full-time job during the regular work week.

A 2018 Joint Budget Committee action helped DFPC acquire 3 FTE for regional training positions. These positions will be co-located at fire stations and two will be shared with local fire departments, but this will not be adequate to meet the growing demand for training, the number one priority of the fire service according to a 2015 needs assessment. Without robust training in both structure and wildland firefighting for fire department personnel, the State cannot be prepared to mobilize our own resources when an incident occurs.

Work Group Recommendation:

- 1) Improve utilization of the DFPC Mobile Live Fire Trailers and Driver Simulator Trailer, by creating additional truck driver and trainer positions that are dedicated to transporting the training units and conducting training in rural communities.
- 2) Hire qualified personnel to increase delivery of basic wildland fire training in rural communities. Trainers must be located/integrated in the local communities to meet the needs of volunteer firefighter.



It is critical that firefighters are able to train in a live fire environment before facing an actual fire. DFPC's mobile live fire training unit allows many rural firefighters to receive this important training for the first time.

| Target DFPC Organizational Structure and Strategic Plan Implementation | |
|---|--|
| Northwest District 1 Area FMO 1 Deputy Area FMO 4 Regional FMOs (3) 1 Program Assistant 1 Administrative Assistant 6 Engines (5 firefighters each) (1) 2 Modules (10 firefighters each) 3 FLS Inspectors 2 Fire Investigators with Arson Dog 1 Training Officer (.25 FTE) 1 DFPC District Facility (Currently leasing in Rifle) Mitigation and Education Coordination Capacity Initial Attack and Mutual Aid Coordination Capacity | Northeast District 1 Area FMO 1 Deputy Area FMO 4 Regional FMOs 1 Program Assistant 1 Administrative Assistant 6 Engines (5 firefighters each) (4) 2 Modules (10 firefighters each) (0.5) 10 FLS Inspectors and 5 QA/QI Inspectors 4 Plan Reviewers/Architect 2 Fire Investigators with Arson Dog (1 FI and 1 dog) 1 Training Officer 1 DFPC-Owned District Facility (Loveland Area) Mitigation and Education Coordination Capacity Initial Attack and Mutual Aid Coordination Capacity |
| Southwest District 1 Area FMO 1 Deputy Area FMO 4 Regional FMOs (3) 1 Program Assistant 1 Administrative Assistant 6 Engines (5 firefighters each) (1) 2 Modules (10 firefighters each) 2 FLS Inspectors 2 Fire Investigators with Arson Dog 1 Training Officer (.25 FTE) 1 DFPC-Owned District Facility (Currently leasing in Montrose) Mitigation and Education Coordination Capacity Initial Attack and Mutual Aid Coordination Capacity | Southeast District 1 Area FMO 1 Deputy Area FMO 4 Regional FMOs 1 Program Assistant 1 Administrative Assistant 6 Engines (5 firefighters each) (1) 2 Modules (10 firefighters each) 2 FLS Inspectors 2 Fire Investigators with Arson Dog 1 Training Officer 1 DFPC-Owned District Facility (Currently leasing in Canon City) Mitigation and Education Coordination Capacity Initial Attack and Mutual Aid Coordination Capacity |
| Statewide Resources <ul style="list-style-type: none"> Enhanced Regional Coordination and Statewide Dispatch Capacity 12 Logistics Staff (7) 8 Plans Branch Staff (4) 3 Public Information/Affairs Officers (1) 16 Incident Business Staff (funded through indirect cost recovery) (12) 2 Multi-Mission Aircraft Available Year-Round 10 Multi-Mission Aircraft Sensor Operators (5) 90 Day Exclusive Use Contract for Large Air Tanker 180 Day Contract for Exclusive Use Air Attack Platform and 1 Air Tactical Group Supervisor Colorado Fire Program Commission and 1 FTE 2 State-Owned Type 1 Helicopters and Helitack Crew (2 with 120-day Exclusive Use Contract) 1 State-Owned Type 3 Helicopter with 12-Person Helitack Crew 2 SEATs on 9 Month Contract and 2 SEAT Base/Manager (2 on 5-month contract currently) | |

Note: Resources in green represent existing capacity and additional resources that will be available with Year 1 funding. Additional facilities may be required to support field personnel outside of the four district offices. The target organizational structure in the table above contains recommended positions, capacities, and functions, which should be filled by a combination of new and existing DFPC positions, local agency positions, and shared positions between multiple entities.

Implementation Plan by Year

Recognizing the scale of the above recommendations, DFPC has developed a proposed implementation plan for phasing in these new resources and changes to build the capacity to provide the necessary support to Colorado's fire service. In developing this timeline, DFPC has ensured that each year can operate independently of the following year's plans, so it is adaptable to a variety of available resources. The plan also gives flexibility to decision makers to ensure the added resources are providing the intended value on a smaller scale before implementing larger changes.

Year One (FY 2019) Total Cost: \$3.7 million

Implementation of Year One additions has already started thanks to additional funding provided by the Legislature to the Wildfire Preparedness Fund and the Professional Qualifications and Training Section. Through the summer and into the fall of 2018, DFPC will build its capacity for suppression response and prescribed fire and fuels treatments to meet the expectations and intent of the additional funding provided by the Legislature to support mitigation activities.

