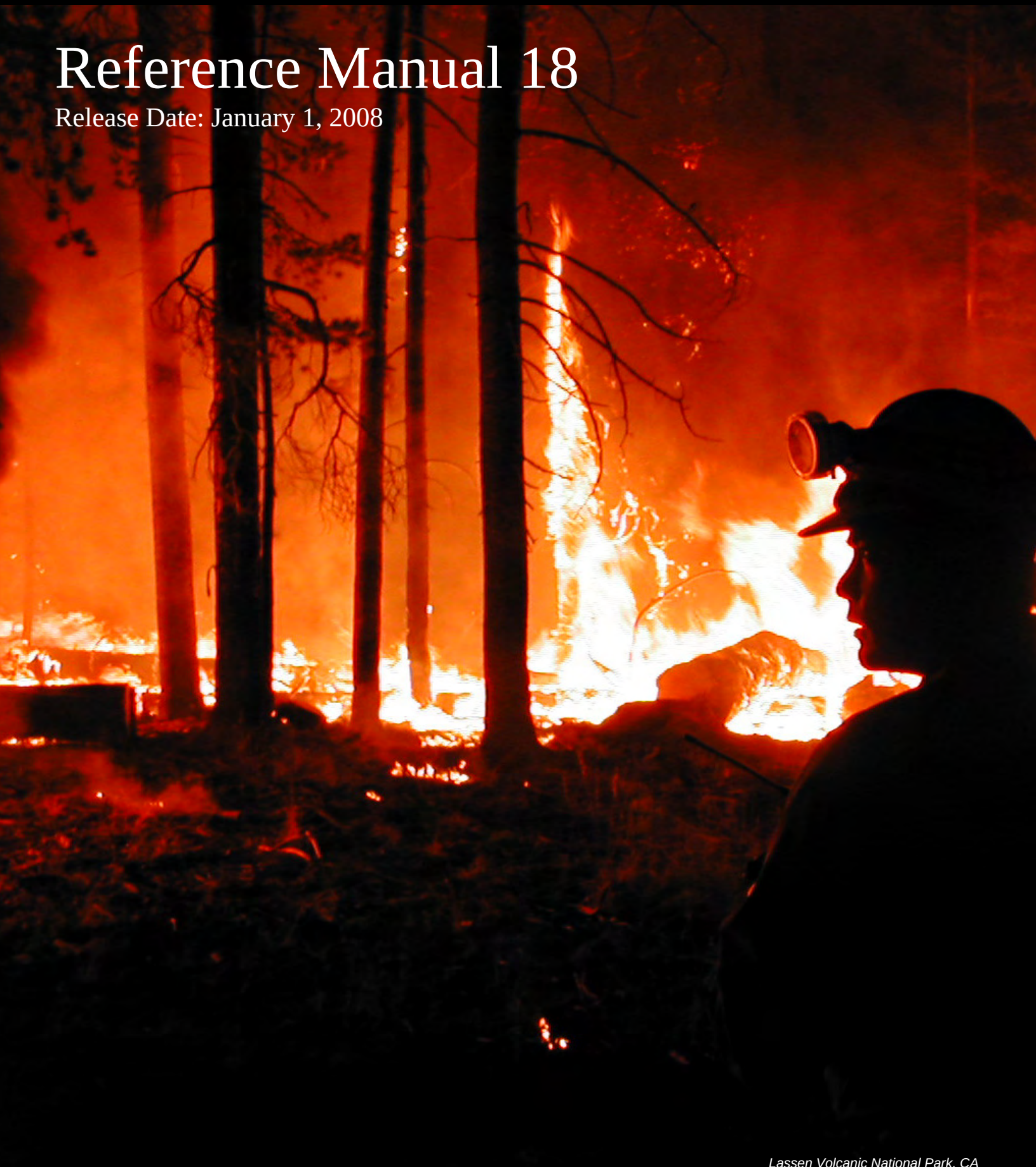
Wildland Fire Management

National Park Service
U.S. Department of the Interior

Branch of Wildland Fire
Division of Fire and Aviation

Reference Manual 18

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Lassen Volcanic National Park, CA

Fire and Aviation Management

National Park Service
U.S. Department of the Interior

Reference Manual 18

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INTRODUCTION

Reference Manual 18: Wildland Fire Management, chapters 1 through 21 represents the most detailed and comprehensive guidance on implementing Service-wide wildland fire management policy for the National Park Service. *Reference Manual 18* (*RM 18*) provides NPS field employees legal references, operating policies, standards, procedures, general information, recommendations, and examples to assist them in carrying out Management Policies and Director's Orders. This document is intended to be read in its entirety. While certain chapters or sections provide important guidance by themselves, there is an interrelationship among the chapters that provides clarity and continuity for the management of wildland fire on lands administered by the National Park Service.

The National Park Service's policy on wildland fire is expressed in the NPS *Management Policies* and *Director's Order 18: Wildland Fire Management*. Supplemental policy regarding coordination and responsibilities for wildland fire operations is found in the *Interagency Standards for Fire and Fire Aviation Operations*.

This is a revision of the previously issued *RM 18*. It has been updated to implement the *Federal Wildland Fire Management Policy* and *Departmental Manual Part 620*. The provisions of this reference manual supersede all previous NPS instructions, requirements, and statements of policy relating to wildland fire management that may be in conflict.

Reference Manual 18 will not be published and distributed in the traditional way. It will be available electronically and posted on the Internet. It contains web links to other information sources valuable to wildland fire and resource managers. To maintain this manual as a living document, revisions and updates will be made as necessary. As revisions are made they will be noted in the *National Park Service Morning Report* and via electronic mail to all fire management officers and all fire program management assistants. The format of the Internet presentation allows the user to print individual chapters and individual exhibits as needed. Notable changes are as follows:

- Policy and guidance that exists in handbooks and guidebooks such as the *Interagency Incident Business Management Handbook* is cross referenced using web links, and redundant text is deleted from this manual. Interagency standards such as these are continually updated, so the need to also include them in *RM 18* is outmoded.

- Comprehensive lists of cited web links, definitions, and acronyms, appear in three separate appendices. Several chapters have their own exhibits, which are provided as clarifying documents.
- All links to outside documents and web pages are found in *RM 18*, Appendix 1, Web Links. Clicking on a highlighted and linked document or web page in *RM 18* will take the user to Appendix 1, Web Links. The reader can then click on the actual website address (URL) to link to the external document or web page. Compiling all of the links in one place will facilitate checking and updating them to ensure they are not broken. The links within the appendix will be updated as needed to keep them current.
- The chapters have been reordered.
- New chapters have been added to include facilities, fire equipment, and fire reporting.
- The chapter that previously covered both prevention and education has been divided into two chapters: "Prevention" and "Communication and Education."
- Formatting has been standardized for all chapters and there are now subheadings for chapter introductions and responsibilities for the national, regional, and park levels of the National Park Service.

The objective of *Reference Manual 18* is as follows:

- Establish a framework through which the NPS institutionalizes and implements principles, policies, interagency organizational and operational relationships, and changes in law, policies, guidance, and reporting requirements.
- Provide a consistent approach for working effectively and efficiently with interagency partners and Service-wide programs such as natural, cultural, and wilderness resources.
- Develop clear guidelines for preparing, responding, and recovering from wildfire incidents, regardless of cause, size, or complexity.
- Include a core set of concepts, principles, terminology, and technologies covering the incident command system, interagency coordination systems, mobilization, training, identification, and management of resources.
- Adopt interagency standards established by the National Wildfire Coordinating Group (NWCG).
- Provide a framework for communicating the objectives and standards of the NPS wildland fire management program to internal and external audiences.
- Re-emphasize that firefighter and public safety is the first priority in every fire management activity.

1 Responsibilities

National Level

The NPS Chief, Division of Fire and Aviation, is responsible for the NPS wildland fire program leadership, coordination and management at the national level. The NPS Branch of Wildland Fire, located at the National Interagency Fire Center (NIFC), Boise, Idaho, establishes and provides national coordination of wildland fire policy development and implementation. Specific wildland fire program responsibilities are found in each chapter of *RM 18*.

Regional Level

NPS regional fire management officers are responsible for NPS wildland fire program leadership, coordination and management within their regions. The regional fire management officers will provide training, oversight, and information to parks within their region and coordinate activities with other regions, agencies, and states as necessary and prudent for the program. They are also responsible for supporting, managing, and conducting overall performance reviews and evaluation of wildland fire activities. The regional fire management officers must involve other program areas such as law enforcement, budget, wilderness, cultural and natural resources, as necessary and appropriate, to ensure an integrated interagency program. Specific wildland fire program responsibilities are found in each chapter of *RM 18*.

Park Level

NPS park superintendents and, when delegated, fire management officers or collateral duty officers, are responsible for developing, implementing, and evaluating wildland fire management activities within their parks. Park superintendents will ensure that their employees are trained and made available for participation in wildland fire management as the situation demands. Employees with operational, administrative, or other skills will support wildland fire management efforts as necessary. Specific wildland fire program responsibilities are found in each chapter of *RM 18*.

2 Wildland Fire Management Program Objectives

Wildland fire management activities are essential to the accomplishment of the NPS mission. The management emphasis of *RM 18* is that the National Park Service manages wildland fire to protect the public, communities and infrastructure, conserve natural and cultural resources, and restore and maintain ecological health. Parks must ensure that wildland fire management is fully integrated into land management planning.

The full range of strategic options is available to managers provided selected options comprehensively consider firefighter and public safety, cost-effectiveness, benefits, and values to be protected. Successful implementation depends upon actions and expectations both internal and external to federal agencies.

Wildland fire management policy and procedures are changing to reflect new considerations, capabilities, and direction while being responsive to resource management objectives. Successful implementation of the policies depends upon actions and expectations both internal and external to federal agencies. Park superintendents must ensure that these policies are incorporated into all wildland fire management actions. Managers and other personnel must actively embrace and implement the recommendations, and every employee of every park must be committed to full implementation at the ground level.

3 Wildland Fire Management Program Requirements

The first guiding principle of *Federal Wildland Fire Management Policy* (January 2001) is that firefighter and public safety is the first priority in every fire management activity. All fire management plans and activities must reflect this commitment.

Before implementing a comprehensive wildland fire management program, all NPS units must have an approved fire management plan. Fire management plans are required for all parks with burnable vegetation. Until a fire management plan is approved, park areas must take an appropriate management response that is suppression-oriented on all wildland fires and that is consistent with firefighter and public safety and resources to be protected. Public involvement is an integral part of the planning process and should be commensurate with the level of public concern.

Additional specific wildland fire program requirements are found in each chapter of *RM 18*.

4 Authorities

Authorities for the management of wildland fire on National Park Service lands:

1. *United States Department of the Interior, Departmental Manual*
2. *The National Park Service Management Policies, August 31, 2006*
3. *Director's Order 18*

4. *Review and Update of the 1995 Federal Wildland Fire Policy, January 2001*
5. *Interagency Strategy for Implementation of Federal Wildland Fire Policy, June 2003*
6. *Interagency Standards for Fire and Fire Aviation Operations*
7. *National Interagency Mobilization Guide*
8. *Interagency Incident Business Management Handbook*
9. *Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide*
10. *Wildland Fire Use Implementation Procedures Reference Guide*
11. *Interagency Fire Program Management Qualifications Standards and Guide*

5 Structure of *Reference Manual 18*

There are 21 chapters in *Reference Manual 18*:

1. Introduction
2. Response to Wildland Fire
3. Standards for Operations and Safety
4. Fire Management Plans
5. Preparedness
6. Wildland Fire Prevention
7. Fuels Management
8. Fire Ecology and Monitoring
9. Air Quality and Smoke Management
10. Training, Qualifications, and Certification
11. Wildland Fire Reporting
12. Fire Facilities
13. Fire Equipment
14. Budget Analysis and Program Planning
15. Fire Financial Programs
16. Fire Business Management
17. Wildland Fire and Program Reviews
18. Fire Research
19. Burned Area Emergency Response
20. Information and Technology Management
21. Communication and Education

Three appendices supplement the information found in the *Reference Manual 18* chapters:

Appendix 1: Web Links
Appendix 2: Definitions and Terms
Appendix 3: Acronyms

RESPONSE TO WILDLAND FIRE

1 Introduction

Primary guidance for response to wildland fire is found in the *Interagency Standards for Fire and Fire Aviation Operations*. The information presented here is supplemental to that guidance.

Wildland fire policy provides opportunities for wildland fire use and the accomplishment of resource management objectives. The policy advocates increases in wildland fire use and creates a foundation for implementing the full spectrum of wildland fire use options that may include tactical suppression actions. Depending on the anticipated consequences and management objectives for the area that is likely to burn, any one or a combination of tactical options may be chosen and specified. These decisions must be made as a part of the operational management plan.

It is important to note that wildland fire management must now be accomplished through application of the appropriate management response for each individual fire. The appropriate management response consists of management actions that are applied to wildland fires based on the conditions of the fire, fuels, weather, and topography in order to accomplish specific objectives for the individual fire. It is developed from analysis of the local situation, values to be protected, management objectives, external concerns, and land use. The appropriate management response may vary from fire to fire and even along the perimeter of an individual fire.

A key feature of this guidance is that the full extent of a sliding range of management options is available. These options range from monitoring, with minimal on-the-ground actions, to intense suppression actions on all or portions of the fire perimeter.

The appropriate management response must be developed from a spectrum of possible alternatives and may consist of a set of tactics to accomplish multiple objectives. Protection priorities are first, human life, and second, property and natural and cultural resources. Once people have been committed to an incident, they become the highest value to protect. If it becomes necessary to prioritize between property and natural or cultural resources, the decision must be based on the relative values to be protected commensurate with fire management costs.

This chapter provides reference information to facilitate wildland fire management. Detailed information is provided in the *Wildland Fire Use*

Implementation Procedures Reference Guide.

2 Responsibilities

2.1 National Level

The Branch of Wildland Fire is responsible for the policy, direction, and content of the wildland fire response program. The Fire Management Program Center will:

- Provide technical assistance and dispatch capabilities for national resources and fire overhead, and provide supplies and equipment for interregional situations as specified in national mobilization plans.
- Allocate funding to accomplish Service-wide priorities.
- Facilitate training beyond that identified as a park-level responsibility.

2.2 Regional Level

It is the responsibility of the regions to ensure all parks have fire response readiness. Regional offices will maintain interagency contacts, including but not limited to Multi-Agency Coordinating Groups (MAC) and Geographic Area Coordinating Groups, and provide for necessary regional and national interagency agreements. Regional offices will provide assistance as requested to fire preparedness, and provide fire program reviews of park and regional office fire management programs.

2.3 Park Level

Each park with a fire program will:

- Prepare a fire management plan.
- Incorporate preparedness considerations into its fire management plan, including conducting annual preparedness reviews using approved interagency preparedness checklists.
- Maintain a cache of supplies, materials, and equipment sufficient to meet normal fire year requirements.
- Maintain fully qualified personnel commensurate with the normal fire year management workload and supporting budget.

Every National Park Service employee has a responsibility to support wildland fire operational activities as the situation demands. Personnel involved in fire management activities must meet the current National Park Service wildland fire qualification standards, including accepted interagency competencies (knowledge, skills, and abilities) where appropriate.

The National Park Service is required to determine the cause of all wildland fires that occur on lands under its jurisdiction. If needed, the services of a trained wildland fire investigator will be obtained. Costs associated with these services are legitimate charges to the fire account.

If necessary, rewards for information leading to the arrest and conviction of persons responsible for starting wildland fires may be offered. These rewards may be funded from the suppression account for the fire. The offering of any rewards must first be coordinated with the regional fire management officer, the park unit's chief ranger, and then with the U.S. attorney having jurisdiction for the area. Any offered reward must be commensurate with the rewards offered by the surrounding jurisdictions and applied in the same manner.

When the cause of a fire can be traced to the act, or failure to act, of an individual, inholder, or special use permittee, the National Park Service must take appropriate civil and criminal action against that individual. The NPS will work with the U.S. Attorney's Office to recover the costs of suppression and rehabilitation from the responsible person(s).

3 Wildland Fire Management Program Requirements

Before implementing a wildland fire management program, an NPS unit must have the following systems in place:

1. An approved fire management plan, including all required wildland fire use criteria (if wildland fire use is an approved strategy) as outlined in *Director's Order 18* (*DO 18*) and *Departmental Manual Part 620, Chapter 1* (620 *DM 1*). A fire management plan is required for all parks with vegetation capable of sustaining wildland fire. Until a fire management plan is approved, parks must respond to wildfires using suppression tactics. On all wildland fire management actions, use of *minimum impact suppression tactics* is the policy of the National Park Service. Minimum impact suppression tactics are defined as the application of those techniques which effectively accomplish wildland fire management objectives with the least cultural and environmental impact, commensurate with public and firefighter safety.

2. Preparedness plans should be prepared for fire management personnel and equipment.

3. Situation reporting: It is important for parks to keep regional fire management officers apprised of their respective fire situation and potential.

4. Recordkeeping:

- *Daily Cost Accounting*: Costs associated with wildland fire use must be relayed to the regional fire management officer on a schedule agreed upon with the park.

- *Final Wildland Fire Record*: As described in the Wildland Fire Reporting chapter of *Reference Manual 18*, all wildland fire incidents must be documented by Wildland Fire Reports. These reports replace the DI-1202, Department of the Interior Individual Fire Report. The completed report must be entered in the national reporting program (e.g. Wildland Fire Management Information System) within 10 working days after the fire has been declared out. In addition, the full record retained at the park will include the following:

  - Wildland Fire Report
  - Written narrative description of the incident
  - Wildland Fire Implementation Plan (WFIP) (for all wildland fire use fires) or Wildland Fire Situation Analysis (WFSA) (for all suppression fires exceeding initial attack)
  - Daily weather forecasts and spot weather forecasts
  - Cumulative fire map showing acreage increase by day
  - Total cost summary
  - Monitoring data

  The park fire management plan will identify where these records will be kept and will assign responsibility for file maintenance. The chapter on Information and Technology Management in *Reference Manual 18* provides guidance on data stewardship, standards, documentation, sharing, and archiving.

4 Wildland Fire Use

Naturally ignited wildland fires may be managed to accomplish resource management goals once an appropriate fire management plan has been approved. Human-caused wildland fires must be managed through a suppression response commensurate with firefighter and public safety, values to be protected, and cost efficiency. Management of wildland fires in the National Park System allows substantial flexibility in how land and resource management objectives can be accomplished.

Because of the random occurrence pattern of wildland fires and the possibility that a fire may last for several weeks or even months, wildland fire use fires

require more intensive planning and evaluation than prescribed fires and wildland fire suppression actions, especially at the initial decision point when the fire is detected.

4.1 Program Oversight

Prior to full implementation of wildland fire use, an NPS unit must meet the following criteria:

- Regional fire management officers are responsible for appraising and surveying all wildland fire use activities within their region. The regional office fire staff will review implementation plans for fires with a "High Relative Risk" rating. Direct contact with parks may be necessary in order to stay apprised of complex situations. On rare occasions, circumstances or situations may exist which require the regional director to intervene in the wildland fire use decision process.

- **Review** by the regional fire management officer or the person acting for the regional FMO is mandatory for wildland fire implementation plans with a *projected cost* greater than $500,000. Review by the NPS Chief, Division of Fire and Aviation, is mandatory for wildland fire implementation plans with a *projected cost* greater than $1,000,000.

TABLE 1. WFIP Review Limits

Reviewing Level	**Authority Limits**	**Reviewing Official**
Park Review Level	$500,000	Park FMO
Regional Review Level	$500,000–$1,000,000	Regional FMO
National Review Level	>$1,000,000	NPS Chief, Division of Fire and Aviation

- **Approval** authority levels for WFIPs are stated below. Funding approval levels for multiple-jurisdiction incidents are determined based on each agency's funding commitment and not upon the total funding.

TABLE 2. WFIP Approval Authority Limits

Approving Level	**Authority Limits**	**Approving Official**
Park Approval Level	$2,000,000	Park Superintendent
Regional Approval Level	$2,000,000–$5,000,000	Regional Director
National Approval Level	>$5,000,000	NPS Director

4.2 Wildland Fire Use Planning

Park units must complete an operational management plan, or WFIP, that outlines the management strategies to be used on the fire (the plan must be approved by the agency administrator or acting agency administrator). The required content and sample format for the WFIP is provided in the *Wildland Fire Use Implementation Procedures Reference Guide*. Required elements of wildland fire use planning, as identified in the guide, include the following:

- An approved, Go/No-Go Decision Process to validate the use of wildland fire
- A Complexity Rating completed for each fire or complex of fires.
- Management actions describe activities necessary to manage the fire until the periodic assessment indicates a change in WFIP planning stage and activity is required or until objectives are achieved
- A periodic assessment process to affirm that adequate capability exists to manage each fire.

4.3 Operational Requirements

Example forms and a description of the complete implementation process are provided in the *Wildland Fire Use Implementation Procedures Reference Guide*. This process must be followed and all steps must be completed in order for a park to implement a wildland fire use program.

There are several aspects of the wildland fire use program that must be addressed in the fire management plan or in an operational management plan prior to wildland fire use implementation. The *Wildland Fire Use Implementation Procedures Reference Guide* identifies the following critical components of wildland fire use programs:

1. A decision process to evaluate new fire starts and assess ongoing wildland fires in the park (WFIP Stage I). This process should consider the following elements:

    - Determination of fire origin and cause
    - Determination of affected fire management zone
    - Immediate and projected threats to life and property
    - Smoke and health concerns
    - Necessary qualified personnel and fire management resources availability
    - Availability of a qualified manager for the fire
    - Immediate and potential impacts to visitors, users, and local communities
    - Projected fire growth under normal and drought conditions

2. Documentation of Wildland Fire Use Decision. The fire management officer, using the Decision Criteria Checklist in the WFIP Stage I, must determine whether the new start meets criteria for continued management (as opposed to requiring initiation of suppression actions), based upon on-site information, fire location, and management objectives. This process must use the decision process and checklist defined in the fire management plan. Once the appropriate management response has been decided to manage the fire as a wildland fire use, the appropriate management strategy and tactics will be developed. A WFIP will be prepared to the extent necessary for each fire or complex of fires.

   Wildland fires that begin outside of the park must receive the same consideration as new starts once they enter the park, unless the park and adjacent landowner collaborated on a plan before the fire entered the park. The agency administrator must approve a new wildland fire implementation plan as indicated by re-validation and consultation with cooperators. NPS units should interact and communicate with their neighbors about all wildland fires that have the potential to leave or enter park lands. Joint decision making and planning processes should involve all affected agencies. *A single interagency WFIP prepared with all agencies' input during the initial decision-making phase of the fire is strongly recommended.*

   For each wildland fire, the agency administrator (or delegate) is required to affirm periodically that adequate capability exists to continue management of the fire. This periodic assessment, as described in the *Wildland Fire Use Implementation Procedures Reference Guide*, satisfies the certification requirement identified in *DO 18.*

3. Development of a Wildland Fire Implementation Plan (operational management plan). The WFIP is identified in the *Wildland Fire Use Implementation Procedures Reference Guide*. The WFIP is a progressively developed strategic plan consisting of three stages: Stage I, II, and III. Progression through the stages is based on changing levels of fire complexity and management needs. Not all fires will warrant and receive intensive on-the-ground management actions. Mandatory, immediate, and complete plan preparation for every ignition is strongly recommended, but during periods of multiple ignitions, that level of planning could present a significant workload. The progressive developmental nature of the WFIP allows prioritization of immediate needs and reduces the workload by minimizing unnecessary planning. As part of the periodic assessment process, plan preparation requirements must be validated by completion of the Periodic Assessment, Part I.

4. Wildland Fire Use Organizational Management. In addition to specifying the acceptable size of the wildland fire use fire and its behavior and effects, plans must identify and define the personnel needed to effectively manage the fire. These include all positions (overhead, firing, holding, monitoring, logistics, backup, etc.) that will be required to manage the fire as specified in the implementation plan. Appropriate skill levels are guided by NPS complexity analysis.

   As organizational requirements escalate in response to increasing fire complexity and values to be protected, park units are expected to commit staff accordingly. Appropriate organizational levels will be identified through the WFIP or the WFSA or by evaluation of in-park capabilities. During wildland fire use incidents, Fire Use Management Teams (FUMTs) or Incident Management Teams (IMTs) (Type 1 or 2) can augment local resources when local capabilities are exceeded. Both forms of teams can be ordered through the dispatch mobilization system as described in the *National Interagency Mobilization Guide*. Descriptions of team configuration, capabilities, mission, and responsibilities of FUMTs are described in the mobilization guide.

5. Interagency Agreements and Commitment. Parks with complex wildland fire use programs on lands that abut neighboring jurisdictions having similar objectives should develop mutually agreeable fire management plans (or agreements to amend existing plans). Common management responses to fire occurrences, clear understanding and implementation of funding procedures, and policies for managing fires that cross agency boundaries must be included.

   When agreement on decision criteria and management actions is not possible or desirable, or when NPS fire management units abut jurisdictions having conflicting fire management objectives, buffer zones must be defined. The buffer zones should be wide enough to provide a defensible space for the adjacent jurisdiction. Insufficient buffer zones and/or indefensible boundaries will shift the appropriate management response to suppression.

6. Definition of a Maximum Manageable Area (part of WFIP Stage III). All wildland fires reaching Wildland Fire Implementation Plan Stage III must have a defined Maximum Manageable Area (MMA). This is to ensure that there is a clear and common understanding among the various layers of NPS managers and cooperators of the authorized size and location of the fire.

   Maximum Manageable Area is the most suitable term (accepted on an interagency basis) for designating the ultimate acceptable size for a given wildland fire managed for resource benefits. The term MMA has a strong management connotation, is less apt to foster inconsistent interpretation, and

best represents the intent of the application for wildland fire use. It provides for a closely directed fire management application in a specific area defined by resource objectives, fire and weather prescription elements, social needs, political considerations, and management capability.

7. Information and Education. Wildland fire use programs should include an information and education program which provides for the timely and accurate communication of the following:

   - Specific fire management objectives of the NPS and the park
   - Information on fire location, behavior, and growth
   - Information on the effects of fire
   - Fire management actions taken on a fire
   - Fire impacts, inside and outside of the park, on public and private facilities and services
   - Restrictions and closures within the park
   - A "step-up plan" addressing all aspects of a park's fire management program and identifying when contact activities will escalate, including the following:

     - Minimum public and media contact requirements, including identification of who is to be contacted (such as park residents, concessionaires, neighbors, cooperators, and inholders)
     - Program management responsibility
     - Provisions for increased interpretive and information programs commensurate with increased fire activity or fire danger
     - Pre- and post-season fire management interpretation and information programs
     - Minimum training requirements identified by individual parks for interpreters and public information specialists assigned park fire information responsibilities (not to be construed as requiring full certification under the PMS 310-1 *Wildland Fire Qualification System Guide*)

     To avoid sending a mixed message, information on the natural role of fire, the park's efforts to restore natural fire to park ecosystems, or other discussions of the benefits of fire *must not* be included with communications about the status of wildland fire suppression.

8. Monitoring. All wildland fire use actions must be monitored. Qualified Fire Effects Monitors (FEMO) should be used and deployed to staff fires as needed. Information gathered during fire monitoring is needed to:

   - Provide managers with information essential for decision making.

- Determine whether fire management program objectives are being met.
- Ensure protection of human life, property, and natural and cultural resources.
- Determine the effectiveness of the planned strategy of trigger points, holding actions, and MMA.
- Assist with contingency planning by identifying barriers to spread, problem areas, locations for holding actions, and required forces.
- Increase knowledge of fire behavior and effects on park ecosystems. The uncertain location of wildland fires complicates establishment of the pre-fire fire-monitoring plot network.
- Provide quality long-term documentation records for actions taken on a fire.
- Monitor smoke from the fire to identify health and safety concerns. Local or state air quality organizations or the NPS Air Resources Division may serve as sources for technical assistance and monitoring equipment. If necessary, health advisories will be issued by local or state air quality regulators.

9. Fire Management Activity Damage Repair. Activities that repair or rehabilitate impacts associated with direct fire management actions, such as removing refuse, flush cutting stumps, or obliterating handline is a normal part of wildland fire use, and can be charged to the fire suppression account. However, funding will not be made available to pay for post-fire emergency stabilization or burned area rehabilitation or restoration treatments and activities resulting from wildland fire use fires. For further information see the National Park Service's Annual Financial Management Guide (Budget Structure).

10. Selection of New Strategies—WFSA. When any of the following conditions occur, the WFSA process must be completed:

    - Fire does not meet every element of the Decision Criteria Checklist, or is exceeding management capability to implement the WFIP.
    - Fire is projected to leave NPS jurisdiction, and the adjoining jurisdiction will not/cannot accept management of the fire.
    - The agency administrator or acting agency administrator will not approve a WFIP for the wildland fire.
    - The regional fire management officer, with the concurrence of the responsible agency administrator, determines that regional and/or national conditions outweigh potential benefits of the fire and appropriate suppression action is warranted.

The acres burned after the strategic alternative is changed through use of the WFSA process will be recorded as suppression action acreage. Acres burned before the change in strategy will be counted as wildland fire use acreage.

If the new alternative involves a combination of continued management for resource benefits inside the original MMA and initiation of suppression action outside the MMA, the area burned will be documented using the following rule: acreage inside the MMA is recorded as wildland fire use acreage; acreage outside the MMA is recorded as suppression acreage.

5 Initial and Extended Attack

5.1 Initial Attack

Wildland fires that are identified for suppression must receive appropriate initial attack action (IA) as defined in the fire management plan. The goal in all IA actions is to limit damage to values to be protected and to prevent the escape of the fire.

5.1.1 Closest Forces

Cooperative agreements or memoranda of understanding with adjacent agencies or fire protection organizations must cover the use of closest forces, that is, the nearest appropriate resources available to respond to an incident. These agreements must be part of the fire management plan. Orders for additional resources, including the designated geographical area or zone dispatch, must be placed in accordance with existing agreements.

5.2 Extended Attack

Extended attack occurs when a fire has not been contained or controlled by the initial attack forces, and it continues until the transition to a higher-level incident management team is completed or until the fire has been contained or controlled. Extended attack action requires a WFSA to guide the re-evaluation of suppression strategies.

5.2.1 Wildland Fire Situation Analysis (WFSA)

A WFSA is a decision-making process that evaluates alternative wildfire suppression strategies against selected environmental, social, political, and economic criteria and provides a record of those decisions. Alternatives are identified, analyzed, and evaluated along with the

expected probability of success and consequences of failure. The agency administrator approves the WFSA and any revisions. The WFSA should be reviewed frequently on a scheduled basis (generally daily), by both the incident commander and the agency administrator (or designee). The evaluation of alternatives must clearly identify the point at which the failure of the alternative is imminent. This becomes the triggering mechanism for re-evaluation of the WFSA.

WFSA approval authority levels are stated below. Funding approval levels for multiple-jurisdiction incidents are determined based on each agency's funding commitment and not upon the total funding.

TABLE 3. WFSA Approval Authority Limits

Approving Level	Authority Limits	Approving Official
Park Approval Level	$2,000,000	Park Superintendent
Regional Approval Level	$2,000,000–$5,000,000	Regional Director
National Approval Level	>$5,000,000	NPS Director

5.2.2 Pre-Loaded Wildland Fire Situation Analysis

It is important for parks to use the current WFSA software and to pre-load unit-specific information. A pre-loaded WFSA will provide improved accuracy and better interdisciplinary thought than a WFSA completed in the middle of the night when a fire escapes initial attack. Pre-loaded WFSA files can serve as the framework for a WFSA if the fire exceeds the parameters of the selected management alternative.

5.2.3 Incident Complexity Analysis

The incident complexity analysis is a checklist intended to guide the agency administrator in determining incident organizational needs and when transition from extended attack to a higher-qualified incident management team is necessary. Before additional resources are ordered, an analysis must be completed that becomes part of the fire record.

5.3 Incident Management Team (IMT) Transition/Transfer of Command

Once the decision has been made to mobilize an IMT, the following guidelines assist transition of fire management responsibilities to incoming IMT. This includes briefings that must be given by the agency administrator, fire management officer (FMO), and incident commander (IC). Some information will be in writing and some may be oral. A delegation of authority and a WFSA are provided by the agency administrator to the incoming team at the briefing.

The transfer of command responsibilities for an incident to a team must be as efficient and orderly as possible. The local team or organization already in place remains in charge until incoming team members are briefed by their counterparts and a delegation of authority has been signed. The ordering unit should specify times of arrival and transition by the incoming team and discuss these time frames with the incoming IC.

