

## **IV. WILDLAND FIRE PROGRAM COMPONENTS**

### **A. General Implementation Procedures**

Wildland fire management at Rocky Mountain National Park is conducted to support resource management and community protection objectives. A full range of strategic options for managing wildland fires is available to managers provided that selected options do not compromise firefighter and public safety, cost-effectiveness, benefits, and values to be protected. Suppression of unwanted and potentially environmentally damaging wildland fires is guided by actions identified in this fire management plan.

Chapter III of this plan describes the eleven (11) Fire Management Units (FMUs). In order to achieve the goals of the Fire Management Plan, the individual FMUs are designated as either wildland fire use or suppression. In FMUs designated for suppression, all wildland fires will be suppressed using an appropriate management strategy consistent with departmental and agency policy. Human-caused wildland fires in all of the FMUs will be suppressed using an appropriate management strategy consistent with departmental and agency policy. Naturally ignited wildland fires in FMUs designated for wildland fire use may be managed for resource and wilderness benefits provided that prescriptive criteria are met.

A Wildland Fire Implementation Plan (WFIP) will be initiated for all wildland fires occurring in FMUs designated for wildland fire use. The FMO and/or FDO are responsible for completing the Stage I: Initial Fire Assessment that provides the decision framework for selecting the appropriate management response. Specific WFIP requirements are outlined in the Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide hereafter referred to as the Implementation Guide.

The Stage I: Initial Fire Assessment includes the Fire Situation and the Decision Criteria Checklist. In FMU development, programmatic decision criteria have been listed in support of FMU fire management strategies (Chapter III, C). The Stage I analysis documents the current and predicted situation, as well as all appropriate administrative information, and aids managers by providing them with decision criteria to make the initial decision whether to manage the fire for resource benefits or to take suppression action.

Where the FMU development determines suppression is the only appropriate response, the requirement for a decision checklist as part of the Stage I analysis is considered to be met. Subsequently, the Stage I analysis is satisfied at the programmatic level in the FMP through designation of the FMUs and determinations made by combinations of values to be protected and/or fire behavior thresholds.

The Interagency Standards for Fire and Fire Aviation Operations, issued annually by cooperating federal land management agencies, is a primary program component for policy, performance requirements, and operational standards.

### **B. Wildland Fire Suppression**

The objective of wildland fire suppression, as an integral part of wildland fire management, is to manage wildland fire safely and efficiently to accomplish protection objectives, as described in NPS Reference Manual #18, Chapter 9. Protection priorities are (1) human life and (2) property and natural/cultural resources. If it becomes necessary to prioritize between property and natural/cultural resources, this is to be done based on relative values to be protected, commensurate with fire management costs. Once people have been committed to an incident they become the highest value to be protected.

The full spectrum of tactical suppression options is available to the manager of the wildland fire. Management of wildland fire suppression actions, including Initial and Extended Attack, will be conducted in accordance with agency standards established in Chapter 9 of NPS Reference Manual #18.

As identified in Chapter III, the Fire Management Program at Rocky Mountain National Park includes strategic goals related to suppression, including the protection of life, property, and other resources from unwanted wildland fire. In addition, the program seeks to avoid unacceptable effects of wildland fire and suppression actions.

The potential range of fire behavior encountered on suppression actions is wide and highly variable. Fire behavior is a factor of fuel type, weather, climate, and topography. The two largest ecosystems in the park – Engelmann spruce/sub-alpine fir and lodgepole pine – are classified as Fire Regime Groups IV and V, where fire is an infrequent but significant ecological event, where those events are typified by high-intensity crown fire. Other fuel types in the park, including grasslands, upland shrub communities, and mixed coniferous forests, are also capable of high intensity fire behavior that can pose a high resistance to direct fire control efforts. However, each of these ecosystems is also capable of producing benign fire behavior, characterized by smoldering and creeping fire with little resistance to fire control. Park managers and firefighters can expect a full range of fire behavior in Rocky Mountain National Park. NPS policy requires that a pre-season risk assessment be prepared and updated periodically throughout the fire season.

The FMO will designate a Fire Duty Officer (FDO) on a daily basis during normal fire season. The FDO will provide leadership to wildland fire response and incident management activities. The minimum qualification for the FDO will be ICT4. Duties of the FDO are normally rotated between the Fire Crew Supervisor, Fuels Management Specialist, Engine Foreman, and Fuels Technician. The primary duty of the FDO is to ensure that elements of the Staffing Plan and Response Plan are met and that appropriate briefings are conducted for wildland fire personnel. In order to prepare for those actions, the FDO will evaluate fire weather information and determine the appropriate preparedness level and fire danger. The FDO is also responsible to assign a qualified Incident Commander to all wildland fires, ensure that a safe and effective initial response is conducted, provide guidance and support to the Incident Commander during all phases of incident management, and ensure that post-incident debriefings (After Action Reviews) are conducted. The FDO will maintain communication with the FMO during any initial response or incident management activities. Chapter III describes the historical fire weather, the fire season, and fuel characteristics. The FMO and FDO will monitor conditions during the normal fire season and ensure that firefighters are briefed on potential fire behavior.

### Preparedness

Preparedness includes activities conducted before a wildland fire occurrence to ensure the ability of the park's fire management organization to initiate effective actions and manage wildland fire incidents. These actions may include suppression strategies or the evaluation and decision process for wildland fire use strategies. Annual preparedness activities, as well as other details of wildland fire operations can be found in the Annual Work Plan for Preparedness Activities (Appendix P).

Preparedness activities include recruitment, training, planning and organization, fire equipment maintenance and procurement of equipment and supplies. The objective of preparedness is to have a well-trained and equipped fire management organization to implement appropriate management responses for all wildland fires. Preparedness activities are covered almost entirely by the NPS fire appropriation to the park and are only occasionally supplemented by normal park operating funds.

### Fire Weather and Fire Danger

Two (2) fire weather stations are managed in the park to determine fire danger and preparedness level in accordance with National Fire Danger Rating System (NFDRS) protocols:

050507	Estes Park (also known as the "Utility" station; East Side)
050402	Sulfur (also known as the "Kawuneeche" station; West Side)

The park maintains an agreement with the Arapaho and Roosevelt National Forest for station maintenance and upkeep, as well as data management. The NPS and USFS jointly developed

station catalogue information. The Fire Program Assistant serves as the primary park liaison with the USFS in management of the stations. The details of these two NFDRS stations are described in Chapter III.

The park will use the Energy Release Component (ERC), from the NFDRS, as the primary basis for preparedness planning and step-up actions. The step-up plan is designed to direct incremental preparedness actions in response to increasing or decreasing fire danger. Step-up actions, identified in this plan, are implemented according to the “staffing class”. In accordance with NPS Reference Manual #18, the step-up plan addresses the five staffing classes and corresponding adjective classes (1, low; 2, moderate; 3, high; 4, very high; and 5, extreme). The park will use the 90<sup>th</sup> and 97<sup>th</sup> percentile of ERC as the break points for staffing class 4 and 5, respectively. The park will monitor the Burning Index (BI) value and will consider BI, among other factors, in establishing the daily staffing and preparedness level.

### Emergency Preparedness

Emergency preparedness involves action taken to provide extra protection during extreme or unusual fire danger. These conditions may be the result of strong and/or dry winds, dry thunderstorms, or prolonged local or regional drought. Appropriate activities for emergency preparedness may include hiring of emergency temporary firefighters, placing existing staff on extended tours of duty, increasing or initiating special detection operations, and leasing initial attack aircraft. All of these actions are aimed at ensuring prompt response should fires occur.

The park's authority to spend emergency preparedness funds is linked to the National Fire Danger Rating System's Energy Release Component (ERC), the 90th percentile break point, and approval of pre-identified expenditures in the Step-up Plan. The park will establish the appropriate account and inform the Intermountain Regional Office justifying each use of an Emergency Preparedness account. Emergency expenditures will be initiated by the FMO. As necessary and appropriate, emergency preparedness activities will be coordinated with District Rangers.

### Step-up Plan

The park step-up plan outlines the responses to five classes of fire danger, which generally correspond with adjective class ratings. While in staffing class (preparedness level) 1 (low fire danger), 2 (moderate), and 3 (high), no additional funding is available to increase staffing or resource availability. All step-up activities at staffing class 1, 2, or 3 will consist of in-park resources (changing personnel schedules to obtain desired coverage and using in-park equipment). When in staffing classes 4 (very high) or 5 (extreme), additional funding is available to activate more resources. The step-up plan is based on fire danger indices derived from weather information taken at two stations within the park: the Estes Park (Utility) Station near park headquarters in Estes Park and the Sulfur Station near the Kawuneeche Visitor Center north of Grand Lake.

The step-up plan for the park is based on the Energy Release Component (ERC) derived from the above stations and applied to the three primary fuel models found in the park: NFDRS Model C, Model G, and Model H. In addition, trends in the Burning Index (BI) are also reviewed, especially in determining step-up activities above Preparedness Level 3. The ERC and BI are both reviewed because the BI has a high sensitivity to wind conditions. The ERC is not directly affected by wind speed and accurately reflects trends in fuel moisture. The preparedness level and adjective rating will be determined based on the worst-case ERC value from the calculated staffing class from a combination of both stations, with an emphasis on fuel types in the wildland-urban interface. The adjective class as calculated by NFDRS may often fluctuate widely from day to day. Normally, the park will strive to incrementally raise or lower the adjective class (fire danger) only when an upward or downward trend is occurring.

The Fire Duty Officer or FMO may determine the need to move up to the next higher preparedness level during increased visitation (e.g., holiday weekends or hunting seasons on adjacent lands) or when the geographic area preparedness level is elevated due to resource drawn-down or fire activity.