- 1) Addition of 3.5 Wildfire Modules (\$1,900,000): The Division will expand from the current 1 five-person seasonally staffed squad in Fort Collins, to 4 Wildland Fire Modules (10-12 employees) with 1 Module stationed in each District. As many of the Module positions as possible will be full time rather than seasonal in order to meet the changing fire season / fire year in Colorado, as well as being available to perform mitigation activities during the times of the year it is appropriate to do so.
- 2) Engine Program (\$68,000): The Division currently has 7 engines, with staffing composed of permanent-full-time (PFT), permanent-part-time (PPT), and seasonal employees. DFPC will convert current PPT engine crew members from PPT to PFT status. This will increase capacity to respond to fire and perform mitigation activities on a year-round basis, as well as improve training opportunities and retention for those PPT employees.
- 3) Fire Management Staff (\$1,032,000): DFPC currently has 10 Regional and 2 Supervisory Area Fire Management Officers. The Stakeholder Work Groups recommended that the number of FMOs be doubled to maximize service and capacity. As the Division began performing workload analysis, it was quickly recognized that our current Fire Management Officers were maxed out with the current workload, and had limited to no time to plan prescribed fire and mitigation projects. The Division will move to the quadrant structure by adding 2 District Chiefs (Area FMOs) and 4 additional Battalion Chiefs (Regional FMOs). These actions move towards the Work Group recommendations, establish the long term organizational structure for the Division, increase the preparedness and response services provided to local agencies, and increase capacity for mitigation planning and implementation.
- 4) Multi-Mission Aircraft (no new cost): The DFPC MMA program is nationally recognized as an innovative and highly valuable resource. When the MMA program was developed in 2014, program needs and requirements were not fully understood due to the new and unique nature of the resource. Since that time, it has been demonstrated that 2 DFPC Mission Sensor Operators (MSO) are needed on each flight to maximize use of the available technology, communicate with the incident, and provide data and products to incident and other managers on both wildland and prescribed fires. The Division will increase the number of MSOs from the current number of 6 (5 permanent-part-time and 1 seasonal) to 10, with 2 of those being lead

positions to address supervision and span of control needs. The additional positions will be funded out of cost savings realized with the new contract for operations and maintenance of the MMA.

- 5) Training Positions (\$450,000): DFPC acquired mobile training units through federal grant awards, but until recently, has not had the resources to move these training units to the areas of the State where there is the greatest need for training. Through a \$450,000 budget addition in 2018, DFPC was able to hire 4 regional trainers who can ensure that small, rural fire departments have access to important live fire training. These positions were hired in July and August of 2018.
- 6) Firefighter Safety and Disease Prevention Grant (\$250,000): In 2014 and 2015, DFPC was given \$6.5 million to distribute to local fire departments who had identified equipment needs to increase firefighter safety and help mitigate the risk of occupation-related diseases. Local fire departments requested over \$20 million over a two-year period, most of which could not be filled with the allocated funds. In 2018, this grant program received an additional \$250,000 which will help meet some of the additional needs. DFPC will distribute these funds based on a priority list developed by stakeholders from Colorado State Fire Chiefs, Colorado Professional Firefighters, and Colorado State Firefighters Association. Applications for this additional grant funding will be available in early 2019.

Year Two (FY 2020) Total Cost: \$4.6 million

Much of the focus for Year Two is on support for existing resources and the resources being added in Fiscal Year 2019. Over the last 6 years, additional funding and positions have been focused on field operations (aviation, engines, and fire management staff), but support positions and administrative functions have not been expanded to meet the increased demands of the larger organization. Current and planned operational resources cannot be successful without adequate support positions, facilities, equipment, and vehicles.

- 1) Logistics Branch Support (\$471,864) Add 3 additional Logistics Branch positions (1 Materials Handler and 2 Equipment Mechanics). Current logistical support capacity has been met with existing resources. These new positions are needed to meet existing workload as well as support needs for the Year 1 additions of Wild Fire Modules and additional fire management staff. This includes equipment maintenance and fabrication, fleet management, purchasing and management of supplies and PPE, radios and communications management, and management and distribution of the fire cache and supplies.
- 2) Plans Branch Support (\$200,000) Add 1 Resource Unit Leader position and 1 Situation Leader Unit position to increase preparedness capacity and support to field operations, and reduce support staff workload to acceptable levels. Duties performed would include management of dispatch systems to ensure resource availability, tracking resources, managing qualifications systems for State and local agencies, improving accomplishment reporting, data management and mapping support for local incidents and the MMA program, intelligence coordination, and prescribed fire planning. Increasing capacity in these areas will further increase availability of operations staff to provide technical service and support to partners and local agencies.
- 3) Public Information Officer (\$110,000): Add 1 additional PIO dedicated to the Wildland Fire Management Section. DFPC currently has 1 PIO shared between all Sections within the Division. 2018 has demonstrated that one individual cannot meet that regular workload and the increased demands of an active wildfire year to effectively manage fire information with DFPC, CDPS, Legislators, the Governor's Office and our external partners.

- 4) District Program Assistants (\$175,000): Add 2 Program Assistant positions. The WFMS is the largest Section in DFPC, but until recently had no administrative or programmatic support in the field. DFPC was able to create 2 Program Assistant Positions with current funding for the 2 Areas, but additional funding is needed so that each of the 4 quadrants will have a Program Assistant. Addition of these positions will increase customer service and support to local agencies, and allow operational staff to focus on technical activities and programs.
- 5) Facility Leases (\$130,000): Additional funding for facilities leases. DFPC needs to address facilities on a statewide basis to meet business needs and provide appropriate work environments for employees. Current DFPC facilities do not meet all business needs and in several cases provide sub-standard work environments for our employees. This is the first step in implementation of a multi-phase facilities improvement plan, to addresses priority needs across the State. This proposal is to obtain funds for leasing of temporary facilities for current and planned DFPC resources until permanent facilities can be built and/or obtained. The long-term goal is to have all DFPC resources in state-owned facilities, which will allow existing operational budgets to be focused on preparedness, response, and mitigation activities.
- 6) Exclusive Use Contract for 2 SEATs from 150 days to 270 days each (\$450,000): Increase the current EU SEAT contracts to 7 months, which will allow more overlap and increased capacity during the core fire season, and ensure resource availability for additional months during the early spring and late fall months when there is limited availability of air tanker resources.
- 7) 180-day Exclusive Use Air Attack Platform (\$800,000): Contract 180 days for a fixed-wing, Type 1 aerial supervision aircraft and hire a DFPC Air Tactical Group Supervisor (ATGS). This would provide Colorado with operational control of a critical resource that is often in short supply and managed based on national level fire activity and priorities. Due to the high demand for these resources, the aircraft could temporarily be loaned to other states during times of low fire activity and potential in Colorado, realizing a cost savings of planned expenses.
- 8) 90-Day Exclusive Use Large Air Tanker Contract (\$2,250,000): This would provide Colorado with operational control of a critical resource that is typically in short supply and managed based on national level fire activity and priorities. Due to the high demand for these resources, the aircraft could temporarily be loaned to other states during times of low fire activity and potential in Colorado, realizing a cost savings of planned expenses.
- 9) Fire Program Commission with 1 FTE (\$150,000): Through the stakeholder process, DFPC realized the need for a group that can provide ongoing recommendations as challenges in the fire service continue to evolve. The commission would be comprised of fire stakeholders throughout Colorado and would enhance public safety through the study of fire programs and development of strategies to further safeguard property, resources, economic impacts, the environment, and quality of life. This commission is modeled after the Colorado Commission on Criminal and Juvenile Justice, and would require 1 FTE as staffing and consultant assistance for logistical planning, research, and commission support. Initially, the Fire Commission will be tasked, at a minimum, with the following items for legislative or policy action:
 - a. Further Capture and Define Colorado's Fire Problem with Additional Reporting on:
 - i. Firefighter Deaths and Injuries
 - ii. Fire-Related Civilian Death and Injuries
 - iii. Fire Cause and Origin
 - b. Large Fire Funding, Severity Funding, and State Fire Support Funding Fix
 - c. Additional Funding for Firefighter Safety and Disease Prevention Grant created by SB 14-046.
 - d. Statewide Coordination of Mutual Aid Resources
 - e. Coordination and Implementation of Meaningful Fire Mitigation Projects Among