The ordering unit should accomplish the following actions prior to the arrival of the incoming team:

1. Determine the incident command post (ICP)/base location.
2. Order basic support equipment and supplies for the incident.
3. Secure an ample supply of appropriate maps. (This is critical.)
4. Determine the team's transportation needs and obtain vehicles.
5. Schedule agency administrator briefing time and location.
6. Obtain necessary information for the administrator briefing (include appropriate land/resource and fire management plans, and unit Resource Advisor Guide or other applicable guidance documents such as anadromous fisheries protection, suppression guidelines etc, if available).
7. Obtain necessary communications equipment.

Transition time will depend on the complexity of the incident, the expertise of the existing team, local factors, and other issues. The actual time of transfer of command should be negotiated between the agency administrator and IC.

The USFS "Agency Administrator's Guide for Wildland Fire Decision Making" is a useful supplemental guidance document, along with the current edition of the *Interagency Standards for Fire and Fire Aviation Operations*.

5.3.1 Limited Delegation of Authority

The transfer of authority for suppression actions on a fire is done through a written delegation of authority from the agency administrator to the incident commander. An IMT may manage suppression actions on a fire only after receiving a signed delegation of authority from the agency administrator. This procedure facilitates the transition between incident management levels.

The delegation of authority should contain specific, measurable objectives to be accomplished by the IMT, as well as any limitations to that authority. Measurable objectives will provide both the IMT and agency administrator a means for continual evaluation and necessary adjustments as the incident progresses. It should include names of specific contacts, such as designated Agency Representative, Resource Advisor(s) etc.

5.3.2 Agency Administrator Briefing

This briefing should take place as soon as the incoming team is completely assembled, preferably at a location away from the incident. An offsite location permits an uninterrupted briefing of the incident goals, objectives, and constraints. The WFSA and delegation of authority should be completed prior to the briefing.

5.4 Incident Management Considerations

Use of minimum impact suppression tactics is the policy of the National Park Service. Minimum impact tactics guidelines are provided in exhibit 1.

5.4.1 Air Operations

Air operations during fire incidents will comply with the provisions of *DO 60*, *Aviation Management*.

5.4.2 Extraordinary Fire Situations

Occasionally, instances of fire behavior that exceed the fire organization's ability to achieve management objectives occur. In such instances, neither traditional strategies and tactics nor any amount of additional resources will control the fires.

While these isolated incidents occur infrequently, the conditions resulting from extreme resistance to control must be addressed in fire management planning. Under such circumstances a variety of situations may arise, including unacceptable threats to firefighter safety, substantial loss of acreage, uncontrollable loss of improvements, consistent failure to meet suppression objectives, and overwhelming political involvement.

Fire management during these situations will require extraordinary, nontraditional thinking. The overall management goal to suppress the fire remains constant. In such situations, however, incident commanders must shift their focus from perimeter control to an interim strategy for protecting life and high-value park resources ("Management Action Points", or "point protection") while providing for the safety of firefighting resources until conditions are more favorable for suppression.

Managers should determine those critical values, protection strategies, and indicators that will assist them in identifying and responding to these

extraordinary fire incidents, and then document them in park fire management plans.

5.4.3 Incident Status Reporting

The status of the incident must be reported in accordance with local, geographical area, and national interagency mobilization guide standards. Incident status is reported on the Incident Status Summary (ICS-209).

5.4.4 Release of Incident Management Team

The release of an IMT is basically the reverse of the transition to the IMT from extended attack. A re-delegation of authority to the new incident commander or back to the home unit should be prepared. Any unfinished work or unmet objectives should be described in a turn back plan (e.g. unfinished suppression damage repair). The agency administrator must approve the date and time of release of the IMT. The incoming IMT should have had 24 hours off prior to assuming control of the incident.

5.4.5 Incident Management Team Evaluation

At the time of closeout, the agency administrator must complete a written evaluation of the IMT, appraising them on their compliance to the incident objectives and the delegation of authority. A second, more thorough narrative should be completed after sufficient time has elapsed so that incident costs, claims, demobilization, and rehabilitation are essentially complete and can be thoroughly evaluated.

The accepted format for an incident management team evaluation may be found in the current edition of the *Interagency Standards for Fire and Fire Aviation Operations*.

Exhibit 1

MINIMUM IMPACT SUPPRESSION TACTICS GUIDELINES

The change from fire control to fire management has added a new perspective to the roles of fire managers and firefighters. Traditional thinking that “the only safe fire is a fire without a trace of smoke” is no longer valid. Fire management now means managing fire "with time" as opposed to "against time." The objective of putting the fire dead out by a certain time has been replaced by the need to make unique decisions with each fire start to consider the land, resource, and incident objectives, and to decide the appropriate management response and tactics that result in minimum cost and minimum resource damage.

This change in thinking and way of doing business involves not just firefighters—it involves all levels of management. Fire management requires the fire manager and firefighter to select management tactics commensurate with the fire’s existing or potential behavior while causing the least possible impact on the resource being protected. The term used to describe these tactics is *Minimum Impact Suppression Tactics*, commonly called MIST. Simply put, MIST is a “do least damage” philosophy.

MIST is not intended to represent a separate or distinct classification of firefighting tactics but rather a framework for identifying ways to suppress a wildfire while minimizing the long-term effects of the suppression action. MIST is the concept of using the minimum tool to safely and effectively accomplish the task. MIST should be considered for application on all fires in all types of land management areas.

While MIST emphasizes suppressing wildland fire with the least impact to the land, actual fire conditions and good judgment will dictate the actions taken. Consider what is necessary to halt fire spread and containment within the fire line or designated perimeter boundary while safely managing the incident.

Use of MIST must not compromise firefighter safety or the effectiveness of suppression efforts. Safety zones and escape routes must continue to be a factor in determining fire line location.

Effective minimum impact fire management techniques originate with instructions that are understandable, stated in measurable terms, and communicated both orally and in writing. Once the techniques have been implemented, on-the-ground monitoring helps ensure that minimum impact objectives are being met. Evaluating the tactics both during and after implementation furthers the understanding and achievement of good land stewardship during fire management activities.

Guidelines

The intent of this guide is to serve as a checklist for all fire management personnel.

1 Incident Management Considerations

Fire managers and firefighters select tactics that have minimal impact on values-at-risk. These values are identified in approved land or resource management plans. Standards and guidelines are then tied to implementation practices that result from approved fire management plans. In implementing MIST, follow these recommendations:

- Emphasize firefighter and public safety (safety cannot be compromised).
- Evaluate suppression tactics during planning and strategy sessions to ensure they meet agency administrator objectives and MIST. Include the agency resource advisor and/or designated representative.
- Communicate MIST where applicable during briefings, and implement during all phases of operations.
- Evaluate the feasibility of wildland fire use in conjunction with MIST when appropriate for achieving resource benefits.

2 Responsibilities

Agency Administrator or Designee

- Ensures agency personnel are provided with appropriate MIST training and informational/educational materials at all levels.
- Communicates the land and fire management objectives to the incident commander.
- Periodically monitors the incident to ensure resource objectives are met.
- Participates in the incident debriefing and assists in the evaluation of performance related to MIST.

Incident Commander

- Communicates the land and fire management objectives to the general staff.
- Evaluates suppression tactics during planning and strategy sessions to see that they meet the agency administrator's objectives and MIST guidelines.
- Monitors operations to ensure MIST is implemented during line construction as well as during other resource-disturbing activities.

- Includes the agency resource advisor and/or local representative during planning, strategy, and debriefing sessions.

Resource Advisor
- Ensures that interpretation and implementation of WFSA/WFIP and other oral or written line officer direction is adequately carried out.
- Participates in planning/strategy sessions and attends daily briefings to communicate resource concerns and management expectations.
- Reviews Incident Action Plans (IAP) and provides specific direction and guidelines as needed.
- Monitors on-the-ground applications of MIST.
- Provides assistance in updating WFSA/WFIP when necessary.
- Participates in debriefing and assists in evaluation of performance related to MIST.

Planning Section
- Uses the information provided by the resource advisor to help assess whether management tactics are commensurate with land/resource and incident objectives.
- Ensures that instructions and specifications for MIST are communicated clearly in the IAP.
- Anticipates fire behavior and ensures all instructions can be implemented safely.

Logistics Section
- Ensures actions performed around Incident Command Posts (ICP), staging areas, camps, helibases, and helispots result in minimum impact on the environment.

Operations Section
- Evaluates MIST objectives to incorporate into daily operations and the IAP
- Monitors effectiveness of suppression tactics in minimizing impacts to resources and recommends necessary changes during planning/strategy sessions.
- Communicates MIST to division supervisors and air operations/support during each operational period briefing. Explains expectations for instructions listed in the IAP.
- Participates in incident debriefing and assists in evaluation of performance related to MIST.

Division/Group Supervisor and Strike Team/Task Force Leader
- Communicates MIST objectives and tactics to single resource bosses.
- Recommends specific tasks to divisions to implement MIST.

- Monitors the effectiveness of suppression tactics in minimizing impacts to resources and recommends necessary changes to the operations section chief.

Single Resource Bosses
- Communicates MIST objectives to crew members.
- Monitors work to ensure that crews are adhering to MIST guidelines and specific incident objectives.
- Provides feedback to supervisor on implementation of MIST.

3 Implementation

Keep this question in mind: What creates the greater impact, the fire suppression effort or the fire?

Safety
- Apply principles of Lookouts, Communications, Escape Routes, and Safety Zones (LCES) to all planned actions.
- Constantly review and apply the "18 Watch-Out Situations" and "10 Standard Fire Orders."
- Be particularly cautious about the following:
  - Burning snags allowed to burn
  - Burning or partially burned live and dead trees
  - Unburned fuel between you and the fire
- Designate Escape Routes and Safety Zones.
  - In any situation, the best escape routes and safety zones are those that already exist. Identifying natural openings, existing roads and trails, and taking advantage of "safe black" will always be a preferred tactic compatible with MIST. If safety zones must be created, follow guidelines similar to those for helispot construction.
  - Constructed escape routes and safety zones in heavier fuels will have a greater impact, be more time consuming and labor intensive, and ultimately will be less safe.

General Considerations
- Consider the potential for introduction of noxious weeds and mitigate by removing weed seed from vehicles, personal gear, cargo nets, etc.
- Consider impacts to riparian areas when siting water handling operations.
  - Use longer draft hoses to place pumps out of sensitive riparian areas.
  - Plan travel routes for filling bladder bags to avoid sensitive riparian areas.
- Ensure adequate spill containment at fuel transfer sites and pump locations. Stage spill containment kits at the incident.

Fire Lining Phase

- Select tactics, tools, and equipment that have the least impact on the environment.
- Give serious consideration to the use of water or foam as a fire lining tactic.
- Use alternative mechanized equipment such as excavators and rubber-tired skidders rather than bulldozers when constructing mechanical line.
- Allow fire to burn to natural barriers and existing roads and trails.
- Monitor and patrol fire lines to ensure continued effectiveness.

Ground Fuels

- Use cold trail, wet line or a combination when appropriate. If a constructed fire line is necessary, use minimum width and depth to stop fire spread.
- Consider the use of fire line explosives (FLE) for line construction and snag falling to create more natural-appearing fire lines and stumps.
- Burn out and use low impact tools like swatters and gunny sacks.
- Minimize bucking to establish fire lines. It is preferable to move or roll downed material out of the intended constructed fire line area. If moving or rolling out is not possible, or the downed log/bole is already on fire, build line around it and let the material be consumed.

Aerial Fuels (brush, trees, and snags)

- If the fuels are adjacent to the fire line, limb only enough to prevent additional fire spread.
- If the fuels are inside the fire line, remove or limb only those fuels which would have potential to spread fire outside the fire line.
- Cut brush or small trees necessary for fire line construction flush to the ground.
- Follow these guidelines for trees, burned trees, and snags:
  - Minimize cutting of trees, burned trees, and snags.
  - Do not cut live trees unless it is determined they will cause fire spread across the fire line or seriously endanger workers. Cut stumps flush with the ground.
  - Scrape around tree bases near the fire line if the base is hot and likely to cause fire spread.
  - Identify hazard trees with flagging, glow-sticks, or a lookout.
- Follow these guidelines when using indirect attack:
  - Do not fall snags on the intended unburned side of the constructed fire line unless they are an obvious safety hazard to crews.
  - Fall only those snags on the intended burn-out side of the line that would reach the fire line should they burn and fall over.

Mop-up Phase

- Consider using "hot-spot" detection devices along the perimeter (aerial or hand-held).
- Use extensive cold trailing to detect hot areas.
- Cold trail charred logs near fire line. Do minimal scraping or tool scarring. Restrict spading to hot areas near the fire line.
- Minimize bucking of logs to check for hot spots or extinguish fire. It is preferable to roll the logs and extinguish the fire.
- When the ground is cool, return logs to their original position after checking.
- Refrain from piling. Burned/partially burned fuels that were moved should be arranged in natural positions as much as possible.
- Consider allowing larger logs near the fire line to burn out instead of bucking into manageable lengths. Use a lever, etc., to move large logs.
- Use gravity socks in stream sources and/or a combination of water blivets and fold-a-tanks to minimize impacts to streams.
- Avoid using rehabilitated fire lines as travel corridors whenever possible because of potential soil compaction and possible detrimental impacts to rehabilitation work.
- Avoid use of non-native materials for sediment traps in streams.

Aerial Fuels (brush, small trees, and limbs)

- Remove or limb only those fuels which if ignited have the potential to spread the fire outside the fire line.
- Follow these guidelines regarding burning trees and snags:
  - *Be particularly cautious when working near snags (*ensure adequate safety measures are communicated).
  - The first consideration is to allow a burning tree/snag to burn itself out or down.
  - Identify hazard trees with flagging, glow-sticks, or a lookout.
  - If there is a serious threat of spreading firebrands, extinguish them with water or dirt.
  - Consider felling by blasting, if available.

Aviation Management

- Minimize the impacts of air operations by incorporating MIST in conjunction with the standard aviation risk assessment process.
- Keep in mind these possible aviation related impacts:
  - Damage to soils and vegetation resulting from heavy vehicle traffic, noxious weed transport, and/or extensive modification of landing sites
  - Impacts to soil, fish and wildlife habitat, and water quality from hazardous material spills
  - Chemical contamination from use of retardant and foam agents

  - Biological contamination to water sources, e.g., whirling disease
  - Safety and noise issues associated with operations in proximity to populated areas, livestock interests, urban interface, and incident camps and staging areas
- Balance aircraft size and efficiency against the impacts of helispot construction.
- Use natural openings as much as possible. If tree felling is necessary, avoid high visitor use locations unless the modifications can be rehabilitated. Fall, buck, and limb only what is necessary to achieve a safe and practical operating space.

Helispot Planning
- When planning for helispots, determine the primary function of each helispot, e.g., crew transport or logistical support.
- Consider using a long-line remote hook in lieu of constructing a helispot.
- Consult resource advisors in the selection and construction of helispots during incident planning.
- Estimate the amount and type of use a helispot will receive and adapt features as needed.

Retardant, Foam, and Water Bucket Use
- Assess risks to sensitive watersheds from chemical retardants and foam. Communicate specific drop zones to air attack and pilots, including areas to be avoided.
- Weigh use of retardant with the probability of success by unsupported ground force. Retardant may be considered for sensitive areas when benefits will exceed the overall impact. This decision must take into account values-at-risk and consequences of expanded fire response and impact on the land.
- Consider biological and/or chemical contamination impacts when transporting water.
- Replace limited water sources expended during aerial suppression efforts. Consult resource advisors prior to extended water use beyond initial attack.

Logistics, Camp Sites, and Personal Conduct
- Consider impacts on present and future visitors.
- Provide portable toilets at areas where crews are staged.
- Good campsites are found, not made. If existing campsites are not available, select campsites not likely to be observed by visitors.
- Select impact-resistant sites such as those with rocky or sandy soil or openings within heavy timber. Avoid camping in meadows and along streams or shores.
- When there is a small group, try to disperse use. In the case of larger camps, concentrate, mitigate, and rehabilitate.

- Lay out camp components carefully from the start. Define cooking, sleeping, latrine, and supply areas.
- Prepare bedding and campfire sites with minimal disturbance to vegetation and ground.
- Follow the following guidelines for personal sanitation:
  - Designate a common area for personnel to wash up. Provide fresh water and biodegradable soap.
  - Do not introduce soap, shampoo, or other chemicals into waterways.
  - Dispose of wastewater at least 200 feet from water sources.
  - Locate toilet sites a minimum of 200 feet from water sources. Dig holes 6 to 8 inches deep.
  - If more than one crew is camped at a site, strongly consider portable toilets and remove waste.
- Store food so that it is away from camp, not accessible to wildlife, and in animal-resistant containers.
- Do not let garbage and food scraps accumulate in camp.
- Monitor travel routes for damage and mitigate by dispersing travel on alternate routes or by concentrating travel on one route and rehabilitating the route when it is no longer being used.
- If a campfire is built, leave no trace of it and avoid using rock rings. Use dead and down wood for the fire and scatter any unused firewood. Do not burn plastics or metal.

Restoration and Rehabilitation

Fire Lines

- After fire spread has stopped and lines are secured, fill in deep and wide fire lines and cup trenches. Obliterate any berms.
- Ensure stumps are cut flush with the ground. Camouflage cut stumps by flush-cutting, chopping, covering, or using FLE to create more natural appearing stumps.
- Scatter any trees or large brush cut during fire line construction to create a natural appearance.
- Discourage the use of newly created fire lines and trails by blocking them with brush, limbs, poles, and logs in a naturally appearing arrangement.
- Use water bars to prevent erosion, or use woody material to act as sediment dams.

TABLE 1. Maximum water bar spacing for erosion control

Maximum Water Bar Spacing	
Percent Grade	Maximum Spacing, Feet
< 9	400

10–15	200
15–25	100
25 +	50

Camps

- Restore campsites to natural conditions.
- Scatter fireplace rocks and charcoal from fires, cover fire ring with soil, and blend the area with natural cover.
- Pack out all garbage.

General Guidelines

- Remove all signs of human activity.
- Restore helicopter landing sites.
- Fill in and cover latrine sites.
- Walk through adjacent undisturbed areas and take a look at your rehabilitation efforts to determine your success at returning the area to as natural a state as possible.

STANDARDS FOR OPERATIONS AND SAFETY

1 Introduction

The foremost guiding principle of *Federal Wildland Fire Management Policy, January 2001* is that firefighter and public safety is the first priority in every fire management activity. All fire management plans and activities must reflect this commitment.

Commitment to and accountability for safety is a joint responsibility of all firefighters, managers, and administrators. Individuals must be responsible for their own performance and accountability. The safety of employees and visitors must be of primary concern during fires. Agency administrators at all levels need to stress that firefighter and public safety always take precedence over property and resource loss.

All firefighters have the right to a safe assignment. All employees have the right to turn down unsafe assignments; they also have the responsibility to identify alternative methods of accomplishing the mission. For more information on proper protocols, refer to the *Incident Response Pocket Guide* (IRPG) (NFES 1077, PMS 461) under "How to Properly Refuse Risk." All personnel are authorized and obligated to exercise emergency authority to stop and prevent unsafe acts.

Primary guidance for operations and safety is contained in the current edition of the *Interagency Standards for Fire and Fire Aviation Operations*. This chapter of *Reference Manual 18* addresses operations and safety topics not included in that guide.

2 Responsibilities

To assist agency administrators and fire program managers to meet their respective fire program and safety responsibilities, the chapter on NPS Program Organization and Responsibilities in the *Interagency Standards for Fire and Fire Aviation Operations* specifically outlines management performance requirements for fire operations and safety. Agency administrators and fire program managers will be held accountable for meeting these requirements in readiness and program reviews.

3 Field Operations

3.1 Personnel Evaluations

Attention to safety factors is critical to the evaluation process. These evaluations must be honest appraisals of performance. The documentation of substandard or unsafe performance is mandatory.

3.2 Investigations

All wildland fire serious accidents and wildland fire non-serious accidents must be investigated. These include accidents involving the following:

- Entrapments
- Fire shelter deployments
- Fatalities
- Injuries leading to inpatient hospitalization of three or more personnel
- Property or equipment damage of $250,000 or more

Definitions of these categories and a description of the investigation process are included in the Reviews and Investigations chapter of the *Interagency Standards for Fire and Fire Aviation Operations*.

Additional information on reporting, conducting, and documenting investigations is included in exhibits 1 through 3, *Director's Order 50B,* and *Reference Manual 50B, Occupational Safety and Health*.

3.3 Safety Management Information System (SMIS)

Safety Management Information Systems (SMIS) is an automated system for reporting accidents involving DOI employees, volunteers, contractors, or visitors to DOI facilities. The application can only be used by authorized DOI employees, supervisors, and safety managers. All NPS accidents and near-miss incidents must be entered into SMIS by the supervisor as soon as possible and never later than six days after the accident or incident. For additional NPS guidance on SMIS, please refer to *Director's Order 50B* and *Reference Manual 50B, Occupational Safety and Health*.

Exhibit 1

United States Department of the Interior

OFFICE OF THE SECRETARY

OFFICE OF SAFETY AND OCCUPATIONAL HEALTH
P.O. BOX 25007 (D-115)
DENVER WEST OFFICE PARK, BLDG. 3, ROOM 256
DENVER, COLORADO 80255-0007

December 1, 1995

SAFETY PROGRAM DIRECTIVE NO. 2

To: Bureau Safety Managers

From: James I. Meredith, Acting Director, Office of Occupational Safety and Health

Subject: Investigation of Serious Wildland Fire-Related Accidents

Recently, Claudia Schechter, the Department of the Interior Designated Agency Safety and Health Official (DASHO) and Wardell Townsend, the Department of Agriculture DASHO, signed a Memorandum of Understanding establishing the basis for interagency investigation of serious fire-related accidents. A copy of the MOU is attached.

This MOU represents an agreement between DOI and USDA to jointly investigate serious wildland fire-related accidents. It includes basic procedures for the establishment of investigation teams, leadership of the teams, and the time frame for submission of the investigation report.

Pending revision of 485 DM 7, Accident/Incident Investigation/Reporting, the following changes are made to that chapter:

- Add to 485 DM, 7.3.F

(6) Serious wildland fire-related accidents will be investigated through the use of interagency investigation teams. The teams will include personnel from both the Department of the Interior and the Department of Agriculture. Representatives of the Department of Labor, Occupational Safety and Health Administration (OSHA), will be invited to participate in these investigations. In the event OSHA chooses to conduct an independent investigation of the accident, they will be given full support to conduct their own investigation. Leadership and conduct of the investigation will be in accordance with the Memorandum of Understanding between DOI and USDA on this issue.

- Add to 485 DM, 7, Appendix 1

E. For serious fire-related accidents, the BOI will include personnel from the Department of Agriculture. Representatives of the Department of Labor Occupational Safety and Health Administration (OSHA) will be invited to participate in these investigations.

Exhibit 1

**MEMORANDUM OF UNDERSTANDING
BETWEEN THE
UNITED STATES DEPARTMENT OF THE INTERIOR
AND THE
UNITED STATES DEPARTMENT OF AGRICULTURE**

I. Purpose

This Memorandum of Understanding establishes the basis for interagency investigation of serious fire-related accidents.

II. Introduction

If the causal factors of a serious fire-related accident are identified, effective corrective actions to prevent a recurrence can be taken. Interagency investigations add perspective and enhance the mix of skills and knowledges on the investigation team. Interagency investigations are especially important where there are common management and corrective action issues.

III. Policy

Interagency investigations will be conducted whenever a serious fire-related accident occurs on a USDA forest Service managed fire, a Department of the Interior managed fire, or a jointly managed fire. Aircraft accidents occurring during wildland fire operations will be investigated by the National Transportation Safety Board, the USDA Forest Service, and the Department of the Interior in accordance with established law and agreements.

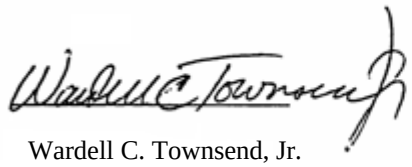
IV. Definitions

a. Serious Fire-Related Accidents – accidents occurring to personnel participating in wildland fire suppression of prescribed burning operations, or to personnel working in direct support of those activities, which result in one or more fatalities or the hospitalization of three or more personnel.

VII. Training and Qualifications

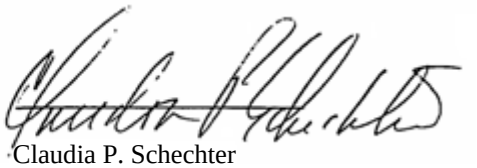
Team Leaders, Investigators, and Specialists will meet minimum training and qualification standards as jointly established by the Department of Agriculture, the Department of the Interior, and the National Wildfire Coordinating Group.

Exhibit 1



Wardell C. Townsend, Jr.
Assistant Secretary
for Administration
Designated Agency
Safety and Health Official
U.S. Department of Agriculture

10/26/95
Date



Claudia P. Schechter
Director of Operations
Designated Agency
Safety and Health Official
U.S. Department of the Interior

10/26/95
Date

Exhibit 2

United States Department of the Interior

NATIONAL PARK SERVICE
1849 C Street, N.W.
Washington, D.C. 20240

IN REPLY REFER TO:

AUGUST 12, 2005

Y14 (9560)

Memorandum

To: National Fire Management Officer, Mike Wallace

From: Designated Agency Safety and Health Official, National Park Service **/s/ Richard Powell**

Subject: Limited Delegation of Authority – Serious Accident Investigations

Pursuant to the interagency agreement and policy for the investigation of serious wildland fire related accidents, I am hereby delegating you, or your designated acting, authority for the following:

National Park Service (NPS) Involvement Only

Upon initial notification of a NPS serious wildland fire related accident where only the NPS is responsible for managing the fire and where the only affected personnel are NPS, you will do the following:

1. Immediately appoint and authorize, through a delegation of authority, a qualified team leader for the Serious Accident Investigation Team (SAIT). The team leader needs to be from outside the region experiencing the accident. This appointment should have the concurrence of the Chief, Division of Risk Management, WASO.
2. Appoint a qualified chief investigator, a qualified accident investigation advisor and at least one interagency representative to serve as core members of the SAIT.
3. Coordinate with the Associate Regional Director (ARD)-Operations for the region experiencing the accident and the Park Superintendent to identify a management liaison for the SAIT.
4. Identify key technical specialists that will be required for the investigation and initiate mobilization.
5. Ensure that an account number is authorized for use, the SAIT is promptly mobilized through the interagency coordination system and that resources are adequate to meet the team's needs.
6. Receive the Factual Report and the Management Report and coordinate report acceptance with the team leader and the Designated Agency Safety and Health Official (DASHO), Richard Powell.

7. Deliver the reports to the Board of Review chair, the ARD-Operations for the region experiencing the accident and participate as a member of the Board of Review.

Multiple Agencies Involved

Upon initial notification of a NPS serious wildland fire related accident where multiple agencies are managing the fire, where the affected personnel are from multiple agencies or where the affected personnel are not from the same agency that is managing the fire, you will do the following:

1. Consult with the fire directors of the involved agencies and determine whether to conduct a co-lead or a single agency lead investigation. In the instance where the involved agencies or personnel are from the Department of the Interior and the Department of Agriculture, the investigation will always be co-lead.
    a. If it is determined to be a co-lead investigation or if it is determined that the NPS will lead the investigation, immediately appoint and authorize, through a delegation of authority, a qualified team leader for the SAIT. The team leader needs to be from outside the region experiencing the accident. This appointment should have the concurrence of the NPS Chief, Division of Risk Management and the other involved fire director(s).
    b. If it is determined that another agency will lead the investigation, promptly provide concurrence or non-concurrence of the proposed team leader and assist with the development of the delegation of authority.
2. Appoint a qualified chief investigator, a qualified accident investigation advisor and interagency representatives in accordance with interagency decisions made regarding the staffing of the SAIT.
3. Coordinate with the ARD-Operations for the region experiencing the accident and the Park Superintendent to identify a management liaison for the SAIT.
4. In consultation with the other involved agencies, identify key technical specialists that will be required for the investigation and initiate mobilization.
5. In concert with the other involved agencies, ensure that account numbers/cost codes are authorized, the SAIT is promptly mobilized and that resources are adequate to meet the team's needs.
6. Receive the Factual Report and the Management Report in coordination with the other involved agencies.
7. Collaborate with the other involved agencies in regard to the Board of Review process. Coordinate with the ARD-Operations (for the region experiencing the accident) in regard to the Board of Review.

All other responsibilities of the bureau DASHO, as outlined in Departmental Manual 485 Chapter 7, will be retained in the Washington Office.

Exhibit 2

cc: Chief, Division of Risk Management, WASO
Chief, Division of Fire and Aviation Management, WASO
Associate Director, Visitor and Resource Protection
Chief of Staff, Visitor and Resource Protection

Exhibit 3

Wildland Fire Fatality and Entrapment
INITIAL REPORT

Complete this report for fire-related entrapment and/or fatalities. Timely reporting of wildland-related entrapments or fatalities is necessary for the rapid dissemination of accurate information to the fire management community. It will also allow fire safety and equipment specialists to quickly respond to these events as appropriate. This initial report does not replace agency reporting or investigative responsibilities, policies, or procedures. Immediately notify the National Interagency Coordination Center (NICC). Submit this written report within 24 hours—**even if some data are missing**—to the address given below.

NICC—National Interagency Fire Center
3833 South Development Ave.
Boise, ID 83705-5354

Phone: 208–387–5400
Fax: 208–387–5414

NICC Intelligence Section
E-mail: nicc_intell@nifc.blm.gov

Submitted by: _____ Position: _____

Agency: _____ Location: _____

Phone: _____ E-mail: _____

1. General Information

- Date of event _____ Time _____
- Number of personnel involved _____
- Number of: Injuries _____ Fatalities _____
- Fire name, location, agency, etc. _____

2. Fatalities

- Type of accident:
  - ❑ Aircraft
  - ❑ Vehicle
  - ❑ Natural (lightning, drowning, etc.)
  - ❑ Smoke
  - ❑ Medical (heart, stroke, heat, etc.)
  - ❑ Entrapment
  - ❑ Struck by falling object
  - ❑ Other
- Where fatality/entrapment occurred:
  - ❑ Fire site
  - ❑ In transit
  - ❑ Incident base
  - ❑ Other

Note: In the event of fatality(s), do not release name(s) until next of kin are notified.

- Employing agency _____
- Unit name _____
- Address _____
- For further information, contact _____
- Home unit address _____
- Phone _____

(Continued)

Exhibit 3

3. Fire-Related Information

- Fuel model _____
- Temperature _____ RH _____ Wind _____ mph
- Topography _____
  _____ Slope _____%
- Fire size at the time of the incident/accident _____ acres
- Incident management type at the time of the incident/ accident (circle one): 1 2 3 4 5
- Urban/wildland intermix? ❑ Yes ❑ No
- Cause of fire: ❑ Natural ❑ Incendiary ❑ Accidental ❑ Unknown

4. Entrapment Information

A situation where personnel are unexpectedly caught in a fire-behavior-related, life-threatening position where escape routes or safety zones are absent, inadequate, or have been compromised. An entrapment may or may not include deployment of a fire shelter. Note: Engine and dozer burnovers also constitute entrapments.

- Brief description of the accident _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Entrapment Description

- Person trapped ❑ With fire shelter ❑ Without fire shelter
- Burns/smoke injuries incurred while in fire shelter .....❑ Yes ❑ No
- Burns/smoke injuries incurred while escaping entrapment .....❑ Yes ❑ No
- Burns/smoke injuries incurred while fighting fire .....❑ Yes ❑ No
- Fire shelter performed satisfactorily.....❑ Yes ❑ No
- Fire shelter was available, but not used ....❑ Yes ❑ No

Personal Protective Equipment Used

Fire shelter..... ❑ Yes ❑ No Gloves .....❑ Yes ❑ No

Protective pants..... ❑ Yes ❑ No Boots .....❑ Yes ❑ No

Protective shirt..... ❑ Yes ❑ No Goggles ...❑ Yes ❑ No

Face/neck protection . ❑ Yes ❑ No Hardhat....❑ Yes ❑ No

FIRE MANAGEMENT PLANS

1 Introduction

Fire Management Plans (FMPs) are required for all parks with burnable vegetation. FMPs summarize elements of law, policy and requirements from higher level park planning efforts, and relate those elements to planned fire management actions.

This chapter contains the standards and procedures for developing and updating FMPs. It also provides the approved FMP outline (see exhibit 1) and the annual FMP review checklist template (see exhibit 2). The main body of this chapter should be used as general guidance in developing and updating the park's fire management plan.