Current Preparedness Level Break Points (annually review and updated)

<b>ESTES PARK (UTILITY) WEATHER STATION 050507</b>		
	<b>MODEL G</b>	<b>MODEL C</b>
<b>PREPAREDNESS LEVEL</b>	<b>ERC Actual</b>	<b>ERC Actual</b>
<b>1</b>	<b>0 - 20</b>	<b>0 - 7</b>
<b>2</b>	<b>21 - 39</b>	<b>8 - 13</b>
<b>3</b>	<b>40 - 52</b>	<b>14 - 17</b>
<b>4</b>	<b>53 - 62</b>	<b>18 - 20</b>
<b>5</b>	<b>63 +</b>	<b>21 +</b>

<b>SULFUR (KAWUNEECHE) WEATHER STATION 050402</b>		
	<b>MODEL G</b>	<b>MODEL H</b>
<b>PREPAREDNESS LEVEL</b>	<b>ERC Actual</b>	<b>ERC Actual</b>
<b>1</b>	<b>0 - 17</b>	<b>0 - 9</b>
<b>2</b>	<b>18 - 34</b>	<b>10 - 19</b>
<b>3</b>	<b>35 - 46</b>	<b>20 - 25</b>
<b>4</b>	<b>47 - 53</b>	<b>26 - 31</b>
<b>5</b>	<b>54 +</b>	<b>32 +</b>

Preparedness Actions and Step-up Plan

<b>PREPAREDNESS LEVEL (STAFFING CLASS) AND CORRESPONDING ADJECTIVE RATING</b>	<b>ACTIONS TO BE TAKEN</b>
<p>1 LOW FIRE DANGER</p>	<ul style="list-style-type: none"> <li>• Normal preparedness activities.</li> <li>• Normal tours of duty</li> <li>• Minimum ICT5 + FFT2 respond to reported fire</li> <li>• 7-day effective coverage during defined fire season</li> <li>• In early season, complete pre-season risk analysis for park</li> </ul>
<p>2 MODERATE FIRE DANGER</p>	<ul style="list-style-type: none"> <li>• Normal preparedness activities</li> <li>• Normal tours of duty</li> <li>• Minimum ICT5 + FFT2 respond to reported fire</li> <li>• 7-day effective coverage during defined fire season</li> <li>• All initial attack equipment ready in cache at all times.</li> <li>• Pumps and saws checked regularly</li> </ul>
<p>3 HIGH FIRE DANGER</p>	<ul style="list-style-type: none"> <li>• Normal preparedness activities</li> <li>• Normal tours of duty</li> <li>• Minimum ICT5/ENOP + FFT2 with engine respond to reported fire</li> <li>• 7-day effective coverage during defined fire season</li> <li>• Ensure that dispatch coverage is sufficient to handle incident activities</li> <li>• Normal fire prevention and detection operations</li> <li>• All initial attack equipment ready in cache at all times.</li> <li>• Pumps and saws checked regularly.</li> <li>• Monitor availability of local fire suppression resources</li> </ul>
<p>4 VERY HIGH FIRE DANGER</p>	<ul style="list-style-type: none"> <li>• Minimum ICT5 + ENOP (or trainee) + FFT2 with engine respond to reported fire</li> <li>• ICT4 available to respond</li> <li>• 7-day effective coverage, including extended hours of coverage as determined by the FDO</li> <li>• Increase fire prevention and detection patrol activities</li> <li>• Ensure that dispatch coverage maintains the capability to handle fire prevention, detection, and incident management activities</li> <li>• If west-side (Sulphur NFDRS station) indices indicate, consider pre-positioning or identifying initial attack resources for the area</li> <li>• All initial attack equipment ready in cache at all times</li> <li>• Pumps and saws checked regularly</li> <li>• FDO will monitor availability of local fire suppression resources</li> <li>• Consider having Information Officer distribute press releases regarding fire danger</li> <li>• If there is a fire start, FDO will identify new initial attack suppression module with qualified ICT5</li> <li>• FDO will monitor availability of FTC Type III team and aviation resources</li> </ul>

<p>5 EXTREME FIRE DANGER</p>	<ul style="list-style-type: none"> <li>• Minimum ICT5 + ENOP (or trainee) + FFT2 with engine respond to reported fire</li> <li>• ICT4 available to respond</li> <li>• 7-day effective coverage, including extended hours of coverage as determined by the FDO</li> <li>• Increase fire prevention and detection patrol activities</li> <li>• Ensure that dispatch coverage maintains the capability to handle fire prevention, detection, and incident management activities</li> <li>• If west-side (Sulphur NFDRS station) indices indicate, consider pre-positioning or identifying initial attack resources for the area</li> <li>• All initial attack equipment ready in cache at all times</li> <li>• Pumps and saws checked regularly</li> <li>• FDO will monitor availability of local fire suppression resources</li> <li>• Consider having Information Officer distribute press releases regarding fire danger</li> <li>• If there is a fire start, FDO will identify new initial attack suppression module with qualified ICT5</li> <li>• FDO will monitor availability of FTC Type III team and aviation resources</li> <li>• Consider prohibiting open fires and smoking in the backcountry.</li> <li>• Consider aerial detection flights</li> </ul>
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- When PREPAREDNESS LEVEL 3 or 4 is accompanied by a Lightning Activity Level of 4, 5, or 6 for the current day or the previous day, the PREPAREDNESS LEVEL may be adjusted to the next higher level respectively.
- Palmer Drought Severity Index (PDSI) of -3.0 or below may be used to justify adjustment of PREPAREDNESS LEVEL 3 and 4, to 4 and 5 respectively.
- Burning Index (BI), derived from the NFDRS stations or calculated pre- or post-fire season, may be also used to determine the PREPAREDNESS LEVEL as determined by Fire Duty Officer
- Periods of elevated probability of human-caused fire occurrence, such as holiday weekends with increased park visitation may also be used to adjust the PREPAREDNESS LEVEL to the next highest level
- PREPAREDNESS LEVELS 3 and 4 may be adjusted to 4 and 5 respectively if the Rocky Mountain Area preparedness level is Level 4 or Level 5
- At all preparedness levels, the Fire Program Management Assistant and Fire Program Clerk will monitor the availability of other park staff. Once initial attack resources are committed to an incident, the FDO will ensure that staffing is maintained (ICT5 plus FFT2s) for any additional response that may simultaneously occur

Special Conditions (Pre- and Post-Season)

Because environmental conditions change rapidly at the park, a normal fire season varies widely from year to year at Rocky Mountain National Park. Sudden changes in weather can escalate fire danger into very high or extreme conditions at any time of the year. The ability to step-up fire preparedness is important to a successful fire management program.

Adjective Class Rating

For public information purposes, it is helpful to use adjectives to describe the fire danger (e.g., low, moderate, high). The adjective class rating for the park will be obtained from the WIMS program. The adjective class as calculated by NFDRS may often fluctuate widely from day to day. Normally, the park will strive to incrementally raise or lower the adjective class (fire danger) only when an upward or downward trend is occurring.

## Pre-attack Planning

The specific components to the pre-attack plan at Rocky Mountain National Park include:

Document	Location
Wildland Fire Staffing Plan	Fire Management Plan
Wildland Fire Response Plan	Fire Management Plan
County Annual Operating Plans (Larimer, Boulder, and Grand Counties)	ROMO Fire Management Office
Fort Collins Dispatch Center Mobilization Guide	<a href="http://www.fs.fed.us/arnf/fire/fire.html">http://www.fs.fed.us/arnf/fire/fire.html</a>
Delegation of Authority	ROMO Fire Management Office
Transfer of Command Package	ROMO Fire Management Office
ROMO Emergency Operations Plan	ROMO Fire Management Office
Structure Defense Data Sheets (East-side and West-side)	ROMO Fire Management Office and the WCF T6 Engine
Fort Collins Interagency Supply and Service Plan	Fort Collins Interagency Dispatch Center
Incident Business Management Plan	ROMO Fire Management Office
GIS Database	ROMO Fire Management Office
ROMO Communications Center Operating Plan	ROMO Fire Management Office
Fort Collins Interagency Dispatch Center Operating Plan	<a href="http://www.fs.fed.us/arnf/fire/fire.html">http://www.fs.fed.us/arnf/fire/fire.html</a>
Northern Front Range Aviation Operations and Safety Plan	<a href="http://www.fs.fed.us/arnf/fire/fire.html">http://www.fs.fed.us/arnf/fire/fire.html</a>
Northern Front Range Interagency Radio Communications Plan	<a href="http://www.fs.fed.us/arnf/fire/fire.html">http://www.fs.fed.us/arnf/fire/fire.html</a>
FNL Single Engine Air Tanker Operations Guide	<a href="http://www.fs.fed.us/arnf/fire/fire.html">http://www.fs.fed.us/arnf/fire/fire.html</a>
ROMO Aviation Management Plan	ROMO Fire Management Office

## Initial Attack

Initial attack is an aggressive suppression action consistent with firefighter and public safety, as well as values to be protected. In the event of multiple wildland fires requiring initial attack, the Fire Duty Officer and/or Fire Management Officer will establish protection priorities using the following criteria, listed in descending order:

- threat to human life
- threat to property and natural/cultural resources

The relative value of resources to be protected will be determined by the Fire Duty Officer and/or Fire Management Officer, and will seek consultation from the Superintendent if necessary. A confinement strategy may be implemented as the initial attack action as long as it is not used to meet resource objectives. Confinement may be selected in lieu of managing wildland fire for resource benefits in order to maximize firefighter and public safety, minimize suppression costs, or to maximize availability of critical suppression and management resources during periods of high fire danger associated with fire in areas with highly valued resources to be protected. Confinement can also be selected through the WFSA process when the fire is expected to exceed initial attack capability or planned management capability. When confinement is selected as the initial action, the same management process applies as for wildland fire use decisions. A long-term implementation plan is needed to guide the execution of the confinement strategy. The Wildland Fire Implementation Plan (WFIP), prepared in stages, meets this requirement.

Typical fire response time varies greatly – from just a few minutes to a full day or longer – depending upon remoteness of the reported fire. If there is an imminent or expected threat to human life or values to be protected, the response time is reduced to the maximum extent possible. All wildland fire responses are coordinated through the Park Communications Center at Rocky Mountain National Park. Aviation resources requested by an Incident Commander for initial attack operations will be ordered through the Park Communications Center. Use of aircraft will conform to policies established in NPS Directors Order #60, Reference Manual #60, the

Intermountain Region Aviation Policy and Reference Manual, and the Aviation Management Plan for RMNP. A helispot is maintained in the Upper Beaver Meadows area that provides a central location for basing helicopter operations. No other helispots are actively maintained for wildland fire management purposes, although numerous suitable landing areas are located in the park.