- Federal, State, and Local Agencies and Volunteers and Private Citizens
- f. Encouraging Development of Fire-Adapted Communities Across Colorado
 - g. Strategies to Increase Firefighter Recruitment and Retention Statewide

Years Three through Five (2021-2023)

Implementation plans and schedules for Years Three through Five will be designed to complete the target organizational structure shown in the chart above. That future structure is flexible enough that additional resources can be added in any order, while still providing the identified value. Actual plans and schedules for these years will be developed annually, based on assessments of current resources and any changes in DFPC and Statewide needs. Ideally, the Fire Commission requested in Year 2 will be set up to play a large role in identifying and prioritizing future requests for funding or legislation.

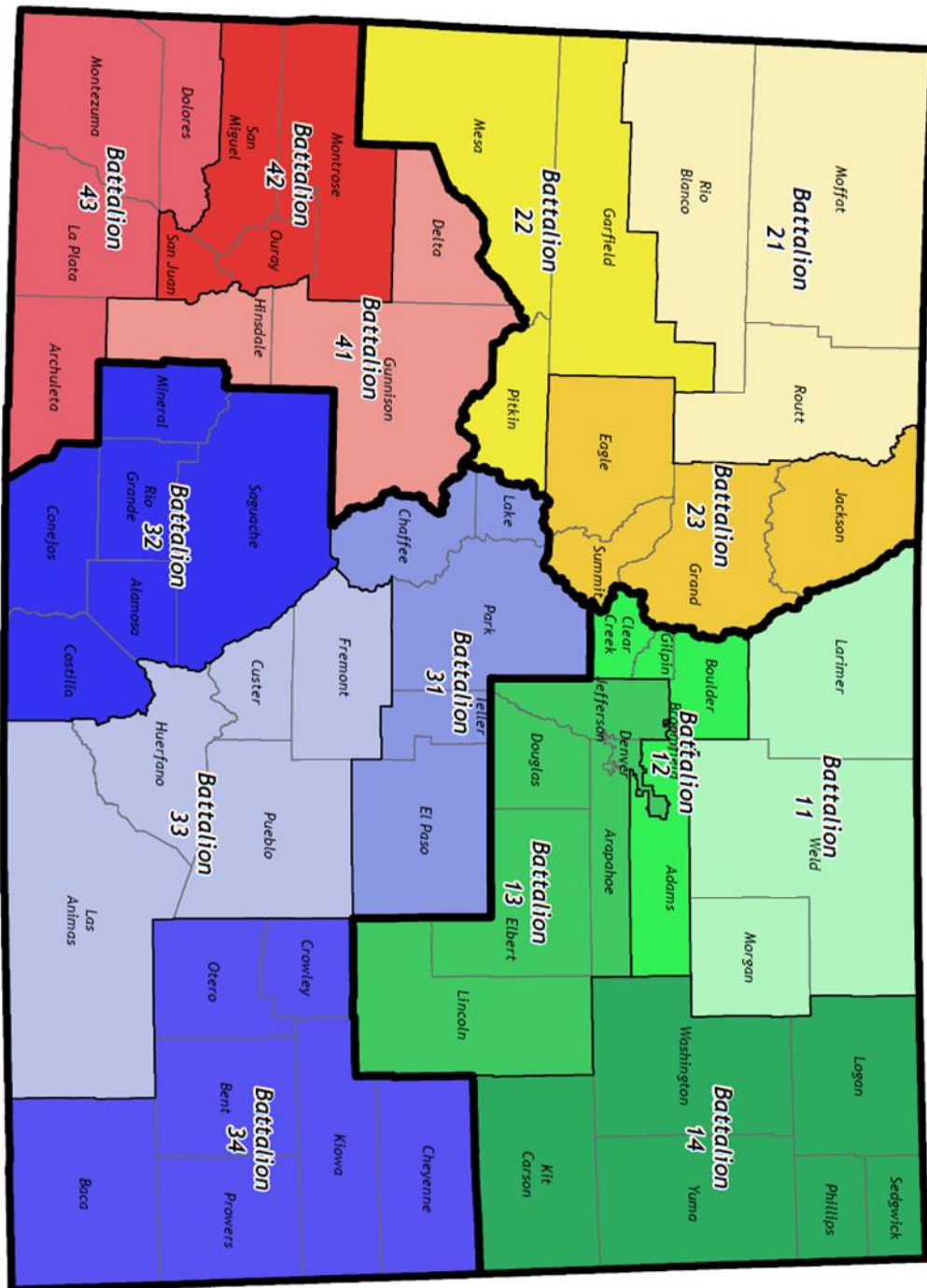
Conclusion

The fire problem in Colorado requires a multi-faceted solution that will require bold leadership and cooperation from multiple government entities, active stakeholder groups, concerned citizens, and proactive policy-makers. A five-year plan for improving the way fire is prepared for and managed in Colorado is only the beginning. Just as fire will present new challenges that we cannot anticipate, those charged with protecting Colorado's people, property, resources, environment, and quality of life must continue to lean forward and implement creative solutions to address this evolving problem.