The following sections include; a description of the compliance requirements for FMPs, procedures for plan updates and reviews, and the required outline for NPS fire management plans. Each element within the FMP outline is followed by more specific information, instructions, and examples to help the park understand the expected content.

The NPS fire management plan outline incorporates requirements in the *2002 Interagency Fire Management Plan Template* (July 11, 2002) and contains additions that incorporate National Park Service program emphases and expectations. As revisions to the interagency template are developed and approved, this chapter and associated exhibits will be updated to reflect those changes.

2 Responsibilities

2.1 National Level

In concert with other bureaus, the national office develops the template for the fire management plan and develops policies, guidance, and standards for fire management plan content.

Upon receipt of electronic versions of FMPs and annual updates, the national office will make them available on the NPS intranet.

2.2 Regional Level

The regional office assists parks in the review and approval of fire management plans and associated environmental compliance documents.

2.3 Park Level

Following guidelines for fire management planning and environmental compliance, the park prepares, approves, and annually reviews and updates the fire management plan to ensure consistency with NPS policy, federal wildland fire management policy and federal environmental regulations such as the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Wilderness Act, and the National Historic Preservation Act (NHPA).

3 General FMP Requirements

NPS *Management Policies 2006*, section 4.5 states the following: “Parks with vegetation capable of burning will prepare a fire management plan that is consistent with federal law and departmental fire management policies, and that includes addressing the need for adequate funding and staffing to support the planned fire management program.” *Director’s Order 18*, section 4.1 and 5.1.H reiterates the requirements contained in *Management Policies*,

The park’s fire management plan tiers to the park’s existing planning documents, such as the General Management Plan (GMP) and Resource Stewardship Strategy (RSS). The FMP is a document based on professional fire management expertise, and specific knowledge of park resources, local weather patterns, visitor use patterns, and fire history and ecology. The FMP lays out how fire management strategies and tactics will protect values-at-risk and provide the necessary tools to meet resource and park management goals and objectives. The development of FMPs should be coordinated with neighboring land management agencies and adjoining land owners. The plan should be communicated to the public and park constituent groups in a systematic, coordinated effort.

The FMP is approved when signed by the superintendent. The superintendent is responsible for assuring policy and regulatory compliance as well as the technical and operational soundness of a fire management plan prior to approval. The superintendent should consult with park and regional fire program managers in the development, review, and revision of the FMP.

FMPs are written to be understood and implemented by the park staff and cooperators. FMPs need to include applicable references to policy and provide operational direction.

Elements of the FMP that provide guidance for operational activities must be readily accessible and easily understood by end users. To the extent practicable,

these documents should be placed in the appendix, as described in the FMP outline.

An electronic version of the final approved FMP and related compliance document will be submitted to both the regional fire management officer and to the NPS Fire Director at the Fire Management Program Center (FMPC) in Boise.

As FMP reviews are completed, documentation of these efforts and all FMP amendments will be submitted to these offices as electronic appendices to the FMP. Electronic documents will be delivered to the FMPC in the current standard format on a secure and long-life medium (e.g., in Microsoft Office Word format on a DVD) or via an electronic transfer mechanism (e.g., FTP site) following NPS Information Technology procedures.

The FMP and related environmental compliance documentation are public documents and may be posted in the Management Documents web page on the park's public website. Parks should take care to control the exposure of sensitive data or information to improper disclosure.

4 Relationship of the FMP to Environmental Compliance

Within the NPS, fire management plans are considered implementation plans and therefore must be fully compliant with NEPA requirements. The National Park Service implements the NEPA process via *Director's Order 12, Conservation Planning, Environmental Impact Analysis, and Decision Making*, and the Handbook for Environmental Impact Analysis. Fire personnel are considered the project proponent(s), and will develop a statement of "purpose and need" explaining why and how the FMP is necessary. The park unit NEPA coordinator will assist fire personnel with the NEPA process and analysis. The NEPA document—Categorical Exclusion (CE), Environmental Assessment (EA), or Environmental Impact Statement (EIS)—will be completed and signed before the FMP is finalized and signed.

Appendix D of the FMP will include the NEPA decision document (the documented CE, the Finding of No Significant Impact [FONSI], or the Record of Decision [ROD]). The NEPA decision document includes binding agreements and mitigation measures required to implement the fire management program.

Fire managers must utilize the NEPA planning process to determine management actions allowed in the NPS unit's comprehensive fire program. Programmatic compliance provides supportive analysis of the selected fire management actions incorporated into the decision document (documented CE, FONSI, or ROD) for the fire management plan. Projects (such as fuels projects)

discussed in both the FMP and the decision document are covered under the programmatic compliance.

The FMP, the NEPA analysis, and the resulting documents (documented CE, or EA and FONSI, or EIS and ROD) do not expire. If the following changes occur, then the existing NEPA document must be reanalyzed:

- The proposal differs from what is described in the NEPA document.
- There are changes in the affected environment (e.g., new listed threatened or endangered species, or new listing of a resource in the National Register of Historic Places).
- There are changes in impacts to environmental resources.

Policy, program goals, proposed actions, and/or resource conditions can change over time. Existing NEPA compliance may become less relevant as the program evolves, requiring periodic revisions. New proposed fire management actions or projects, new or revised programmatic goals, changing environmental or social conditions, or new regulatory requirements may trigger the need for new or additional environmental compliance and must be evaluated as part of the annual FMP update and five-year FMP review.

5 Annual FMP Update and Five-Year FMP Review

Annual updates and five-year comprehensive FMP reviews are required for all parks that have an FMP. The purposes of the updates and reviews are to:

- Evaluate and validate that planned actions (e.g., fuels projects) are within the scope of actions covered under the existing environmental compliance decision document.
    - New projects will be evaluated (using an appropriate Environmental Screening Form or similar process) to determine if they continue to meet the scope of the programmatic compliance prior to implementation. New projects that are determined to fall outside the scope of the existing compliance must be evaluated through additional site-specific NEPA analysis.
- Assess annual program results and outcomes to determine whether effects of actions are within the expected range covered under the programmatic environmental compliance document.
- Update policy and terminology references.
- Revisit planning assumptions and synchronize with other park planning efforts (e.g., GMP or RSS revisions and direction).

5.1 Annual FMP Update Requirements

The annual fire management plan update is intended to keep the document current with policy and to ensure the fire management program includes a process of adaptive management to incorporate new knowledge, modernization, and the best available science. A key example of adaptive management is the interpretation of fire effects monitoring results (see section 3 of *RM* 18, Fire Ecology and Monitoring chapter) and application of lessons learned through the monitoring program. When initiating the annual FMP update, be sure to utilize and document monitoring results supporting disclosures of program success and decisions regarding program adjustments. An annual update of the fire management plan is essential to ensure that the document continues to conform to current laws, objectives, procedures, strategies, and terminology. The use of an Environmental Screening Form is highly recommended to document the factors considered during the annual update. For more information on the proper use of the Environmental Screening Form, see the NPS *DO 12 Handbook*, section 2.6, Internal Scoping, subsection B.

Critical annual updates to the fire management plan should include renewal of cooperative agreements, updates of contact names and numbers used during emergency responses, current delegations of authority, and updates for any policy changes. Updates and modifications to the multi-year fuels treatment plan may or may not be made annually, but the plan should be reviewed during the annual update to ensure that project prioritization and proposed implementation schedules are current and consistent with environmental compliance requirements. Public reaction to smoke, for example, may cause a revision in implementation schedules.

Timing of the annual fire management plan update is the responsibility of the park and should be planned so that the program will be ready for the upcoming fire season. For example, an annual fire management plan update may be initiated when park fire programs prioritize and select the upcoming fuels management projects to be implemented.

If a regional standard exists for documenting annual updates, NPS units will utilize the appropriate regional annual update process and checklist to document completion of the annual update to the FMP. Where no regional update checklist or process has been established, the park should adapt the list found in exhibit 2. The documentation packet will at a minimum contain the annual update checklist, and depending upon the complexity of the update, other documents such as an Environmental Screening Form may be included.

The annual update documentation packet must have a signature page signed and dated by the superintendent. The annual plan updates will be incorporated

into copies of the park's fire management plan, with records kept in the park files. Copies of the signed annual update documentation packet (with an updated plan) will also be sent to the servicing regional office and the FMPC in Boise.

5.2 Five Year Comprehensive FMP Review Requirements

Although five-year comprehensive reviews have purposes similar to the annual update process, the five-year review includes a more intensive interdisciplinary approach to evaluating the fire management plan and program. The comprehensive review should include a broader consideration of new park planning direction, changing environmental or social conditions (for example, increasing wildland urban interface or global climate change effects), new science, and adaptive feedback from fire effects monitoring programs.

The end result is a determination of whether a major FMP plan revision and/or new environmental compliance process needs to be initiated.

A five-year review of the fire management plan does not automatically initiate new planning requirements. If no new planning requirements are indicated by the review, the results are documented. Documentation of the five-year FMP review is similar in scope to that required for the annual review, that is, development of the appropriate regional documentation packet, signed by the superintendent.

If the results of the review indicate that significant changes in proposed actions are anticipated, expected effects are not occurring, or changes in park direction have occurred (for example, a new decision that a park should now include wildland fire use in their fire management program), a new fire management plan and compliance document may be required.

Exhibit 1

OUTLINE FOR FIRE MANAGEMENT PLANS

TABLE OF CONTENTS

LIST OF FIGURES

In this area, list the figures that the park includes in the FMP to support the text.

Certain maps (listed below) are required to be within or appended to the FMP. Other maps are recommended,

Required and Recommended Maps

The following table shows required and recommended maps for parks with different fire program complexities. These maps may be included in the body of the FMP or in the appendices. For easy reference, all maps should be listed in the "List of Figures" in the FMP Table of Contents.

Maps should be updated as needed as part of the annual FMP update process.

MAP NAME	Parks with suppression only program	Parks with suppression and fuel treatment program	Parks with suppression, fuel treatment, and WFU program
o Vicinity map with boundaries, adjacent ownership and roads	Required	Required	Required
o Fire management units	Required	Required	Required
o Planned fuel treatment locations (from 5 year plan)	NA	Required	Required
o Areas allowing WFU	NA	NA	Required
o Values to be protected	Recommended	Recommended	Recommended
o Vegetation	Recommended	Recommended	Recommended
o Fuels	Optional	Recommended	Recommended
o Land status including wilderness and natural research areas	Recommended	Recommended	Recommended
o Completed fuel treatments (all years)	NA	Recommended	Recommended

Many other maps may be useful and are recommended if they will help clarify the plan. These may include but are not limited to maps such as:

- Fire Return Interval Departure
- Fire Regime Condition Class

- Hazards to firefighters
- Aviation related maps such as helispots and aviation hazards
- Water sources
- Weather station (RAWS) locations
- Fire history maps

For parks that do not already have vegetation, fuels, and fire regime maps, these layers are, or will soon will be available for the entire country through LANDFIRE. Contact your regional Fire GIS contact or go to the LANDFIRE website for more information.

LIST OF TABLES

I. INTRODUCTION

A. State the reasons for developing this plan, including the requirement that all areas with vegetation capable of sustaining fire will develop a Fire Management Plan (quote or reference *DO 18* language).

B. Summarize the collaborative processes used to develop the underlying land management plan direction and the fire management plan, as well as additional collaborative opportunities that are available as the fire management plan is implemented.

C. State that: “The plan will also implement fire management policies and help achieve resource management and fire management goals as defined in:

1. *Federal Wildland Fire Management Policy and Program Review (2001)*.

2. *Managing Impacts of Wildfires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems – A Cohesive Strategy (USDOI/USDA*).

3. *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy Implementation Plan*.

D. State that the plan meets the requirements of the National Environmental Policy Act (NEPA), Section 7 of the Endangered Species Act (ESA), and Section 106 of the National Historical Preservation Act (NHPA) requirements. Provide a brief description of the compliance process taken to meet the above requirements.

Reference the supporting compliance documents such as the companion Environmental Assessment, Environmental Impact Statement, or Categorical Exclusion. Reference the decision document for the compliance document and included it an appendix to the plan.

E. Cite legal authorities for implementing this plan (See *RM 18*, Introduction chapter, section 5 for list of authorities).

II. RELATIONSHIP TO POLICY AND LAND MANAGEMENT PLANNING

This section is intended to link NPS and National Fire Policy to the fire management plan.

It should also summarize in broad programmatic terms the direction for managing fire on the landscape found in the park's land and resource management planning documents, including the General Management Plan and Natural and Cultural Resource Management Plan (or Resource Stewardship Strategy). Include the goals, objectives, and desired future condition described in those higher level planning documents as they pertain to fire management activities. These considerations will be reflected in the fire management plan.

A. Reference the current version of NPS *Management Policies* concerning fire management. Include relevant statements such as: "the presence or absence of natural fires within a given ecosystem is recognized as a potent factor...."

B. Relate the fire management plan to the enabling legislation and the purpose of this NPS unit.
   1. Briefly explain why the unit was established.
   2. Briefly summarize the significant resources and values of the unit.

C. Describe the park-wide strategic desired conditions (examples: “restore and maintain natural ecosystems” or “maintain the cultural landscape”), and state the goals and objectives contained in the park's General Management Plan (GMP)or similar foundational planning document as they pertain to fire management.

D. State the objectives of the park’s Cultural and Natural Resource Management Plan (or Resource Stewardship Strategy) as they pertain to fire management.

E. State that the Fire Management Plan will help meet the objectives of the GMP and Resource Management Plan by translating those objectives

into specific fire management programs and actions designed to achieve the objectives.

III. WILDLAND FIRE MANAGEMENT STRATEGIES

A. General Management Considerations

Briefly describe in general how wildland fire will be managed, and identify any area-wide considerations, such as interagency partnerships, regional strategies, collaborators and collaborative processes to be incorporated in fire management strategies. The core principles of the 10-Year Comprehensive Strategy, including collaboration, priority setting, and accountability, should be considered.

B. Wildland Fire Management Goals

Develop and list the wildland fire management goals. These goals provide the programmatic direction for the wildland fire program. The goals should be stated within the context of the approved land and resource management plan direction. Goals should be found in the General Management Plan, or Cultural Management and Resource Stewardship documents. This section describes how the Fire Management Plan will safely and effectively contribute to achieving the goals in the approved land and resource management plan.

List the unit's fire management goals. These goals should be programmatic in nature, such as:

- (Example only): "Firefighter safety is the highest priority of every fire management activity."

- (Example only): "Suppress all unwanted and undesirable wildland fires regardless of ignition source to protect the public, private property, natural, cultural and historic resources of the unit."

- (Example only): "Use wildland and prescribed fire where and when appropriate as a tool to meet resource objectives within the unit."

See *Director's Order 18*, section 5.1.1-17 for other potential goals.

Discuss how these goals contribute to accomplishing regional or national strategic plans such as the 10-Year Comprehensive Strategy, and National Park Service Strategic Plan, as well as federal wildland fire policy. Fire program goals reflect federal fire policy, the core principles and goals of the

Comprehensive Strategy, and Cohesive Strategy where supported by land and resource management plans.

C. Wildland Fire Management Options

This section displays the scope of wildland fire management program elements that will be implemented within the administrative unit and further developed through the fire management plan. It should include a brief and defensible rationale for all wildland fire management components that are to be implemented.

Discuss the range of wildland fire management options to be applied, and how they relate to land and resource plan direction.

- Wildland Fire Suppression
- Prescribed Fire
- Wildland Fire Use
- Non-Fire Applications

D. NPS Unit Description of General Physical and Biotic Characteristics

1. Briefly discuss those physical and biotic characteristics of the administrative unit (vegetation, soil, aquatic resources, air, wildlife, cultural and historical resources, T&E species, and real property) sensitive to fire management operations within the NPS unit.

2. Briefly discuss the historic role of fire in the NPS unit (Reference more in-depth discussion to other documents). Discuss fire ecology and fire history of the park ecosystem. (Reference more in-depth discussion to other documents)

E. Description of Wildland Fire Management Strategies by Fire Management Unit

Identification of Fire Management Units (FMUs) is the cornerstone for planning the management of the wildland fire program. This section must tie directly to the decisions made in the land and resource management planning process by management area, aggregated into FMUs.

A Fire Management Unit is any land management area definable by objectives, management constraints, topographic features, access, values-to-be-protected, political boundaries, fuel types, or major fire regime groups, etc., that sets it apart from management characteristics of an adjacent unit. The development of FMUs should avoid redundancy. Each FMU should be

unique as evidenced by management strategies, objectives, and attributes. Management goals and objectives found in land and resource management planning are factors to be considered in developing strategies. FMUs may have dominant management objectives, such as wildland urban interface protection issues, and pre-selected strategies assigned to accomplish these objectives. The number of FMUs should be kept to the minimum.

1. FMU Identifier. Delineate FMUs on a map. Include or cite data source, format, and location for use in WFIP and/or WFSA development or other future management needs. The data characteristics list can be included in the Appendix. Whenever possible, FMUs should be generated and/or stored as GIS compatible data and be appropriately documented to NPS metadata standards. Park units without local GIS capability should draw upon regional resources.

    a. Briefly discuss those physical and biotic characteristics of the administrative unit (vegetation, soil, aquatic resources, air, wildlife, cultural and historical resources, T&E species, and real property) sensitive to fire management operations within the FMU. For more in-depth discussions of physical and biotic characteristics, reference the appropriate FMP compliance document, Resource Stewardship (or similar document), or include the information as an FMP appendix. Overlay locations of the characteristics discussed with FMU data in GIS generated maps – being aware of the need to protect disclosure of sensitive sites.

    b. Describe strategic and measurable fire management objectives that are specific to FMU. Identify and map locations associated with these objectives, when possible.

        - (Example only): Within Lost FMU 95 percent or higher of all unplanned and unwanted wildland fires are controlled during initial attack (48 hours or 100 acres).

        - (Example only): WUI FMU fuels modification objective is that 5 percent of high priority condition class 3 acres are moved to a better condition within 2 years.

        - (Example only): For Border FMU 100 percent of all prescribed burns are conducted in conjunction with XYZ Forest.

    c. Implementation.

Discuss constraints or decision criteria that will influence fire management activities within the FMU. These may include, but are not limited to, the following examples:

- (Example only): Prescribed burn projects in Smokey FMU must not impact air quality non-attainment areas outside the SE corner of the park.

- (Example only): Fire management actions within Cliff FMU cannot impact cultural resources in Dark Canyon.

- (Example only): Any proposed prescribed burn projects within High FMU must be coordinated with the High Valley Fire Department.

d. Briefly discuss the historic role of fire as it pertains to a FMU. Discuss fire ecology and fire history pertinent to a FMU. Include a description of the FMU's natural fire regime, suppression history and other land use activities that have affected fire management.

e. If a FMU contains fire dependent ecosystems and suppression tactics are the only management option, and where those areas have no proposed fuels treatments, describe the rationale for that strategy.

f. Briefly discuss the specifics of the wildland fire management situation for the FMU, including, but not limited to:

1) Historical weather analysis. If appropriate: discuss specific weather conditions based on historical analysis or observations, occurring in the FMU that might impact fire management operations differently than the park unit in general.

- (Example only): Within Lava FMU predicted east wind events will have significant impacts on fire behavior in the vicinity of Lava Canyon.

- (Example only): Within Mount Baldy FMU cold front passages occurring from the northwest will create strong downslope winds in the vicinity of Tolman Ridge.

2) Fire season. Discuss specific fire season anomalies, if any, associated with this FMU.

- (Example only): Due to the high elevation of Craig FMU fire season generally starts in late July two weeks after disappearance of the snowpack, rather then a mid-June start for the rest of the park.

- (Example only): Due to the general southwest aspect of Stone FMU fire season begins in early May not the end of June as the rest of the park experiences.

- (Example only): Fire season in Dry FMU on the eastside of the Continental Divide generally occurs in late April, not the late June start experienced for the rest of the park.

3) Fuel characteristics in relation to fire behavior; discuss any FMU specific changes in fuel characteristics during fire season due to drying, phenology, etc. that would impact fire management operations planning and implementation.

   - (Example only): Due to the high elevation, frost kill can occur in Mink FMU any time after mid-August after which time brush can be considered an available fuel.

   - (Example only): In a normal year, lodgepole pine stands in Foxtail FMU greater then 30 years old and having more then 500 stems per acre are prone to extreme fire behavior starting in late-August continuing through the end of fire season, generally this is two weeks earlier then experienced for similar stands in the rest of the park. (See map of stands in Appendix C)

   - (Example only); Historically, if an ignition occurs, jack pine stands in Highway FMU can exhibit extreme fire behavior after 6 continuous days of 90 degree “plus” Fahrenheit temperatures and daily relative humidity falls below 8 percent at 1400. (See map of Jack Pine Stands in Appendix F)

4) Fire Regime. If the park has information on FMU fire regime and/or condition class available, it can be included in this section. Nation-wide fire regime information, including mean fire return interval and fire regime condition class is, or soon will be, available through the LANDFIRE Program. See Chapter 20, Exhibit 10 for more information. If the unit presents this information, include a qualitative analysis of that information and

add relevant maps to the appendix.

5) Control problems and dominant topographic features. Briefly discuss control problems and dominant topographic features that affect suppression efforts in this FMU.

   - (Example only): Mt. Baldy FMU contains dense stands of beetle-killed mixed conifers positioned on steep south facing slopes. Access to this area is by foot making initial response suppression actions difficult. (See map of affected stands in Appendix H)

   - (Example only): The presence of Deep Creek and Lost Creek limit access to the interior of Sky FMU to helicopter ferrying or six mile hike-ins for crews. (see Map #6 in Appendix D)

   - (Example only): The north/south orientation of Hogback ridge effectively bi-sects access to the High Lakes FMU as either walk-ins from the west (4 miles – Trail 8A) or walk-ins from the east (2 miles – Trail 12A). (See Sky FMU Map #3 in Appendix E)

6) Briefly describe other elements of the fire environment affecting management in a FMU. Describe values to be protected, managed, or at risk; such as wildland urban interface considerations, adjacent landowners and agencies, Class I airsheds, etc. This description should be brief and focused on park characteristics that relate directly to fire management. Reference more extensive descriptions of the unit's natural environment that exist in other documents.

   - (Example only): Backcountry Lodge near Lost Lake in the SE corner of Lost Lake FMU must be protected from wildland fire (see map 12 in Appendix R).

   - (Example only): In-holdings (Sections 12 and 13) in Lava FMU must be protected from wildfire (see Lava FMU map 8, Appendix C).

   - (Example only): Best View Estates adjacent to the west side of Big FMU need to be protected from wildland fire. Contact Big View Home Owner’s Association prior to or as soon as

possible before initiating wildland fire operations (for contacts see Appendix D).

IV. WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

A. Firefighter and Public Safety

1. All actions defined in the Fire Management Plan will conform to safety policies defined in agency and departmental policy, including, but not limited to:

   a. *Interagency Standards for Fire and Fire Aviation Operations* (NFES 2724).

   b. *NPS Director's Order 18*.

   c. *NPS Reference Manual 18*, Standards for Operations and Safety chapter.

2. The FMP must state that firefighter and public safety is our first priority, using the following statement:

   "Firefighter and public safety is our first priority. This Fire Management Plan and activities defined within reflect this commitment. The commitment to and accountability for safety is a joint responsibility of all firefighters, managers, and administrators. Individuals must be responsible for their own performance and accountability. Every supervisor, employee, and volunteer is responsible for following safe work practices and procedures, as well as identifying and reporting unsafe conditions. All firefighters, fireline supervisors, fire managers, and agency administrators have the responsibility to ensure compliance with established safe firefighting practices."

B. Air Quality and Smoke Management

1. Describe pertinent air quality issues.

2. Develop a program of action to manage smoke that complies with the requirements of the Clean Air Act and any additional issues identified through the NEPA process. Include all potential measures and techniques to prevent or mitigate adverse smoke events. A detailed smoke management plan may be developed cooperatively with the state regulatory agency responsible for regulatory air quality management for

each park and include in the appendix to the FMP or as an addendum. Describe any pertinent air quality issues, including:

a. Location of Class I airsheds.

b. Description of pre-identified smoke sensitive areas.

c. Local and regional smoke management restrictions and procedures.

C. General Implementation Procedures

Each Fire Management Plan is comprised of the following wildland fire management components that define the wildland fire program. Each of these components should be addressed in detail as it relates to the wildland fire management program (described in Section III). They should be addressed as needed either in this section, or a reference should be cited as to where this type of information can be found.

Implementation of wildland fire management components must be consistent with fire management capabilities and should consider the current and predicted conditions affecting fire behavior. *Preplanned decisions* based on historical fire behavior indices should be considered to most efficiently aid in decisions requiring appropriate management response, such as the Wildland Fire Implementation Plan (WFIP) *Stage I* analyses.

Fire managers will use these strategies for expediting the decision-making process when determining whether to respond to a new ignition using a suppression-oriented response, or as a wildland fire to be managed for resource benefit.

D. Wildland Fire Suppression

Describe the following elements related to wildland fire suppression as appropriate.

1. Describe the range of potential fire behavior.

2. Preparedness Actions.

a. Describe fire prevention activities, community education, community risk assessment, and other community assistance activities. Explain briefly the overall wildland fire prevention and community education and assistance programs for the Park (see

NPS *Reference Manual 18* chapters on Wildland Fire Prevention and Communication and Education for guidance).

b. Identify annual training activities needed by fire staff (e.g. annual safety refresher, qualifications and needs assessments, etc.).

c. Describe the work needed annually to ensure the fire readiness of equipment and supplies.

d. Fire weather and fire danger.

- Weather stations

Provide weather station catalog information and the fuel model used for identifying thresholds. Briefly explain how each station's catalog was developed. Weather station catalog information can be included in the appendix.

- NFDRS

Select an index or indices for trend monitoring. Identify the means, extremes, and percentiles for the index or indices for comparison. Describe weather and National Fire Danger Rating System (NFDRS) thresholds for the full range of fire management activities as they relate to historical large fire occurrence. Describe the thresholds determined from sources such as Palmer Drought Indices, METAFIRE, KBDI, ERC, BI, FIRES, or preparedness levels.

Fire danger thresholds are a key element, as they drive almost all fire management actions on the ground. Discuss the process for developing thresholds used for prevention, initial response, large fire actions, and prescribed fire activities. Include any charts used in the decision-making process. Explain the process for communicating fire danger information to field personnel.

e. Describe step-up staffing plan.

- Describe each preparedness level based on staffing classes substantiated by NFDRS indexes.

- Describe all actions planned and authorized at each level (includes discussions of preparedness, prevention, detection, information and education).

- For actions taken at each preparedness level, identify and describe the funding source and authority used to implement the actions.

3. Explain the Preparedness Plan.

   State that the Preparedness Plan is a comprehensive set of documents that provide management direction for wildland fire operations, including initial response and incident management activities. These actions are based on the goals, objectives, and wildland fire management strategies identified in the Fire Management Plan, as well as established local level procedures for wildland fire operations. Actions for initial response and incident management may be based on factors such as the time of year, burning conditions, resource commitment and fire activity. State that the Preparedness Plan will be reviewed annually and is included in the appendix.

   The NPS requires the following elements in the Preparedness Plan:

   - Initial Response, Dispatch, and Notification Plan
   - Strategic fire size-up procedures
   - List of park personnel available to assist with wildland and prescribed fires, including fire qualification
   - Annual Delegation of Authority from the Superintendent
   - Job Hazard Analyses for fire and fire aviation activities
   - Identified location of the current copy of the *Agency Administrator's Guide to Critical Incident Management* (NFES 1356)
   - Identified location of current fire cache inventory
   - Structure protection inventory and needs
   - Identified location of procedures for park evacuation and closure

- Minimum impact tactics guidelines that are used in the park, and where needed, wilderness (minimum tool) considerations

4. Initial Attack.

   Initial attack is an aggressive suppression action consistent with firefighter and public safety and values to be protected. This strategy is applied as either the only available response, when fire management plans have not been completed, or as the result of WFIP Stage I analysis under the appropriate management response process.

   a. Information used to set initial attack priorities.

      List of information sources for setting suppression priorities: wildland-urban interface, timber type and vegetation maps, wildlife habitat, archaeological sites, fuel maps, smoke/air quality impact models, sensitive natural resources (e.g., riparian areas). Include preplanned dispatch strategies.

   b. Criteria for the appropriate initial attack response consistent with GMP/RMP objectives.

      Determine and document the criteria that should be used to define the intensity of response warranted based on the risk, ambient conditions, other fire activity, and the expected effects on resources.

   c. Confinement as an initial attack suppression strategy.

      State that a confinement strategy may be implemented as the initial attack action as long as it is not used to meet resource management objectives. Confinement may be selected to maximize firefighter safety, minimize suppression costs, and to maximize availability of critical suppression and management resources during periods of high fire danger or fire activity in highly valued resource areas.

      State that confinement can also be a selection through the Wildland Fire Situation Analysis (WFSA) process when the fire is expected to exceed initial attack or available management capability. When confinement is selected as the initial action, a long-term plan is needed to guide the implementation of the

confinement strategy. The plan is approved and periodically reviewed and reauthorized by the superintendent or designee.

d. Typical fire response times on unit by resource type and time of year of fire danger.

e. Restrictions and special concerns by management area.

Summarize restrictions on equipment use, aircraft use, use and location of chemical fire retardant, tracked equipment, plows, and fireline explosives. List who may give restricted use exemptions (generally the superintendent or designee).

f. Include such issues as tribal relationships, local government issues, the hiring of local people, recycling, local issues in implementing firefighter R&R, etc.

5. Extended Attack and Large Fire Suppression.

a. Implementation plan requirements - WFSA development to determine extended attack needs. Describe who on the park staff will be involved in the development and review of this document (may include fire staff, resource staff, wilderness managers, concession specialists, rangers, etc.).

b. Complexity decision process for incident management transition - Define criteria for the need to transition from initial attack to extended attack, and from extended attack to Type I or Type II incident management.

c. Delegation of Authority for Incident Commander (in FMP appendix) - An example can be found in *Interagency Standards for Fire and Fire Aviation Operations*, Appendix H. Include a section on communication responsibilities or agreements between the park and the team, such as the role of the superintendent or media affairs office in speaking about the activity of the fire.

6. State the requirement for minimum impact suppression tactics as the policy for all fire management activities on NPS lands. Describe specific minimum impact suppression guidelines for this NPS unit (summarize here and include full guidelines and details in appendix).

7. Describe short and long-term rehabilitation guidelines and procedures (include details in appendix or addendum; this will facilitate the development of rehabilitation plans for future fires by establishing a basic protocol and standards).

8. Detail the completion and tracking of records and reports. Include a list of required reporting and the title of the position responsible for their completion. GPS/GIS data should be the norm for recording location data, whenever practical.

E. Wildland Fire Use

Wildland fire use must be based soundly on management objectives (public and firefighter safety, cultural and natural resource objectives, etc.) and may include the full range of fire management strategies on a fire's entire perimeter. State that a Wildland Fire Implementation Plan (WFIP) will be initiated for all wildland fires occurring in Fire Management Units designated for wildland fire use. Determine who will be responsible for completing the Stage I: Initial Fire Assessment that provides the decision framework for selecting the appropriate management response. Operational management decisions are described in the WFIP. Specific WFIP requirements are outlined the Wildland Fire Use Implementation Procedures Reference Guide, hereafter referred to as the Implementation Guide.

The Stage I: Initial Fire Assessment includes the Strategic Fire Size-Up, Decision Criteria Checklist, Management Actions, and Periodic Fire Assessment. In FMU development, programmatic decision criteria should be listed in support of FMU fire management strategies (Section III). The decision criteria used in Stage I implementation should be based upon the criteria used in FMU development. The Stage I analysis documents the current and predicted situation, documents 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.

1. Describe the objectives of wildland fire use and how they relate to land and resource management direction. Include discussion on collaborative planning, decision making, and implementation processes.

2. Describe the wildland fire relative risk assessment process (Implementation Guide) and any area-specific environmental parameters will be used to make informed management decisions for wildland fire use. If applicable, include specific criteria that would be used to make a decision on wildland fire use during the WFIP process such as time of year, position of ignition within the FMU, ERC/BI index, etc. Define the

park's weather monitoring capability and network, including applicable cooperators (list all NPS and other organization weather stations, locations, applicable fuel models, etc.) that will be used in decision-making.

3. Describe all pre-planned wildland fire use implementation procedures. Include all annual pre-season and fire season activities necessary to prepare for, and implement, the wildland fire use program, such as interagency agreements, permits, compilation of weather/severity data, training needs, etc. Where possible, clearly identify all pre-planned actions (see Decision Criteria checklist, Short-term Implementation Actions, Implementation Guide, Chapter 4, Section C-2) and physically display pre-planned Maximum Manageable Areas (MMAs) at the FMU planning-level scale. Information about useful data for helping to manage wildland fire use incidents is included in the Wildland Fire Use Implementation Procedures Reference Guide, Appendix B.