The majority of Rocky Mountain National Park is either designated or recommended as wilderness. Therefore, initial attack actions are conducted using minimum impact suppression tactics. Use of chainsaws is permitted in wildland fire use and suppression actions. Fireline explosives may be used only with written approval from the Superintendent. Wildland fire engines must remain on established roadways unless there is an imminent threat to life or other significant values to be protected. Bulldozers and other heavy equipment may not be used without the written approval of the Superintendent.

### Extended Attack and Large Fire Suppression

Extended attack occurs when a fire has not been contained or controlled by the initial attack forces and continues, either until transition to a higher level incident management team is completed, or until the fire has been contained and/or controlled. Extended attack action requires a Wildland Fire Situation Analysis (WFSA) to guide the re-evaluation of suppression strategies. The WFSA is a decision process that employs a systematic and reasonable approach to determine the most appropriate management strategy for a particular situation. A WFSA will be completed in accordance with agency policy and as defined in the Interagency Standards for Fire and Fire Aviation Operations. Rocky Mountain National Park will utilize the criteria in the Interagency Standards for Fire and Fire Aviation Operations for completing the Incident Complexity Analysis and determining the need of IMT3, IMT2, or IMT1.

During the history of Rocky Mountain National Park there have been very few fires that have necessitated extended attack (Appendix E). If a large fire were to occur, it is likely that it would need to be managed in cooperation with other agencies, particularly the USDA Forest Service and the County Sheriff of the affected area. An example "Delegation of Authority" can be found in the Transfer of Command documents on file at the Fire Management Office. Aviation resources requested by an Incident Commander for extended attack and large fire suppression will be ordered directly through the Fort Collins Interagency Dispatch Center. Use of aircraft will conform to policies established in NPS Directors Order #60, Reference Manual #60, the Intermountain Region Aviation Policy and Reference Manual, and the Aviation Management Plan for RMNP. Normally, dispatching for any extended attack fire would be transferred from the RMNP Communications Center to either Fort Collins Interagency Dispatch Center, or conducted by a separate communications unit established in the park, who would coordinate activities with the RMNP Communications Center and Fort Collins Interagency Dispatch Center.

Rocky Mountain National Park has the option to utilize the Type 3 Incident Management Team available from the local Northern Front Range Wildland Fire Cooperators for wildland fires that move into extended attack or initial attack that involves multiple resources. The procedure for managing the transfer of command between Incident Commanders and/or Incident Management Teams is found in NPS Reference Manual #18. The transfer of responsibility for wildland fire use and wildland fire suppression actions on a wildland fire will be done only through the official execution of a "limited delegation of authority" by the Superintendent or designated acting.

**WILDLAND FIRE STAFFING AND INITIAL RESPONSE PLAN**  
**EFFECTIVE DURING THE FIRE SEASON AS DETERMINED BY THE ANALYSIS**  
**(Or as seasonal conditions indicate)**

**Staffing Plan**

<b>Resource(s) Description</b>	<b>PL 1/ 2</b>	<b>PL 3</b>	<b>PL 4</b>	<b>PL 5</b>
Incident Commander Type 5 (ICT5) and Firefighter (FFT2) - Pre-designated, on duty	√			
Engine; ICT5 and FFT2		√		
Engine Module; ICT5, Engine Operator (ENOP) or trainee, and FFT2			√	√
Incident Commander Type 4 (ICT4) Pre-designated, on-duty			√	√
Fire Duty Officer – Pre-designated, on-duty *	√	√	√	√

Staffing requirements for PL 1 and 2 are 5-day effective coverage.

Staffing requirements for PL 3, 4, and 5 are 7-day effective coverage.

**Response Plan**

<b>Resource(s) Description</b>	<b>PL 1/2</b>	<b>PL 3</b>	<b>PL 4</b>	<b>PL 5</b>
ICT5 and FFT2	Respond			
Engine; ICT5 and FFT2		Respond		
Engine Module; ICT5, ENOP or trainee, and FFT2			Respond	Respond
Incident Commander (ICT4)			Notify	Notify
Prescribed Fire Monitor or Field Observer (FEMO or FOBS)**	Respond	Respond	Respond	Respond
Patrol Ranger (Respond to vantage point or to reporting party)	Respond	Respond	Respond	Respond
District Ranger	Notify	Notify	Notify	Notify
Fire Management Officer	Notify	Notify	Notify	Notify
After a wildland fire is confirmed, the following personnel/offices will be notified.				
Superintendent and Deputy Superintendent	Notify	Notify	Notify	Notify
Chief, Division of Natural Resources Management	Notify	Notify	Notify	Notify
Chief, Division of Resources Protection and Visitor Management	Notify	Notify	Notify	Notify
Park Archaeologist	Notify	Notify	Notify	Notify
Public Information Office	Notify	Notify	Notify	Notify
Fort Collins Interagency Dispatch Center	Notify	Notify	Notify	Notify

\* In Preparedness Level 4/5, the Fire Duty Officer may simultaneously serve as the available ICT4. If the Fire Duty Officer is activated as ICT4 for an incident, the duties of the FDO will be assigned to a qualified individual and/or assistance will be requested from outside the park.

\*\* FEMO or FOBS will respond to smoke reports in FMUs designated for wildland fire use if the prescriptive criteria are met.

## Exceeding existing Wildland Fire Implementation Plan (WFIP)

The Wildland Fire Implementation Plan (WFIP) is used for all wildland fires that have the potential to be managed for resource benefits. If, during the course of managing a wildland fire use project (for resource benefits), the management response has not been successful, a new strategy must be selected and a WFSA will be completed. The selection of a new strategy will follow the process identified in the current version of NPS Reference Manual #18 (Chapter 9) and the “Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide”.

## Wilderness Preservation

A significant portion of Rocky Mountain National Park has been included with “Recommended Wilderness Boundaries” (NPS, 1998). In addition, a small portion (2,917 acres) of RMNP is designated wilderness in the Indian Peaks Wilderness along the southern park boundary. Within these areas, as well as other NPS lands not recommended for wilderness, fire management activities will be implemented using methods that minimize impacts to cultural and natural resources, including wilderness values. Within designated and recommended wilderness areas, the park will apply the “minimum requirement” concept procedures “minimum tool”, and “primitive tool” as defined in NPS Reference Manual #41, in accordance with NPS Director’s Orders #41.

Fire management actions, including prescribed fire, wildland fire use, and wildland fire suppression, will conform to the basic purposes of wilderness. This plan, in combination with the park Backcountry and Wilderness Management Plan, identifies the appropriate management response to all wildland fires within the park.

Prescribed fires planned for implementation within recommended wilderness areas are intended to restore the natural role of fire to various park ecosystems, reduce the risk of wildland fire to adjoining communities, and to reestablish a mosaic of fire history within the landscape. These projects will be implemented using the minimum requirement concept. Application of the minimum requirement concept and minimum/primitive tool procedures will be conducted as specified in the Wilderness Act (1964), NPS Management Policies (1988), and NPS Reference Manual #41.

All wildland fires within designated and recommended wilderness boundaries, whether suppression actions or fire use actions, will be effectively managed considering resource values while providing for public and fire personnel safety using the full range of strategic and tactical options. Wildland fire management response will include the application of minimum impact techniques and, if a suppression action, utilize minimum requirement suppression techniques. Strategies and tactics will be selected commensurate with potential fire behavior and values to be protected, and minimize long-term environmental impacts.

## Minimum Impact Suppression Tactics

Fire management activities within the park will be carried out in a way that minimizes impacts to the park’s natural and cultural resources. Fire camp facilities, when practical, will be located outside of natural and historic zones. Suppression forces will choose methods and equipment commensurate with suppression needs and a strategy that will least alter the landscape or disturb park resources. Of primary importance is the need to convey upon suppression forces the minimum impact suppression guidelines found in NPS Directors Order #18 and Reference Manual #18.

The most recent minimum impact suppression guidelines are identified in the Interagency Standards for Fire and Fire Aviation Operations. These guidelines are an attempt to take the park ethic into account in fire management practices; they are not an excuse to relax normal safe fire practices.

Techniques and policies of minimum impact fire management that will be used in the park, as conditions dictate, include (but are not limited to):

- A. Cold-trail the fire edge when practical.
- B. Use wetline or natural firebreaks wherever possible (in lieu of handline construction) if water and pumps are available. Waterbars will be installed on handline on steep slopes. In the tundra ecosystem, wetline will be used to the maximum extent possible.
- C. Use soaker hose or foggers in mop-up to avoid "boring" and hydraulic action on soils.
- D. Fireline should be kept to the minimum width needed to allow backfiring, burnout, or the creation of a safe blackline. Use natural barriers wherever possible to avoid "tunnel effect."
- E. Do minimal tree-falling. Snags within or adjacent to fireline will be removed only if they show evidence of fire, present excessive hazard to firefighters, or constitute a legitimate threat to the fireline integrity. Leave living trees undisturbed whenever possible. Prune lower branches to remove ladder fuels.
- F. Take archaeological protection measures to protect cultural resources (an archaeologist or qualified individual from the park will be assigned as a resource advisor).
- G. Scatter or remove debris as determined by the Resource Advisor.
- H. Rehabilitate all constructed fireline, spike camps, or other disturbance in visually sensitive areas to maintain a natural appearance.
- I. Transport of personnel, equipment, and trash out of the park will be consistent with park resource management objectives.
- J. Use engines only on established roads within park boundaries, unless an imminent threat exists to human life or critical resources.
- K. Possible use of fireline explosives. Trees severed with explosive cord do not leave cut planar surfaces as do trees cut with chainsaws. This reduces the need for rehabilitation, and the shattered boles and stumps may look more natural in less time than trees cut with chainsaws. The use of explosives on either prescribed or wildland fire requires approval from the Superintendent.