Appendix A: WFMS Funding Sources

| Function | Fund Name | Fund Source | Amount | Preparedness | Response | Mitigation | Resources and Activities |
|--|---|--------------------------|-------------|--------------|----------|------------|---|
| Base Program | DFPC Engine program | General | \$500,000 | x | x | | Program funding for personnel and operating for DFPC engines (7) |
| Base Program | Wildfire Preparedness | Insurance Premium Tax | \$4,150,000 | x | x | x | Program funding for FMO's, misc. leadership and staff, DFPC Squad (1), and additional funding for DFPC Engines (7) |
| Base Program | Wildfire Preparedness (new in FY 18-19) | General Fund | \$3,000,000 | x | x | x | New program funding for Wildfire Modules (4), additional FMO's and planning staff. New funding to increase capacity to plan and implement mitigation projects. |
| Base Program/Sate Assistance | Colorado Firefighting Air Corps (CFAC) | General Fund | \$8,900,000 | x | x | | Program funding (contracts, operating, DFPC staff, etc.) for DFPC MMA, SEAT's, Helicopters, and CWN Large Air Tankers. Also covers flight time during initial attack on state, local, and private land fires. |
| State Assistance | Wildfire Emergency Response Fund (WERF) | No dedicated fund source | Variable | | x | | Funding assistance to local agencies during initial attack. Provides 1 aircraft resource (helicopter or air tanker) and 2 days of a 20-person handcrew crew per local incident. |
| State Assistance/ State Responsibility | Resource Mobilization Fund (RFM) | No dedicated fund source | Variable | | x | | Provides reimbursement to local jurisdictions for incidents. Can be used when non-EFF county or non-qualifying State Responsibility Fire, but still exceeding County's capacity. |
| State Responsibility | Emergency Fire Fund (EFF) | County Contributions | \$1,000,000 | | x | | Voluntary contributions by participating counties & misc. entities. Covers costs of large fires when DFPC assumes management & fiscal responsibility w/ County. |
| State Responsibility | Executive Orders (EO) | Variable | Variable | | x | | DFPC requests EOs for large fire management of qualifying incidents once EFF is depleted. |
| Pass Through for Billing | Wildfire Cost Recovery Fund | Fire Billings | Variable | | x | | Consists of all moneys recovered for DFPC expenditures and local agency reimbursements. |

Appendix B: Quadrant Model for Fire Resources and Staffing



Appendix C: Meetings and Participants

| DFPC Work Group Members Met February 14, February 15, March 7, April 4, May 9 | | |
|--|--|-------------------------|
| Name | Agency | DFPC Region |
| Rob Goodwin | Carbondale FPD | Colorado River |
| Doug Cupp | Greater Eagle FPD | Colorado River |
| Rich Acree | Mesa County Sheriff | Colorado River |
| Mark Novak | Vail Fire and Emergency Services | Colorado River |
| Mike Chard | Boulder Office of Emergency Management | North Central Foothills |
| Chris Woolley | Brighton FPD | North Central Foothills |
| Greg Gilbert | Frederick-Firestone Fire Protection District | North Central Foothills |
| Paul Ondr | Timberline Fire Protection District | North Central Foothills |
| Seth McKinney | Boulder County Sheriff's Office | North Central Foothills |
| Mike Tombolato | Rocky Mountain Fire Dist. | North Central Foothills |
| TJ Steck | Elizabeth Fire | North Central Plains |
| Mike Alexander | Douglas County Sheriff | North Central Plains |
| William McLaughlin | Elk Creek Fire District | North Central Plains |
| Brian Daley | Jefferson County Sheriff's Office | North Central Plains |
| Stephen Charles | Berthoud Fire Protection District | Northeast |
| Bob Heldenbrand | Holyoke Volunteer Fire Department | Northeast |
| Ken Gabrielson | Hudson Fire Protection District | Northeast |
| Justin Whitesell | Larimer County Sheriff's Office | Northeast |
| Travis Bailey | Wiggins Rural Fire Protection District | Northeast |
| Brett Powell | Logan County Sheriff's Office | Northeast |
| Ben Ojinaga | Greeley Fire Department | Northeast |
| Brad White | Grand Fire Protection District | Northwest |
| Ty Gates | Rio Blanco County OEM | Northwest |
| Dal Leck | West Routt FPD | Northwest |
| Schelly Olson | Grand Fire Protection District | Northwest |
| Joe Burgett | Platte Canyon Fire | South Central |