4. Provide a general description for all wildland fire use implementation procedures that are not pre-planned.

    a. Include procedures for periodic assessment of wildland fire use applications (see Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide).

    b. Include outlines and requirements for the preparation of wildland fire implementation plans, other project level plans, and documentation (e.g. Wildland Fire Implementation Plan, Wildland Fire Situation Analysis) (see Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide).

5. Identify the staff positions that must be present to implement and manage the wildland fire use program. Identify the staff positions responsible for initiating and implementing steps in the decision process necessary to support the appropriate management response. Identify key resource draw down levels that will preclude wildland fire use implementation. State the relationship of wildland fire use implementation to the park's step-up staffing plan.

6. Include provisions for public information and interpretation of the wildland fire use program. Develop a list of key agency, interagency, state and congressional delegation contacts for inclusion in each WFIP at the Stage III level. See *RM 18*, Communication and Education chapter for additional guidance.

7. Develop a standard outline of contents for a permanent project record for each wildland fire use application. Include as a minimum:

    a. Approved planning document that guided management actions (e.g. Wildland Fire Implementation Plan). Include all amendments and revisions.

    b. Monitoring reports and summaries of findings, along with a summary of all monitoring activities including a monitoring schedule (level 1 and 2 monitoring).

    c. Revalidation and certification documents.

    d. Funding codes and cost accounting.

    e. Project maps. Permanently map and archive all fires greater than 10 acres, using GIS whenever possible. Park units without local access to GIS should draw upon regional resources. See *RM 18* Information and Technology Management chapter for more information about GIS and data standards.

    f. Other information as appropriate for the situation, such as photo points.

    g. Explain the funding/fiscal tracking of costs associated with wildland fire.

F. Fuels Management

1. Fuels Planning and Documentation

Multi-year fuels treatment plans are required elements of National Park Service Fire Management Plans. As part of the Fire Management Plan, the park must document the staff positions involved in developing and updating the multi-year fuels treatment plan, explain the decision process used to identify candidate projects, and describe the rationale and criteria used for project prioritization.

State that the fuels management program will implement fire management policies and help achieve resource management and fire management goals as defined in: (1) Federal Wildland Fire Management Policy and Program Review; (2) Managing Impacts of Wildfires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems – A Cohesive Strategy (USDOI/USDA); and (3) *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy Implementation Plan*. The multi-year plans themselves are included as an Appendix to the Fire Management Plan.

a. Identify Participants.
Identify by title or position the key members of the interdisciplinary group that will be involved in developing and updating the fuels treatment program.

Example:
- FMO
- Fuels Specialist
- Natural Resource Specialist
- GIS/Data Coordinator

b. Identify Candidate Projects.
Each park should develop and articulate the decision process and assumptions they use to identify candidate fuels projects including why the fuels project locations were identified. They should also include a brief description of associated analysis and the collaborative processes used to identify candidate project areas. Depending on the unique park characteristics and fuels program goals, the decision process and analysis tools may be quite simple – or in the case of large complex terrain with multiple fuels goals – the process might be more involved and include more sophisticated analysis tools.

A clear description of the process is critical to developing agreement among the interdisciplinary planning team. Clearly articulating the

process also provides transparency and understanding among the larger range of partners and stakeholders.

Examples of decision processes/analysis:

- Evaluate hazard, risk, and values using GIS
- Evaluate areas showing departure from the desired fire regime
- Identify areas requiring periodic maintenance to meet management objectives

c. Describe Project Prioritization Criteria.
Once candidate projects are identified, projects must be prioritized. Often there will be more fuels projects identified than can be accomplished in any one year (or even within a five-year plan). The plan should describe how the park prioritizes projects for implementation, including how the collaboration process is used to prioritize projects in the park.

Examples of Prioritization Criteria:

- Extent of departure from natural process
- Degree of hazard
- Proximity to values at risk
- Logical project sequence (e.g. there may be a logical sequence to implementing linked or adjacent projects that suggests a priority)
- Maintenance cycle

d. Updating the Fuels Treatment Plan.
The multi-year fuels treatment plan should be reviewed annually and can be updated to include new projects and to drop or revise previously proposed projects. The updates should become part of the annual update to the Fire Management Plan and will require approval by the superintendent assuring that any changes in your treatment plan are within the authority of existing compliance documents.

The NPS Environmental Screening Form is recommended as a document to guide the review of current and proposed projects to ensure that they are within the scope of existing compliance. Projects that fall outside existing compliance may require completion of new compliance processes.

Consult with *Director's Order 12* and your environmental compliance specialist to determine the options available to you.

2. General Fuels Management Implementation Procedures

    a. Describe annual activities to prepare for and implement the program (do not include copies of specific prescribed fire unit burn plans or non-fire treatment plans).

    b. State that the activities proposed in the Fire Management Plan will be planned and implemented in accordance with *Reference Manual 18,* Fuels Management chapter and the *Interagency Standards for Fire and Fire Aviation Operations*.

    c. Describe the general fuels management strategy for each Fire Management Unit, and display planned fuel treatments. As appropriate, indicate fire regime type and condition class.

    d. State equipment and seasonal use restrictions by management area or FMU, including restrictions due to weather, species sensitivity, or other concerns that may affect equipment use. These may be found in the NEPA decision document.

    e. Describe general numbers and kinds of qualified personnel necessary to plan and execute the proposed fuel treatment program. For example, will a Type I burn boss be needed?

3. Prescribed Fire

    a. Define the weather, fire behavior and fire effects monitoring associated with prescribed fire applications. Include both short term and long-term effectiveness monitoring objectives, and any issues or concerns identified in related NEPA documents. Monitor for the measurable objectives identified for prescribed fire (see Section III). Emphasize protocols and criteria needed to determine if objectives have been met. The full monitoring plan should be included as an appendix or addendum.

    b. Provide format for reviews of prescribed fire projects.

    c. Describe reporting and documentation requirements for accomplishments and escaped fires.

    d. Develop historic fuel treatment map of past activities that effect planned actions.

e. Explain the local prescribed fire burn plan requirements and include a copy of the burn plan the Unit uses in the appendix. A description of the required prescribed burn plan elements can be found in the Interagency Prescribed Fire Implementation Procedures Reference Guide and *RM 18*, Fuels Management chapter.

f. State that prescribed fire planning and implementation will be in accordance with *RM 18*, Fuels Management chapter and *Interagency Standards for Fire and Fire Aviation Operations,* and the *Interagency Prescribed Fire Implementation Procedures Reference Guide.*

4. Non-Fire Fuel Treatments

Describe the scope of non-fire fuel treatment activities related to fuel hazard reduction and the total fire management program. Include discussion on collaborative processes in planning priority setting, and implementation.

a. State equipment and seasonal use restrictions by management area or FMU, including restrictions due to weather, species sensitivity, or other concerns that may affect equipment use.

b. Define the effects monitoring required. Include both short term and long term monitoring objectives, and any issues or concerns identified in related NEPA documents. Monitor for the measurable objectives identified for non-fire applications (see Section III). Emphasize protocols and criteria needed to determine if objectives have been met. The full monitoring plan should be included as an appendix or addendum.

c. State that the planning and implementation of non-fire fuels management projects will be in accordance with *Reference Manual 18*, Fuels Management chapter.

5. Emergency Rehabilitation and Restoration

Reference post-fire emergency rehabilitation (stabilization) and restoration planning and implementation.

Refer to the Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook. The plan for accomplishing burned area rehabilitation should be included in the appendix. State that the emergency stabilization and rehabilitation actions will be in accordance with *Reference Manual 18,* Burned Area Emergency Response chapter.

V. ORGANIZATIONAL AND BUDGETARY PARAMETERS

A. State that the superintendent is responsible to periodically assess and certify by signature that the continued appropriate management response (AMR) strategy, including wildland fire use actions, are acceptable. The superintendent under certain conditions may delegate this responsibility to another organizational level. State that the park superintendent will meet the performance requirements stated in the *Interagency Standards for Fire and Fire Aviation Operations*.

B. Describe the organizational structure of the park fire management program and display a chart of each member's role and responsibility. Describe the outcome and any implications of the most recent Interagency Fire Program Management (IFPM) complexity analysis and designated IFPM positions within organization. Identify organization needed for implementation, indicating deficiencies (i.e. vacant or recommended but non-existing positions).

C. Relate the fire management organization to the rest of the NPS unit's organizational structure. For Area FMO's, define the Park Group FMO organization and responsibilities. If practical, a map showing Park Group relationships should appear in the FMP Appendix.

D. Describe the Fire Program Analysis (FPA) Fire Planning Unit (FPU) of which a park is a participant for implementation of the fire program analysis. Partnerships, resource sharing relationships, assistance relationships (the FPU charter, an FPU map, and documents relating to the interagency and inter-unit relationships) may be included in the FMP Appendix. Summarize charter agreements and structures within the FPU that govern the formulation of budget requests. State the fire analysis system will be used to support fire planning, inform budget development and implementation, and identify cost effective fire programs.

E. Describe interagency coordination needed to implement the Fire Management Plan.

F. Describe key interagency contacts by function. A contact list should carry a date indicating its most recent update and be part of the appendix for operational purposes.

G. List and describe all fire-related agreements (put copies of all referenced agreements in the appendix including equipment rental agreements and contract suppression and prescribed fire resources).

VI. MONITORING AND EVALUATION

NPS fire management needs to be driven and supported by scientific information in order to facilitate an adaptive management cycle, which should result in the implementation of safe and effective fire management strategies. Adaptive management processes must incorporate monitoring and evaluation data as another link in modifying and supporting management goals, objectives, strategies, and activities (see *RM 18* Fire Ecology and Monitoring chapter.

A. In this section of the fire management plan, please provide:

1. A brief summary of existing monitoring data and how it has been used to support fire management decisions.

2. A brief summary of ongoing monitoring that will be utilized to support the fire management of this NPS unit. For example, data collected on fire behavior, weather and effects, non-fire or BAER treatments, or a park's/ neighbor's inventory and monitoring program).

3. A brief summary of how the park manages data collection when fire management crosses jurisdictional boundaries, e.g., wildland fire.

4. A brief summary of who collects and manages the data.

5. A brief summary of how these data will be used in the review and update process.

B. In most cases, a monitoring plan should accompany the fire management plan as an appendix, and should be designed to fulfill the requirements found in *RM 18,* Fire Ecology and Monitoring chapter. NPS units using prescribed fire or wildland fire use, or altering the arrangement of wildland fuels to modify fire behavior, must prepare a fire monitoring plan or plans. For units without wildland fire use and prescribed fire programs, the decision regarding whether a fire monitoring plan is necessary should be made collaboratively by the regional office fire staff, the unit fire staff, and the unit resource management staff.

Ensure that the monitoring plan explains how the monitoring data will be communicated to in-park peers and interested parties, interagency interested parties, and the fire and resource management scientific communities. In the monitoring plan, define data standards that articulate all data collection and storage

information including digital data and digital data that is GIS-compatible.

VII. FIRE RESEARCH

Research considerations are important to NPS fire management implementation. Adaptive management processes can incorporate research findings as another link in modifying treatment objectives, and refining land management objectives and goals.

Existing research applicable to a unit's fire management program should be examined to aid in determining desired ecological conditions, developing appropriate management goals and objectives, and writing appropriate treatment plans. This initial evaluation of existing research may also point out where additional research may be needed to aid in the development of management goals and objectives. Refer to *RM 18* Research chapter.

A. In this section of the fire management plan, please provide:

1. A brief bibliography or summary of existing research applicable and important to the unit's wildland fire management program and desired conditions.

2. A summary of ongoing fire research directly related to this NPS unit.

3. A summary of fire research needed to implement or refine the wildland fire management program and/or desired ecological conditions.

VIII. PUBLIC SAFETY

A. Briefly describe all public safety issues and concerns (highways, developments, evacuation plans, etc.).

   Utilizing a summary in tabular format for this section would be appropriate, with the inclusion of a map showing highlighted areas of safety concerns.

B. Describe park specific procedures for mitigating safety issues.

   This may only require reference to other park emergency response documents (i.e. evacuation plans) or other operational documents (i.e. smoke management plan) if appropriate.

   If referenced documents don't cover all the fire related safety issues described in section A. above, provide mitigation procedures here.

IX. PUBLIC INFORMATION AND EDUCATION

A comprehensive communication and education program emphasizes the entire scope of wildland fire management activities, particularly the role of fire in ecosystems. Develop a Fire Communication Plan which reflects the entire scope of the fire management program.

A. See *RM 18* Prevention chapter, and *RM 18* Communication and Education chapter for recommendations and additional direction. In addition, NWCG's Best Practices in Communication Planning can be a good source of information. http://www.nwcg.gov/teams/wfewt/bp/comm-planning.pdf

B. Describe public information capabilities and needs to implement the fire management program.

1. Include contact list for planned (Rx) or unplanned ignitions in an appendix.

   Examples:
   - Fire management staff
   - Agency leadership and staff beyond fire management
   - Local emergency responders (police, structure fire)
   - Clinics
   - Neighbors (property owners, adjacent agencies)
   - Local, regional, state, tribal, and national elected officials
   - Local schools
   - Newspaper, other media
   - Researchers whose work may be affected
   - Community members who have included a desire to know about project due to health or other issues

2. Materials needed to support public information needs
   - Brochures describing positive aspects of fire
   - Descriptions of anticipated projects and estimated dates for projects
   - Maps for use in public information settings
     e.g., briefing maps for library lobby, courthouse, grocery stores.

3. Press kit
   - Descriptive background documents
   - Fact sheets
   - Personnel profiles
     e.g., Superintendent, FMO

4. Online resources like a pre-prepared web page
   - Contact phone numbers

- Mechanism for public comment
  e.g., e-mail address, telephone number(s)
- Maps
- Link to geomac.usgs.gov
- Link to www.firewise.org/
- Link to http://www.nifc.gov/fire_info.html

C. Describe "step-up" public information activities and capabilities in response to escalating fire danger, fire activity, smoke impacts, and/or public and media scrutiny.

X. PROTECTION OF SENSITIVE RESOURCES

A. Include a summary of significant and/or sensitive cultural resources, and mitigation measures required to protect those resources.

- Refer to Section III, D.1. – "Discuss Physical and Biotic Characteristics of Administrative Unit" of the Fire Management Plan for cultural resources descriptions.

- Refer to Appendix D – "NEPA and NHPA compliance" of the Fire Management Plan. Appendix D. should contain all the required mitigation measures for protection of cultural resources that were included in the environmental analysis and Record of Decision. State that the requirements contained in the NEPA decision document (CE, FONSI, or ROD) and the Section 106 of the National Historic Preservation Act consultation documentation will be adhered to during the implementation of the fire management program.

B. Include developments, infrastructure, inholdings, and other improvements that require special consideration or protection.

- List actions necessary to prevent or mitigate negative impacts to these resources.

- Refer to Appendix D – "NEPA and NHPA compliance" of the Fire Management Plan for required mitigation measures for improvements.

XI. REVIEWS OF FIRE MANAGEMENT PROGRAMS, PROGRAM COMPONENTS, WILDLAND FIRES, AND THE FIRE MANAGEMENT PLAN

A. State that all wildland fires and fire-related incidents will be reviewed in accordance with *Reference Manual 18,* Wildland Fire and Program Reviews chapter and the *Interagency Standards for Fire and Fire Aviation Operations*.

B. Describe any park-specific standards and procedures for the review of wildland fires and prescribed fires. As necessary, include time frames and responsible parties for each type of critique or review.

C. State that the Fire Management Plan will be updated annually and that the park will document the process. An update to the Fire Management Plan will be prepared if indicated.

    1. The annual fire management plan update and the five year review is intended to keep the document current with policy and to ensure the fire management program includes a process of adaptive management to incorporate new knowledge, modernization, and the best available science. An annual update of the fire management plan is essential to ensure that the document continues to conform to current laws, objectives, procedures, strategies and terminology. The use of an Environmental Screening Form, particularly for parks considering adding new projects to their approved multi-year plan, is encouraged to document the environmental considerations during the update process.

    2. Critical annual updates to the fire management plan should include renewal of cooperative agreements, updates of contact names and numbers used during emergency responses, current delegations of authority, and updates for any policy changes. Updates and modifications to the multi-year fuels treatment plan may not have to be made annually, but should be reviewed annually to ensure that project prioritization and proposed implementation schedules are current and any additional new fuels projects are consistent with environmental compliance requirements and developed in a collaborative process with neighboring communities and agencies.

D. State that the Fire Management Plan will be comprehensively reviewed every five years at minimum.

    1. While five-year comprehensive reviews share similar purposes to the annual update process, the difference is that the five-year review includes a more intensive interdisciplinary approach to evaluating the fire management plan and program. The comprehensive review should include a broader consideration of new park planning direction, changing environmental or social conditions (example: increasing wildland-urban interface or global climate change effects), new

science, and adaptive feedback from fire program monitoring programs. The end result is to determine whether a major FMP plan revision and/or new environmental compliance process needs to be initiated.

2. A five-year review of the fire management plan does not automatically initiate new planning requirements. If no new planning requirements are indicated by the review, the results are documented and signed by the superintendent. If the results of the review indicates that significant changes in proposed actions, expected effects, or changes in park direction (example: a new decision that a park should now include wildland fire Use into their fire management program) a new plan and compliance document may be required.

XII. CONSULTATION AND COORDINATION

(Note: this section pertains to people and organizations that contributed to the development of the FMP. The related NEPA document will have a similar list, but that list will be specific to those people and organizations that were consulted in the development of that document.)

List contributors and reviewers of the plan; identify their role in this Fire Management Plan.

List all individuals and organizations consulted during plan development.

XIII. APPENDICES

A. References cited

B. Definitions

C. Species lists (sensitive species described in Section X)

D. Compliance for FMP and Fuels Management Program

1. NEPA - Include copy of Decision Document (Record of Decision) for FMP

2. NHPA (Section 106) - Include copy of response from SHPO for FMP

3. ESA (Section 7) - Include copy of response from FWS for FMP

E. Any other unit-specific supplemental information (may require annual revision)

1. Fire call-up list

2. Preparedness inventory

3. Cooperative agreements

F. Communication and Education Plan

G. Wildland and Prescribed Fire Monitoring Plan

H. Preparedness Plan (Items noted with * are required by NPS)

1. Initial Response, Dispatch, and Notification Plan *

    a. Describe the typical fire response, timeframe, and resource type as determined by factors such as time of year or fire danger. Describe fire dispatching and communication procedures. Describe notification process and contacts for wildland fires.

2. Strategic fire size-up procedures *

3. List of personnel available to assist with wildland and prescribed fires, including fire qualifications *

4. Annual Delegation of Authority from Park Superintendent *

5. Job Hazard Analyses for fire and fire aviation activities *

6. Identify location of current copy of Agency Administrator's Guide to Critical Incident Management (NFES 1356) *

7. Identify location of current fire cache inventory *

8. Structure protection inventory and needs *

9. Identify location of procedures for park evacuation and closure*

10. Minimum impact tactics guidelines that are unique to the park and, where needed, wilderness (minimum tool) considerations *

11. Cooperative Agreement(s) and Annual Operating Plan(s)

12. Fire weather and fire behavior description. Include information on weather, climate, fire season, fire danger indices, fuel models, and range of potential fire behavior for each FMU. Information here should be referenced in Section III and Section IV.

13. Fire Duty Officer guidebook

14. Identify location of pre-loaded WFSA files

15. Identify location of pre-loaded WFIP files

16. Identify location of geospatial data for managing large fires

17. Operational Considerations

    a. Aviation considerations (e.g. helispots, flight hazards, etc)

    b. Water sources

    c. Staging areas

    d. Natural barriers and control line locations

    e. Other

18. Logistical Considerations

19. Designated locations for ICP and Base Camp

    a. Medical facilities

    b. Utilities

    c. Radio Communications

    d. Other

20. Planning Considerations

    a. Park base map

    b. Vegetation and fuel maps

    c. Land status map

    d. Location of sensitive natural and cultural resources

    e. Restrictions and special concerns by management area

H. Multi-year fuels treatment plan, including prescribed fire and non-fire treatments, as needed

I. Fire Prevention Plan (if analysis indicates and NPS threshold met; see *RM 18*, Wildland Fire Prevention chapter)

J. Rental Equipment Agreements

K. Contracts for Suppression and Prescribed Fire Resources

L. Notification procedure and contact list in the event of serious injury or death

M. Specific details and standards for Burned Area Emergency Response and fire rehabilitation

N. Other Park Specific Appendices

Exhibit 2

Sample – Annual FMP Review Checklist – Template

20*[XX]*
Fire Management Plan
Review and Update
For
[PARK NAME]

This annual review of the Fire Management Plan (FMP) is a requirement of NPS *Reference Manual 18, Wildland Fire Management,* as specified in the Fire Management Plan chapter, stating that "an annual review is essential to ensure that the FMP continues to conform to current laws, objectives, procedures, and strategies." In addition, the 2007 Interagency Standards for Fire and Fire Aviation Operations states that the park superintendent will "identify resource management objectives to maintain a current FMP that identifies an accurate and defensible normal year readiness of funding and personnel". The activities defined in the FMP will be implemented in accordance with agency and departmental policy, including recent procedural updates contained in the following documents *[update the effective date of the following references annually as appropriate]*:

- Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide (September 2006)
- Wildland Fire Use Implementation Procedures Reference Guide (May 2005, as amended in March 2006)
- Interagency Standards for Fire and Fire Aviation Operations (January 2007)
- Federal Fire and Aviation Operations – 2007 Action Plan (Spring 2007)

The review and update process is intended to keep the FMP as current as possible. Changes in the step-up plan, terminology, cooperative agreements, and adjustments to the multi-year fuels treatment plan are examples of appropriate revisions to a FMP using this review and update format. The updates identified in this document will become effective upon signature by the park superintendent.

Directions. Please review the following items from the FMP. If no updates are required, please check "no update"; if updates are required, please check "update included here", and identify the specific update(s) in the space provided. Some items may require discussions with park resources management personnel. The updated information should be incorporated into the FMP and records kept in the park files. Send an e-copy of the document, as well as a fax copy of the signature page only, to: *Regional FMO or regionally identified contact, and National FMO at the Fire Management Program Center in Boise.*

Exhibit 2

Step-up Plan (Section IV)
The Step-up Plan should include:

- **Accurate break-points between preparedness (staffing) levels**
- **Description of actions to be taken at each preparedness (staffing) levels**

_____ No update
_____ Update included here:

Multi-year Fuels Treatment Plan (Appendix)
_____ No update
_____ Update included here:

Organizational Responsibilities (Section V)
_____ No update
_____ Update included here:

Preattack Plan (Appendix)
The park should ensure the following documents are in place for 2007:

- **Rental Equipment Agreements (including Service and Supply Plan)**
- **Contracts for Wildland Fire Suppression and Prescribed Fire Resources**
- **Fire Call-up list**
- **Agreements, Annual Operating Plans, and related local interagency coordination documents**
- **Delegation of Authority (as specified on page 03-2 in Interagency Standards for Fire and Fire Aviation Operations) from the Park Superintendent to Appropriate Individual(s) for wildland fire activities and operations**

_____ No update
_____ Documents have been reviewed, updated, and are on file at the park.

Compliance (Appendix)
Confirm that the following three (3) environmental compliance documents are still valid:

- **NEPA**
  - **CE, EA, or EIS**
  - **Decision Document (CE, FONSI, or ROD)**
- **NHPA**
  - **Section 106**
  - **Concurrence letter from SHPO**
- **ESA**
  - **Section 7**

- **Concurrence letter from USFWS for informal consultation or signed Biological Opinion from USFWS for formal consultation**

Communications and Education Plan (Appendix)
The park should ensure that the contacts and protocol procedures are updated annually

NOTE: If major changes in the wildland fire and/or fuels management program have occurred that do not conform to the existing environmental compliance documents, then these projects, or changes, should be suspended and a new compliance process completed for them.

_____ No update
_____ Update included here:

20*[XX]*
Fire Management Plan Review and Update

Prepared by: _____ _____
Fire Management Officer Date

Approved by: _____ _____
Superintendent Date

PREPAREDNESS

1 Introduction

Primary guidance for preparedness is found in the *Interagency Standards for Fire and Fire Aviation Operations* in the chapters on Preparedness and National Park Service Program Organization and Responsibilities. This chapter of *Reference Manual 18* provides supplemental information.

Preparedness planning is the foundation of an effective fire management program. Thorough planning enables managers to easily and efficiently meet other fire management objectives. For example, the step-up plan, a cornerstone of preparedness planning, enables a park to have the right resources at the right place and at the right time.

As fire danger increases, the level of preparedness must increase. Preparedness actions are preplanned and delineated by staffing classes in the step-up plan for each park. Preparedness actions should be completed prior to each fire season.

2 Responsibilities

2.1 National and Regional Levels

The Fire Management Program Center (FMPC) and regional offices will:

- Provide emergency assistance and dispatch capability for fire overhead, and provide supplies and equipment for inter-park, inter-region and interagency situations as specified in regional, national, and interagency mobilization plans.
- Allocate funding to accomplish Service-wide priorities.
- Facilitate training beyond that identified as a park-level responsibility.
- Maintain interagency contacts, including but not limited to Multi-Agency Coordinating Groups (MAC) and Geographic Area Coordinating Groups, and provide for necessary regional and national interagency agreements.
- Provide assistance as requested to fire preparedness, and provide fire program reviews of park and regional office fire management programs.
- Provide assistance in support of severity requests.

2.2 Park Level

Each park with a fire program will:

- Incorporate preparedness considerations into its fire management plan (FMP), including conducting annual preparedness reviews using approved interagency preparedness checklists.
- Maintain a cache of supplies, materials, and equipment sufficient to meet normal fire year requirements.
- Maintain fully qualified personnel commensurate with the normal fire year management workload and supporting budget.
- Operate fire-related data processing systems to enter, archive, retrieve, and interpret information for fire management planning and operations.
- Prepare a step-up plan based on staffing classes derived from the National Fire Danger Rating System (NFDRS).
- Maintain record systems, weather data, maps, and other related information.
- Provide daily communications on current and expected fire weather and behavior and selected fire danger indices via a variety of media (radio and electronic announcements, etc.) to reach the largest number of users requiring such information, and ensure that recipients understand the meaning and significance of such announcements.
- Prepare preseason risk analyses.
- Provide a dispatch system for fire management resources within and adjacent to the park.
- Maintain detection and initial attack capabilities.
- Prepare appropriate pre-attack plans including local mobilization guides.
- Develop and maintain agreements to coordinate interagency operations
- Develop and maintain annual service and supply plans with appropriate emergency equipment rental agreements, and/or references to local cooperating agencies which have these agreements.

3 Preparedness Planning

Preparedness planning must be conducted and coordinated at all organizational levels for optimum preparedness. Preparedness activities are funded by normal park operating funds and/or wildland fire.

3.1 Fire Season Delineation

Fire seasons in parks are based on fire planning analyses, which evaluate a 10-year history of fire occurrence. Regional fire seasons are defined as the composite of their parks' fire seasons.

3.2 Step-up Planning

Step-up plans are designed to direct incremental preparedness actions in response to increasing fire danger.

3.2.1 Staffing Classes (SC)

Preparedness actions are delineated by "staffing classes." Each step-up plan should address the five staffing classes (1 = low; 2 = moderate; 3 = high; 4 = very high; and 5 = extreme) and the responding planned actions that are intended to mitigate those fire danger conditions. Several assessment tools are available to measure fire danger.

The staffing classes describe escalating responses that are pre-approved in the fire management plan. The mitigating actions are designed to enhance the park's fire management capability for short periods (e.g., during one or more burning periods generally lasting less than two weeks; periods of increased visitation such as holiday weekends; or other pre-identified short-term events) when normal staffing cannot meet initial attack, prevention, or detection needs. The difference between step-up and severity is that step-up actions are established in the park unit's fire management plan and implemented by the unit when those pre-identified conditions are experienced. Severity is a longer-duration condition that cannot be adequately dealt with under normal staffing, such as a killing frost converting live fuel to dead fuel, or drought conditions. Severity is discussed later in this chapter.

Staffing Class Break Points

Parks should choose one or more of the following to calculate their staffing class condition:

- NFDRS Preferred (Burning Index, Energy Release Component, Fire Spread Component or other)
- Drought Index (Keetch-Byram, Palmer, or other)
- Live Fuel Moisture (calculated or sampled)
- Canadian Fire Danger Rating System
- Soil Moisture

Parks can use any recognized science-based system to measure fire danger and potential and are encouraged to apply the best fit for their needs.

Staffing Class Break Points are calculated as described below:

- First, identify the 90th and 97th percentiles, as listed in a FireFamily Plus run.
- The 97th percentile, by definition, is the bottom of Staffing Class 5 (i.e.,

the break point).
- The 90th percentile, by definition, is the bottom of Staffing Class 4 (the break point).
- Subsequent lower break points for SC-2 and SC-3 are calculated by dividing the next-higher Staffing Class Break Point by 2. That is, for SC-3, divide the lower SC-4 break point (90th percentile) by 2; for SC-2, divide the lower SC-3 break point by 2.
- SC-1 ranges from 0 to one point less than the lower SC-2 break point.

Once the five staffing class numerical ranges have been calculated using FireFamily Plus, a best fit comparison should be made between historical fire occurrence and these ranges. Adjustments to staffing classes 1, 2, and 3 break points should then be made as appropriate; staffing classes 4 and 5 should not be adjusted. Exceptional variations from this policy require regional fire management officer approval.

See exhibit 1 for a sample step-up plan with staffing class break points.

3.2.2 Fuel Models

Selection of fuel models is critical in developing an effective step-up plan. Historical factors that should be considered in selecting a fuel model include:

- Proportion of ignitions by fuel model.
- Values to be protected by fuel model.
- Fire behavior by fuel model.
- Proposed (in FMP) appropriate management strategies (i.e., the full spectrum of strategic options, ranging from monitoring to full, intensive suppression) by fuel model and location.

The integration of these factors should result in selection of the fuel model that creates the greatest fire management problem.

For example, a park may have 80 percent of its fire ignitions in fuel model "XX" with low values at risk and low intensity fire behavior. Another fuel model, "YY," with higher values at risk, experiences 20 percent of fire ignitions, and these ignitions have been more difficult to suppress. Fuel model "YY" should be selected for the step-up plan.

3.2.3 Sample Plans

Exhibit 1 provides an example of a completed step-up plan. The step-up plan must include provisions for detection in staffing classes 4 and 5.

3.2.4 Funding

ONPS funds and wildland fire funds provide support for routine preparedness actions conducted in staffing classes 1 through 3. Funding of activities for staffing classes 4 and 5 is discussed below in the section of this chapter on emergency preparedness.

3.3 Seasonal Risk Analysis

Seasonal risk analysis is the procedure for analyzing present and future fire danger for any given area. The seasonal risk analysis is a process that reviews current and predicted weather and fuels information, compares this information with historic weather and fuels records, and predicts the upcoming fire season's severity and duration. It is important to incorporate drought indices into this assessment.

Seasonal risk analysis information can be used to modify step-up and pre-attack plans. It provides the basis for actions such as pre-positioning critical resources, requesting additional funding, or modifying interagency or general agreements or contracts to meet anticipated needs.

Exhibit 2 contains a sample comparison chart with selected indicators that may be evaluated. Each park should select those indicators that are most useful in predicting fire season severity and duration in its area.

Risk analysis is an ongoing process. It should be reviewed periodically and revised when significant changes in key indicators occur. All reviews of risk analysis, even if no changes are made, should be documented.

3.4 Preparedness Plans

The preparedness plan is a comprehensive compilation of essential fire management information. Copies of the plan must be available in the park's fire management and/or dispatch offices.

Rather than being included in the body of the FMP, the preparedness plan should be kept accessible as a quick reference guide when incidents occur. The plan should be reviewed annually prior to the fire season and revised as necessary. Exhibit 3 provides a list of considerations for a preparedness plan, supplementing the preparedness plan outline found in exhibit 1 of *RM 18*, Fire Management Plans chapter.

To be effective, the preparedness plan should include sensitive resource

information on matters such as the specific locations of cultural sites and certain endangered species. Fire personnel must ensure that sensitive information in the plan is protected from inappropriate dissemination.

Preparedness plans will include evaluations of structures and other cultural improvements to ensure that their values (and hazards) are taken into consideration. Criteria and procedures for evacuations and closures will also be addressed. Exhibit 4 contains a sample closure/evacuation plan.