#### Short and Long-term Rehabilitation

Large wildland fires that involve suppression actions or resource damage may necessitate rehabilitation efforts. Rehabilitation will conform to policies identified in NPS Management Policies (2001). Rehabilitation efforts will likely be required where the impacts of the fire or associated suppression actions to human life, physical improvements, cultural resources, and threatened or endangered species are considered significant and where those efforts have a high likelihood of success in mitigating those impacts. If the minimum impact suppression actions are used, only minimal rehabilitation will be necessary. Park management will play an active role in approving suppression and/or holding actions. The Delegation of Authority to Incident Commander, the Wildland Fire Situation Analysis, and/or the Wildland Fire Implementation Plan are key components in this process. Rehabilitation efforts will include (but are not be limited to):

- flush-cutting all stumps that are cut with a chainsaw
- water-barring any constructed line where erosion is likely
- re-contouring any line trenches
- spreading any material piled in berms along fireline
- raking debris over constructed fireline
- removing any abandoned supplies, equipment, or garbage, and rehabilitation and cleanup of spike camps, helispots, or drop points.

In most cases, burned areas will not be seeded; residual seed and sprouting from surviving rootstalks will provide natural revegetation. This is far superior to any introduction of even "native" seeds. Seed-bearing materials cut along the line can be scattered on top of the fireline that improves the likelihood of indigenous seed dispersal in the desired area. Annual ryegrass or a sterile wheatgrass may be used to control erosion. Consideration should also be given to the use of organic mats for controlling erosion.

Rehabilitation of constructed fireline and other efforts to control erosion will start as soon as possible, perhaps even before a fire is declared out. This is especially important if firefighting equipment and personnel are still available. Funding of the direct costs of rehabilitation is through an emergency fire account.

### Fire Reports

The following archived records in the park will be held as permanent historic resource management records:

- individual fire reports (DI-1202)
- a fire history atlas
- fire weather records for any extended attack fires, wildland fire use projects, and prescribed fires
- fire equipment inventories
- other maps or records pertinent to fire management actions.

During the fire season, the park will follow the appropriate fire reporting procedure in-place for the interagency dispatch center and the agency. An Individual Fire Report (DI-1202) will be prepared and archived for all wildland fire activity in accordance with current agency and departmental policy. This will include, but is not limited to documenting every fire in the park, every incident for which assistance was given to mutual aid cooperators, and for every fire response that required fiscal actions but was declared a false alarm. The FMO will provide daily briefing reports to the Superintendent and/or Deputy Superintendent whenever the park is involved in significant wildland fire management actions.

### Fire Reviews

Wildland fires will be reviewed in accordance with NPS Reference Manual #18. The FMO will arrange to review any park fire that is Class C or larger as soon as it is considered controlled. Class A and Class B fires may be reviewed if necessary. After Action Reviews (AARs) are generally conducted at the fire. Where fires have involved serious injury, fatalities, or other special circumstances, a written report will be necessary. Any prescribed fire that is converted to suppression actions will be appropriately reviewed. For all extended attack fires (involving Type 1, 2, or 3 Incident Management Teams) an in-depth review will be conducted. The FMO and Chief of Natural Resource Management will also review any wildland fire use incidents.

## C. Wildland Fire Use

Primary authority to manage wildland fire for resource benefits is founded on the National Park Service Organic Act of 1916, as well as the park enabling legislation. Further direction and authority for managing wildland fire for resource benefits is derived from NPS Directors Orders #18, Reference Manual #18, as well as the 1992 Fire Management Plan and Environmental Assessment. In addition, managing wildland fire for resource benefits is substantiated in the Statement for Management and the Master Plan. Lightning-caused wildland fires have been a significant influence in the development and perpetuation of the park forests, woodlands, meadows, and grasslands.

The primary goal of the wildland fire use program is to permit lightning-caused fires to burn in order to preserve and restore the pre-European conditions and processes to the park to the greatest extent possible. The program is designed to enhance the use of wildland fire to achieve resource benefits and, through the maintenance of the natural fire history mosaic, to ensure the protection of life, property, and valuable resources from wildland fire.

The formulation and development of the wildland fire use program at Rocky Mountain National Park involved an extensive public involvement phase during the 1992 Environmental Assessment for the Fire Management Plan. Following that effort, the NPS participated in the development of the Forest Plan for the Arapaho and Roosevelt National Forest. That Forest Plan now includes the ability to manage wildland fire for resource benefits – most importantly in designated wilderness areas that adjoin Rocky Mountain National Park. Additionally, the wildland fire use programs of both the park and the national forest have been integrated into the county-wide “Fire Plans” for both Larimer and Grand Counties.

The implementation process for all wildland fires managed for resource benefits is outlined in this Fire Management Plan. That process includes the amended prescriptive criteria defined in 1992 Fire Management Plan, combined with the procedures identified in the Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide, hereafter referred to as the Implementation Guide.

#### Wildland Fire Use Implementation Procedures

Wildland fires ignited by lightning in Fire Management Units (FMUs) that are designated for wildland fire use may be managed to achieve resource benefits if established prescriptive criteria identified in this plan are met. Wildland fires ignited by lightning in FMUs designated for wildland fire suppression will be suppressed using the appropriate management response. When a lightning-caused fire is confirmed within an FMU designated for wildland fire use, the FDO and Incident Commander will immediately inform the FMO and ROMO Communications Center. Wildland fires management for resource benefits may also be referred to as wildland fire use projects.

Once a lightning-caused fire has been confirmed to be located within an FMU designated for wildland fire use, the decision to suppress the fire or manage the fire for resource benefits will be dependent upon the specific conditions associated with individual candidate wildland fire. The FMO and/or FDO will review the wildland fire use prescriptive criteria (Figure 7) at the inception of confirmation of each lightning-caused fire that occurs in an FMU designated for wildland fire use.

The FMO and/or FDO will initiate the Wildland Fire Implementation Plan (WFIP) – Stage I as described in the Implementation Guide. Stage I consists of a description of the fire situation, as well as a Decision Criteria Checklist. That checklist will serve as the initial action assessment and approval or disapproval (go or no-go) for managing the wildland fire for resource benefits. Completion of the WFIP – Stage I may require additional detailed site information, and thus the FDO may dispatch a response module to the site to collect environmental information, possibly supported by aerial reconnaissance. The level of monitoring – including the frequency of monitoring – will meet or exceed agency and departmental standards and will be determined by the Fire Use Manager assigned to the wildland fire.

Aviation resources requested by an Incident Commander for wildland fire use operations will be ordered through the Park Communications Center. Use of aircraft will conform to policies established in NPS Directors Order #60, Reference Manual #60, the Intermountain Region Aviation Policy and Reference Manual, and the Aviation Management Plan for RMNP.

Specific environmental parameters (Table 24) must be met in order to approve a wildland fire use project. The two (2) NFDRS stations utilized to determine these environmental parameters are managed cooperatively with the Arapaho and Roosevelt National Forest. These parameters are based on conditions that fluctuate daily, and as such, require daily monitoring during periods when lightning-caused fires are possible.

Wildland Fire Use Prescriptive Criteria
The location of the incident must be confirmed and identified as within an FMU designated as wildland fire use.
The fire must be lightning-caused. Lightning-detection systems and on-scene observation be used to make this determination.
There must be fewer than 4 wildland fires (regardless of response type) of less than 10 acres each in the park.
The three-day running mean Energy Release Component and 1000 hour fuel moisture must meet parameters identified below.

East Side FMUs Weather Station 050507		
NFDRS Fuel Model G FBPS Fuel Model 10	NFDRS Fuel Model C FBPS Fuel Model 2	NFDRS Fuel Model H FBPS Fuel Model 8
TDRM* ERC < 56 1000 hour fuel moisture > 12%	TDRM* ERC < 13 1000 hour fuel moisture > 12%	TDRM* ERC < 32 1000 hour fuel moisture >12%
West Side FMUs Weather Station 050402		
NFDRS Fuel Model G FBPS Fuel Model 10	NFDRS Fuel Model H FBPS Fuel Model 8	
TDRM* ERC < 59 1000 hour fuel moisture > 11%	TDRM* ERC < 32 1000 hour fuel moisture > 11%	

\* Three day running mean

Table 24. Wildland Fire Use Prescriptive Criteria

If the outcome of the WFIP – Stage I is to approve the wildland fire use project, the FMO ensure that a Fire Use Manager (Type 1 or Type 2) is assigned and receives a delegation of authority from the Superintendent. If a Fire Use Manager is not readily available, the park will order one through the dispatch system. The NPS issued additional guidance to RM #18, Chapter 9 on June 6, 2003 through a memorandum from the Deputy Director. That memorandum provides direction for the use of two level of Fire Use Manager – Type 1 and Type 2 (FUM1 and FUM2). The determination for selecting a FUM1 versus a FUM2 is influenced by fire complexity. The Fire Complexity Worksheet (required as part of the WFIP – Stage II) is the basis for qualification level selection. A FUM1 is required for wildland fires with an overall rating of High (141 to 200 points) or for wildland fires with an overall rating of Moderate and having an individual complexity value of 5 (using the 1, 3, 5 scale) for one or more of the following complexity elements:

- Safety
- Threats to Boundary
- Fuels and Fire Behavior
- Objectives
- Management Organization
- Improvements
- Natural, Cultural, Social Values

In addition, a “Fire Use Manager Needs Assessment Chart” (included with the memorandum) can also be used to determine the appropriate level of Fire Use manager. The management of a wildland fire for resource benefits in the park must not present a burden on in-park initial attack

resources that might compromise adequate response to additional wildland fires. If additional resources are needed to manage a wildland fire or staff initial response appropriate out-of-park fire management personnel should be ordered through proper dispatch channels. Prior to ordering a Fire Use Management Team, the FMO will initially assign a Fire Use Manager and determine the other staffing needs to configure a “short team”, such as individuals skilled with wildland fire use operations, planning, logistics, finance, information, safety and a fire behavior analyst or technical specialist. Consideration for ordering a Fire Use Management Team should be made by the FMO and Park Superintendent.

If the Recommended Response Action is No-Go, a suppression action will be implemented. The FMO and/or FDO will inform the ROMO Communications Center, who will follow procedures for initial response as established in the Initial Response Plan. If there is a change in response recommended by the Wildland Fire Implementation Plan (WFIP) or if unusual circumstances develop, the FMO will inform the Park Superintendent of the recommendations for further action.