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|------------------|--------------------------------------|-----------------|
| Chris Truty | Tri-Lakes Monument FPD | South Central |
| John Padgett | El Paso County Sheriff's Office | South Central |
| Aaron Eveatt | La Junta Fire-EMS | Southeast |
| Brian Caserta | Pueblo West Fire | South |
| Karl Potestio | West Park VFD | South |
| Don Chapman | Alamosa Fire Department | San Luis Valley |
| Curtis Heaton | US Forest Service | Statewide |
| Jim McMahon | US Forest Service | Statewide |
| Scott Sugg | US Forest Service | Statewide |
| Brian Achziger | Bureau of Land Management | Statewide |
| Clark Hammond | Bureau of Land Management | Statewide |
| Kristin Garrison | Colorado State Forest Service | Statewide |
| Cory Stark | DHSEM | Statewide |
| Bob Sullivan | National Fire Protection Association | Statewide |
| Doug Fritz | Hotchkiss Fire District | West |
| Scott Morrill | Gunnison County Emergency Management | West |
| John Cheroske | Telluride Fire Protection District | West |

| DFPC Regional Meeting Participants – La Junta March 2, 2018 | | |
|--|-----------------------|--------------------|
| Name | Agency | DFPC Region |
| Tom Eikenberry | US Forest Service | Southeast |
| Tim Howard | Trinidad Fire | South |
| Kasey Cumbie | Fort Carson/PCMS | Southeast |
| Anthony Black | Fort Carson/PCMS | Southeast |
| Martin Flores | Fort Carson/PCMS | Southeast |
| Ray Gonzales | Rocky Ford Fire Dept | Southeast |
| Rick Stwalley | Bent County OEM | Southeast |
| Danny Chavez | Otero County OEM | Southeast |
| Cindy Howard | Custer County OEM | South |
| Jerry Casebolt | Pritchett Fire | Southeast |
| Aaron Eveatt | La Junta Fire-EMS | Southeast |
| Stephanie Eveatt | La Junta Fire-EMS | Southeast |
| Dylan Jacketta | Pueblo County Sheriff | South |
| Brian Caserta | Pueblo West Fire | South |

| DFPC Regional Meeting Participants – Alamosa March 16, 2018 | | |
|--|--|--------------------|
| Name | Agency | DFPC Region |
| Blane Witherspoon | Mosca-Hooper Fire | San Luis Valley |
| Bobby Woelz | Saguache County OEM | San Luis Valley |
| Tad Crawford | Baca Grande Emergency Services | San Luis Valley |
| Matthew Crowley | Baca Fire / Crestone Mountain Firewise | San Luis Valley |
| Don Chapman | Alamosa Fire Department | San Luis Valley |
| Patrick Sullivan | Monte Vista Fire | San Luis Valley |
| Glenn Slingerland | Monte Vista Fire | San Luis Valley |
| Tony Bobicki | Alamosa Fire | San Luis Valley |
| Terry Wetherill | Mineral County OEM | San Luis Valley |
| Crhis Quintana | Capulin Fire | San Luis Valley |
| Ernest Quintana | Capulin Fire | San Luis Valley |
| Mathhew Cardova | Costilla County Fire | San Luis Valley |
| Robet Marquez | Capulin Fire | San Luis Valley |
| Chris Ortiz | Rio Grande County OEM | San Luis Valley |
| David Osborn | DHSEM | San Luis Valley |
| Rodney King | Conejos County OEM | San Luis Valley |
| Peter May | Kundalini Fire Management | San Luis Valley |

| DFPC Regional Meeting Participants – Durango March 20, 2018 | | |
|--|--------------------------|--------------------|
| Name | Agency | DFPC Region |
| Randy Larson | Pagosa FPD | Southwest |
| Karn Macht | Pagosa FPD | Southwest |
| Grant Allen | Dove Creek Fire | Southwest |
| Trevor Denney | DHSEM | Southwest |
| Don Brockus | Southern Ute Agency | Southwest |
| Richard Bustamante | US Forest Service | Southwest |
| Steven Cooper | US Forest Service | Southwest |
| Charlie Landsman | FireWise of SW Colorado | Southwest |
| John Lee | Fort Lewis Mesa FPD | Southwest |
| Emily Hohman | Chama Peak Land Alliance | Southwest |
| Michael Krupa | Durango FPD | Southwest |
| Hal Doughty | Durango FPD | Southwest |

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| Randy Black | Durango FPD | Southwest |
| Christina Kraetsch | Archuleta County Sheriff | Southwest |
| Mike LeRoux | Arapaho County Sheriff | Southwest |
| Karen Dickson | MCPHD | Southwest |
| Lori Zazzaro | San Juan Basin Public Health | Southwest |
| Doyle Villers | La Plata County | Southwest |
| Butch Knowlton | La Plata County OEM | Southwest |
| Tom McNamara | La Plata County OEM | Southwest |

| DFPC Regional Meeting Participants – Steamboat Springs March 29, 2018 | | |
|--|------------------------------------|--------------------|
| Name | Agency | DFPC Region |
| Roger Moore | Oak Creek Fire | Northwest |
| Chuck Wisecup | Oak Creek Fire | Northwest |
| Mike Swinsick | North Routt FPD | Northwest |
| Chuck Cerasoli | Steamboat Springs FD | Northwest |
| Mike Middleton | Steamboat Springs FD | Northwest |
| Mel Stewart | Steamboat Springs FD | Northwest |
| Leighton White | Steamboat Springs FD | Northwest |
| Mo Demorat | Routt County OEM | Northwest |
| Dal Leck | West Routt FPD | Northwest |
| Colt Mortenson | Bureau of Land Management | Northwest |
| Jim Michels | Bureau of Land Management | Northwest |
| Kyle Frary | Bureau of Land Management | Northwest |
| Ty Gates | Rio Blanco County OEM | Northwest |
| Brice Glasscock | Rio Blanco County Sheriff's Office | Northwest |
| Todd Wheeler | Moffat County Sheriff's Office | Northwest |
| Brett Schroetlin | Grand County Sheriff's Office | Northwest |
| Brad White | Grand FPD | Northwest |
| Ron Thompson | Grand FPD | Northwest |
| Schelly Olson | Grand FPD | Northwest |

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| Doug Cupp | Greater Eagle FPD | Colorado River |
| Kevin Thompson | US Forest Service | Northwest |
| Tony Tucker | Kremmling FD | Northwest |
| Todd Holzwarth | East Grand FPD | Northwest |

| DFPC Work Group Meeting – Local Dispatching May 9, 2018 | | |
|--|------------------------------|--------------------|
| Name | Agency | DFPC Region |
| Stephen Charles | Berthoud FPD | Northeast |
| TJ Steck | Elizabeth Fire | North Central |
| Mark Novak | Vail Fire | Colorado River |
| Carl Stephens | Garfield County 911 | Colorado River |
| Scott Swendson | US Forest Service RMACC | Statewide |
| Kimberly Culp | Larimer County 911 | Northeast |
| Jackie Reynolds | Adams County 911 | North Central |
| Danette Martin | Morgan County 911 | Northeast |
| Phil Campbell | Durango / LaPlata County 911 | Southwest |