4 Preparedness Activities

4.1 Supplies, Materials and Equipment

Each park will maintain a cache or system of caches with inventories adequate to meet the needs of a normal fire season. The numbers, types, and distribution of materials in caches will be dictated by the staffing, fuels, and fire history of the park. The inventory and location of these items should be included in the pre-attack plan. Normal stocking standards for initial and extended attack caches should be developed for each park. Excess and unneeded supplies and equipment should be transferred to other parks or interagency caches. If standards are not currently being met, funding should be requested to bring caches up to standards.

4.2 Fire Season Readiness Reviews

Each park must conduct an annual pre-season fire readiness inspection that addresses detection, communication, dispatch, and response capabilities. Fire readiness inspections will be conducted to determine whether the park's current training levels, equipment inventories, and organizational structure meet the standards described in the approved fire management plan.

The NPS will utilize the Interagency Preparedness Review Checklists, adapted for park-specific needs, to conduct and document the readiness inspection.

Trained regional readiness review teams should be used to conduct more in-depth, objective reviews on a regular schedule (once every 3 to 5 years, unless required more frequently by the regional fire management officer). It is encouraged these teams be interagency in composition. It is recommended that interested agency administrators and staff be used to augment regional readiness review teams. The regional fire management officer, regional office staff, or staff from the Fire Management Program Center may conduct on-site fire readiness evaluations at any time at any park.

4.3 Accessing the Weather Information Management System (WIMS)

Parks with wildland fire management responsibilities should access WIMS several times daily. Daily access at a minimum should include:

- Entering fire weather observations. It is critical that these observations be entered into WIMS by the time requested by the National Weather Service or forecaster.
- Retrieving and interpreting fire danger indices for the area and adjacent stations.

WIMS guidelines and annual agency updates provide specific directions for accomplishing these database activities.

National situation summaries and fire danger forecasts are available on WIMS but are more easily accessible on the Internet.

4.4 Emergency Preparedness Operations

It is neither reasonable nor prudent to program funds annually for the worst possible fire season. Emergency preparedness plans therefore need to be formulated to deal with years with extreme fire seasons or periods of extreme fire danger within "normal" fire seasons. Step-up plans should identify specific measures to be taken to provide adequate resources to meet elevated fire danger. Emergency preparedness funds are available to accomplish approved step-up activities when the park is in staffing class 4 or 5.

4.5 Severity Assessments/Severity Funding Requests

Fire severity funding is the authorized use of suppression operations funds (normally used exclusively for suppression operations, and distinct from preparedness funds) for extraordinary preparedness activities that are required because of an abnormal increase in fire potential or danger, or because of fire seasons that either start earlier or last longer than planned in the fire management plan. The fire danger rating operating plan or annual operating plan should identify thresholds for determining the need for severity resources.

The objective of fire severity funding is to mitigate losses by improving suppression response capability when there is (1) potential for abnormally severe fire behavior, or (2) fire occurrence outside of the normal fire season. When either of these conditions exists, and when suppression resources that were acquired through the approved fire planning process are insufficient to meet the extraordinary need, suppression resources may be requested through the

severity funding process. Fire severity funding is not intended to raise preparedness funding levels to cover differences that may exist between funds actually appropriated (including rescissions) and those identified in the fire planning process.

Severity funds are typically used to:

- Increase prevention activities.
- Temporarily increase firefighting staffing.
- Pay for standby.
- Pre-position initial attack suppression forces.
- Provide additional aerial reconnaissance.
- Provide for standby aircraft availability.

Authorization to use severity funding is provided in writing based on a written request with supporting documentation. Funding is authorized on a project-by-project basis and comes with a severity cost code. Agencies will follow their administrative procedures for issuing severity cost codes. Authorization is provided for a maximum of thirty days per request. Regardless of the length of the authorization, however, use of severity funding must be terminated when abnormal conditions no longer exist. If the fire severity situation extends beyond the thirty-day authorization, the park unit must submit a request for extension with supporting documentation or prepare a new severity request.

When parks are expecting long-term extreme fire danger due to drought or other situations which may not adequately be met with routine daily staffing class 4 or 5 preparedness funding, a severity assessment and funding request should be submitted. Refer to current-year budget guidelines and the chapter on Fire Financial Programs in *Reference Manual 18* for further direction.

Parks requesting severity funding need to complete a written assessment of the current and potential situation, including a description of mitigating actions and costs, and submit the assessment to the regional office.

The written assessment needs to address how adjacent land management/protection agencies are addressing the same situation, and it needs to state how the funding will be used in the park. It would be unusual to provide severity funds to a park whose neighbors were not experiencing similar conditions. Emphasis will be given to interagency-coordinated funding requests and implementation plans.

4.6 Pre-positioning Resources

Fire management resources may be pre-positioned during periods when staffing classes 4 or 5 are in effect, as described in the approved step-up plan, or when a preseason risk analysis of expected fire severity indicates that predicted initial and extended attack needs will exceed the park's normal fire year response capability.

Local, geographical area, and national mobilization plans address the pre-positioning of regional resources for effective incident response.

Funding for pre-positioning resources is covered within the emergency preparedness operations accounts.

Exhibit 1

SAMPLE STEP-UP PLAN

Staffing Class (SC)	Burning Index	Step-up Action
SC-1	0-13	Specify normal tours of duty and numbers of initial attack/monitor personnel.
		Fire danger rating signs at visitor concentration areas activated at start of fire season.
SC-2	14-27	Specify normal tours of duty and numbers of initial attack/ monitoring personnel.
SC-3	28-55	Specify normal tours of duty and numbers of initial attack/monitoring personnel.
		If predicted or observed lightning activity level (LAL) is 4, 5, or 6, automatically move up to SC-4.
		If a high visitation period is determined to pose exceptional human-caused risk of wildland fire, move to SC-4 (e.g. three-day holiday weekend, opening days of hunting seasons on adjacent lands).
		If live and/or dead fuel moistures are sufficiently low (e.g. live fuel moisture in sagebrush of 90%, 100 HR TL FM 7%, TH HR TL FM 9%) to allow rapid fire spread or high fire intensity in the presence of wind, step-up may be moved to SC-4. This section is included because wind velocities often increase in late afternoon after WIMS indices have been obtained for the day.
SC-4	56-71	If the LAL is between 3 and 6, a fixed wing detection overflight may be requested from an adjacent cooperator. If cooperating aircraft are not available, a fixed wing aircraft may be hired for a detection flight. Cooperators and the regional FMO will be advised of these situations daily.
		The normal tour of duty for fire lookouts will ordinarily be staggered, with one lookout staffed from 0800 to 1630 and the other staffed from 0930 to 1800. Tours of duty will be extended through the burning period and/or during distinct evening and nighttime periods when the observed LAL is 3 or greater or when observations suggest the likelihood of LAL between 3 and 6. If these LAL levels occur during the night, the lookouts should begin detection efforts by 0800 the next morning.
		Intensified road and campground patrols for prevention and detection purposes may be initiated. Interagency detection

Exhibit 1

Staffing Class (SC)	Burning Index	Step-up Action
		and suppression efforts will be coordinated by the FMO.
		Workweeks and/or daily tours of duty for regular initial attack/monitoring personnel may be expanded, particularly when the observed LAL is between 3 and 6, the predicted LAL is from 4 to 6, and/or the human-caused risk (MCR) is exceptionally high (MCR=80).
		In these situations, the initial attack/monitoring crew will consist of a minimum of two people, one of whom should be qualified as either a fire monitor or a Type V incident commander, and will be held on duty through the burning period. The standby team in any SC-4 incident should be stationed in the district or area where risk is considered highest. Other initial attack/monitoring teams may be held on standby in other districts or areas if conditions warrant.
		Key seasonal personnel will be identified by name and position and evaluated for fire experience after the area's full complement of initial attack/monitoring personnel has been hired.
		When lightning risk is high, emphasis will be placed on extending workweeks/tours of duty of initial attack/monitoring personnel with experience/competence in fire suppression and fire monitoring. When human-risk is high, emphasis will be placed on those initial attack personnel duty-stationed at or near visitor concentration areas. (Some of these staffing needs may be met by adjusting work schedules and without expenditure of emergency funds.)
		Backcountry permits may be amended to prohibit open fires.
SC-5	72+	All SC-4 actions with further constraints noted below.
		Tours of duty for fire lookouts will be extended through the burning period and/or during distinct evening and nighttime periods when the observed or predicted LAL is 3 or greater.
		Workweeks and/or daily tours of duty for regular initial attack/monitoring personnel and key permanent personnel may be expanded, particularly when predicted or observed LAL is between 3 and 6 and/or human-caused risk (MCR) is exceptionally high (MCR=80).

Exhibit 1

Staffing Class (SC)	Burning Index	Step-up Action
		In these situations, the initial attack/monitoring team will, if possible, consist of a minimum of three people, one of which should be qualified as a lead fire monitor or Type IV incident commander, and will be held on duty through the burning period.
		The main standby initial attack/monitoring team in any SC-5 incident should be in the district or area where risk is considered highest. Initial attack/monitoring teams may be held on standby in other districts or areas if conditions warrant.
		Temporary closures may be imposed on areas in the park or for certain activities (e.g. open fires) in conjunction with similar impositions by adjacent land managing agencies.

Exhibit 2

SELECTED PRE-SEASON RISK ANALYSIS CRITERIA

Factor	Current Level	Historic Average
* NFDRS (or CFFDRS) index values (ERC, BI)		
*Temperature Levels		
*Precipitation Levels		
*Humidity Levels		
*Palmer Drought Index		
*Keetch-Byram Drought Index		
*Energy Release Component		
*1000 Hour Fuel Moisture (Timber Fuels)		
*Vegetation Moisture Levels		
- Live Fuel Moisture (Brush Fuels)		
- Curing Rate (Grass Fuels)		
*Episodic Wind Events (Moisture Drying Days)		
*Unusual Weather Events Example: early killing frosts, blowdowns		
*Fires to Date		

Exhibit 3

PREPAREDNESS PLANNING CHECKLIST

COMMAND	OPERATIONS
Pre-loaded WFSA files	Helispot, helibase locations
Pre-positioning needs	Flight routes, restrictions
Draft delegation of authority	Water sources
Management constraints	Control line locations
Interagency agreements	Natural barriers
Evacuation procedures	Safety Zones
Structural protection needs	Staging area locations
Closure procedures	
LOGISTICS	**PLANNING**
ICP, base, camp locations	Park base map
Road, trails (including limitations)	Topographic maps
Utilities	Infrared imagery
Medical facilities	Vegetation/fuel maps
Stores, restaurants, service stations	Hazard locations (ground and aerial)
Transportation resources location	Archeological/cultural base map
Rental equipment sources (by type)	Endangered species critical habitats
Construction contractors	Sensitive plant populations
Sanitary facilities	Special visitor use area
Police, fire departments	Land status
Communications (radio, telephone)	
Sanitary landfills	
Portable water sources	
Maintenance facilities	

Exhibit 4

GUIDELINE FOR DETERMINING NEED FOR PARK CLOSURE/EVACUATIONS

The following questions are presented as a guideline to assist park fire managers in determining the present or predicted necessity for evacuation of all or part of the park. The superintendent will make the final decision for closure/evacuation. Because of the critical time elements involved in closure and evacuation, this checklist should be completed at any time two or more elements in primary factor A are positive and should be kept as part of the park's fire records. This analysis should be based on predictions to allow adequate time for implementing the appropriate action.

For purpose of this guideline, key terms are defined as follows:

1. Partial closure: Park closure to visitors in specified areas.
2. Full closure: Park closure to visitors at entrances.
3. Evacuation: Removal of employees' families and/or visitors from the park.

The following steps are to be taken to make determinations:

1. Analyze each element and check the response "yes" or "no."
2. If positive responses equal or exceed negative responses within primary factors A through D; the primary factor should be considered a positive response.
3. Primary factor E is considered as a separate determinant.
4. Employ the following criteria to determine action:
   a. If factor E is "no" and one other primary factor is "yes," consider full or partial closure.
   b. If factor E is "no" and two or more primary factors are "yes," consider partial or full closure and evacuation of visitors.
   c. If factor E is "no" and three or more primary factors are "yes," consider evacuation of visitors and employees' families.
   d. If factor E is "yes," evacuate visitors and employees' families regardless of responses to other primary factors.

A. **FIRE BEHAVIOR** (observed or predicted)

		YES	NO
1.	Burning Index, Fuel Model B, 72 or above.		
2.	Crowning or spotting observed.		
3.	Rate of spread 12 chains per hour or greater.		
4.	Fire Size: 3 acres or more		
5.	More than one Class B size fire burning concurrently.		
	TOTAL		

Exhibit 4

B. **PERSONNEL COMMITTED PARKWIDE**

		YES	NO
1.	Unusual initial attack forces committed.		
2.	Park cooperative agreement crews committed.		
3.	Park incidental firefighters committed.		
4.	Fires remaining unstaffed after commitment of above park forces.		
5.	Relief forces more than two hours away.		
	TOTAL		

C. **OPERATIONS**

		YES	NO
1.	Access/egress route likely to be heavily used by suppression traffic.		
2.	Extensive air operations in vicinity of developed areas.		
3.	Potential incident base location in area which conflicts with routine visitor activities.		
	TOTAL		

D. **LOCATION AND DIRECTION OF SPREAD**

		YES	NO
1.	Fire north of developed areas, proceeding south.		
2.	Fire south of developed areas, proceeding north.		
	TOTAL		

E. **EXIT**

		YES	NO
*	Any vehicular egress route directly threatened for extended period (i.e., to point where no traffic could safely get through).		

WILDLAND FIRE PREVENTION

1 Introduction

Historically the goal of wildland fire prevention programs was to prevent unwanted human-caused wildfires. While the end goal of preventing loss of life, property, and natural resources has remained the same, current proactive fire management programs prevent fires and reduce hazardous fuels not only to reduce unwanted fire ignitions, but also to minimize damages and personnel exposure to unsafe conditions and situations.

Public education on the natural role of fire on the landscape and the prevention of unwanted wildland fires has become increasingly important as communities make inroads into wildland areas. While it is important to raise awareness of the risks associated with wildland fire, it is also important to promote the overall mission of the National Park Service Fire Management Program and to increase public understanding of fire as a natural part of the ecosystem and as a restoration tool.

Fire prevention efforts should be addressed in a park's overall fire communication and education strategy in order to support an integrated wildland fire communication and education program.

2 Responsibilities

2.1 National Level

The national office will:

- Establish Service-wide guidelines for wildland fire prevention analysis, planning, and implementation.
- Establish Service-wide guidelines for cooperative wildland fire prevention/education activities.
- Provide Service-wide technical expertise and coordination in wildland fire prevention/education.
- Assess, coordinate, and facilitate wildland fire prevention/education training.
- Participate as a member of national working teams (e.g. National Wildfire Coordinating Group's Wildland Fire Education Working Team) or work closely with a selected representative.
- Participate in national wildland fire prevention/education efforts or programs.

2.2 Regional Level

The regional offices will:

- Integrate wildland fire prevention/education into all management operations.
- Coordinate the region-wide development of wildland fire prevention/education programs.
- Coordinate activities with other land management agencies and wildland fire protection organizations at the state and regional level.
- Provide technical expertise to individual park units, and assess, coordinate, and facilitate wildland fire prevention/education training.

2.3 Park Level

Each park with a fire program will:

- Support and encourage employee involvement in wildland fire prevention/education programs.
- Conduct wildland fire prevention analysis as specified in Section 3 below.
- Develop and implement wildland fire prevention plans as a component of the fire management plan.
- Review wildland fire prevention plans annually and update as warranted.
- Integrate wildland fire prevention/education into all management functions, including interpretation, visitor protection, maintenance, and administration.
- Develop cooperative agreements and/or memoranda of understanding with local land management agencies and wildland fire protection groups to coordinate wildland fire prevention/education programs.
- Assess, coordinate, and facilitate local wildland fire prevention/education training.
- Develop and provide prevention/education products to the public.

3 Wildland Fire Prevention Analysis

As stated in the Preparedness chapter of *Interagency Standards for Fire and Fire Aviation Operations*, National Park Service units that experience more than 26 human-caused fires per 10-year period are required to conduct a wildland fire prevention analysis and prepare a wildland fire prevention plan. Units that do not meet this minimum frequency are also encouraged to complete a fire prevention analysis and fire prevention plan, particularly if they have experienced problems with human-caused fires.

The scope and content of the wildland fire prevention plan must be based on a wildland fire prevention analysis. The analysis may be conducted with computer

software such as Risk Assessment and Mitigation Strategies (RAMS) developed by the BLM and downloadable from the BLM website. Use of this software is not required, however. The analysis should include the determination of risks, hazards, and values.

3.1 Determination of Risks

Risks are defined as any heat source or human activity that can result in wildland fire ignition. Risk assessment is the most important element of the analysis and is the foundation upon which the unit's fire prevention plan is built.

All potential ignition risks should be plotted on a topographic map of the unit. Whenever possible, GIS should be utilized and appropriately documented to meet NPS metadata standards. If no GIS support is available, the analysis can be completed manually by utilizing topographic base maps and transparent overlays. Risks to be plotted include all areas of concentrated use and incidents of human-caused fires for the past five- to ten-year period.

3.2 Determination of Hazards

Hazards are defined as the fuels and the topography on which a wildland fire will spread.

Hazard areas should be indicated on a topographic map of the unit using GIS (or topographic base maps and transparent overlays if GIS is unavailable). The areas of fuels and topography that present the greatest resistance to control, such as heavy fuels on steep slopes, should be encircled and labeled as "high hazard" areas. Areas which present moderate resistance to control, such as medium concentrations of continuous fuels in less rugged topography, should be encircled and labeled as "moderate hazard" areas. Everything remaining should be labeled as "low hazard" areas.

3.3 Determination of Values

Values are defined as areas where losses from wildland fire would be unacceptable. Since the determination of values is subjective, they must be formulated through an interdisciplinary process.

Values may include, but are not limited to:

- Cultural resources
- Developments
- Inholdings
- Sensitive habitats
- Endangered species

- Watersheds
- Nearby urban structures
- Adjacent land

Utilizing GIS (or topographic base maps and transparent overlays if GIS is unavailable), encircle those areas of high and moderate value as determined by the interdisciplinary team. Label these as “high value” or “moderate value” areas, respectively. Everything remaining should be labeled “low value.”

Technical direction for completing a wildland fire prevention analysis is contained in the *National Park Service Wildland Fire Prevention Handbook*.

4 Wildland Fire Prevention Plan

Prevention analysis enables fire managers to determine the need and focus for a wildland fire prevention plan. The analysis includes determination of the risks, hazards, and values that may influence the effects of unwanted wildland fire. The plan should identify prevention actions and programs needed to reduce the likelihood of ignitions in areas where wildland fire is unacceptable, and it should also identify who is responsible for each activity and when each activity will be accomplished.

Technical direction for completing a wildland fire prevention plan is provided in the *National Park Service Wildland Fire Prevention Handbook.* There are also several NWCG wildfire prevention publications available as references. See the NWCG Publications Management System web page for additional information.

Once completed, the wildland fire prevention plan is included as an appendix to the unit’s fire management plan. There is additional guidance in the Fire Management Plans chapter in *Reference Manual 18.*

The wildland fire prevention plan addresses the “three E’s” of the program: Education, Engineering, and Enforcement. All three activities are important for both internal and public prevention efforts. The three E’s help ensure that there is a strong understanding of the prevention message.

4.1 Education

Prevention programs utilize a variety of methods to inform the public of the need to prevent unwanted human-caused wildfires. The specific activities are intended to create and maintain public and employee awareness, understanding, and support. It should be stressed in all public education efforts that a person causing

a wildfire could face criminal charges as well as be held civilly liable for the cost of suppressing the fire.

4.2 Engineering

Wildland fire prevention engineering is the process of reducing risks and hazards by shielding or removing heat sources or by removing fuels. Prevention engineering includes activities such as moving fuel away from roadways, removing vegetation from around a structure, creating firebreaks around campgrounds, and using spark arresters on internal combustion engines and fireplaces. Prevention engineering through prescribed fire can also be used to reduce fuels, thereby minimizing the threat of ignition or fire spread.

4.3 Enforcement

The objective of the enforcement aspect of wildland fire prevention is to ensure effective compliance with federal fire prevention laws, regulations, codes, and standards designed to protect National Park Service lands, visitors to national parks, and private lands and improvements within and adjacent to national parks.

4.3.1 Visitor Use Regulation

Wildland fire prevention enforcement should be practiced at the minimum level necessary (as defined in *Reference Manual 9, Law Enforcement*) to gain compliance with fire laws and regulations. The superintendent's compendium must include elements to implement the fire prevention plan. The sections of Title 36 CFR which concern fire prevention must be emphasized.

4.3.2 Criminal Investigations

As stated in the *Interagency Standards for Fire and Fire Aviation Operations*, "Agency policy requires any wildfire to be investigated to determine cause, origin, and responsibility. For all human-caused fires where the guilty party has been determined, actions must be taken to recover the cost of suppression activities, land rehabilitation, and damages to the resources and improvements."

The inadvertent or intentional ignition of wildland fuels by humans is a crime. All wildland fires must be investigated at the earliest possible time. The investigation may range from a documented determination of cause by the initial attack fire crew to criminal investigation by a qualified arson investigator. Costs associated with wildland fire investigation are legitimate charges to the fire suppression account.

The primary purpose of an investigation is to obtain all the information and evidence possible to identify the responsible party. The initial actions by the fire crew on the fire will affect the investigation's chance for success. Every initial attack firefighter needs to receive at least minimal training in finding the point of origin of any fire. They must also understand how to protect the point of origin and any possible evidence. Much of this is covered in the *Wildfire Origin & Cause Determination Handbook* of the NWCG.

Where the cause of a fire can be traced to the act, or failure to act, of an individual or individuals, the National Park Service must take appropriate civil and criminal action against the responsible person(s). The Service will work with the U.S. Attorney's office to recover the costs of suppression and rehabilitation from the responsible person(s).

If necessary, rewards for information leading to the arrest and conviction of persons responsible for starting wildland fires may be offered. These rewards may be funded from the suppression account for the fire. The offering of any rewards must first be coordinated with the regional fire management officer and the park unit's chief ranger, and then with the U.S. Attorney's office having jurisdiction for the area. Any reward offered must be commensurate with the rewards offered by the surrounding jurisdictions and applied in a similar manner.

4.3.3 Public Use Restrictions

The superintendent has the authority to impose public use and access restrictions in times of high fire danger. See the *Electronic Code of Federal Regulations (CFR), Title 36: Parks, Forests and Public Property* for additional information.

Public use restrictions could include, but are not limited to:

- Restricted fire use, e.g., no fires outside developed sites, no fires in the backcountry.
- Restriction of public use activities, e.g., off-road vehicles, backcountry access.
- Restriction of park operations or contract activities, e.g., construction blasting, chain saw use.
- Total or partial closure of unit.

Exhibit 1 contains a sample fire closure order.

5 Wildland Fire Prevention and Education Teams

Prevention and education teams are available to support any geographic area preceding and during periods of high fire danger or fire activity. A federal unit may use severity dollars in support of a prevention education team. States and other agencies will have appropriate funding systems. Federal and state agencies should be encouraged to form local interagency fire prevention and education teams. This can be an effective way to coordinate with neighboring agencies and other partners.

Additional information on the purpose, standard configuration, and ordering procedures for National Fire Prevention and Education Teams is contained in the *National Interagency Mobilization Guide* under Administrative Procedures and Overhead/Crews.

6 Cooperative Forest Fire Prevention Program (CFFP)

The Cooperative Forest Fire Prevention Program (CFFP) is a joint effort of the Advertising Council, the National Association of State Foresters, and the USDA Forest Service. The objective of the CFFP Program is to create and maintain public awareness about wildfire prevention. The CFFP Program manages Smokey Bear and related programs.

The CFFP Program provides a framework that can be expanded upon by regional, state, and local efforts. State and local programs can identify specific problem areas and plan solutions. Using Smokey Bear as the vehicle for wildfire prevention messages and using a variety of techniques to spread the message can stimulate active support and cooperation with other public agencies, educators, businesses, industry, and people interested in working to prevent unwanted human-caused wildfires.

The official Forest Service program policy and guidelines can be found in *Forest Service Manual 3100,* chapter 3110, Cooperative Forest Fire Prevention and *FSH 5109.18,* chapter 20, Cooperative Forest Fire Prevention Program.

6.1 CFFP Program Components

There are five major components to the CFFP Program:

1. *Public Service Advertising*—The production and distribution of advertisements for use in donated media time and space on commercial radio, television, and print media.

2. *Educational Activities*—The development and presentation of educational fire prevention programs. Activities and materials are targeted at children age 10 or younger to reinforce the key message of the need to prevent unplanned, human-caused fires.
3. *Commercial Licensing*—The use of the Smokey Bear image on commercial products and materials to further promote the fire prevention message, in accordance with the enabling legislation.
4. *Image and Appearance*—The protection and perpetuation of the established image and use of the Smokey Bear character, including trademark, artwork, slogan, and costume, for the sole purpose of promoting wildland fire prevention.
5. *Awards and Recognition*—Awards criteria, presentation, and availability for national, state, and local level programs.

6.2 Smokey Bear

Smokey Bear has been a symbol of fire prevention for more than 60 years, and the core message to the public continues to be that accidental or unwanted wildfires can and should be prevented. Although messages from land management agencies are more complex than ever regarding fire and ecosystem management, the wildland urban interface, and the health of our national parks and other public lands, Smokey's fire prevention message is still relevant. Nevertheless, Smokey's message must be understood and communicated in the context of other more comprehensive messages that focus on the beneficial ecological role of fire in the ecosystem. Smokey's message should not be altered, but it should be explained in the broader ecological context when appropriate.

Additional information regarding Smokey Bear can be found online at the *Smokey Bear* and *National Symbols Program* websites.

7 Firewise

The term *firewise* describes the state of being knowledgeable and prepared for wildfire in residential or urban settings. Firewise is one of the core activities of the National Wildland/Urban Interface Fire Program. This program is sponsored by the Forest Service; Department of the Interior (Bureau of Land Management, National Park Service, Bureau of Indian Affairs, and U.S. Fish and Wildlife Service); National Association of State Foresters; Department of Homeland Security/U.S. Fire Administration; and National Fire Protection Agency (NFPA). The Cooperative Agreement is managed by the Forest Service and the NFPA.

The national Firewise Communities Program is intended to serve as a resource for agencies, tribes, organizations, fire departments, and communities across the United States who are working toward a common goal to reduce loss of lives, property, and resources to wildland fire by building and maintaining communities in a way that is compatible with our natural surroundings. Additional information is available on the *Firewise* website.

Exhibit 1

SAMPLE FIRE CLOSURE ORDER

National Park Service Imposes Fire Closure Order for Lake Mead National Recreation Area and National Park Service Lands within the Grand Canyon Parashant National Monument

Superintendent William K. Dickinson has announced that fire restrictions are being imposed within Lake Mead National Recreation Area and National Park Service lands within the Grand Canyon Parashant National Monument effective July 2, 2003. The restrictions are necessary to prevent wildfires during the current period of high fire danger in Arizona and Nevada. Below average precipitation has caused drier than normal conditions, necessitating the restrictions. Effective 8 a.m., July 2, the following are prohibited on public lands within Lake Mead National Recreation Area and National Park Service lands within the Grand Canyon Parashant National Monument:

1. Building, maintaining, attending, or using a fire or campfire or any wood or charcoal burning device. You may build a fire in a developed campground and/or a beach area that is at least three feet in diameter and cleared of vegetation and/or any other flammable material. Stoves fueled by liquid petroleum or LPG fuels are allowed.

2. Smoking, except within an enclosed vehicle or building, a developed recreation site, or while stopped in an area at least three feet in diameter that is barren or cleared of all flammable material.

The following persons are exempt from the restrictions of this Fire Prevention Order:

1. Persons with a permit authorizing the activity.

2. Any federal, state, or local officer or member of an organized fire fighting force in the performance of an official duty.

The use of fireworks, including "safe and sane" is prohibited at all times on all public lands, including Lake Mead National Recreation Area and National Park Service lands within the Grand Canyon Parashant National Monument.

Violation of this High Fire Danger Closure Order is punishable by a fine of not more than $5,000 or imprisonment of not more than six months, or both under the Code of Federal Regulations - National Park Service Section (36 C.F.R. 2.13c). Violators may also be held responsible for resource damage, injuries to people, and the costs of fire suppression efforts.

This Closure supersedes and rescinds the Lake Mead National Recreation Area High Fire Danger Restrictions Order dated June 9, 2003.

Lake Mead National Recreation Area is a unit of the National Park Service.

FUELS MANAGEMENT

1 Introduction

This chapter provides policy direction for all activities associated with the management of wildland fuels, including prescribed fire, non-fire treatments, contracting, and community assistance. In addition, this chapter identifies specific programmatic requirements and responsibilities as well as guidance relating to adaptive management.

The fuels management program of the National Park Service has become increasingly important for reducing the risk of severe wildland fire to human communities and for maintaining or improving the health of park ecosystems. The NPS, along with other federal, state, tribal, and local land managers, must continue to work collaboratively to ensure that safe and effective fuels treatment efforts are planned and implemented. Because firefighter and public safety is the first priority in every fire management activity, fuels management programs will include a risk assessment process that adequately identifies and controls hazards in order to protect life, property, and resources.

Many of the wildland areas found in NPS units are characterized as fire-adapted or fire-dependent and thus require periodic fire to maintain a healthy, resilient condition. Within these ecosystems, certain kinds of fire are beneficial. Conversely, in the absence of wildland fire, including fuels treatments such as prescribed fire, undesirable impacts may occur. Therefore, a program that fails to responsibly conduct fuels management activities and treatments may carry significantly greater risks, long-term adverse ecological impacts, and life safety consequences than a proactive management program that includes these activities.

NPS fuels management program objectives may include, but are not limited to, maintaining natural processes and natural fire regimes, replicating the effects of natural fire, maintaining cultural and historic scenes, reducing hazardous fuels, managing condition class, managing non-native species, and preserving endangered species and habitat. Throughout the NPS, fuels management treatments are also used to accomplish basic maintenance needs, including maintaining open areas—such as scenic vistas, trails, and roadsides—and disposing of vegetation and debris. Fuels management includes not only naturally occurring fuels but also accumulation of fuels resulting from resource management and land-use activities. Fuels management programs entail strategic planning and collaboration, environmental compliance, interdisciplinary coordination, treatment implementation, and adaptive management practices

ranging in scale from site specific to landscape level. Many projects are designed to achieve resource benefits and protection benefits simultaneously.

Prior to implementing fuels management projects, parks will identify appropriate treatment applications through approved management plans, such as fire management plans, vegetation management plans, resource management plans, and/or general management plans. Activities and treatments defined in this chapter may be accomplished through contracts and use of sources outside the NPS in accordance with established Departmental and agency policies and procedures.

While prescribed fire remains the most widely used tool for fuels management in the NPS, manual and mechanical treatments, contracting services, biomass utilization, and community assistance activities are additional components of the program. With recent broadening of the fuels management spectrum, it is necessary to address and expand direction for all elements that compose the fuels management program.

2 Responsibilities

Additional responsibilities specific to prescribed fire are found in exhibit 1 and in the *Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide*.

2.1 National Level

The national office will:

- Represent the interests of NPS fuels management at the national level with interagency partners and other government and non-government agencies.
- Lead the development of NPS policy related to fuels management.
- Determine the NPS portion by region of the Department of the Interior's fuels budget.
- Provide support as requested to the regions and parks.

2.2 Regional Level

The regional offices will:

- Develop and manage the regional fuels program of work.
- Assist parks with shared resources, contracts, and agreements.
- Distribute fuels funding to individual parks.
- Provide guidance and support for policy and strategy.

2.3 Park Level

Each park with a fire program will:

- Propose, plan, and implement approved fuels treatments and activities.
- Report accomplishments in the National Fire Plan Operations and Reporting System (NFPORS).
- Ensure policy and standard practices are adhered to in all aspects of fuels management.
- Coordinate with other local partners and intra-park divisions to further the goals of the park's fuels management program.
- Provide employee developmental opportunities in the fuels program.

3 Program Requirements

3.1 Fire Management Plan

Each unit intending to implement prescribed fire as part of a fuels management program must have an approved fire management plan authorizing and describing such activities (see *RM 18,* Fire Management Plans chapter). NPS fire management plans incorporate a programmatic approach to the National Environmental Policy Act of 1969 (NEPA). The Environmental Impact Statement (EIS), Environmental Assessment (EA), or Categorical Exclusion (CE) prepared for the fire management plan must address any proposed fuels management project; otherwise, a separate NEPA document (EIS, EA, or CE) must be prepared.