A Wildland Fire Implementation Plan (WFIP) will be completed for all wildland fires that are not suppressed, in accordance with processes outlined in the Implementation Guide. However, only the most complex fires being managed for resource benefits will require completion of all parts of the WFIP. This document represents the operational management plan for wildland fire use.

A wildland fire being managed for resource benefit will be allowed to burn under the specific set of criteria set forth in this plan and the Wildland Fire Implementation Plan (WFIP). During the management of wildland fire use projects, the Superintendent or designee will certify (in writing) through a Periodic Fire Assessment (as identified in the Implementation Guide) that the wildland fire can continue to be managed for resource benefits as described in the WFIP. Information for making this certification will be submitted by the Fire Use Manager or FMO (or acting), but the certifying signature must be the Superintendent's or his/her Acting, unless delegated to a specified position on his/her staff. In order to provide signature to the Periodic Fire Assessment, the Superintendent may convene an interdisciplinary working team of subject matter experts from the various park divisions. That team would serve to discuss, develop, and make recommendations for the WFIP, as well as provide input to the response to the questions on the periodic fire assessment.

WFIP – Stage II includes a summary of Stage I information. In addition, Stage II also includes:

- Objectives and Desired Effects
- Safety Considerations
- External Considerations
- Environmental Concerns
- Threats
- Complexity Rating Worksheet
- Short-term Actions
- Estimated Costs
- Stage 3 Need Assessment Chart

WFIP – Stage III includes a summary of all information contained in Stage I and Stage II, but also includes:

- Description of Maximum Manageable Area (MMA)
- Natural and Cultural Resource Objectives and Constraints/Considerations
- Projected Fire Size under “Expected” and “Severe” Weather Conditions
- Weather Season/Drought Discussion and Prognosis
- Long-term Risk Assessment
- Threats to MMA
- Threats to Public Use and Firefighter Safety
- Smoke Dispersion and Effects

- Description of Monitoring Actions, including Frequency and Duration
- Mitigation Actions (Description of Holding Actions and/or Management Action Points)
- Description of Resources Needed to Manage the Fire
- Estimated Costs to Manage the Fire
- Contingency Actions
- Information Plan
- Description of Post-burn Evaluation Procedures

If the fire is predicted to exceed the established criteria in the WFIP or the maximum manageable area, a Wildland Fire Situation Analysis will be prepared, and an alternative action will be selected and implemented.

#### Annual Preparation Activities for Wildland Fire Use

To assist with possible fire use implementation, the park fire management office maintains an implementation guide in the form of a single binder. This guide is a compilation of information gathered into a single location to facilitate fire use operations. The guide contains several pieces of information that will require periodic updates and should be checked annually for currency. Items to be checked in the guide include:

- GIS Data
- Smoke Permits/Information
- Weather Data
- Policy Information
- Communication Plan

#### Staff Positions Necessary to Manage Wildland Fires for Resource Benefits

Chapter V of the Fire Management Plan identifies the fire management organization, as well as the roles and responsibilities of other related staff positions. The FMO and/or FDO will ensure that wildland fires being managed for resource benefits will be staffed with only qualified individuals per agency standards.

If adequate staffing and/or qualified individuals are not available to successfully manage any particular wildland fire for resource benefits, a suppression response will be activated using an appropriate management strategy. To further facilitate successful wildland fire use operations, an annual examination of in-park qualifications will be undertaken to ensure appropriately qualified personnel are readily available, or to identify qualification gaps. If key qualifications for fire use implementation are not available in-park, efforts should be made to pre-identify possible detail candidates for these roles.

In order to increase the ability of the park staff to manage wildland fires for resource benefits, the following target qualifications have been identified, in addition to those standards identified in the “Interagency Fire Program Management Qualifications Standards and Guide”:

Position	Target Qualification
Fire Management Officer	FUM2
Fuels Management Specialist	FUM2
Fuels Technician	FUM2
Fire Education, Prevention, and Information Specialist	IOF2

## Environmental Effects of Managing Wildland Fires for Resource Benefits

The 1992 Environmental Assessment for the Fire Management Plan explored the environmental effects of managing lightning-caused fires for resource benefits. The Regional Director approved a Finding of No Significant Impact (FONSI) for the Environmental Assessment in July 1992.

Agency and departmental policy in 1992 required that any lightning-caused fires being managed for ecological and/or resource benefit(s) be termed as a “prescribed natural fire”. Federal fire policy as revised in 1998 directed agencies to prepare an immediate amendment for new terminology. The Fire Management Plan was amended in July 1998 to meet that directive and stated that these wildland fires (previously referred to as prescribed natural fires) may be managed for resource benefits if predetermined criteria identified in the 1992 Fire Management Plan are met.

The Environmental Assessment and Finding of No Significant Impact are on file in the Fire Management Office. The Environmental Assessment evaluated the environmental consequences of managing lightning-caused fire for ecological benefits as “prescribed natural fires” and documented those impacts to vegetation, wildlife, wetlands, threatened/endorsed/rare species, cultural resources, air quality, soils, and recreation, as well as cumulative impacts.

The 1992 Environmental Assessment was made available for public and agency comment. Several public meetings were held in various locations near Rocky Mountain National Park. The most frequent concern expressed in public comment was on what areas would be identified for “prescribed natural fire” and whether or not they would be in close proximity to any of the surrounding communities. Following review of these comments, the areas identified for “prescribed natural fire” were modified to exclude any areas adjacent to the communities of Grand Lake, Estes Park, Allenspark, and Meeker Park.

Another frequent concern that was voiced from the public was the lack of drought indicators within the prescription. Subsequently, the prescriptions were revised to include both a (calculated) large-diameter fuel moisture value (3”+) and the Energy Release Component (calculated) from the network of fire weather stations managed in accordance with the National Fire Danger Rating System (NFDRS). A majority of the public comments were in support of the preferred alternative in the Environmental Assessment. No specific mitigation actions – other than the procedural actions identified in the Fire Management Plan and National Park Service policies – related to managing lightning-caused fire for benefits were identified in the Environmental Assessment.

## Public and Constituent Information for the Wildland Fire Use Program

Chapter IX of the Fire Management Plan describes the public information capabilities and needs of the fire management program. The 1992 Fire Management Plan and Environmental Assessment emphasized the imperative nature of public notifications associated with managing wildland and prescribed fires. The notification list from the 1992 Fire Management Plan has since been revised and updated in order to achieve a wider audience of stake holders, park neighbors, and other interested groups or individuals. Those notification lists are routinely revised and maintained on file in the Fire Management Office.

The Fire Education/Prevention/Information Specialist (FEPIS), working in conjunction with the Public Information Officer (PIO) will be responsible for informing the public and the media about the park's fire management program. They will also work cooperatively to serve as Fire Information Officers during wildland fire management activities or as liaisons with assigned Incident Management Team Information Officers.

Communication plans will be developed as required, identifying objectives, audiences, messages or talking points, communication methods and tools, organization and assignments that will detail the following actions:

- The objectives of fire information are to proactively provide the public, media and park staff with accurate and timely information and to enlist public support for professional fire management practices.
- Audiences may include local residents, local business community, park visitors, park management, employees and volunteers, regional or national office staff, cooperating agencies, legislators, media, etc.
- Messages or talking points may include such topics as prescribed fire, fuel management activities, wildland fire use, wildland-urban interface issues, fire safety and prevention, Firewise and defensible space concepts, Rural Fire Assistance Program, implementation of fire restrictions, etc.
- Communication methods or tools may include press releases, public service announcements, newsletters, signs, displays, web sites, direct, e-mail telephone and personal contacts, interpretive programs, public meetings, etc.

The FEPIS will also conduct public outreach activities and interpretive programs in coordination with the Interpretation Division. Annual training programs to keep staff apprised of fire management activities and the ecological role of fire will be presented to seasonal interpretive employees and other divisions as requested. A site bulletin about fire management will be available and updated as necessary.

The park's interagency and mutual aid agreements provide opportunities for annual review and information exchange about the fire program with cooperating agencies. The Colorado State Forest Service and county governments have the primary responsibility for private land issues but work in partnership with the FEPIS on communicating wildland-urban interface issues in surrounding communities. The FEPIS will represent the park at the annual meeting of the informal Larimer County Fire Education Council.

Fire information and education efforts will be conducted on a year round basis. Prevention and fire information activities will increase as the fire danger and activity level escalates (Appendix E - Fire Prevention Plan). Staff from other divisions may be recruited to assist with information duties as required. All park staff should have a basic understanding of fire management to respond to visitor inquiries or be able to properly direct them to obtain the requested information. Whenever possible, implementation of fire restrictions and closures will be closely coordinated with cooperating agencies to promote consistency and avoid confusion.

#### Standard Format for Wildland Fire Use Reports

To adequately record events and decisions associated with wildland fire use implementation, a permanent project record will be kept for each event. These records will be archived in the park and held as a permanent historic resource management document containing:

- Approved planning documents, including all amendments, revisions, and WFIP/WFSA materials.
- All monitoring documentation.
- Signed Periodic Fire Assessment documentation.
- Complete funding codes and cost accounting records.
- Project maps.
- Relevant media documents and photos.

#### D. Prescribed Fire

There are both opportunities and needs for prescribed burning in the park. Research about the role of fire in shaping the vegetative landscape of the park has been ongoing for several years and has begun to reveal a complex combination of stand-replacing and low to moderate intensity variable fire regimes.

The current structure, species composition, and dynamics of many ecosystems are often the direct result of past fires, or in other cases, the result of other processes that have themselves been affected by fire. In general, fire regimes in the southern Rockies can be thought of as following an elevational gradient (Peet 1981, Romme and Knight 1981, Romme et al. 2003). The lower montane is often characterized by more frequent surface fires (fire regime type I), while forests in the subalpine typically experience infrequent stand replacement fire events (fire regime types IV and V). However, fires of any intensity can occur in both elevational zones (Veblen 2000).

Forested vegetation in the park consists primarily of spruce-fir and lodgepole pine forests. Lodgepole pine forms extensive stands in the upper montane, while Engelmann spruce and subalpine fir dominate undisturbed sites in the subalpine zone. Disturbed areas of the lower subalpine are often characterized by dense, even-aged stands of lodgepole pine. In the absence of further disturbance, these lodgepole stands will gradually be replaced by Engelmann spruce and subalpine fir (Clements 1910, Peet 1978, Whipple and Dix 1979, Veblen et al. 1991). Other important plant communities include ponderosa pine forest, Douglas-fir forest, willow, grasslands, limber pine stands, and aspen.