Appendix D: Acronym List and Glossary

| | |
|----------------|--|
| AOP | Annual Operating Plan |
| CFAC | Colorado Firefighting Air Corps |
| CFIRS | Colorado Fire Incident Reporting System |
| CoE | Center of Excellence for Advanced Aerial Firefighting Technology |
| CO-FPS | Colorado Fire Prediction System |
| CRRF | Colorado Resource Rate Form |
| CSFC | Colorado State Fire Chiefs |
| CSFS | Colorado State Forest Service |
| CWN | Call When Needed |
| DFPC | Division of Fire Prevention & Control |
| EFF | Emergency Fire Fund |
| FEPP | Federal Excess Personal Property (Program) |
| FLSS | Fire & Life Safety Section |
| FMO | Fire Management Officer |
| IMT | Incident Management Team |
| IQS | Incident Qualification System |
| MMA | Multi-Mission Aircraft |
| NFIRS | National Fire Incident Reporting System |
| NFPA | National Fire Protection Association |
| PPE | Personal Protective Equipment |
| ROSS | Resource Ordering and Status System |
| RX Fire | Prescribed Fire |
| SEAT | Single Engine Air Tanker |
| TAK | Team Awareness Kit |
| UAS | Unmanned Aircraft System (Drone) |
| VFA | Volunteer Firefighters Assistance (Grant) |
| WAC | Wildland Fire Advisory Committee |
| WFMS | Wildfire Management Section |
| WUI | Wildland Urban Interface |

Aerial Detection

A system for, or the act of discovering, locating, and reporting fires from aircraft.

Aerial Reconnaissance

Use of aircraft for detecting and observing fire behavior, values-at-risk, suppression activity, and other critical factors to facilitate command decisions on strategy and tactics needed for fire suppression.

After Action Review (AAR)

A structured review or de-brief process of an event, focused on performance standards, that enables participants to discover for themselves what happened, why it happened, and how to sustain strengths and improve on weaknesses. After action reviews, informal or formal, follow the same general format, involve the exchange of ideas and observations, and focus on improving performance.

Agency Administrator

The official responsible for the management of a geographic unit or functional area. The managing officer of an agency, division thereof, or jurisdiction having statutory responsibility for incident mitigation and management. Examples: NPS Park Superintendent, BIA Agency Superintendent, USFS Forest Supervisor, BLM District Manager, FWS Refuge Manager, State Forest Officer, Tribal Chairperson, Fire Chief, Police Chief.

Airtanker

Fixed-wing aircraft certified by FAA as being capable of transport and delivery of fire retardant solutions.

Broadcast Burning

Prescribed burning activity where fire is applied generally to most or all of an area within well defined boundaries for reduction of fuel hazard, as a resource management treatment, or both.

Bucket Drops

The dropping of fire retardants or suppressants from specially designed buckets slung below a helicopter.

Burned Area Emergency Response (BAER) Team

BAER teams are formed to analyze post-fire conditions and to take immediate emergency stabilization action to prevent loss of life and property and critical and natural resources. It is the Agency Administrator's responsibility to order or designate a BAER Team.

Cache

A pre-determined complement of tools, equipment and/or supplies stored in a designated location, available for incident use.

Contained

The status of a wildfire suppression action signifying that a control line has been completed around the fire, and any associated spot fires, which can reasonably be expected to stop the fire's spread.

Control Line

An inclusive term for all constructed or natural barriers and treated fire edges used to control a fire.

Controlled

The completion of control line around a fire, any spot fires therefrom, and any interior islands to be saved; burned out any unburned area adjacent to the fire side of the control lines; and cool down all hotspots that are immediate threats to the control line, until the lines can reasonably be expected to hold under the foreseeable conditions.

Cooperator

A federal, tribal, state, or local agency that participates with another agency(s) in planning and conducting fire or emergency management projects and activities.

Detection

The act or system of discovering and locating fires.

Direct Attack

Any treatment applied directly to burning fuel such as wetting, smothering, or chemically quenching the fire or by physically separating the burning from unburned fuel.

Discovery Time

Elapsed time from start of fire (known or estimated) until the time of the first discovery that results directly in fire suppression action.

Dispatch Center

A facility from which resources are assigned to an incident.

Dispatch

The implementation of a command decision to move a resource or resources from one place to another.

Evacuation

An organized, phased, and supervised withdrawal, dispersal, or removal of civilians from dangerous or potentially dangerous areas, and their reception and care in safe areas.

Extended Attack Incident

An incident that exceeds the capability of the initial attack resources and/or organization to successfully manage the incident to conclusion.

Extended Attack

Actions taken on a wildfire that has exceeded the initial response.

External Load

A load that is carried or extends outside of the aircraft fuselage.

Extreme Fire Behavior

Extreme implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One or more of the following is usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously.

Fire Behavior

The manner in which a fire reacts to the influences of fuel, weather, and topography.

Fire Benefits

Fire effects with positive monetary, social, or emotional value or that contribute, through changes in the resource base, to the attainment of organizational goals.

Fire Danger

Sum of constant danger and variable danger factors affecting the inception, spread, and resistance to control, and subsequent fire damage; often expressed as an index.

Fire Danger Rating System

The complete program necessary to produce and apply fire danger ratings, including data collection, data processing, fire danger modeling, communications, and data storage.

Fire Detection

Act or system of discovering and locating fires.

Fire District

A rural or suburban fire organization, usually tax supported, that maintains fire companies and apparatus. It is also called a fire protection district.

Fire Hazard

A fuel complex, defined by volume, type condition, arrangement, and location, that determines the degree of ease of ignition and of resistance to control.