3.2 Fuels Management Compliance

Compliance is the process of meeting the requirements of laws and regulations during project planning. All fuels management treatments and activities must comply with the National Environmental Policy Act (NEPA). In addition to NEPA, projects must meet the requirements of the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), the Clean Air Act (CAA), and other federal, state, tribal, and local laws and regulations.

NEPA (Public Law 91-190, 1969, as amended) requires that every federal agency prepare an in-depth study of the impacts of "major federal actions having a significant effect on the environment" and alternatives to those actions, and that each agency make that information an integral part of its decisions. NEPA also requires that agencies make a diligent effort to involve the interested and affected public before they make decisions affecting the environment (NPS *DO 12 Handbook, Handbook for Environmental Impact Analysis*).

> NEPA's intent is to encourage planning for conservation and resource management and integration of scientific and technical information into management decisions, rather than an after-the-fact "compliance" effort. A well-done NEPA analysis provides useful information on environmental pros and cons (i.e., impacts) of a variety of reasonable choices (alternatives); this analysis is much like an economic cost-benefit or technical or logistical planning. It is an essential prelude to the effective management of park resources (NPS *DO 12 Handbook*).

The compliance process is initiated at the park level. Most parks have a standard process for review of proposed projects. NEPA requires the use of an interdisciplinary team (IDT) to review proposed projects. The Environmental Screening Form (ESF) is the tool used by the IDT to facilitate discussion. The compliance or NEPA specialist at the park can assist in initiating this process. If the park has no compliance specialist, regional compliance specialists can be consulted, with supervisor's approval. Additional guidance can be found in the *DO 12 Handbook*.

The IDT uses the ESF to promote discussion about the proposed project, including identifying applicable laws and regulations and determining the appropriate compliance document. This discussion process is called internal scoping. The ESF includes a checklist of possible impact areas. Each item on the checklist directly relates to one or more environmental laws or regulations. If the IDT determines that (1) the proposed project will have no significant consequences on any of the checklist items, (2) none of the excepted actions in the Mandatory Criteria section applies, and (3) effects are less than minor, then the project may be categorically excluded from NEPA compliance and a categorical exclusion form would be prepared. If the IDT determines that the proposed project may have an impact on any of the checklist items, then the law or regulation from which that item derives is applicable. If, in consideration of the law or regulation, the IDT determines that the impact would be more than minor, then an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) would be required. Although the appropriate compliance document may differ from one project to the next, prescribed fire, non-fire treatments, and debris burning projects must meet all the same compliance requirements, and the steps to determine the appropriate document are the same. There are four possible outcomes from the internal scoping discussions conducted by the IDT:

1. The IDT determines that compliance is adequately covered under another compliance document or documents. If project-specific analyses are included in another document, no additional analysis is required. The IDT will determine whether analysis in another document is sufficient to be considered project-specific, but generally a project-specific analysis specifies the location and boundaries of the project area, the actions and treatments to be

accomplished, and the potential impacts. In this case, the relevant document(s) will be noted on the ESF, and the ESF will be signed by the IDT members. A memo to files (coordinated with the appropriate regional environmental coordinator) and the ESF must be included in the project file to serve as the record of compliance for the project.

The IDT may determine that although NEPA compliance is covered under another compliance document, other compliance requirements have not been met. Usually Section 106 (of the National Historic Preservation Act, or NHPA) and sometimes Section 7 (of the Endangered Species Act, or ESA) are not adequately addressed in a NEPA document (see below for more information on Section 106 of the NHPA and Section 7 of the ESA). The additional analyses identified must be completed and documented. Then the ESF may be signed by the IDT members and included in the project file along with the additional documentation required.

2. The IDT determines that a categorical exclusion (often called a Cat Ex or CE) applies. The CE will be documented on the ESF, and the ESF will be signed by the IDT members. The IDT must determine whether there are any interested or affected members of the public that must be consulted. For more guidance on CEs and a description of CEs available for use by the NPS, see the *DO 12 Handbook*. The conditions associated with the categorical exclusion for hazardous fuels reduction *projects* are described briefly below, and additional guidance is in *Environmental Statement Memorandum 03-2 (ESM03-2)*, which can be found on the DOI Office of Environmental Policy and Compliance web page. Contact your regional environmental coordinator for assistance because external consultation or public scoping may be required, and some regions have different documentation requirements. All documents must be included in the project file to serve as the record of compliance for the project. *Note: If the project will have any impacts that are more than minor or meet any of the special circumstances described in RM-12, Section 3.5, you cannot use a categorical exclusion.*

   The IDT may determine that although a CE applies, other compliance requirements have not been met. Usually Section 106 (of the National Historic Preservation Act, or NHPA) and sometimes Section 7 (of the Endangered Species Act, or ESA) are not adequately addressed by the CE or by another compliance document (see below for more information on Section 106 of the NHPA and Section 7 of the ESA). The additional analyses identified must be completed and documented. Then the ESF may be signed by the IDT members and included in the project file along with the additional documentation required.

3. The IDT determines that, at this point in time, it is appropriate to proceed with an EA. If the project will have any impacts that are more than minor, NEPA requires an in-depth analysis of the impacts. Unless project-specific analyses are included in another document, additional analysis is required. The ESF will document the need for analysis, be signed by the IDT members, and must be included in the project file to serve as part of the record of compliance for the project. Then the additional compliance analyses identified (the EA) must be completed, documented, and included in the project file. There are two possible conclusions to the EA compliance process: either a course of action is selected and documented in a Finding of No Significant Impact (FONSI), or the analysis demonstrates the potential for significant effects and a Notice of Intent (NOI) to prepare an EIS is issued.

4. The IDT determines that an EIS will be required. This happens only rarely for individual fire management projects. The ESF or an EA will document the need for an EIS, will be signed by the IDT members, and must be included in the project file to serve as part of the record of compliance for the project. Then the additional compliance analyses identified (the EIS) must be completed, documented, and included in the project file. The EIS compliance process is concluded through publication of a Record of Decision (ROD) documenting the selection of the course of action. If the IDT determines that an EIS will be required, seek additional guidance from the park, support office, or regional environmental coordinator.

3.2.1 National Historic Preservation Act (Section 106)

The National Historic Preservation Act (NHPA) (Public Law 89-665, 1966, as amended) provides for the protection of sites with historic places and structures, with the intent of preventing harm to historic structures and properties. It requires the NPS to consider the effects of an action on historic properties. The park's NHPA (Section 106) coordinator should be a part of the initial IDT screening process. The NHPA coordinator will request review of the project and recommendations from the park's cultural resource management advisors and from the State or Tribal Historic Preservation Office (SHPO/THPO). The form for Assessment of Actions Having an Impact on Cultural Resources (also called the XXX Form, Assessment of Effect Form, or Section 106 Form) will be completed, usually by the NHPA coordinator, and included in the project record. If the park does not have a NHPA coordinator, guidance should be requested from the support office or regional cultural resource specialist.

3.2.2 Endangered Species Act (Section 7)

Federal agencies are required under Section 7 of the Endangered Species Act (ESA) (Public Law 93-205, 1973, as amended) to ensure that their actions do not jeopardize the continued existence of a listed species or result in destruction or adverse modification of its critical habitat. Additionally, Section 9 of the ESA prohibits the illegal taking (killing) of a listed species. The ESA is referenced in the ESF, but it is addressed separately here because its requirements may necessitate additional documentation. If the IDT determines that the proposed project may affect a listed species or its critical habitat, and a previous consultation does not cover the proposed project, then consultation is required. The potential impacts of the project on the species or habitat must be evaluated in writing and summarized using the following official terminology: *No Effect; May Affect, Not Likely to Adversely Affect;* or *Likely to Adversely Affect*. The consultation, which is usually coordinated through the park's natural resource staff, may be accomplished through an Alternative Consultation Agreement (ACA) (when such an agreement is in place and when the determination is *May Affect, Not Likely to Adversely Affect*), or the park may be required to contact the appropriate U.S. Fish and Wildlife Service (FWS) field office directly. In the first case, a qualified member of the park staff conducts and documents the evaluation of impacts; the Natural Resources Program Center must be notified if the ACA is applied. In the second case, the evaluation of impacts is sent to the FWS field office for review, and the field office staff provides a letter to the park indicating agreement with the assessment, requesting additional information, or providing additional guidance.

3.2.3 Clean Air Act

Section 118 of the Clean Air Act (CAA) (Public Law 91-604, 1977, as amended) specifies that all fuels management activities which result in the discharge of air pollutants such as smoke or carbon monoxide are subject to, and must comply with, all applicable federal, state, interstate, and local air pollution control requirements. The chapter on Air Quality and Smoke Management in *Reference Manual 18 (RM 18)* addresses these issues in detail.

3.2.4 Categorical Exclusion for Fuels Management Projects

A categorical exclusion, also called a Cat Ex or CE, is a general determination by the government that a particular activity rarely, if ever, has any impacts on the human environment that are more than minor. If the project will have any impacts that are more than minor, a categorical

exclusion cannot be used. For more guidance on CEs and a description of CEs available for use by the NPS, see the *DO 12 Handbook*. Since June 5, 2003, there has been a special Healthy Forests Initiative (HFI) CE that may be used for hazardous fuels reduction projects (the second HFI CE, which is often paired with the first, is for post-fire rehabilitation activities). In order to apply the CE, the following requirements must be met:

- If the project is a prescribed fire treatment, the treatment area must be no more than 4,500 acres (1,820 hectares). If the project is a mechanical treatment, which includes crushing, piling, thinning, pruning, cutting, chipping, mulching, and mowing activities, the treatment area must not exceed 1,000 acres (400 hectares); AND
- The project must be identified through a collaborative framework as described in *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan*. That is, it must be a National Fire Plan project, which means it must be identified in NFPORS; AND
- The project must be conducted in a manner consistent with agency and Departmental procedures and applicable land and resource management plans; AND
- The project must not be conducted in wilderness areas or impair the suitability of wilderness study areas for preservation as wilderness; AND
- The project must not include the use of herbicides or pesticides or the construction of new permanent roads or other new permanent infrastructure. However, it may include the sale of vegetative material if the primary purpose of the activity is hazardous fuels reduction; AND
- The project must meet at least one of these two conditions:
  1. It must be in the wildland urban interface, that is, it must be associated with a Community-At-Risk; OR
  2. It must be in Fire Regime Group I, II, or III and in Condition Class 2 or 3.

3.3 Risk Management and Job Hazard Analysis (JHA)

Employee and public safety is the first priority in every fire management activity. Individual employees are responsible for knowing, understanding, and practicing safe fire management practices. The chapter on Standards for Operations and Safety in *RM 18* deals specifically with safety and health related to wildland fire actions. NFES 1077, *Incident Response Pocket Guide*, also provides guidance for safety and operations on fuels management projects. The chapter on Safety in the *Interagency Standards for Fire and Fire Aviation Operations* identifies safety items that should be considered for safe fuels management activities and

treatments. Two of the primary sections in the chapter are job hazard analysis and risk management.

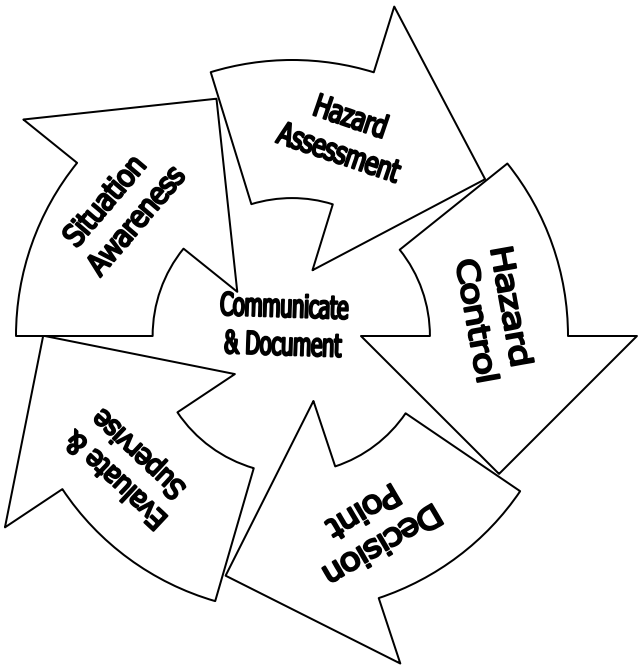
Job hazard analysis information is available online through the USDA Forest Service *and* Occupational Safety and Health Administration JHA web pages. Fire management staff should review JHAs at the websites to determine if they meet their local programmatic needs. For those job aspects unique to a local fuels program, an appropriate specific JHA should be developed. The JHA may apply to an individual park or cluster of parks.

Fuels management programs will include a risk management process. Risk management is a continuous, methodical information-gathering process that involves the following steps:

1. Recognizing the hazard(s).
2. Identifying what is causing the hazard(s).
3. Developing mitigations to avoid or eliminate the hazard(s).
4. Implementing and evaluating the mitigation plans.
5. Ensuring hazard information is communicated and documented at all levels of the program.

The risk management process will be iterated throughout the life cycle (planning, preparation, execution, and evaluation) of all fuels treatments and activities. More information on the risk management process can be found in the *Incident Response Pocket Guide* (NFES 1077).

FIGURE 1. The Risk Management Process



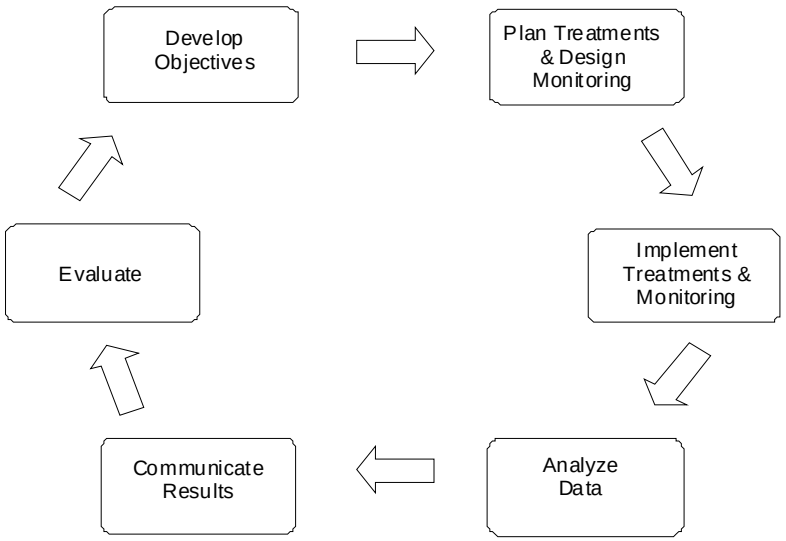
3.4 Monitoring and Adaptive Management

Fuels management activities and treatments must be monitored in order to assess treatment effectiveness and to determine whether management objectives were met. Moreover, monitoring is the basis of a successful adaptive management program. See the chapter on Fire Ecology and Monitoring in *RM 18* for specific information concerning monitoring techniques and frequencies.

Each NPS unit will utilize an adaptive management process to plan, implement, and evaluate the fuels management program. This process should consider the effectiveness of planning and collaborative processes, as well as an analysis of short- and long-term monitoring data, accomplishment of objectives, observed changes, operational feedback, and program accountability. The results of the evaluation should direct review and revision of project objectives and adjustment to the program when necessary.

Non-fire hazardous fuels treatments warrant the same adaptive management approach as fire treatments. For both the initial treatment and any ongoing maintenance, it is important to ensure that the monitoring design is based on the objectives being measured.

FIGURE 2. The Adaptive Management Process



The success of any prescribed fire or non-fire treatment is generally achieved through frequent consultation and solicitation of input from both fire and resource management staff throughout all phases of the project. Using tools such as ecological After Action Reviews and feedback loops, the adaptive management

process should facilitate the collaborative planning that is required for successful treatments that will continue to maintain their integrity through time.

Communication of monitoring results at annual meetings must occur and must reach all concerned and interested decision-makers, resource managers, fire managers, and the public. Recommended actions also include scheduling annual meetings to evaluate the previous year's actions and results, discuss whether objectives were met, and develop consensus on current and future years' management actions.

See the chapter on Fire Ecology and Monitoring in *RM 18* for further discussion of adaptive management.

3.5 Communication, Collaboration, and Coordination

The adaptive management process described above is an example of how a park can communicate, collaborate, and coordinate with concerned and interested parties. Each program will establish and follow a process for communication, collaboration, and coordination for the planning, preparation, implementation, and evaluation of fuels projects with adjoining and affected federal, state, tribal, and local agencies, and private landowners. This will provide a forum for raising and resolving issues, exchanging skills and resources, monitoring and evaluating accomplishments, and providing for communication among affected parties.

Impacts from the implementation of a fuels project have the potential to cross single agency boundaries. When project treatments and activities cross jurisdictional boundaries, a single plan will be developed meeting the needs of all the involved cooperators. The collaborative plan must identify a project management structure agreeable to all cooperators.

Collaboration with state and local governments as well as interagency partners is a crucial component of NPS fuels management. Treatments in the wildland urban interface (WUI) should be identified through a collaborative process, and the highest priority should be given to Communities-at-Risk, as identified by the state.

3.6 Fuels Management Program Reviews

Superintendents must ensure compliance with NPS policy and regional office direction for fuels management activities and ensure that periodic reviews and inspections of the fuels management program are completed. Regional and national level reviews will be conducted at periodic intervals to ensure program effectiveness and consistency. The Fire Management Program Center (FMPC)

maintains a current set of protocols for conducting fire program reviews. The protocols are available upon request at the NIFC Fire Program Review website.

3.7 Facilities, Construction, and Defensible Space

All NPS design and construction projects must consider wildland fire prevention, protection capability, and mitigation measures to reduce the potential for adverse impacts of wildland fire. They must also take into account preconstruction vegetation and fuels management and use of fire resistant design and materials. The NPS has adopted the International Code Council's (ICC's) *International Urban-Wildland Interface Code* (2006). Contained in the ICC's code (sections 603 and 604) are descriptions of defensible space and maintenance requirements for urban wildland interface areas. Maintenance of the defensible space includes modifying or removing non-fire-resistant vegetation and keeping needles, leaves, and other dead vegetative material regularly removed from around structures and roofs.

The code stipulates that the minimum requirement for defensible space around structures is 30 feet. Tree crowns should be pruned and maintained to a minimum of 10 feet horizontal clearance from structures and overhead electrical facilities. Tree limbs should be pruned to maintain a 6-foot clearance above the ground. High fire-hazard areas, flammable construction materials, topography, and fuels may require up to, and possibly more than, 100 feet of additional clearance space. The need for additional clearance should be determined by the park structural fire coordinator, fuels manager, FMO, chief ranger, or park superintendent.

3.8 Personnel Qualifications, Work Capacity, and Certification

Everyone working in the fuels management program will meet the appropriate interagency position competencies, job qualifications in PMS 310-1, work capacity levels (see *RM 18*, Training, Qualifications, and Certification chapter), and Red Card qualifications from the Incident Qualifications and Certification System (IQCS).

3.9 Business Rules

Specific information on fuels program tracking and reporting, staffing levels, and budget is contained within the NPS Annual Financial Management Guide.

The following topics of interest to the fuels management program are covered in the business rules:

- Program Management Funding Requests and Management

- Project Activity and Treatment approval in NFPORS
- Managing Projects, Activities, and Treatments
- Determining Acres Treated
- Community Assistance

3.10 Fuels Treatment on Private Lands

Fuels treatment on private lands is authorized under the authority of the Wyden Amendment, which is codified in Title 16, chapter 18, section 1011 of the Code of Federal Regulations (CFR), or under the authority of the Interior Appropriation Act.

The Wyden Amendment allows the Service to enter into agreements with “the heads of other Federal agencies, tribal, State, and local governments, private and nonprofit entities, and landowners for the protection, restoration, and enhancement of fish and wildlife habitat and other resources on public or private land and the reduction of risk from natural disaster where public safety is threatened that benefit these resources on public lands within the watershed." All fuels treatments must also comply with NPS fire management policies. To comply with the CFR there must be a signed agreement with the landowner that

- Includes such terms and conditions mutually agreed to by the Service and the landowner.
- Stipulates improved viability of and otherwise benefit to the fish, wildlife, and other biotic resources on public land in the watershed.
- Authorizes the provision of technical assistance by the Service in the planning of management activities that will further the purposes of the agreement.
- Provides for the sharing of costs of implementing the agreement among the Service, the landowner, and other entities, as mutually agreed on by the affected interests.
- Ensures that any expenditure by the Service pursuant to the agreement is determined by the Service to be in the public interest.
- Includes such other terms and conditions as are necessary to protect the public investment on private lands, provided such terms and conditions are mutually agreed to by the Service and the landowner.

Starting in 2004, the Department of the Interior Appropriation Act provided more direct authority for fuels management treatments on private lands. The 2004 Interior Appropriation Act stated:

> That using the amounts designated under this title of this Act, the Secretary of the Interior may enter into procurement contracts, grants, or cooperative agreements, for hazardous fuels reduction activities, and for training and monitoring associated with such hazardous fuels reduction

activities, on Federal land, or on adjacent non-Federal land for activities that benefit resources on Federal land: Provided further, that the costs of implementing any cooperative agreement between the Federal Government and any non-Federal entity may be shared, as mutually agreed on by the affected parties.

An approved prescribed fire plan and qualified burn boss are required for NPS resources to participate on prescribed burns on non-NPS lands. The approved plan should meet the minimum requirements for a prescribed fire plan as described in the *Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide* (2006). The burn boss must meet National Wildfire Coordinating Group qualifications for a burn boss, or, in the case of agencies or entities that are not members of NWCG, be certified as qualified as a burn boss by his or her sponsoring agency. In situations where qualifications of an agency or individual are questionable, it is required that burn boss duties are jointly administered under a unified command, with at least one of the burn bosses having NWCG burn boss qualifications.

3.11 Data Management

All fuel project information will be documented, maintained, and stored at the park level. This includes all plans, maps, and GIS data layers. The chapter on Information and Technology Management in *RM 18* provides guidance on data stewardship, standards, documentation, sharing, and archiving.

4 Community Assistance (CA)

DOI policy directs the National Park Service to "jointly collaborate and coordinate WUI Community Assistance Programs with States, State Foresters, local and state emergency management, the USDA Forest Service, and the Federal Emergency Management Agency, as appropriate. All projects and activities undertaken in support of fuels management and Community Assistance (CA) will comply with all applicable federal, state, and local laws and administrative requirements" (620 DM 4; 4.4, J & K). NPS fuels managers should involve their contracting officers early in the process to ensure timely distribution of CA funds, usually through an agreement.

Community Assistance includes activities or treatments performed usually on non-NPS property (inholdings, communities, subdivisions, etc., immediately adjacent to NPS property) to mitigate the risks to adjacent properties from wildland fires that originate on NPS lands. CA also includes community workshops for prevention and educational activities on non-NPS lands.

CA treatments are stand-alone—that is, they are not conducted as part of an NPS project. The treatments are developed through a community mitigation plan or Community Wildfire Protection Plan (CWPP; see section 4.6) on lands outside the park, and are supported with Community Assistance funding. Emphasis and priority is given to the communities identified through the state process as wildland urban interface (WUI) Communities-at-Risk (CAR). The needs and planning complexities of WUI communities vary widely.

4.1 Compliance with Laws and Codes

Grant announcements must be consistent with applicable sections of Public Law 106-107 and Office of Management and Budget (OMB) policy and guidance. Grants and agreements will be administered in accordance with applicable sections of CFR 43.12 (Administrative and Audit Requirements and Cost Principles for Assistance Programs).

4.2 Eligibility Criteria

Programs or activities proposed for WUI funds must meet the following criteria:

- Programs or activities must be mutually beneficial to DOI/NPS and the receiving partner or community in protecting lives and property and reducing wildfire-related loss and suppression costs. *Mutually beneficial* means the community receiving an award must be deemed at risk from a fire ignited on NPS federal lands.
- Communities must be identified as Communities-at-Risk in the vicinity of federal land through either a listing on the *Federal Register* or through collaboration with their respective states. The most recent listing through the *Federal Register* may be found in *Federal Register Volume 66, No. 160, 2001*.
- Programs, projects, or activities must be identified and prioritized in a CWPP or the equivalent (community workshops are an exception to this rule).
- Community workshops eligible for funding must focus on activities and materials that support education and information on wildfire prevention, planning, and defensible space for non-NPS lands.

In addition, to be eligible for NPS-funded Community Assistance, communities on non-NPS lands identified as Communities-at-Risk (CAR) must follow these two steps:

- Complete a Risk Assessment for the CAR.
- Develop a risk mitigation plan such as a Community Wildfire Protection Plan (CWPP), or the equivalent, that addresses potential risks and their mitigations. (The park's FMP may serve this function for CARs within or

immediately adjacent to the park boundary, provided the plan has been recently updated and analyzes risks to communities).

Only those treatments and activities identified in the mitigation plan are eligible for funding, with the exception of community workshops.

4.3 Allowable Program Expenditures

Agency administrators have the responsibility to ensure that program expenditures comply with policy and related guidance. Community Assistance funds may be used to fund the following types of programs and activities:

- Wildland fire prevention activities and related materials.
- Community Wildfire Protection Plans, including risk assessments and mitigation plans.
- WUI community workshops and defensible space demonstrations.
- Hazardous fuels reduction treatments on federal and non-federal lands in the WUI (covered under a CWPP or equivalent).

Prohibited expenditures include purchase of real property, capital assets, and construction, or fees for recipients to prepare assistance agreements. Administrative costs related to allowable expenditures must be minimized in all cases.

4.4 Program Awards

Participation in regional or state assistance clearinghouses or one-stop assistance distribution programs is encouraged, as appropriate. Awards may be distributed directly to non-profit or not-for-profit entities, or to state or local governments, where it is determined to enhance program effectiveness and enhance collaborative efforts. Priority will be given to programs or projects where recipients provide matching contributions or in-kind goods and services, with the following limits on in-kind goods and services:

- They will not be derived from other federal assistance programs.
- They will not be used as an in-kind contribution toward cost matching requirements for any other federal assistance program.
- Their value will be determined using scales and estimates appropriate in the local area, with concurrence of the park superintendent and cooperators.
- They will not include grant administration costs and/or grant application preparation fees.

4.5 Annual Year-End Closeout Reports

All recipients of Community Assistance funds will file an annual closeout report incorporating applicable elements as described in 43 CFR 12.90 and any other information deemed necessary to evaluate program effectiveness and performance. The reports will be archived at the sponsoring park or regional NPS office.

4.6 Community Wildfire Protection Plan

A Community Wildfire Protection Plan (CWPP) is generally developed by the local community or entity, with assistance from state and federal agencies and other interested parties. A CWPP can be as simple or complex as the community determines is needed. Only those treatments and activities identified in the mitigation plan are eligible for funding.

To be eligible for NPS-funded Community Assistance/Implementation actions on non-NPS lands, communities should develop a CWPP. The suggested outline for a CWPP is as follows:

1. Community Identification and Description, including WUI boundary.
2. Community Assessment, including fuel hazards, risk of ignition, values-at-risk, and local protection capability.
3. Community Mitigation Plan, including prioritized fuel reduction treatments, prevention strategies, and improved protection capabilities.
4. Implementation and Monitoring, including identified roles of stakeholders.

Equivalent planning documents to a CWPP, provided they address the elements outlined for the CWPP, may include:

- Park Fire Management Plan
- Other Agency FMP
- Local Government All-Risk Disaster Plan

4.7 Community Workshops

A community workshop is a structured educational meeting or informational exchange (Student Conservation Association fire education efforts, Firewise-type programs, newsletters, brochures, and publications, school or community fire and WUI programs, etc.) focused on communities outside NPS boundaries and involving agency and non-agency stakeholders in the community. Activities focused solely on prevention and education *within* a park will be funded out of that park's preparedness support funding. Fuels-funded permissible activities include education activities that encourage landowners and communities to treat

fuels on non-federal property where a continuous corridor of hazardous fuels exists between NPS lands and a WUI community. The key is to facilitate a move from awareness to action by forming partnerships and coalitions among citizens, local fire protection and emergency services, state governments, and federal agencies.

5 Contracting

Contracting is a tool to provide the NPS with resources needed to accomplish fuels management activities and treatments. Contracting also provides an important source of work for local economies and communities where wildland fire is part of the landscape. Contracting satisfies stipulations in Appropriations language, the National Fire Plan, and the *10-year Implementation Plan*.

There are some duties and functions that are deemed "inherently governmental" and may not be contracted. Federal Acquisition Regulation 7.501(a) lists as inherently governmental any actions to "bind the United States… by contract," and actions which "significantly affect the life, liberty, or property of private persons" or "direct or control officers or employees of the United States." According to FAR 7.501, definitions of inherently governmental functions are made by "policy determination, not legal determination."

Contract is defined as an arrangement between a federal agency and a non-federal agency that provides the accomplishment of the federal agency's mission in return for money. *Contractor* is defined as personnel, vendors, or businesses contracted to provide goods and services to a government agency. For the purpose of NPS fuels management, *contracting* is defined as utilizing a non-federal agency (vendor, contractor, etc.) to acquire personnel, equipment, services, and end-product specifications to achieve project objectives.

5.1 Responsibilities of the Contracting Officer (CO)

- Exercising delegated authority to enter into, administer, and/or terminate contracts on behalf of the government.
- Operating within the terms of delegated authority.
- Adhering to the Federal Acquisition Regulation (FAR).

5.2 Responsibilities of the Contracting Officer Representative (COR)

- Assisting the CO to develop the contract, especially the project description and statement of work (this may also be done by the project manager/FMO/fuels specialist).
- Identifying government property to be used for contractors' purposes.

- Providing technical assistance to the CO through all phases of the contract.
- Developing and following a COR work plan with the concurrence of the CO.
- Participating in the CO's briefings with the contractor.
- Monitoring contractor performance throughout the life of the contract.
- Inspecting and documenting contractor work, and recommending acceptance or non-acceptance of work performed to the CO.
- Evaluating and documenting contractor performance.
- Identifying for the CO any needed changes or modifications to the contract.
- Identifying and verifying any delays in the contractor performance to the CO; assisting the CO in the response to the contractor.
- Identifying potential conditions to stop work, recommending a work stoppage to the CO.
- Notifying the CO of potential claims or disputes arising from the contractor.
- Notifying the CO of performance failures.
- Identifying events that can potentially cause termination of a contract, and notifying the CO of findings.
- Accepting the payment document from the contractor for processing, notifying the contractor of the final amount calculated to be paid, and submitting the correct invoice to the paying office.
- Closing out the contract files, and submitting the files to the CO.

5.3 Responsibilities of the Project Manager

The project manager (the COR, FMO, fuels specialist, fire ecologist, etc.), in conjunction with the CO, develops the contract. If the COR is not the project manager, the COR should also be included in development of the contract. The project manager should be prepared to deliver the following crucial elements to the CO for inclusion in the contract:

1. Scope of Work
2. Background, location, project execution, and safety considerations
3. Restrictions
4. Period of performance
5. Protection of sensitive features

If the project manager is not the COR for the contract, there should be established communication between the two during the development, implementation, and evaluation of the contract to ensure cohesive direction and intent.

5.4 Types of Contracts

NPS fuels management treatments and activities that are to be contracted should be brought to the attention of the local servicing contract office as soon as possible for direction on what type of contract would be best for the situation. Examples of contracts that are currently being utilized for fire management include the following:

- Definite Quantity
- Indefinite Delivery, Indefinite Quantity (IDIQ), with guarantees
- Requirements
- Call-When-Needed (CWN) Agreements
- Emergency Equipment Rental Agreements (EERAs)
- Cooperative Agreements with non-federal entities (universities, Student Conservation Association, Americorps, prison crews, non-governmental organizations (NGOs)

The contracting office will advise on the length of time it will require from the time the contract is written to the time actual work can begin, as well as other requirements and timelines that are associated with contracting.

5.5 Contract Format

The following is a description of the elements included in a contract.

1. Scope of Work: Describe the contractor responsibilities for transportation, personnel, materials, equipment, and all other services necessary to accomplish the desired outcome of the project.

2. Background: Explain the need for the project, how it relates to land management plans, and the goals and objectives of the treatment or activity.

3. Project Location: Provide detailed location maps, size of the treatment or activity, state, county, and boundary description.

4. Project Execution: Provide the statement of work and specifications.

5. Project Restrictions: Note all restrictions pertaining to the contract in this section.

6. Public/Worker Safety: State any safety requirements that the contractor will be responsible for adhering to, including development of a site-specific safety plan (OSHA, DOT, PPE, etc.).