Although evidence of occasional surface fires has been found in the subalpine, fires in this zone and in pure lodgepole pine stands in the upper montane typically experience large, infrequent stand replacement fire events (Veblen 2000, Sherriff et al. 2001, Sibold 2001, Buechling 2003, Romme et al. 2003). These large fires typically coincide with drought years and occur at intervals of well over a century (Veblen 2000). In the Wild Basin FMU, Sibold (2001) found subalpine stands that had not burned in over 400 years. Given the long interval fire regime typical of upper montane lodgepole pine and the subalpine, it appears that these forests are still within their natural range of variability and have not been considerably impacted by fire suppression efforts in the last century (Clagg 1975, Sherriff et al. 2001, Sibold 2001, Romme et al. 2003, Veblen 2003).

In some locations this fire-evolved landscape lies adjacent to urban development that is at risk. Prescribed fires, as a management tool, represent an opportunity to achieve community protection objectives while reintroducing a key ecological process that is currently absent in many areas of the park.

For much of the park boundary area, the large-scale reintroduction of fire as a natural component of the ecosystem to reduce fuel accumulations is not practical; active manipulation of hazardous fuel complexes is first necessary. Mechanical fuels reduction projects that have been completed in the past 10 years or are in-progress have begun this critical step of the fuels management program. These activities are focused adjacent to internal infrastructure values and boundary areas. This has set the stage for an increased use of prescribed fire to continue effective management of these fuels.

As a management tool, prescribed fire will be used to achieve ecosystem restoration and fuel reduction goals. These goals are not mutually exclusive, and in some combination will be part of the overall goals for any prescribed fire operation. This will ultimately allow these areas to achieve a more resilient and sustainable condition while providing community protection dividends.

The specific and measurable objectives for the use of prescribed fire vary between projects, depending upon the authorizing document for the project area. The 1992 Fire Management Plan Environmental Assessment (EA) provides required NEPA coverage that allows for prescribed fire and non-fire treatments to be applied in geographically defined blocks near values at risk and the park boundary in specific zones (Appendix D).

The 2002 Wildland-Urban Interface Fuels Management Environmental Assessment (EA) provides NEPA coverage that further defines areas to be treated with prescribed fire. These areas are proximal to values at risk and the park boundary and generally seek to treat accumulations of hazardous fuels in areas defined as proximal to wildland urban-interface values at risk (Appendix D). Compliance with the National Historic Preservation Act for all prescribed fire projects is described in Chapter I and X of this plan.

The 2002 EA additionally provides specific objectives to be used when applying prescribed fire as a treatment in approved areas. These objectives were derived from analysis combined with the results of prescribed fire activities that occurred prior to the 2002 EA. The objectives combine the desired outcomes of restoring fire to the landscape as well as reducing risk to critical human assets and resource values, and therefore will be used for projects defined in the 1992 EA where both outcomes are defined in the project goals.

Prescribed fire can be used as a primary method for hazardous fuel reduction or in concert with mechanical fuel reduction methods. When used alone, prescribed fire can be effective in achieving the goals and objectives for the particular project area.

Prescribed fire may also be used in combination with completed mechanical fuels projects. As combined treatments, mechanical fuels work can provide successful manipulation of the crown spacing as well as crown height of hazardous fuel complexes while prescribed fire is generally effective at reducing ground fuels and also may be used to maintain mechanically treated areas.

A less employed application of prescribed fire is for future scientific research. As the park's need for data related to the effect of fire on the landscape continues to expand, so will the need for burns conducted solely to acquire that data. Research burns will likely be smaller sized projects with objectives specifically related to unanswered research questions. Project objectives and operational constraints will dictate the location, timing, and tactical issues associated with these burns.

#### Annual Preparation Activities for Prescribed Fire

The use of prescribed fire as a management tool requires that certain annual activities be performed to implement the program. Detailed project planning is necessary, and by agency policy, a Prescribed Fire Burn Boss or trainee must be the primary preparer of each prescribed fire plan. Additional personnel necessary for project planning and implementation will vary according to specific requirements of individual burns and may be brought in to assist as needed. The funding cycle associated with fuels activities requires that project funds for the next fiscal year be requested the spring before the end of the current fiscal year. This cycle necessitates that on-the-ground project reconnaissance and assessment must be completed at least six months or more prior to the intended project implementation date. Additional annual needs for prescribed fire implementation include:

- **Annually Update GIS data:** GIS data must be updated to include previous year fuels activities and accomplishments to reflect the current state of fuels and vegetation. This updated data will provide the ability to reexamine assessments and reapply models to verify current activities.
- **Identify Areas Requiring Treatment:** Applying the best available science and technological tools, areas requiring treatment will be identified (Appendix D). This analysis will incorporate elements of values, hazards, and risks as they relate to treatable areas for each of the FMUs. This analysis will consider the greater landscape as well to ensure park treatments are consistent with adjoining efforts from private landowners and cooperating agencies.
- **Select Priorities:** The prioritization process will be based upon the analysis of values, hazards, and risks. This process will add weight in the analysis to any areas adjacent to the park that are currently receiving or are planned to receive treatment from private landowners or other land management agencies. To ensure adequate collaboration with adjoining landowners and other agencies, treatment priorities will be presented to public steering groups such as the Front Range Fuels Treatment Partnership or the Colorado National Fire Plan Implementation Group to allow further input on priorities.
- **Submit Project Proposals:** Annual preparation for project implementation requires that project clearance be secured from park management. The ROMO-178 project proposal is required for all fuels reduction activities and constitutes a delegation of authority for fire management personnel to proceed with on-the-ground preparations and burn plan development according to the signed proposal.

- Complete an Annual Fuels Treatment Plan: An annual work plan will be created that identifies the location of treatments, the rationale for the selection of the treatment areas, the work needed to complete projects, funding requirements, and timeframes for project accomplishments.
- Complete Burn Plans: Burn plans will be completed for all prescribed fire events far enough in advance of their anticipated implementation date to allow all internal and external concerns to be adequately dealt with. Individual prescribed fire burn plans require internal review and approval by the Park Superintendent. Plans shall be prepared by qualified individuals and technically reviewed in accordance with guidance from Reference Manual 18, Chapter 10.
- Obtain Smoke Permits: A smoke permit is required for all open burning through the Air Pollution Control Division of the Department of Public Health and Environment for the State of Colorado. The permits issued by this body at a minimum require strict adherence to Colorado Air Quality Regulation 9 and that burns be conducted in a manner that does not result in a violation of national ambient air quality standards (NAAQS). Smoke permits are issued on a calendar year basis. Additional requirements of individual permits may vary and can include periods of public review of up to 30 days or consultation with the National Weather Service prior to burn implementation. Under the Clean Air of 1977, Rocky Mountain National Park is designated a Class 1 Airshed and as such is required to protect Air Quality Related Values from adverse impacts by this regulation (Title I, Part C). A smoke management plan is kept on file in the fire management office.

### Project Reports

In addition to the annual preparation activities, the park will keep and maintain an individual project file for all prescribed fire projects, in accordance with Reference Manual # 18, Chapter 10. The file will contain at minimum:

- Original Signed Prescribed Fire Burn Plan
- Pre-Burn Checklist
- Reviewer Comments
- Maps
- Notification List
- Necessary Permits
- Monitoring Data
- Weather Forecasts
- Agency Administrator Go/No-Go Checklist
- Incident Action Plans
- Unit Logs
- Public Comments/Press Releases
- Post Fire Evaluations
- DI-1202

### Project Implementation

The timing of prescribed fire implementation will be dictated by the specific objectives of individual projects. The generally bimodal precipitation patterns, seasonal wind patterns, and attendant naturally occurring wildfire patterns give rise to a narrow set of conditions under which prescribed fires may be ignited in the park.

With pile burning activities, prescribed burning could occur year-round to achieve several management objectives. Relative to broadcast burning, the spring and early summer generally present moderate prescribed burning conditions with adequate burn windows while the late summer and fall seasons tend to provide fewer burn opportunities. The early spring and late fall

seasons are prone to experiencing extreme winds and unexpected weather events. Late spring and summer prescribed implementation offers the effects of green-up conditions that are likely to inhibit fire spread in herbaceous fine fuels while allowing for consumption of dead and downed fuels. A weather analysis of historic weather conditions has been included as an appendix to provide reference to these conditions.

Along many areas of the park boundary, the apparent need for mechanical fuels reduction will require the production of piled material that will be burned at a later date. This material is usually generated from mechanical fuel reduction activities where the remoteness of the project precludes the removal of slash for offsite disposal. This will also include the burning of large piles comprised of material from fuels activities and other in-park projects that generate vegetative and burnable materials. Pile burning activities, unless the project meets the debris disposal guidelines in Reference Manual #18, Chapter 10, will require all necessary planning and implementation elements of regular broadcast burning activities.

Prescribed fire implementation requires several elements be considered prior to project initiation. These include but are not limited to the following actions:

- **Monitoring Weather and Fuel Conditions:** Weather and fuel conditions must be within prescriptive constraints during project implementation. Prior to project implementation, these elements should be closely monitored as per the approved burn plan to ensure plan compliance and to ensure optimum conditions are present for smoke dispersal and successful attainment of project objectives.
- **Brief Park Management:** Key park staff members will be briefed on project status and the intent to implement prior to project initiation. This will include obtaining a signed administrative Go/No-Go decision on burn implementation from the park superintendent or designee.
- **Public Notification:** All prescribed fire projects require that the public be notified prior to burn implementation at some specified time interval identified in the approved burn plan.
- **Pre-Burn Briefing:** A review of pre-burn considerations and preparations will be conducted to ensure all necessary project elements are in place prior to implementation.
- **Implement Burn According to Approved Plan:** All prescribed fire activities will be conducted according to the management approved burn plans.