Fire Management

All activities for the management of wildland fires to meet land management objectives. Fire management includes the entire scope of activities from planning, prevention, fuels or vegetation modification, prescribed fire, hazard mitigation, fire response, rehabilitation, monitoring and evaluation.

Fire Potential

The likelihood of a wildland fire event measured in terms of anticipated occurrence of fire(s) and management's capability to respond. Fire potential is influenced by a sum of factors that includes fuel conditions (fuel dryness and/or other inputs), ignition triggers, significant weather triggers, and resource capability.

Fire Presuppression

Activities undertaken in advance of fire occurrence to help ensure more effective fire suppression. Activities includes overall planning, recruitment and training of fire personnel, procurement and maintenance of firefighting equipment and supplies, fuel treatment and creating, maintaining, and improving a system of fuel breaks, roads, water sources, and control lines.

Fire Prevention

Activities such as public education, community outreach, law enforcement, engineering, and reduction of fuel hazards that are intended to reduce the incidence of unwanted human-caused wildfires and the risks they pose to life, property or resources.

Fire Qualifications

Computerized interagency summary of fire suppression qualifications of listed personnel. Available information includes fire training record, fire experience record, and physical fitness testing score for each individual.

Fire Retardant

Any substance except plain water that by chemical or physical action reduces flammability of fuels or slows their rate of combustion.

Fire Season

Period(s) of the year during which wildland fires are likely to occur, spread, and affect resources values sufficient to warrant organized fire management activities.

Fire Suppressant

Any agent used to extinguish the flaming and glowing phases of combustion by direct application to the burning fuel.

Fire Suppression

All work and activities connected with control and fire-extinguishing operations, beginning with discovery and continuing until the fire is completely extinguished.

Fireline

The part of a containment or control line that is scraped or dug to mineral soil. For purposes of pay administration for hazardous duty, a fireline is defined as the area within or adjacent to the perimeter of an uncontrolled wildfire of any size in which action is being taken to control fire. Such action includes operations, which directly support control of fire (e.g. activities to extinguish the fire, ground scouting, spot fire patrolling, search and rescue operations, and backfiring).

Fuel Management

Act or practice of controlling flammability and reducing resistance to control of wildland fuels through mechanical, chemical, biological, or manual means, or by fire, in support of land management objectives.

Fuel Treatment

Manipulation or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control (e.g., lopping, chipping, crushing, piling and burning).

Hand Crew

A number of individuals that have been organized and trained and are supervised principally for operational assignments on an incident.

Handline

Fireline constructed with hand tools.

Hazard Fuel

A fuel complex defined by kind, arrangement, volume, condition, and location that presents a threat of ignition and resistance to control.

Hazard Reduction

Any treatment of living and dead fuels that reduces the potential spread or consequences of fire.

Helitack Crew

A crew of firefighters specially trained and certified in the tactical and logistical use of helicopters for fire suppression.

Helitack

The utilization of helicopters to transport crews, equipment, and fire retardants or suppressants to the fireline during the initial stages of a fire. The term also refers to the crew that performs helicopter management and attack activities.

Hotshot Crew

Intensively trained fire crew used primarily in handline construction (Type-1).

Incident Command System (ICS)

A standardized on-scene emergency management concept specifically designed to allow its user(s) to adopt an integrated organizational structure equal to the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries.

Incident Commander (IC)

This ICS position is responsible for overall management of the incident and reports to the Agency Administrator for the agency having incident jurisdiction. This position may have one or more deputies assigned from the same agency or from an assisting agency(s).

Incident Management Team

The incident commander and appropriate general and command staff personnel assigned to an incident.

Incident

An occurrence either human-caused or natural phenomenon, that requires action or support by emergency service personnel to prevent or minimize loss of life or damage to property and/or natural resources.

Indirect Attack

A method of suppression in which the control line is located some considerable distance away from the fire's active edge. Generally done in the case of a fast-spreading or high-intensity fire and to utilize natural or constructed firebreaks or fuel breaks and favorable breaks in the topography. The intervening fuel is usually backfired; but occasionally the main fire is allowed to burn to the line, depending on conditions.

Infrared (IR)

A heat detection system used for fire detection, mapping, and hotspot identification.

Initial Attack (IA)

A preplanned response to a wildfire given the wildfire's potential. Initial attack may include size up, patrolling, monitoring, holding action or suppression.

Initial Attack Fire (IAF)

Fire that is generally contained by the attack units first dispatched, without a significant augmentation of reinforcements, within two hours after initial attack, and full control is expected within the first burning period.

Jurisdictional Agency

The agency having land and resource management responsibility for a specific geographical or functional area as provided by federal, state or local law.

Large Fire

For statistical purposes, a fire burning more than a specified area of land e.g., 300 acres. A fire burning with a size and intensity such that its behavior is determined by interaction between its own convection column and weather conditions above the surface.

Line Officer

Managing officer, or designee, of the agency, division thereof, or jurisdiction having statutory responsibility for incident mitigation and management.

Mitigation

Modifying the environment or human behavior to reduce potential adverse impacts from a natural hazard.

Mitigation Actions

Actions that are implemented to reduce or eliminate (mitigate) risks to persons, property or natural resources. These actions can include mechanical and physical tasks, specific fire applications, and limited suppression actions. Mitigation actions may include: fireline construction, fuel treatments and reductions, fuel breaks or barriers around critical or sensitive sites or resources, and creating "black lines" through the use of controlled burnouts to limit fire spread and behavior.

Mobilization

The process and procedures used by all organizations, federal, state and local, for activating, assembling, and transporting all resources that have been requested to respond to or support an incident.

Mop Up

Extinguishing or removing burning material near control lines, felling snags, and trenching logs to prevent rolling after an area has burned, to make a fire safe, or to reduce residual smoke.

Multi-Agency Incident

An incident where one or more agencies assist a jurisdictional agency or agencies. May be single or unified command.

Mutual Aid Agreement

Written agreement between agencies and/or jurisdictions in which they agree to assist one another upon request, by furnishing personnel and equipment.