7. Inspection and Time of Work: State that work will be monitored by a representative of the Contracting Officer (COR) to ensure safety requirements are being met, work is progressing, and any problems that arise can be resolved. The contractor or designee will be present at all times work is being performed. If applicable, include a statement of normal working hours and a disclosure of no work on weekends or federal holidays.

8. Contractor Responsibility: The contracting officer will insert standard required clauses in this section, including what the contractor is responsible for in order to accomplish the treatment/activity in accordance with all local, state, and federal laws, and all the terms and conditions of the contract. Work will be performed in compliance with federal and state OSHA requirements. The contractor will be responsible for the safety of equipment and employees, and for any and all damages or injuries done to or by them from any source or cause. The contractor will also agree that personnel will be drug-free and conduct themselves in a professional manner at all times. The contractor shall save and hold the United States free from all claims for damages to any or all persons and or property from the execution of the work covered by these specifications.

9. Protection of Vegetation, Structures, and Utilities: State that the contractor will preserve and protect all park resources on or adjacent to the work site. Include any park-specific measures and acceptable rehabilitation if damage does occur.

10. Site Visit: Bidders are encouraged to visit the project site prior to bidding.

11. Pre-work Conference: Prior to the start of work, the contracting officer will arrange for a pre-work conference with the contractor to determine any requirements that must be resolved to accommodate the work. The contracting officer representative (COR) and project manager should also attend this conference.

12. Notice to Proceed: Upon completion of the meeting, the contracting officer will issue a Notice to Proceed with the work.

13. Period of Performance: State the amount of time the contractor has to complete the treatment/activity.

14. Evaluation of Bids for Multiple Awards: If more than one treatment/activity is being awarded, allowances for contractors to bid on multiple projects can be made. Describe evaluation factors for “best value” and which factors will receive the most consideration for determining best value.

5.6 Contract Administration

Contracts must meet the pertinent contract clauses set forth in 48 CFR Section 52 and Department of the Interior Acquisition Regulation (DIAR) Part 1452. Only qualified contract officer representatives (COR) and the contracting officer will actively interact with the contractor or designee. The project manager should channel all communication with the contractor through the CO or COR. The COR will not make any decisions or obligations concerning the contract; any changes or modifications must be made by the contracting officer. Final inspection will be performed by the assigned contract officer representative and/or the contracting officer.

5.7 Guidance on Timber Disposal

The Office of Acquisition and Property Management and the DOI Office of the Solicitor have reviewed information and documentation regarding timber cutting in national parks. The 1916 Organic Act provides, at 16 USC Section 3, that, with respect to NPS “parks, monuments and reservations,” the Secretary of the Interior may “dispose of timber” when, in the Secretary’s judgment, “the cutting of timber is required to control attacks of insects or diseases or otherwise conserve the scenery or natural or historic objects in any such park, monument or reservation.” Such actions are subject to any additional limitations found in individual park enabling legislation, the National Environmental Policy Act (NEPA) of 1969, the Endangered Species Act (ESA), and regulations governing federal actions affecting the environment (see, e.g., 40 CFR §§1501: NEPA and Agency Planning and §§1507: Agency Compliance; see also 50 CFR § 402 for information on consultation among federal agencies regarding the effect of actions on endangered or threatened species). The Organic Act has been used over the years, when consistent with sound environmental management, to allow land management treatments including thinning of hazardous fuel conditions.

The proceeds from timber sales will be sent to the Treasury. The only exception is when the Woody Biomass Utilization Clause is used for thinning, and the cost of the contract can be offset by the value of the biomass the contractor is allowed to purchase.

5.8 Woody Biomass Utilization Clause

In 2004, the Department of the Interior issued an interim final rule, 48 CFR Part 1437, including an option to allow service contractors to remove woody biomass generated as a result of land management service contracts wherever ecologically appropriate and in accordance with the law.

- *Woody biomass* means the trees and woody plants, including limbs, tops, needles, leaves, and other woody parts, grown in a forest, woodland, or rangeland environment, that are the by-products of a management, restoration, and/or hazardous fuel reduction treatment.
- *Ecologically appropriate* means those situations where the deciding officer (park superintendent) determines it is not necessary to retain specific woody material and/or reserve specific areas from woody biomass removal to meet ecological objectives. For example, it would not be ecologically appropriate to allow removal of the specified woody biomass if snags or coarse woody debris are necessary to meet wildlife habitat objectives or to create specific prescribed burning conditions to stimulate native plant development.
- *Woody biomass utilization* or *use* means the harvest, sale, offer, trade, and/or utilization of woody biomass to produce the full range of wood products, including timber, engineered lumber, paper and pulp, furniture and value-added commodities, and bio-energy and/or bio-based products such as plastics, ethanol, and diesel.

Where ecologically appropriate and compliant with NEPA, project managers may choose to dispose of woody biomass through service contractors to reduce fuels by non-fire means and to preserve air quality.

Land management service contracts issued after October 1, 2004, must include an option for the contractor to remove woody biomass wherever ecologically appropriate (as determined by the park superintendent) and in accordance with the law (48 CFR 1437). The biomass must be generated during land management service contract activity, and the contractor must comply with the terms, conditions, and special provisions of the contract. The contracting officer must insert a clause reading substantially as follows in each solicitation and contract:

1. The contractor may remove and utilize woody biomass, if
   a. Project work is progressing as scheduled; and
   b. Removal is completed before contract expiration.
2. To execute this option, the contractor must submit a written request to the Government Contracting Officer.
3. Following receipt of this written request, and if appropriate, the government and the contractor will negotiate and execute a separate timber/vegetative sales contract. Payment under this sales contract must be at a price equal to or greater than the appraised value before removal of any woody biomass. The contractor must make any appropriate payment specified in this timber/vegetative sales contract.
4. If required by law, regulation, or Bureau policy, the government will prepare a timber/vegetative sales notice and/or prospectus, including

volume estimates, appraised value, and any appropriate special provisions.

5. The contractor must treat any woody biomass not removed in accordance with the specifications in the service contract.
6. The sales contract and service contract are severable; default or termination under either contract does not remove the contractor from payment or performance obligations under the other contract.

6 Non-Fire Treatments

With the advent of the National Fire Plan, additional need and emphasis has been placed on non-fire treatments to achieve protection and resource benefits. Non-fire treatments can be effective in achieving management goals such as hazardous fuels reduction and facilitation of ecosystem restoration and fire regime maintenance. These treatments include, but are not limited to, mechanical, chemical, biological, and manual methods. Many non-fire treatment projects are designed to achieve resource benefits and protection benefits simultaneously. Non-fire treatments may be used as an alternative to or in conjunction with prescribed fire applications.

6.1 Non-Fire Treatment Planning

Planning for non-fire treatment requires problem identification, goal and objective setting, information collection, alternative analysis, action implementation, and evaluation of results. If not already defined in the FMP, the non-fire treatment plan must be approved by the park superintendent and attached as an appendix to the resource management plan, vegetation management plan, or fire management plan. If the proposed actions are not already covered under a compliance document, then compliance must be completed.

Project planning for non-fire treatments should include a justification of the need for the management action in the proposed area as well as an estimate of the duration of treatment effectiveness. Additionally, if fuel reduction is a primary objective, project planning should include justification of the need for reduced fire behavior in the proposed area as well as an estimate of the duration of treatment effectiveness. Fire behavior modeling programs are tools that can be utilized for that estimation. Most non-fire fuel reduction treatments will require not only an evaluation of the effectiveness of the initial treatment but the establishment of a maintenance schedule and any new standards or tools that will be used to maintain this condition into the future.

Specific non-fire treatments include vegetation manipulation (change in species composition, etc.) and/or removal or modification of wildland fuels to reduce the

likelihood of ignition, reduce potential fire intensity, lessen potential damage and resistance to control, or limit the spread and proliferation of invasive species and diseases that are contributing to a fuel hazard. These treatments achieve site-specific management objectives under an approved fire management plan or other vegetation management plan with appropriate NEPA compliance.

Non-fire treatments must be documented in a written plan (preferably part of the FMP) approved by the park superintendent, and they must be in compliance with NEPA, NHPA, and other legal requirements (see section 3.2, Fuels Management Compliance). Omnibus planning is appropriate when identical non-fire treatments, prescriptions, and methods will be applied to multiple locations throughout a park (for example, numerous scattered backcountry cabins), because it may be more efficient to prepare one plan covering all areas.

Wildland urban interface Communities-at-Risk from unwanted wildland fire, either listed on the *Federal Register* or identified in collaboration with the state, are high priority for protection. Parks should seek to minimize risk to communities both within and surrounding their boundaries by planning activities and treatments in collaboration with adjoining agencies and affected communities, preferably through the FMP or a Community Wildfire Protection Plan (CWPP).

6.2 Non-Fire Treatment Plans

Non-fire treatment plans will vary in complexity from park to park. All plans should include, at a minimum, the following key elements (see NPS *Director's Order 77: Resource Management,* "Vegetation Management").

Signature Page: The approved non-fire treatment project plan constitutes authority to implement the plan. Actions taken in compliance with the approved non-fire treatment project plan will be fully supported. Personnel will be held accountable for actions taken that are not in compliance with the approved plan and are not conducted in a safe and cost-effective manner.

At a minimum, two signatures are required: those of the agency administrator and the plan preparer. Review and concurrence signatures from resource management, the fire ecologist, and the fire management officer are recommended.

Executive Summary: Briefly describe the purpose and justification of the project, connection with the overall management of the unit, potential impacts and mitigations, use of contracted resources, and a description of how the project implements the fire management plan.

Description of Fuels Treatment Area

- General Area Description (narrative)
- Location (County, Legal, Lat/Long and/or UTM, Fire Management Zone)
- Geographic Attributes (Project Size, Elevation Range, Slope Range, Aspect Range)
- Description of Project Boundaries (define geographic, natural, and human features to be used as the project boundary)
- Vegetation Types (Fuel Model, Fuel Loading, Fire Regime, Condition Class)
- Vicinity Maps—attached as appendices
- Project Maps—attached as appendices

Goals and Objectives: Include the purpose and goals of the non-fire treatment plan, as stated in park management and supporting management plans (i.e., resource management plan, vegetation management plan, cultural landscape plan, endangered species recovery plan, etc.). Specific objectives of the non-fire treatment should be stated in quantifiable and measurable terms. If the purpose of the treatment is to change fire behavior, at least one objective should address predicted changes in fire behavior after the project is completed.

- Example 1: “This treatment is intended to reduce flame lengths to less than 4 feet to allow direct attack of the fire by hand crews when fine dead fuel moistures are 4% and eye-level wind speed is 10 miles per hour.”
- Example 2: “This treatment is intended to allow a prescribed fire to be conducted to reduce surface fuels with a prescription of 6% fine dead fuel moisture and eye-level wind speed of 5 miles per hour without causing any type of crown fire.”

Cost: Estimate total costs for the planning, preparation, implementation and evaluation phases of the project. Estimate funds that will be used for contracting purposes.

Scheduling: Give an approximate time for all phases of the project to be initiated and completed. Note any dates, seasons, or conditions when work may not be performed (for example, nesting bird season, inclement weather, weekends or holidays).

Statement of Work: Identify methods, roles and responsibilities, coordination, and special considerations needed.

Protection of Sensitive Features: Identify treatment and mitigation needed to protect cultural sites, prevention of spread of non-native fauna and flora, protection of threatened and endangered species, or other sensitive features. Include compliance with all applicable NEPA and NHPA requirements.

Public and Personnel Safety: Describe public and personnel safety and emergency procedures. Identify safety hazards in and outside the project area, measures taken to reduce or mitigate those hazards, and assigned Emergency Medical Service personnel. Describe the medical plan, and include or refer to pertinent JHAs.

Interagency Coordination and Public Information: Identify actions, timelines, and responsibilities for interagency and intra-agency coordination and public involvement. Topics may include:

- Media Releases and Public Notice Postings
- Notifications—List of appropriate individuals, agencies, and the public needing notification
- Collaboration—Identification of roles and responsibilities of private and government partners

Monitoring: Monitoring practices must measure treatment effectiveness. At a minimum, non-fire fuels treatments must be monitored for pre-treatment and post-treatment conditions, at a level sufficient to determine whether the objectives of the treatment were met. See the chapter on Fire Ecology and Monitoring in *RM 18* for specific guidance.

Post Project Rehabilitation: Describe any necessary rehabilitation that will be undertaken of disturbances resulting from the management activities of the project. These typically include equipment and human travel corridor restoration, minor fence repairs, and other mitigation actions that are pre-identified in the non-fire treatment project plan.

Post Project Reports: Identify what reports associated with this project will be completed, when they will be completed, and by whom.

Appendices: Include items to be reviewed and signed and attached with the non-fire treatment plan, including maps, reviewer comments, and location of electronic files or GIS layers.

6.3 Non-Fire Treatment Operations

6.3.1 Qualifications

Operations personnel and equipment must have the ability to perform the assigned duties. Qualifications must be substantiated by past performance, documentation of appropriate skills, or the ability to fulfill contract specifications.

6.3.2 Treatment Methods

Specific non-fire fuels treatments include any vegetation manipulation and wildland fuels removal or modification undertaken to (1) reduce the likelihood of ignition, crowning potential, and fire intensity, (2) lessen potential damage and resistance to control, or (3) limit the spread and proliferation of non-native species and diseases. Vegetation and fuels management treatments must address locally unique fire and resource management issues as well as compliance concerns; therefore, these activities should always be coordinated with natural resource managers. The treatment methods are described below. Methods may be stand-alone or may be used in any combination, with or without prescribed fire.

Manual: the use of hand-operated power tools and hand tools to cut, clear, or prune herbaceous and woody species. Plants are cut above ground level to remove undesired vegetation, or root systems are dug out to prevent subsequent sprouting and regrowth. Hand tools such as handsaws, axes, shovels, rakes, machetes, and hand clippers are used in manual treatments. Power tools such as chain saws and power brush saws may also be used. Manual treatments may be followed by chemical treatment, burning of debris piles, or prescribed burning of the treatment site. In some cases of manual removal of woody species, stumps are treated with herbicide to prevent sprouting.

Mechanical: the removal of undesired or excess live and dead fuels through the use of wheeled tractors and crawler-type tractors or specially designed vehicles with attached implements, e.g., saw heads, excavators, fetching arches, and disks and blades. Mechanical treatment proposals should be carefully reviewed in the context of soil and litter disturbance. In many cases, control measures to limit erosion into streams must be implemented. Mechanically treated material may be left on site or physically removed from the site. Mechanical treatments may be followed by burning of debris piles or prescribed burning of the treatment site. Any equipment brought in from a distance or used in areas with invasive species should be inspected and, as necessary, washed and cleaned of any seeds (found in wheels, etc.).

Chemical: the application of chemical agents to alter existing fuels. Chemical agents are applied to kill or restrict the growth of existing vegetation. This type of treatment is predominantly used to reduce the distribution of non-native and invasive species. Chemical treatments may precede or be followed by another treatment type such as prescribed burning or mechanical treatment and/or planting of desired vegetation species, depending on the response of the system. Whenever chemical

treatments are used, alone or in combination with other treatments, the Healthy Forests Initiative (HFI) Categorical Exclusion cannot be used to meet compliance requirements.

Biological: the use of living organisms to selectively suppress, inhibit, or remove herbaceous and woody vegetation. For example, parks may use livestock (cows, goats, or sheep) or insects to reduce live fuels. These treatment methods require intensive management of the biological organisms to avoid excessive removal of vegetation, introduction of non-native species or diseases, and collateral damage to other park values.

6.3.3 Project Administration

Force Account: utilizing the in-house workforce (park, agency, or federal cooperator) under existing agreements and cost sharing.

Contracting: utilizing outside (vendor, contract, cooperative agreement, etc.) acquired personnel, equipment, and end-product specifications to achieve project objectives (see section 5, Contracting).

6.4 Non-Fire Treatment Project Documentation

All non-fire treatment projects must be documented with the following information, and the documentation must be stored in an individual project folder maintained in the park's files. Individual parks may require additional information.

1. Original signed project plan
2. All maps, including GIS files
3. Notification checklist
4. Permits
5. Monitoring data
6. Unit logs or other unit leader documentation
7. Contracts (if used)
8. Costs
9. Monitoring reports and evaluations

6.5 Woody Biomass Utilization

Where ecologically appropriate and compliant with NEPA, project managers may choose to dispose of woody biomass through service contractors to reduce fuels by non-fire means and to preserve air quality.

- If the woody biomass is the by-product of a land management service contract issued after October 1, 2004, then the Option for Woody Biomass

clause should be inserted in the contract (see section 5.8 for more specific guidance on the use of the Option for Woody Biomass Utilization in procurement contracts).

- If the woody biomass is the by-product of work done by a force account (NPS employees) or an existing service contract issued before October 1, 2004, and has fair market value, a separate timber/vegetative sales contract must be executed.

If the woody biomass is to be utilized in-park (for firewood, dust abatement, erosion control, etc.), then standard operating procedures (SOPs) for the park must be followed.

6.6 Fuel and Debris Disposal by Non-Fire Methods

The enabling legislation and regulations of each park may provide direction for the disposal or removal of living and dead vegetative material. The NPS is committed to preserving natural ecological processes. Organic resource material should be allowed to decompose on site whenever possible. However, when such material must be removed (for example, from a fuels treatment site) its market value must be considered. If the material is marketable, it must be sold as excess property, following normal disposal procedures. If it is found that the material is not marketable, it must be disposed of by Board of Survey action.

6.6.1 Standing Live Fuels

The Organic Act of 1916 provides some direction for standing live fuels:

> The Secretary of the Interior…may…upon terms and conditions to be fixed by him, sell or dispose of timber in those cases where in his judgment the cutting of such timber is required in order to control the attacks of insects or diseases or otherwise conserve the scenery or the natural or historic objects in any…park… The Secretary of Interior may sell and permit the removal of such matured or dead or down timber as he may deem necessary or advisable for the protection or improvement of the park, and the proceeds derived there from shall be deposited and covered into the Treasury as miscellaneous receipts.

6.6.2 Dead and Down Fuels

Title 36 of the Code of Federal Regulations provides protection for Parks, Forests, and Public Property. Within the CFR, there are limited provisions for the use of dead and down fuels. For example:

> *PART 2-RESOURCE PROTECTION, PUBLIC USE AND RECREATION*

> §2.1 Preservation of natural, cultural, and archeological resources.
> (a) Except as otherwise provided in this chapter, the following is prohibited:
> (4) Using or possessing wood gathered from within the park area: Provided, however, That the superintendent may designate areas where dead wood may be collected for use as fuel for campfires within the park area.

It is up to each park superintendent to promulgate regulations in the unit's compendium if firewood collecting is to be allowed.

6.6.3 Live and Dead and Down Fuels

Special NPS Directive 82-6 reasserts that dead and down wood and wood products resulting from natural phenomena such as storms and floods will be recycled through the ecosystem by natural processes in conformance with natural resource management plans. The directive also permits removal of wood and wood products as the result of approved development, construction, or resource management activities, or where removal is necessary due to a hazard or obstruction, or in historic, recreational, or development zones for (a) maintenance of historic scenes, (b) maintenance of recreational environments, (c) rights-of-way, (d) vista clearing, or (e) other approved reason. In such instances, the wood will be disposed of as follows:

> Quantities associated with work or activities incidental to or the result of a contract should be removed by the contractor. The reasonable net value of the wood should be calculated in the contract cost.
>
> Wood and wood residue remaining from normal park operations may be allocated for park uses, such as heating public buildings, offices, or remote backcountry stations and for park interpretive campfires. Surplus wood and wood products, however, shall not be supplied to concessionaires for facilities or activities, to residents, to employees for residential heating inside or outside the park, or for use in government quarters. Wood may be obtained, however, under paragraph three for such purposes.
>
> Wood and wood products available in quantities or under circumstances beyond those needed for the park operations functions described in paragraph two shall be sold at fair market value pursuant to 16 USC 3.

It is up to each park superintendent to promulgate regulations in the unit's compendium if wood sales will be permitted.

6.7 Debris Disposal by Fire

Debris burning may be used as a method to dispose of vegetative material generated from maintenance activities (such as mowing or tree trimming), manual or mechanical hazardous fuels reduction, WUI fuels management projects, hazard tree removal, construction projects, or similar activities. Where permitted specifically by local regulations, discarded building and administrative materials can also be burned. All debris disposal projects should be evaluated in terms of alternative treatments. Alternative treatments to burning may be possible, and they may be desirable in terms of smoke management and safety concerns.

All debris disposal activities involving fire as the primary disposal method will be reviewed and approved by the superintendent (this authority may be delegated to the FMO). In providing that approval, the superintendent will consult with the park fire management officer. In units without a fire management officer, the superintendent will consult with the park's cluster, area, or zone fire management officer. If after consultation with the fire management officer it is determined that the debris disposal can be safely executed and the project meets each of the following conditions, the project may be implemented.

1. The project has virtually no chance to burn into the wildland environment. The burn is either conducted in (a) an incinerator-type device, (b) a non-wildland environment, or (c) a wildland environment where surrounding fuels are lacking, covered with snow, or wet from rainfall. Surrounding fuels must remain unavailable until the fire is declared out.
2. The project is not expected to damage surrounding natural or cultural resources.
3. Once properly ignited, the project does not present a safety threat to on-scene personnel or the public.
4. The project is not expected to require curtailment for the duration of the disposal operation.
5. The project is not of great enough scope and complexity to necessitate implementation by fire-qualified personnel.
6. The project will not require follow-up monitoring to evaluate environmental impacts.
7. All state and local regulations can be met, including air quality regulations.

If any of these stipulations cannot be met, then the treatment constitutes a prescribed fire and must comply with all requirements for that type of activity.

For debris disposal burns, a supervisor will be assigned. The supervisor will ensure that a safety briefing is conducted and that personnel assigned to the project wear appropriate personal protective equipment (PPE). The supervisor of the burn will notify appropriate agencies (such as air quality officials, local fire departments, etc.) and neighbors. In addition, debris disposal projects will be executed under the authority of all required permits. In the safety briefing, the supervisor or designee will identify the procedures to follow in the event of an injury or other emergency. The personnel assigned should include someone who has previously conducted similar debris disposal burns at the site or a similar site.

For all construction contracts or projects specifying fire as a potential disposal method for vegetative or woody debris, the fire management officer or local cooperating fire authority should review and approve contract stipulations related to debris burning. Costs associated with the debris burning should be included in the contract or project budget.

7 Prescribed Fire

7.1 Interagency Prescribed Fire Planning and Implementation Guide

The National Park Service will use the *Interagency Prescribed Fire Planning and Implementation Procedures Guide* (2006 or most current version) as direction for planning, implementing, and evaluating prescribed burns. The *Implementation Guide* provides the minimum requirements for the BIA, BLM, FWS, NPS, and USDA Forest Service for planning and conducting prescribed burns. To supplement the minimum requirements found in the guide, NPS prescribed fire programs will adhere to the following additional requirements:

1. All prescribed fire projects will be coordinated in a collaborative process involving adjacent neighbors and local governments.
2. A Delegation of Authority for all off-park burn bosses will be prepared and signed by the agency administrator or acting.
3. An incident action plan (IAP) will be developed for each operational period of a prescribed fire. It is permissible to develop a multi-shift IAP to cover a period of several days. The 215A (Incident Safety Analysis) process will be utilized in the development of the IAP. Required components of the IAP include:
    a) Organization Assignment (ICS-203)
    b) Medical Plan (ICS-206)
    c) Safety Message (or ICS-215A)
    d) Division Assignment List (ICS-204)
    e) Communication Plan (ICS-205)

f) Project Map
g) Weather Forecast (preferably spot weather)
h) Aviation Operations Summary (if applicable) (ICS-220)

4. Resources listed as "contingency" must be available to respond to the incident within a specified time frame. If the contingency resource becomes unavailable to respond to the prescribed fire, it must be replaced immediately, as the burn is now out of prescription.
5. Parks are required to notify the regional fire management office within 24 hours of any of the following events:
   a) Any prescribed fire converted to a wildfire
   b) Any prescribed fire requiring activation of the contingency plan specified in the burn plan
   c) Any prescribed fire that requires additional resources or operational time not accounted for in the incident action plan

   If the burn is not an escape or a threat to escape, or is not and will not be declared a wildfire, regional notification is not required.

Although not required, the following items are highly recommended:

1. An executive summary is not required in the burn plan, but it is highly recommended, especially for high complexity burns and omnibus plans. An informative summary is useful for the agency administrator and reviewers of complex burn plans.
2. The *Implementation Guide* states that only three signatures are required (agency administrator, plan preparer, and technical reviewer). It is recommended that the resource manager, the fire ecologist, and the fire management officer are also signatories as reviewers or for concurrence.
3. The *Adequate Holding Worksheet* is an optional tool for determining holding resources in element 16 (see section 7.3 for the list of prescribed fire plan elements). If it is not used, provide another rationale for determining holding resources.
4. For element 20 (Monitoring) of the prescribed burn plan, direction is provided at the end of this section and in the chapter on Fire Ecology and Monitoring in *RM 18*.

7.2 Burn Boss Type 3

The *Interagency Prescribed Fire Planning and Implementation Guide* references a Burn Boss Type 3 (RXB3). Although this is not an NWCG-recognized position, other federal agencies (USFS, FWS, BIA, and BLM) have recognized this position for low complexity burns. The NPS can utilize this position following direction found in the *Implementation Guide.* Table 1 describes the position requirements.

An RXB3 will only be allowed to implement low complexity prescribed fires where the possibility of spread or spotting outside the project area is negligible to non-existent, multiple fuel models are not involved, and aerial operations are not involved.

TABLE 1. Burn Boss Type 3 Requirements

Training	Required: S-290 Intermediate Wildland Fire Behavior Suggested: S-234 Ignition Operations
Prerequisite Experience	Incident Commander, Type 5 **OR** Advanced Firefighter/Squad Boss **AND** Satisfactory position performance as a Prescribed Fire Burn Boss Type 3
Physical Fitness	Moderate
Other Position Assignments that will Maintain Currency	Prescribed Fire Burn Boss Type 2 Prescribed Fire Burn Boss Type 1 Fire Use Manager Prescribed Fire Manager Type 1 Prescribed Fire Manager Type 2

7.3 Prescribed Fire Plans

The *Interagency Prescribed Fire Planning and Implementation Procedures Guide* lists the elements required for prescribed fire plans and briefly describes how to develop the contents for each element and the implementation policy that goes along with it. Prescribed fire plans must address the following 21 minimum elements and appendices in the following sequence:

1. Signature Page
2. Go/No-Go Checklists
3. Complexity Analysis
4. Description of the Prescribed Burn Area
5. Goals and Objectives
6. Funding
7. Prescription
8. Scheduling
9. Pre-burn Considerations
10. Briefing
11. Organization and Equipment
12. Communication

13. Public and Personnel Safety
14. Test Fire
15. Ignition Plan
16. Holding Plan
17. Contingency Plan
18. Wildfire Conversion
19. Smoke Management and Air Quality
20. Monitoring
21. Post-burn Activities

Appendices

1. Maps
2. Technical Review Checklist
3. Complexity Analysis
4. Job Hazard Analysis
5. Fire Behavior Modeling Documentation or Empirical Documentation (unless empirical documentation is included in the fire behavior narrative in element 7, Prescription)

7.4 Monitoring

Prescribed fire monitoring can be defined as a systematic process for collecting and recording information to provide a basis for evaluating and adjusting resource and fire treatment objectives, prescriptions, and implementation practices. In order to evaluate resource management and fire management objectives, park units must monitor the effects of prescribed fire.

For specific direction on required levels of monitoring for fire and fuels treatments, see the chapter on Fire Ecology and Monitoring in *RM 18.* The Fire Ecology and Monitoring chapter provides policy direction for monitoring of wildland fires, fire effects, and fuels treatments. In addition, the same chapter provides direction and guidance relating to adaptive management and general programmatic requirements for the fire ecology program.

7.5 Post-Burn Reporting

There is often a need for managers to have a timely summary of information for a prescribed fire. Although complete information on fire effects is not immediately available, detailed information regarding fire observations, chronology of events, costs, and fire conditions should be summarized soon after the fire. This information can further be used in the adaptive management process to refine objectives, prescriptions, strategy, and tactics over both the short and long term. A post-burn report should be completed within 10 days of the burn being declared out.

The burn boss should decide in advance who will prepare this report, and it should be filed as part of the permanent project record. A fire effects monitor (FEMO) can collect most of the recommended information, but final review and reporting responsibility resides with the burn boss. Post-burn reports should be stored in an individual project folder with the original burn plan and maintained in the park's files. Individual parks may require additional information. Currently there is no standardized format for post-burn reporting, but the following list contains items to consider when preparing this report.

Recommended Post-Burn Report Contents

1. Fire Name
2. Resources Numbers and Types (e.g., personnel and equipment)
3. Burn Objectives
4. Ignition Type and Pattern
5. Holding Strategy
6. Fuel Moisture Information (1, 10, 100 and 1000 hour time lag, live woody and herbaceous, foliar)
7. Drought Index Information
8. Fire Behavior Indices Information (BI, ERC)
9. Precipitation Information
10. Test Burn Description
11. Chronology of Ignition
12. Chronology of Fire Behavior
13. Chronology of Significant Events
14. Chronology of Smoke Movement and Dispersal
15. Temperature (Range, Minimum, and Maximum)
16. Relative Humidity (Range, Minimum, and Maximum)
17. Accuracy of Spot Weather Forecast
18. Initial Qualitative Assessment of Results (objectives achieved?)
19. Future Monitoring Plan for Area (plots, photo points)
20. Costs for All Phases (planning, preparation, implementation, and evaluation)
21. Acres Burned
22. Additional Comments

Attachments

1. Map of Area Burned
2. Unit Logs
3. Copies of Accident/Injury Forms
4. Weather Forecasts
5. Fire Weather Observations Data Sheets
6. Fire Behavior Observations Data Sheets
7. Smoke Observations Data Sheets
8. Weather Station Data

Exhibit 1

SPECIFIC RESPONSIBILITIES

Agency Administrator

A park's superintendent functions as the agency administrator for fuels management and retains the ultimate authority for approving all such treatments. Responsibilities include:

- Ensuring that all personnel comply with established fire management standards and safe practices.
- Ensuring that fuels management plans are closely linked to and consistent with the fire and resource management plans and with agency direction and policy.
- Ensuring that all prescribed fires, non-fire treatments, and debris disposal actions are conducted in accordance with established standards and practices.
- Ensuring that all escaped prescribed fires are reviewed and investigated.
- Ensuring compliance with the responsibilities identified in the chapter, *National Park Service Program Organization & Responsibilities* of the *Interagency Standards for Fire and Fire Aviation Operations*.

Fire Management Officer

Each park with burnable vegetation will have a designated fire management officer (FMO) who is responsible to the agency administrator for overall planning, implementing, and monitoring of the fuels management program, in accordance with NPS policy and direction. This function may be provided at the unit, area, or regional level. Responsibilities include:

- Ensuring that activities and plans reflect a commitment to safety and comply with established standards and safe practices.
- Assigning qualified individuals, based on complexity, to all fuels management activities and treatments (this includes contracting officer representatives for fuels treatments that are contracted).
- Ensuring that all fuels management projects, treatments, and activities are entered and accomplishments are tracked in the National Fire Plan Operations and Reporting System (NFPORS) in a timely manner.
- Ensuring the development of written plans for the implementation of all prescribed fires and non-fire treatments undertaken or managed under the wildland fire program.
- Ensuring fuels management plans are based on current and approved up-to-date land use and fire management plans.
- Ensuring fuels treatments are integrated with related vegetation management actions such as invasive species management.
- Ensuring that the prescribed fire and non-fire treatment plans meet NPS policy and direction.

- Ensuring that a technical review of prescribed fire plans is conducted before each plan is submitted for approval, and that all reviewer comments are addressed and included with the administrative record for the project.
- Ensuring that long range fire program planning efforts include collaborative development of quantifiable objectives and means to monitor programmatic success in meeting those objectives.
- Providing opportunities for training and performance evaluations in prescribed fire and non-fire treatment operations.
- Entering and maintaining prescribed fire and non-fire treatment experiences and personnel qualifications into the Incident and Qualification Certification System (IQCS).
- Directing movement of local unit personnel and equipment to meet prescribed fire and non-fire treatment needs.
- Acting as liaison/coordinator to the prescribed fire burn boss and/or prescribed fire manager, local dispatch office, other NPS offices, other agencies, landowners/neighbors, air quality authorities, news media, and safety officials.
- Ensuring that After Action Reviews (AARs) are conducted, and arranging for reviews and investigations, as needed.
- Communicating and coordinating with superintendents and collateral duty fire coordinators at units without assigned fire management officers.
- Ensuring compliance with the responsibilities identified in the chapter, *National Park Service Program Organization & Responsibilities* of the *Interagency Standards for Fire and Fire Aviation Operations*.