In the event that a prescribed fire exceeds pre-identified standards of controllability as defined by the individual burn plan, a Wildland Fire Transition Plan will be activated as identified in the burn plan. This preplanned component of each burn plan will identify all actions and notifications required within the park to declare an escaped wildfire. This plan will specifically identify the conditions that constitute an escaped prescribed fire and the interim organization required to manage that incident. A Wildland Fire Situation Analysis (WFSa) will be completed in accordance with Reference Manual #18, Chapter 9, in order to provide direction for further actions and strategies.

### Project Compliance

Prescribed fire activity in the park will conform to current agency and departmental policy direction related to the National Environmental Policy Act. At the time of preparation of this plan, prescribed fire activities are planned for areas that are currently detailed in existing Environmental Assessments – the 1992 Fire Management Plan Environmental Assessment and the 2002 Wildland-Urban Interface Fuels Management Environmental Assessment.

The 1992 Fire Management Plan Environmental Assessment (EA) provides required NEPA coverage that allows for prescribed fire and non-fire treatments to be applied in geographically defined blocks near values at risk and the park boundary in specific zones (Appendix D).

The 2002 Wildland-Urban Interface Fuels Management Environmental Assessment (EA) provides NEPA coverage that further defines areas to be treated with prescribed fire. These areas are proximal to values at risk and the park boundary and generally seek to treat accumulations of hazardous fuels in areas defined as proximal to wildland urban-interface values at risk (Appendix

D). Compliance with the National Historic Preservation Act for all prescribed fire projects is described in Chapter I and X of this plan.

The 2002 EA provides specific objectives to be used when applying prescribed fire as a treatment in approved areas. These objectives were derived from analysis combined with the results of prescribed fire activities that occurred prior to the 2002 EA. The objectives are intended to achieve community protection goals, as well as landscape restoration goals, and therefore will be used for projects defined in the 1992 EA where both goals are defined in the project proposal statement. Those objectives by dominant vegetation type (Wildland-Urban Interface Fuels Management Environmental Assessment, 2002) are:

#### Ponderosa Pine

- Reduce total fuel load, including all woody material, litter and duff, by 40-80 percent.
- Reduce shrub component in this community by 20-60 percent.
- Limit mortality in overstory ponderosa pine trees (>6 inch diameter) to 5 percent within 5 years post-fire.
- Generate 5-35 percent mortality in pole-sized trees (1-6 inch diameter) within 5 years post-fire.

#### Mixed Conifer

- Reduce total fuel load, including all woody material, litter and duff, by 40-80 percent.
- Reduce shrub component in this community by 20-60 percent.
- Generate sufficient crown-scorch, foliage consumption or cambium heat to reduce overstory tree (> 6 inch diameter) density 10-25 percent and/or produce mortality in 10-25 percent of overstory trees within 5 years post-fire.
- Generate sufficient crown-scorch, foliage consumption or cambium heat to reduce pole-sized tree (1-6 inch diameter) density 10-25 percent and/or produce mortality in 10-25 percent of pole-sized trees within 5 years post-fire.

#### Lodgepole Pine

- Reduce total fuel load, including all woody material, litter and duff, by 40-80 percent.
- Generate sufficient crown scorch, foliage consumption, or cambium heat to reduce overstory tree (> 6 inch diameter) density 15-45 percent and/or produce mortality in 10-45 percent of overstory trees within 5 years post-fire.
- Generate sufficient crown scorch, foliage consumption, or cambium heat to reduce pole-sized (1-6 inch diameter) density 15-45 percent and/or produce mortality in 15-45 percent of pole-sized trees within 5 years post-fire.

#### Shrub and Grassland

- In areas that are proximal to areas with high fire risk, the shrub component will be reduced by 20-60 percent.
- Reduce dead component of shrub and grass by 40-80 percent.

In accordance with agency policies, all areas that are to be treated for hazardous fuels accumulations must receive adequate survey for rare, threatened, or endangered plant and animal species. Most areas in the current fuels treatment areas have few, if any, known species of such plants and animals, but if any are discovered, the Chief of Natural Resource Management (or his/her designee) will be consulted and mitigating procedures will be established. Mitigation may include the creation of species specific buffers, seasonal restrictions, or no-treatment buffers. Cultural resources will similarly be managed to protect the integrity of the resource and, if necessary, to preserve historic conditions surrounding the resource that add to its uniqueness.

The protection of the park's natural and cultural resources will remain a high priority in all fuels reduction activities.

### Monitoring and Evaluation

All prescribed fires will be monitored in accordance with the NPS Fire Monitoring Handbook and the Park Fire Monitoring Plan. Monitoring will seek to record and analyze fire weather and fire behavior during project implementation, as well as short- and long-term fire effects on vegetation and fuels. The intensity and character of monitoring will vary with the complexity and purposes of the burn. This monitoring will allow managers to document basic information that can detect trends and ensures that the actions are meeting fire and resource management objectives. Specific monitoring objectives are contained in this document as an appendix (Fire Effects Monitoring Plan, Appendix C). Where changes in fuels or alteration of habitat are desired, sampling will continue over a period of years. All prescribed burns will be evaluated and critiqued, preferably by the FMO and Chief of Natural Resources Management, soon after their completion.

Each prescribed burn project will be critiqued post-burn by the burn boss or designee using the protocol included in each burn plan. The evaluation will include an estimate of overall achievements specifically related to burn objectives and operational effectiveness. Critiques will be completed within 30 days of burn completion. Overall burn accomplishments will be recorded as part of the original project file and will be incorporated in year-end updates and analyses.

### E. Non-Fire Treatment Applications

The vast majority of the non-fire fuels treatment strategies in the park involve the reduction of fuel loads in the urban-interface or areas proximal to the interface that pose an unacceptable level of risk to life and property. This fuel reduction is achieved using manual and mechanical equipment with an emphasis on biomass utilization whenever feasible. The park currently manages a firewood sale program as the primary source of biomass utilization; additional uses include using material for trail stabilization, as well as buck and rail fence material. When biomass material can not be efficiently or economically accessed for utilization, on-site disposal methods such as pile burning, scattering, and chipping are utilized.

#### Annual Preparation Activities

Reporting and documentation requirements contained in Reference Manual #18, Chapter 10, under the Non-Fire Treatment section will be used as a guide for tracking non-fire activities. Additional year-end reporting requirements will include internal accomplishment updates for park management and regional fiscal and project accomplishment reports detailing activities. The overall cost accounting for projects will be tracked utilizing the National Fire Plan Operations and Reporting System (NFPORS) and the Fire Program Analysis (FPA) budget tracking software. All hazard fuel project documentation will be kept and maintained in an individual project file and will contain the following at minimum:

- Original Signed Project Proposal and Plan
- Maps of Project
- Notification Information
- Necessary Permits
- Monitoring Data
- Activity Documentation
- Contract Information

The funding cycle associated with fuels activities requires that project funds for the next fiscal year be requested the spring before the end of the current fiscal year. This cycle necessitates that on the ground project reconnaissance and assessment of planning must be completed six months or

more prior to intended project implementation. In addition, other activities that must occur annually to ensure projects can be initiated include:

- Annually Update GIS data: GIS data must be updated to include previous year fuels activities and accomplishments to reflect the current state of fuels and vegetation. This updated data will provide the ability to reexamine assessments and reapply models to verify current activities.
- Identify Areas Requiring Treatment: Applying the best available science and technological tools, areas requiring treatment will be identified. This analysis will incorporate elements of values, hazards, and risks as they relate to treatable areas identified in the 1992 FMP and 2002 Wildland-Urban Interface Fuels Management EA. This analysis will consider the greater landscape to ensure in park treatments are consistent with adjoining efforts from private landowners and cooperating agencies.
- Select Priorities: The prioritization process will be based upon the analysis of values, hazards, and risks. This process will add weight in the analysis to any areas adjacent to the park that are currently receiving or are planned to receive treatment from private landowners or other land management agencies. To ensure adequate collaboration with adjoining landowners and other agencies, treatment priorities will be presented to public steering groups such as the Front Range Fuels Treatment Partnership or the Colorado National Fire Plan Implementation Group to allow further input on priorities.
- Submit Project Proposals: Annual preparation for project implementation requires that project clearance be secured from park management. The ROMO-178 project proposal is required for all fuels reduction activities and constitutes a delegation of authority to fire management personnel to implement projects according to the signed proposal.
- Complete an Annual Fuels Treatment Plan: An annual work plan will be created that identifies the location of treatments, the rationale for the selection of the treatment areas, the work needed to complete projects, funding requirements, and timeframes for project accomplishments. Individual project plans will be created for each non-fire fuels activity to provide guidance on project specifications, restrictions, and timeframes.

Contractors, the seasonal fire crew and fuels crew, and volunteers generally perform on the ground implementation of non-fire fuels reduction projects. Oversight for these projects is the direct responsibility of the Fuels Management Specialist, the Fire Management Officer, and the Chief of Natural Resources Management. The climate in the park is often conducive to year round mechanical fuels management activities. The winter months generally present excellent opportunities for pile burning and occasionally present dry periods that have allowed for prescribed fire implementation.

### Project Compliance

Specific objectives and standards for mechanical fuels reduction were integral elements of both the 1992 and 2002 Environmental Assessments (EA) as previously described in the Prescribed Fire section of this Chapter. Combined, these documents represent the core NEPA compliance documents for implementation of all hazardous fuels reduction activities in the park. The 1992 EA allows for a combination of several fire management strategies to achieve large-scale programmatic goals including the use of non-fire fuels treatments. The 2002 EA includes interface areas that were not covered in the 1992 EA and that are not within recommended wilderness. The 2002 EA was designed to further implement a program to reduce hazardous fuels along wildland urban interface areas. The scope of this assessment allows for continued fire suppression, mechanical fuels reduction and prescribed fire based on specific constraints set forth in the assessment.

Non-fire fuels treatments in the park will conform to current agency and departmental policy direction related to the National Environmental Policy Act. At the time of preparation of this plan, non-fire fuel treatments are planned for areas that are currently covered by NEPA compliance documents.