Mutual Aid

Assistance in firefighting or investigation by fire agencies, without regard for jurisdictional boundaries.

National Fire Danger Rating System (NFDRS)

A uniform fire danger rating system that focuses on the environmental factors that control the moisture content of fuels.

National Fire Protection Association Standards (NFPA)

Standards of the National Fire Protection Association are frequently adopted by insurance agencies such as the National Board of Fire Underwriters as a basis for their regulations and used as a guide for municipal, state, or provincial laws, ordinances, and regulations.

National Interagency Incident Management System (NIIMS)

An NWCG developed program consisting of five subsystems which collectively provide a total systems approach to all-risk incident management. The subsystems are: The Incident Command System, Training, Qualifications and Certification, Supporting Technologies, and Publications Management.

National Wildfire Coordinating Group (NWCG)

A group formed under the direction of the Secretaries of the Interior and Agriculture to improve the coordination and effectiveness of wildland fire activities and provide a forum to discuss, recommend appropriate action, or resolve issues and problems of substantive nature.

Natural Fuels

Fuels resulting from natural processes and not directly generated or altered by land management practices.

Peak Fire Season

That period of the fire season during which fires are expected to ignite most readily, to burn with greater than average intensity, and to create damages at an unacceptable level.

Personal Protective Equipment (PPE)

That equipment and clothing required to mitigate the risk of injury from or exposure to hazardous conditions encountered during the performance of duty. PPE includes but is not limited to: fire resistant clothing, hard hat, flight helmets, shroud, goggles, gloves, respirators, hearing protection, chainsaw chaps, and shelter.

Piling and Burning

Piling slash resulting from logging or fuel management activities and subsequently burning the individual piles.

Preparedness Level

The National Multi-Agency Coordination Group (NMAC) establishes National Preparedness Levels throughout the calendar year to help assure that wildland firefighting resources are ready to respond to new incidents. Geographic Area Preparedness Levels are established by the Geographic Area Coordination Centers (GACC). Preparedness Levels are dictated by burning conditions, fire activity, and especially resource availability.

The five Preparedness Levels range from 1 to 5, with 5 being the highest level. Each Preparedness Level has specific management directions.

Preparedness

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

Mental readiness to recognize changes in fire danger and act promptly when action is appropriate.

The range of deliberate, critical tasks, and activities necessary to build, sustain, and improve the capability to protect against, respond to, and recover from domestic incidents.

Prescribed Fire Plan

A plan for each prescribed fire, prepared by qualified personnel, approved by the agency administrator, which includes criteria for the conditions under which the fire will be conducted (a prescription).

Prescribed Fire

Any fire intentionally ignited by management actions in accordance with applicable laws, policies, and regulations to meet specific objectives.

Prescription

In the context of wildland fire, a prescription is measurable criteria that defines conditions under which a prescribed fire may be ignited. Prescriptions may also be used to guide selection of management responses to wildfire to define conditions under which management actions are most likely to achieve incident management objectives. Prescription criteria typically describe environmental conditions such as temperature, humidity and fuel moisture, but may also include safety, economic, public health, geographic, administrative, social, or legal considerations.

Prevention

Activities directed at reducing the incidence of fires, including public education, law enforcement, personal contact, and reduction of fuel hazards (fuels management). Actions to avoid an incident, to intervene for the purpose of stopping an incident from occurring, or to mitigate an incident's effect to protect life and property. Includes measures designed to mitigate damage by reducing or eliminating risks to persons or property, lessening the potential effects or consequences of an incident.

Resource Ordering and Status System (ROSS)

A national system that provides automated support to interagency and agency dispatch and coordination offices. The system will provide current status of resources available to support all-risk activities; enable dispatch offices to exchange and track resource ordering information electronically; enable dispatch offices to rapidly and reliably exchange mission-critical emergency electronic messages.

Resources

Personnel, equipment, services and supplies available, or potentially available, for assignment to incidents. Personnel and equipment are described by kind and type, e.g., ground, water, air, etc., and may be used in tactical, support or overhead capacities at an incident.

The natural resources of an area, such as timber, grass, watershed values, recreation values, and wildlife habitat.

Retardant

A substance or chemical agent which reduces the flammability of combustibles.

Risk Management

A continuous process that provides a systematic method for identifying and managing the risks associated with any operation.

Severity Funding

Suppression funds used to increase the level of pre-suppression capability and fire preparedness when predicted or actual burning conditions exceed those normally expected, due to severe weather conditions.

Significant Fire Potential

The likelihood a wildland fire event will require mobilization of additional resources from outside the area in which the fire situation originates.

Suppression

A wildfire response strategy to "put the fire out", as efficiently and effectively as possible, while providing for firefighter and public safety.

Tactics

Deploying and directing resources on an incident to accomplish the objectives designated by strategy.

Unacceptable Risk

Level of risk as determined by the risk management process which cannot be mitigated to an acceptable safe level.

Values To Be Protected

Include property, structures, physical improvements, natural and cultural resources, community infrastructure, and economic, environmental, and social values.

Wildfire Response Strategies

The range of options available for response to a wildfire.

Definition Extensions: 1) Common strategies include Monitor, Confine, Contain, Point/Zone Protection, and Suppression, but hybrids and novel strategies may also be developed as the situation demands. 2) One or more strategies may be employed on any given wildfire. The strategy or strategies being employed may vary temporally or spatially.

Wildfire Suppression

An appropriate management response to wildfire or prescribed fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire.

Wildfire

An unplanned, unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out.

Wildland Fire Module

A group of 7-10 highly skilled personnel specifically associated with the planning and implementation of planned and unplanned wildland fire and hazardous fuels treatments. Maybe classified as a Type 1 or Type 2 dependent on qualifications and experience.

Wildland Urban Interface (WUI)

The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Describes an area within or adjacent to private and public property where mitigation actions can prevent damage or loss from wildfire.

Wildland

An area in which development is essentially non-existent, except for roads, railroads, powerlines, and similar transportation facilities. Structures, if any, are widely scattered.

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