The 2002 EA provides specific objectives to be used when mechanical (non-fire) treatment is used in specified areas. These objectives were derived from scientific analysis combined with the results

of mechanized treatments that occurred prior to the 2002 EA. These objectives are designed to reduce risk to critical human assets and resource values, and therefore will be used for projects defined in the 1992 EA where this outcome is defined in the project proposal statement. Those objectives include the following guidelines by dominant vegetation type (Wildland-Urban Interface Fuels Management Environmental Assessment, 2002):

#### Lodgepole Pine

- Reduce dead and down fuel loads for fuels greater than 1-inch diameter by 80 to 100 percent.
- Establish live canopy spacing in overstory trees and pole-sized trees ranging from 5-25 feet. As a general rule, this equates to an average of 15 feet between tree boles, which is approximately 80 square feet of basal area per acre over the entire treatment area.
- Trees to be thinned will be less than 8-inch diameter at breast height (DBH), unless tree densities require larger trees to be removed.
- Remove 75 to 100 percent of pole-sized trees that are growing into the overstory crowns.
- Limb 50 to 80 percent of all overstory trees up to 5 feet above the ground level.
- Protect and maintain 5 to 35 percent of all dead standing (snags) overstory and pole sized trees
- Remove 65 to 95 percent of all dead standing overstory and pole-sized trees (snags).
- Protect 90 to 100 percent of all aspen and limber pine overstory trees, pole-sized trees, and seedlings

#### Lower Montane Mixed Conifer

- Reduce dead and down fuel loadings for fuels greater than 1-inch diameter by 80 to 100 percent.
- Establish live canopy spacing in overstory trees and pole-sized trees ranging from 5 to 25 feet. As a general rule, this equates to an average of 15 feet between tree boles, which is approximately 80 square feet of basal area per acre over the entire treatment area.
- Trees to be thinned will be less than 8-inch diameter at breast height (DBH), unless tree densities require larger trees to be removed.
- Remove 50 to 75 percent of pole-sized trees that are growing into the overstory crowns.
- Limb 50 to 80 percent of all overstory trees up to 5 feet above ground level.
- Protect and maintain 10 to 45 percent of all dead standing overstory and pole sized snags.
- Remove 55 to 90 percent of all dead standing overstory and pole-sized trees (snags).

In addition to these standards, 90 to 100 percent of all aspen and limber pine overstory trees, pole-sized trees, and seedlings will be protected from fuels reduction activities. Snags retained will be either those identified by the Resource Management Specialist or those that meet criteria identified in the project proposal.

The 1992 Fire Management Plan identified specific areas where fuels treatments are proposed and provides general guidance for project implementation. The guidance provided for hazardous fuels management described in the 1992 FMP was for four (4) zones within the park, described in Appendix D. The primary purpose of the fuels management projects outlined in the 1992 Fire Management Plan (FMP) was to provide a buffer that would reduce the risk of wildland fire to private developments adjacent to the boundary. These plans were based largely on non-fire treatments and, where feasible, the use of prescribed fire. The cooperation of adjoining landowners and park inholders was identified as important to the success of the fuels management program.

The 1992 FMP specifically identified fuel breaks in the Allenspark and Emerald Mountain boundary areas. These were viewed as strategic locations to place fuels reduction work to allow more effective wildfire management. That authority has led to the near completion of the Emerald Mountain Fuel Break in 2004. Since the 1992 FMP and EA were essentially the first park

planning documents to strategically address fuels management, it is essential that this plan articulate those details. The following action items were identified:

#### Allenspark

- Two treatment blocks were identified on USDA Forest Service property.
- The park will offer assistance to the USDA Forest Service for fuel treatments in the area proximal to the community of Allenspark.
- Three treatment blocks and one fuel break were identified on NPS property.
- The “Allenspark Fuel Break” includes an area that extends north from the southeastern corner of the park, through the Wild Basin Entrance area, and onto Copeland Moraine (see map for details).
- The program will include a combination of mechanical manipulation and prescribed fire.
- The program will begin with construction of firelines and fuelbreaks.

#### Estes Park

- One fuel break – known as the “Emerald Fuel Break – will be constructed.
- The principle fuel reduction technique will be prescribed fire.
- The program will include constructing firelines and fuelbreaks, removal of debris around developments, and prescribed burning.

#### Fall River and MacGregor Ranch

- A fuels management program that includes the use of prescribed fire will restore a fire regime more typical of pre-settlement conditions.
- Fuel reduction projects will create buffers to help protect greater Estes Park from fire emanating from NPS lands near Lumpy Ridge and MacGregor Ranch.

#### Grand Lake

- The outcome will be a state of improved protection (for residents, human assets, and critical park resources) from fires that may enter the park or emanate from it.
- Projects will involve primarily mechanical fuel removal and secondarily prescribed fire.
- Labor-intensive projects will remove large diameter dead and down fuels and reduce canopy continuity within specified areas and along designated corridors.
- No activity, other than removal of large fuels, is planned around the perimeter of the cemetery.
- Low-impact vehicles will likely be needed to carry debris along trails and corridors to a road.

The mitigation measures associated with fuels treatment areas identified in the 1992 FMP Environmental Assessment include:

- Tree thinning will occur around major park developments and adjacent to nearby communities. This mitigation is needed to protect human lives and structural property.
- Tree thinning will occur and no farther than 300 feet away from park developments, or into the park from the park’s boundary
- Thinning will be done with chainsaws, slash will be piled and burned under and approved prescribed burn plan, and logs made available to the public for firewood (when practical)
- Before any thinning occurs, the area will be surveyed by qualified individuals for rare, threatened or endangered plants, animals, and cultural resources.
- Any tree with nest cavities, stick nests, or Abert’s squirrel nests will be protected with an adequate buffer established around the tree.

Park developments are defined as human improvements – including roads and trails – that are actively maintained by the park. A multi-year plan for non-fire fuels strategies is described in the Long-term Fuels Treatment Plan (Appendix D).

Thinning activities that are conducted to reduce hazardous fuels in the identified 1992 and 2002 EA areas will generally occur using hand tools and chainsaws. In the 1992 EA areas – with the exception of the Emerald and Allenspark Fuel Breaks, mechanical fuels reduction activities must occur within 300 feet of the park boundary or park developments. In areas identified in the 2002 EA, mechanical fuels reduction activities are not spatially limited within the project areas since they are generally focused on areas near park developments and the park boundary.

### Biomass Disposal

The material generated by mechanical fuel reduction will require disposal methods that will be determined by project locations and access. As projects move greater distances from road and trail access, it becomes necessary to implement on-site disposal techniques. This will usually take the form of slash pile creation with pile burning occurring at a time when adequate moisture is present to prevent fire spread beyond individual piles. All pile burning activities will be conducted in accordance with guidance set forth in NPS Reference Manual #18, Chapter 10, in sections relating to prescribed fire and debris disposal.

Whenever feasible, material that is deemed appropriate for firewood will be separated or removed from the project site and will be made available to the public through a special use permit system. Material that is greater than 3 inches in diameter may also be used for park projects or potentially used as a goods-for-services payment to offset the costs for treatment work completed by contractors.

The program will generally involve construction of shaded fuel breaks in areas adjacent to values at risk that are designed to provide defensible areas from which fire suppression efforts may be based. These fuel breaks will provide an anchor point from which further fuels treatments may be sequenced. This will include the potential use of additional mechanical fuel reduction and/or prescribed fire.

### Effects Monitoring and Evaluation

Fuels and vegetation monitoring is a critical element in the successful implementation of the fuels management program. Data gathered from monitoring plots allows managers to determine if fuels reduction objectives are being met. This monitoring data is essential to evaluating if projects are achieving objectives, allowing for the assessment of changes in vegetation structure and composition, and the detection of undesirable effects from project implementation.

To accurately measure project success, mechanical treatment plots will be installed in areas that are to be mechanically treated. These plots will provide information on vegetation and fuel conditions for the pre-treatment and post-treatment environment. This data will also be used to assess achievements and determine overall effectiveness of treatments for future project refinement. Permanent photo points may also be used to provide an additional source of information.

The protection of the park's natural and cultural resources will remain a high priority in all fuels reduction activities. Specific mitigation measures have been established through the various environmental assessments that provide regulatory compliance for the implementation of these various types of projects. These measures should be adhered to during all such activities, as defined in Appendix D.

## F. Emergency Rehabilitation and Restoration

Emergency rehabilitation will be carried out on all wildland fires as necessary to prevent land degradation and possible resource damage, as well as mitigate unsafe conditions caused by the wildland fire or by actions taken to suppress the fire. Rehabilitation will not be performed on fires

for ecological benefit, except to rehabilitate backcountry trail areas or along fireline that may have been constructed to contain a flank of the fire. If minimum-impact suppression actions are used, only minimal rehabilitation will be necessary. Park management will play an active role in approving suppression activities. The Delegation of Authority to Incident Commanders and the Wildland Fire Situation Analysis are key elements to this process. The Resource Advisor is essential to achieving success with minimum impact suppression techniques.

Rehabilitation efforts will include (but are not limited to): flush-cutting all stumps that are cut with a chainsaw, water-barring any constructed line where erosion is likely, re-contouring any line trenches, spreading any material piled in berms along firelines, raking debris over constructed firelines, removing any abandoned supplies, equipment, or garbage, and rehabilitation and cleanup of spike camps, helispots, or drop points.

Rehabilitation of firelines and other efforts to control erosion will start as soon as possible, perhaps even before a fire is declared out. The Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook will be the primary source of guidance on emergency stabilization, rehabilitation and restoration policies and procedures, and will be implemented as prescribed in Director's Order #18 and Reference Manual #18. Rocky Mountain National Park will utilize the least intrusive stabilization, rehabilitation and restoration actions required to mitigate actual or potential damage caused by wildland fire. Erosion following wildland fire is an element of natural landscape change and should not necessarily be viewed as a deleterious effect, especially in natural areas. Natural recovery by native plant species is preferable to seeding. Seeding should be used only when approved to prevent unacceptable erosion or to resist competition from exotics or invasive species. Mitigation of damage caused by fire suppression activity will be specified in incident action plans. Burned area emergency rehabilitation plans will be prepared as necessary to specify long-term actions for mitigating the deleterious effects of wildland fires. Planning, funding, and timing requirements for fire suppression activity damage and burned area emergency rehabilitation are specified in Reference Manual #18.