Fire Ecologist

The fire ecologist, in conjunction with resource management specialists, is responsible for providing to the fire management officer input and technical guidance on the role of fuels management and fire in ecosystems and advice on how treatments can be used to accomplish management objectives. This function may be provided at the unit, area, or regional level. Responsibilities include:

- Assisting with the development of prescribed fire and other fuels management plans.
- Recommending and/or reviewing prescribed fire and other fuels treatment plans.
- Developing and implementing a monitoring program(s) that provides a basis for adaptive management; this includes scheduling, ensuring consistency of protocols, data analysis, results reporting, and quality control.
- Reporting results of the monitoring program to fire and park staff and partners.
- Contributing to the development of, and providing the ecological basis for, quantifiable objectives for prescribed burn and non-fire fuels treatment plans.

- Identifying potential areas to be treated with prescribed fire and non-fire treatments, in conjunction with the fuels management specialist, the FMO, and resource management specialists.
- Recommending fire treatment intervals and non-fire fuel treatment schedules for both restoration and maintenance phases of fuels management.
- Coordinating monitoring with the Inventory and Monitoring Program and other resource management monitoring programs to minimize the duplication of efforts.
- Acting as a liaison with park natural and cultural resource programs.
- Providing fire ecology-related technical information for NEPA compliance documents associated with fuels management, such as the Environmental Screening Form and Environmental Assessments, in coordination with resource management personnel.
- Identifying fuels and fire-related research needs, and leading efforts to have research conducted.
- Acting as liaison between the fuels project manager and the researcher during research fires and non-fire treatments.

Resource Management Specialist

The resource management specialist, in conjunction with the fire ecologist and the FMO, is responsible to the agency administrator for ensuring the fuels management program is planned and implemented to support the park's resource management goals and objectives. This function may be provided at the unit, area, or regional level. Responsibilities related to fuels management include:

- Ensuring there is resource management representation in preparation of fire management plans, as well as prescribed fire and non-fire treatment plans.
- Providing guidance and direction on the incorporation of Desired Future Conditions into fire management planning.
- Assisting with the development of prescribed fire and other fuels management objectives and prescriptions.
- Contributing to the development of, and providing the ecological basis for, quantifiable objectives for prescribed burn and non-fire fuels treatment plans.
- Ensuring a review of prescribed fire and non-fire treatment plans is conducted by appropriate resource management personnel before each plan is submitted for approval.
- Evaluating the efficiency of fuels management treatments and working with the fire ecologist to determine to what extent objectives have been met.
- Providing input into the development, completion, and evaluation of research projects.
- Ensuring fuels treatments are integrated with related vegetation management actions such as invasive species management.

Fire Communication and Education Designee

The fire communication and education designee is responsible for facilitating communications about the NPS wildland fire/fuels management program with the internal and external public. This function may be provided at the local, area, or regional level. Responsibilities include:

- Collaborating with regional fuels specialists and fire ecologists to assemble success stories and lessons learned to promote acceptance of and support for the role of fuels treatment for ecosystem restoration and maintenance, and for fuel reduction in the wildland urban interface (WUI).
- Developing factual and understandable fire management messages from results communicated by fire staff.
- Providing real-time information to the public on fire and fuels management actions within the park.
- Aiding in the determination of the most appropriate and effective outlets for information dissemination.
- Participating in information-sharing meetings discussing fuels treatment results.
- Collaborating with natural resource specialists and programs related to fuels and fire management.

Fuels Management Specialist (Prescribed Fire Specialist)

In more complex programs, an FMO may designate some of her or his responsibilities to a fuels management specialist. Responsibilities of the fuels management specialist include:

- Developing written plans to implement prescribed fires and non-fire treatments undertaken or managed under the wildland fire program.
- Gathering, entering, tracking, and updating all NFPORS entries for assigned park or group.
- Ensuring that prescribed fire and non-fire treatment plans are based on approved and up-to-date land use and fire management plans.
- Ensuring that all elements of the prescribed fire plan are properly completed (may be coordinated with prescribed fire manager or burn boss).
- Providing opportunities for training and performance evaluations in prescribed fire and non-fire treatment operations.
- Directing and moving, with FMO approval, local unit personnel and equipment to meet prescribed fire and non-fire treatment needs.
- Assigning personnel to prescribed fire and non-fire treatments according to qualifications and demonstrated abilities (this includes contracting officer representatives for fuels treatments that are contracted).
- Acting as a primary contact person between the fuels and fire ecology program to ensure that goals and objectives are developed collaboratively and that the

fire ecology program staff members are kept current regarding treatment planning and implementation status.
- Acting as a liaison/coordinator to the prescribed burn boss or prescribed fire manager, local dispatch office, other NPS offices, other agencies, landowners/neighbors, air quality authorities, news media, and safety officials.
- Ensuring that AARs are conducted, and arranging for other reviews and investigations, as needed.

Regional Fire Management Officer / Fuels Specialist

The regional fuels specialist works for the regional fire management officer and provides support and assistance to parks, as well as serving as liaison to the national office, other regions, and other agencies. Depending on the size of the region, duties vary from administrative-type support to operational implementation of on-the-ground projects. In regions with less complex fuels programs these responsibilities are assumed by the regional FMO. Responsibilities include:

- Leading and managing the regional fuels plan of work, and distributing the regional fuels funding and program management budget in consideration of targets and budget caps.
- Reviewing and approving proposed treatments and activities in NFPORS.
- Managing Community Assistance proposals and funds.
- Assisting parks with shared resources, contracts, and agreements.
- Establishing and articulating business rules and standard operating procedures applicable to the region.
- Reviewing treatment plans and assisting with the development of treatment plans as needed.
- Scheduling and performing reviews of park fuels programs.
- Working with other NPS regions and the national office to develop policy and practices.

National Fuels Specialist

The National Fuels Specialist represents the NPS at a national level with interagency partners and other government and non-government entities. Responsibilities include:

- Determining the NPS portion of the Department of the Interior fuels budget and distributing funding to the regions.
- Leading the development of NPS Fuels Management Business Rules and NPS policy related to fuels management.
- Annually developing and submitting proposed budget and plan of work for the NPS fuels program.
- Tracking and reporting fuels accomplishments to the NPS and DOI.

- Providing assistance to regions and parks on fuels-related matters, including reviews, treatment and activity planning, and implementation.
- Managing NFPORS user accounts and the NPS portion of the NFPORS database.
- Working with NPS personnel and interagency partners to develop national and interagency fuels policies.

FIRE ECOLOGY AND MONITORING

1 Introduction

This chapter provides policy direction for monitoring of wildland fires, fire effects, and fuels treatments. In addition, this chapter provides direction and guidance relating to adaptive management and general programmatic requirements for the fire ecology program. The information contained within this chapter will evolve as changes in national direction are defined and as new scientific information becomes available.

The National Park Service's fire management program has grown in scope and complexity over the past decade. Changes in federal policy, new political initiatives, and increased planning requirements have all resulted in a greater need for scientific information that supports fire management activities. In recognition of this need, the NPS has made the commitment to fund (within the existing budgetary allocation) national, regional and field-level fire ecologists and fire effects monitors. These fire ecologists and fire effects monitors provide scientific capabilities for collecting, analyzing, and interpreting fire effects monitoring data so that fire ecology information and monitoring results can be used for adaptive management.

The goals and objectives for wildland fire (wildfire, prescribed fire, and wildland fire use) and non-fire fuels treatments can vary widely from park to park as well as from project to project within a park. Monitoring provides an avenue for evaluating whether management goals and objectives are being met and whether undesired effects are occurring. When goals and objectives are not being met, monitoring data can be used to facilitate management changes. This practice is part of the adaptive management cycle that the NPS fire management program uses to improve land management practices.

The National Fire Plan recognizes the need for monitoring as part of adaptive management by including it in the *10-Year Comprehensive Strategy* as one of the guiding principles for restoring fire adapted ecosystems: "Monitor restoration and rehabilitation projects for effectiveness and share the results in order to facilitate adaptive implementation." In addition, the Department of the Interior recently implemented a new policy for better understanding and use of adaptive management by all Interior bureaus (Secretary of the Interior, ORDER NO. 3270). The primary intent of the NPS fire ecology program is to support fuels and fire management by using monitoring data, in conjunction with professional knowledge and judgment, to provide scientific guidance and feedback that supports adaptive management and the assessment of treatment effectiveness.

2 Responsibilities

2.1 National Level

The national office will:

- Provide leadership in the NPS and interagency fire community on policy and practices, budget, and fire ecology issues.
- Support the development and implementation of the NPS Wildland Fire Strategic Plan.
- Provide assistance to regions and parks on fire ecology related matters, including policy and budget interpretation, position management, planning, monitoring, and program reviews.
- Promote the effective use and sharing of fire effects data.
- Facilitate communication and coordination between wildland fire and resource management programs.

2.2 Regional Level

The regional office will:

- Provide assistance to regions and parks on fire ecology related matters, including policy and budget interpretation, standard operating procedures, position management, planning, and monitoring.
- Review and approve fire monitoring plans and new monitoring protocols for parks and networks.
- Review and approve park National Fire Plan Operations and Reporting System (NFPORS) monitoring request entries.
- Facilitate communication and coordination between NPS wildland fire and resource management programs.
- Assist parks with shared resources, contracts, and agreements.
- Schedule and perform reviews of park fuels and ecology programs.
- Work with other NPS regions, the national office, and other agencies and organizations to develop and implement policy and practices.

2.3 Park Level

The park will:

- Support land management decisions and practices with science-based expertise.
- Articulate ecologically sound objectives to strengthen and facilitate the land management planning process.

- Collect, analyze, report, and interpret fire effects data for managers.
- Utilize fire ecology information for adaptive management.
- Facilitate communication and coordination between the park-level wildland fire and resource management programs.
- Complete NFPORS monitoring request entries.

2.4 Fire Ecology Program Personnel Roles and Responsibilities (see exhibit 1)

Fire ecology program personnel consistently collaborate with many other program personnel, not only in planning, but also in project development, implementation, and evaluation. Specific descriptions of responsibilities by position are listed in exhibit 1. The lists are not exhaustive but are intended to clarify roles and responsibilities in relation to the requirements outlined in this chapter. Responsibilities will vary among parks, and unit-level fire management plans that address local definitions of roles and responsibilities should be the first place to seek out clarification. Fire ecologists and fire effects crews typically provide their services to a number of parks. The group of parks for which a fire management officer is responsible may not coincide completely with the areas covered by the fire ecology program personnel, although overlap is common.

3 Monitoring For Adaptive Management

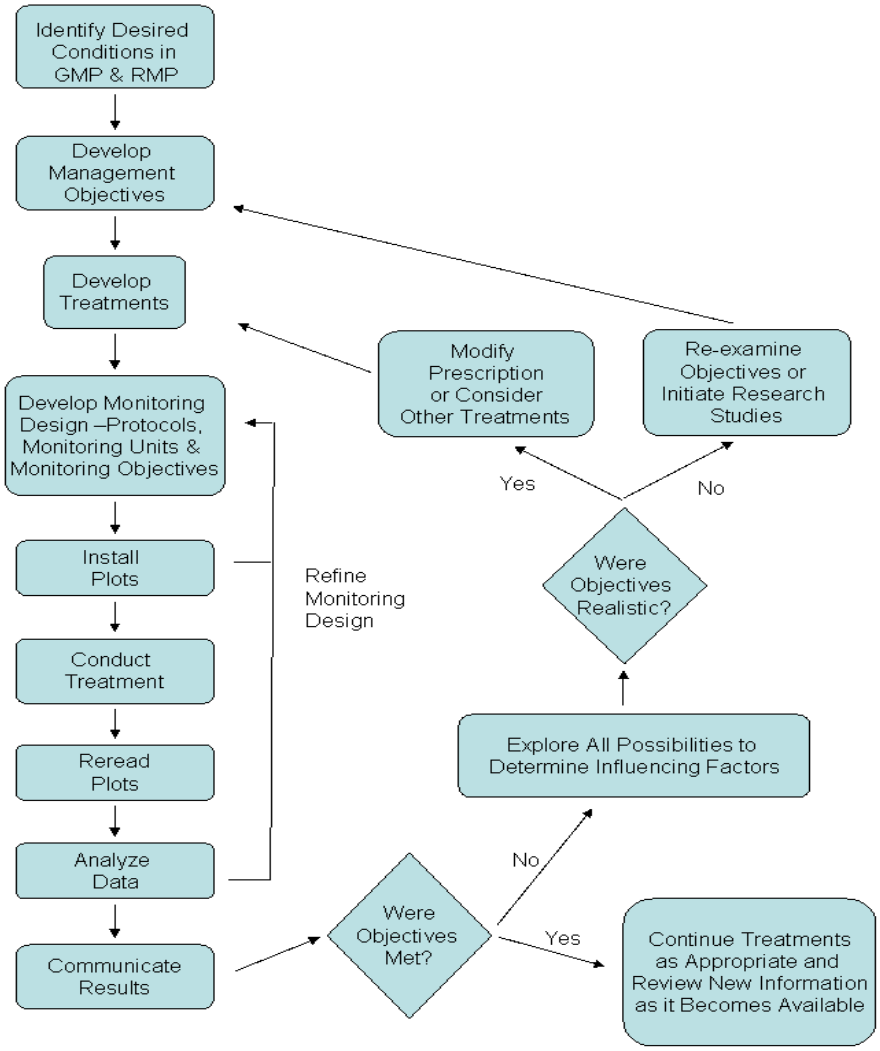
3.1 Adaptive Management

Adaptive management is a system of management practices based on clearly identified objectives in conjunction with monitoring to determine if management actions are meeting those objectives. In cases where objectives are not being met, adaptive management is intended to facilitate management changes that will ensure that desired outcomes are met or to facilitate re-evaluation of the desired outcomes (40 CFR; 516 DM 4.16). As described in the Fuels Management chapter in *RM 18*, adaptive management is an iterative process requiring continual evaluation of results to determine whether the ongoing treatments are appropriate or whether they need modification. Monitoring data provide the basis for adaptive management by allowing managers to determine whether objectives are being met or whether undesired effects are occurring.

Figure 1, elaborates on the role of monitoring in the adaptive management process. Quantitative and measurable management objectives and proposed treatments with specific prescriptions are developed in resource management plans (RMPs) and fire management plans (FMPs). These prescriptions are based on desired conditions described in the general management plan (GMP). A monitoring design derived from the management objectives is developed and includes defined monitoring units (what is being monitored and where),

monitoring protocols (how and when monitoring is conducted), and monitoring objectives (why). The monitoring design is implemented prior to the proposed treatment through the establishment of plots, or through other appropriate monitoring techniques (such as photo point documentation). Monitoring continues following the treatment. Analysis of monitoring data compares the post-treatment conditions with the pre-treatment conditions to assess whether the management objectives of the treatments are being met. Results from the analyzed monitoring data must be communicated to park resource and fire management staff so they can examine the results and evaluate the progress being made towards meeting objectives.

FIGURE 1. Monitoring for Adaptive Management



If management objectives are being met, then treatments may continue as appropriate to achieve desired conditions. If management objectives are not being met, the following questions should be addressed:

- Are the objectives realistic?
- Should there be changes made to the treatment prescriptions?
- Are there other management actions that should be taken in conjunction with the prescribed fire or treatment?
- Could other management actions be more effective than the use of prescribed fire?
- Is additional research needed?

Adaptive management requires continual evaluation. As the monitoring is conducted and data are analyzed, refinements to the monitoring design may need to be made. Results from data analysis should be incorporated into planning documents. Objectives and treatments must also be re-evaluated as new information from research and other sources becomes available.

There are several elements that are critical to successful implementation of adaptive management.

1. Goals and Objectives: Clear goals and objectives are the foundation of adaptive management, and their creation takes critical thinking and analysis. Well-written goals and objectives can provide long-term guidance to park managers and staff, help integrate science, and improve management practices.

   Guidance on definitions and development of goals and objectives can be found in *Adaptive Management: US Department of the Interior Technical Guide*, the NPS *Fire Monitoring Handbook*, and U.S. Fish and Wildlife Service website.

2. Monitoring Design: A monitoring program must be designed around objectives, and the monitoring design must be able to determine whether the short-term, long-term, and desired conditions are being met. The design should be multi-faceted, statistically valid, and able to produce results in a timely manner.

3. Data Analysis and Quality Control: Monitoring data should be analyzed in a timely manner with an appropriate level of quality control.

4. Communication: Monitoring results and any applicable new research should be communicated on a pre-determined periodic basis to all internal and external stakeholders and more frequently to fire and resource management

staff. Formal presentations are encouraged to initiate a discussion of "closing the loop."

5. Evaluation: Based on these communicated results, fire and resource managers should closely examine the program and evaluate how management should be adjusted or determine whether further research is needed.

3.2 Communication

Communication is crucial for adaptive management to work effectively. An important function of the Fire Ecology Program is to communicate with NPS fire staff, other NPS staff, the interagency community, and the general public. Analysis of monitoring data and its communication through reports, presentations, and informal discussion is a primary goal of the fire ecology community.

Fire ecologists should work with NPS fire communication and education staff to assist with communication of results and success stories. Articles may be submitted to fire ecology and fire management newsletters, scientific journals, and popular publications. Communication should not be limited to written reports and articles, however, but should include utilization of intranet and Internet websites and presentations at scientific meetings or more informal gatherings.

3.3 Ecological After Action Reviews

An *After Action Review* (AAR) is an assessment conducted after (or several times throughout) a treatment or major activity that enables personnel to examine what was planned, what happened, why it happened that way, and what could be improved. Units should develop ecological AARs as a means to discuss management activities and monitoring results (or trends) following the completion of a project or projects. These reviews may occur immediately following a project or at the end of the season, depending upon the size of a park's program, the nature of the issues involved, and the availability of data. The discussion may occur in an informal or formal meeting that involves the fire ecologist and fire monitors, fuels specialist, fire management officer, fire communication and education staff, resource staff, and key participants involved in the planning and implementation of the burn. The main goal of an ecological AAR is to facilitate communication between the fire and resource management staff, present findings, and provide an opportunity for feedback between fire management and park staff. Guidance and examples for ecological AARs are posted on the Fuels, Science, and Ecology intranet site.

3.4 Reporting

Official fire monitoring reports are critical not only for adaptive management, but also for a number of other purposes including the following:

- Communicating results to park fire and resource staff
- Providing accountability to regional and national offices
- Communicating results to the scientific community
- Presenting success stories and failures to NPS staff, the interagency community, non-governmental organizations (NGOs), and the general public

Two types of annual reports are required for each fire effects monitoring program: park reports and national reports.

Park fire ecologists should prepare and present an annual monitoring report for each park that they support. The format and timing for such reports is flexible and should be geared towards the needs of the parks. However, the reports should include a summary of monitoring activities from the year, results from data analysis, interpretation of data in the context of adaptive management, and discussion of the degree to which prescribed fire, wildland fire use, and non-fire treatment objectives are being met. The report should also document the results of ecological AARs and any other meetings where feedback was provided. In addition to these written reports, annual presentations should be made to park staff to facilitate open discussion of the results and possible changes in management based on the data.

A second annual report should be prepared for the regional and national offices. The objective of this report is to provide accountability for funds expended and to inform the regional staff of programmatic accomplishments. The annual request to monitoring staff for these reports occurs by October 31, and the reports are due by the end of the calendar year. The regional/national reports may be identical to the park reports, or they may include additional information as requested by regional staff.

In addition to annual reports, monitoring staff are encouraged to create informal reports throughout the year summarizing site visits and/or describing and evaluating individual project implementation.

3.5 Internal and External Reviews

Internal and external reviews should be conducted periodically to ensure that fire ecology and fire effects monitoring programs are efficient and effective, and that all aspects of the adaptive management model are functional. There are three types of reviews that are conducted: fire management program reviews, fire

ecology/fire effects monitoring program reviews, and regional fire management program reviews.

When fire management program reviews are conducted on a park's program, at least one ecologist should be a member of the review team, and the fire ecology/fire effects monitoring programs should be evaluated along with all other aspects of the fire management program.

In between fire management program reviews, the regional fire ecologist should conduct periodic reviews of fire ecology/fire effects monitoring programs. This review should focus more closely on collection of monitoring data, data management, monitoring results, and communication of results. A review team consisting of other specialists may be appropriate for these reviews. The review team should rely on the Park Level Fire Program Review Template.

Regional fire ecology programs should be reviewed every five to seven years. These reviews are part of the regional fire management program review and will be led by the fire ecologist from the Fire Management Program Center (FMPC) with an interdisciplinary review team that may consist of at least one of the following: resource manager, fire management officer, fuels specialist, superintendent, park fire ecologist, regional fire ecologist, or fire researcher.

Park and regional level fire program review templates can be found in the Fire Program Review Materials section of the National Interagency Fire Center website.

4 Fire Monitoring

Monitoring of wildland fires and non-fire fuels treatments is the primary way of assessing whether the fire program is meeting management goals and objectives for hazardous fuels reduction, ecosystem restoration, and maintenance of ecosystem health. Information gathered during fire monitoring is essential for decision making, and it provides documentation and an administrative record of fire activities. The information gained through monitoring serves to increase the knowledge of fire effects and fire behavior on park lands. Additionally, monitoring provides a feedback loop for adaptive management that allows fire managers to improve prescriptions and fire plans based on the new knowledge gained from field measurements. For effective adaptive management, monitoring must be based on and designed to assess both short- and long-term objectives.

The NPS *Fire Monitoring Handbook* (2003 or latest version) provides the core background information for fire effects monitoring program design, sampling, and implementation. Formal handbook updates are approved by the NPS Fire

Ecology Steering Committee and posted to the website as needed. Park units starting new fire monitoring programs are encouraged to first consider the NPS *Fire Monitoring Handbook* standard protocols to see if these protocols meet the needs of the new program before a decision is made to pursue other protocols.

4.1 Fire Monitoring Level Definitions

The NPS *Fire Monitoring Handbook* provides a recommended guideline for monitoring fire or treatment effects within a framework of four monitoring levels:

- Environmental (Level 1)
- Fire Observation (Level 2)
- Short-Term Change (Level 3)
- Long-Term Change (Level 4)

The first two monitoring levels provide information to guide fire management strategies for wildland fire and fuels management. Information collected on environmental conditions and fire observations are generally required for pre-suppression planning and fire reporting, and are usually collected by fire operations or fuels management personnel. This information also provides baseline data necessary to understand fire effects.

Monitoring for short- and long-term change is generally confined to fuels and vegetation monitoring but can be expanded to address other natural or cultural resource concerns.

The need for timely short-term fuels-treatment monitoring results to guide management may call for project-level monitoring designs in addition to those based on park-wide vegetation/fuels complexes.

General definitions and overview of the monitoring levels are provided below. Section 4.4 outlines the recommended level of monitoring based on fire management activities.

4.1.1 Level 1: Environmental Monitoring

This level of monitoring provides baseline data that is collected in preparation for the fire season or prescribed fire projects. Environmental monitoring data provide the background information needed to make fire management decisions. The following are examples of environmental data that may be collected by fire management:

- Local weather data
- Fire danger rating

- Fuel conditions (i.e. fuel type, fuel load, plant phenology, fuel moisture)
- Values-at-Risk

4.1.2 Level 2: Fire Observations

Fire observation monitoring provides a basic overview of the physical aspects of a fire event or fuels management activity. The following are examples of monitoring variables; the level of data collection may vary with the fire management activity:

- Fire cause, fire location, fire date
- Fire or project size
- Fuels and vegetation description
- Fire regime and condition class
- Current and predicted fire behavior
- Current and forecasted weather
- Smoke volume and movement

4.1.3 Level 3: Short-Term Change

Monitoring for short-term changes provides information on the immediate or short-term effects of a fire or fire management activity, at a level sufficient to evaluate whether stated project or program-level management objectives are achieved. For example, management objectives may be reducing the fuel load by 20 tons per acre, maintaining mean overstory tree density to within 10% of pre-burn conditions, or reducing the average total non-native species cover by 50-75%. Monitoring provides information on identified variables of interest either in a specific predefined vegetation and fuel complex (monitoring type or monitoring unit) or for a specific project. Data are collected through sampling of permanent monitoring plots, temporary plots, Composite Burn Index (CBI) plots (see section 4.3, Burn Severity Assessments, for more information), or photo points. Monitoring is implemented at varying intervals—pre-burn, during the burn, and immediately post-burn—and continues for up to two years post-burn. Level 3 monitoring requires a data stewardship plan to ensure effective long-term management and use of data (see section 4.9, Data Management, for more information).

4.1.4 Level 4: Long-Term Change

Monitoring for long-term change involves identifying the long-term effects of management activities that can be used to guide management decisions. Long-term monitoring of prescribed fire in pre-defined vegetation/fuel complexes is required to document that overall

programmatic objectives are being met and undesired effects are not occurring. It may entail the continuation of Level 3 monitoring over a longer period. Monitoring frequency is based on a predefined interval appropriate to both the vegetation and fuels complex and the anticipated duration of treatment impacts. Level 4 monitoring requires a data stewardship plan to ensure effective long-term management and use of data (see section 4.9, Data Management, for more information).

4.2 Fire Regime and Condition Class Assessments

Current National Park Service guidance stipulates that each fuels project entered into the National Fire Plan Operations and Reporting System (NFPORS) have a Fire Regime and Condition Class (FRCC) assessment completed prior to implementation. A post-treatment assessment must also be completed to document any change in FRCC resulting from project implementation.

Completion of online or classroom FRCC training will facilitate consistent FRCC implementation. National Park Service fuels, fire ecology, and natural resource staff are encouraged to complete this training. FRCC is a landscape scale planning and monitoring tool, and it is most effective when used at the landscape level. Therefore, parks are encouraged to develop FRCC assessments for their entire park, working with adjacent land managers to broaden the development and application of the assessment.

4.3 Burn Severity Assessments

Initial and extended burn severity assessments are a nationally approved NPS fire effects monitoring protocol. The information these assessments provide can meet the criteria defined by levels 2, 3, or 4 monitoring depending upon the extent to which the assessments are conducted. The Joint NPS–U.S. Geological Survey (USGS) National Burn Severity Mapping Project and the Monitoring Trends in Burn Severity Project (MTBS) sponsored by the Wildland Fire Leadership Council address the need to quantify fire effects on public lands in order to develop an archive of fire history. Both projects archive assessments for all fire types: wildfire, prescribed, and wildland fire use. The goal of both projects is to monitor fire effects using standardized geographic databases employing consistent measures of *burn severity*, which is defined as the magnitude of ecological change caused by fire.

Currently, remotely sensed burn severity data should be requested for all wildland fires exceeding 500 acres on National Park Service lands as part of the NPS–USGS Burn Severity Mapping Project. Steps on how to complete burn severity requests can be found on InsideNPS on the Ecology page under Branch of Wildland Fire. Remote sensing and field methods for burn severity and a

general overview of burn severity mapping are available at the NPS–USGS National Burn Severity Mapping Project website and the MTBS website.

4.4 Fire Monitoring Requirements by Fire Management Activity

The following section describes the specific monitoring requirements for all fire management activities. Table 1 outlines the minimum required monitoring level for each fire management activity.

TABLE 1. Minimum required monitoring level for each fire management activity.

Management Activity	*Minimum Required* Monitoring Level and Activities
Wildfire	Levels 1, 2 Request burn severity assessments for fires > 500 acres
Wildland Fire Use	Levels 1, 2 Request burn severity assessments for fires > 500 acres
Prescribed Fire	Levels 1, 2, 3, 4[1] Request burn severity assessments for fires > 500 acres
Non-Fire Treatments	Documentation of treatment prescription, location, objectives, and evaluation of results (see section 4.4.3)

[1] Long-term monitoring is required if monitoring addresses prescribed fire programmatic objectives.

4.4.1 Wildland Fire (Wildfire, Prescribed, and Wildland Fire Use Fires)

Requirements

Levels 1 and 2

- Data necessary to satisfactorily complete a Wildland Fire Report for suppression fires, natural outs, wildland fire use and prescribed fires.
- Data necessary for a Wildland Fire Situation Analysis (WFSA) and/or Wildland Fire Implementation Plan Stage I–III (WFIP).
- Burn Severity Assessments for single fires exceeding 500 acres. *Consider requesting a burn severity assessment for forested and shrub-dominated areas with fires between 300 and 500 acres.*

Recommendations

- CBI plots for field validation of burn severity mapping.
- Post-burn survey to inspect for exotic plant species invasion or expansion.
- Post-burn short- or long-term monitoring plots in areas of sensitive species, rare/unique vegetation types, or vegetation types where the effects of fire are not well known.
- Consultation with cultural resources staff evaluating the need for post-burn surveys.
- Determination of whether any non-fire (research, resource management, Inventory and Monitoring, etc.) program plots or projects were impacted; consider re-measurement of any previously established plots.
- Data necessary to satisfactorily complete pre- and post-burn FRCC assessment.

4.4.2 Prescribed Fire

Requirements

Levels 1 and 2

- Data necessary to satisfactorily complete a Wildland Fire Report for prescribed fires.
- Data necessary to satisfactorily complete a Prescribed Fire Plan and immediate Post-Burn Report.
- Burn Severity Assessments for single fires exceeding 500 acres; *consider requesting burn severity for forested and shrub dominated areas with fires between 300 and 500 acres*.
- Data necessary to satisfactorily complete pre- and post-burn FRCC assessment.

Level 3

- Data collected to determine the immediate or short-term effects of a fire or fire management activity, at a level sufficient to evaluate whether stated management objectives were achieved.
  - These data are collected through sampling of permanent monitoring plots, temporary plots, or photo points using protocols defined in the NPS *Fire Monitoring Handbook* or other protocols approved at the regional level (see section 4.5, Protocol Development and Approval, for further information).
  - **Note:** Plots are not required in each specific project, but the monitoring program should include representative data for each key

vegetation and fuel complex with specific objectives (monitoring type) in the park prescribed fire program.

Level 4

- Data collected to determine the long-term effects of management activities that can be used to guide management decisions.
  - These data are collected through sampling of permanent plots. This may entail a continuation of Level 3 monitoring activities at a frequency appropriate to both the vegetation and fuels complex and the anticipated duration of treatment impacts.

Recommendations

- Post-burn ocular evaluation to inspect for exotic species invasion or expansion.
- CBI plots for field validation of burn severity mapping.

4.4.3 Non-Fire Treatments

Increased emphasis on risk reduction in the wildland urban interface (WUI) has resulted in an increasing number of non-fire treatment projects within the NPS. Non-fire treatments include manual, mechanical, chemical, and biological controls to manipulate vegetation and/or remove fuels to change fire behavior and/or reduce the likelihood of ignition or fire spread. The Fuels Management chapter in *RM 18* describes the process for planning and implementing non-fire treatments. Documentation of non-fire treatment activities is required in NFPORS. Currently, the minimum required data for monitoring non-fire treatments needed for NFPORS are completion of required fields, Management Objectives Tool questions, and FRCC pre- and post-treatment.

Non-fire fuels treatments must be monitored for pre- and post-treatment conditions at a level sufficient to determine whether the objectives of the treatment were met (see requirements below). Examples include photo point documentation or establishment of pre- and post-treatment monitoring plots. The fuels specialist or fire management officer (FMO), fire ecologist, and resource staff should determine the level and type of monitoring needed based on the scope, complexity, and size of each treatment or combination of treatments. Non-fire treatment monitoring must be included in the park fire monitoring plan.

Monitoring Requirements

- Documentation of treatment prescription.

- Documentation of treatment location using geographic information system (GIS) layers or maps.
- Data necessary to fill out NFPORS documentation, including FRCC for the project area pre- and post-treatment.
- Pre-and post-treatment monitoring to determine if the management objectives were met (e.g., photo points, monitoring plots).

Recommendations

- Post-treatment survey to inspect for exotic plant species invasion or expansion.
- Fire behavior modeling to demonstrate treatment effectiveness in reducing risk.

4.5 Protocol Development and Approval

Monitoring protocols document the sampling design, methods, frequency, and analysis for a monitoring program. Descriptions of all monitoring protocols in a park are documented in the park's fire monitoring plan and may include a single protocol or sets of protocols. Currently, the only nationally approved NPS fire ecology program protocols are those described in the NPS *Fire Monitoring Handbook* and those developed for burn severity mapping. Additionally, the NPS Inventory and Monitoring Program is developing standard protocols for monitoring, which may include protocols for monitoring fire effects. However, the NPS Fire Ecology Steering Committee has not approved these protocols to be used nationally.

There are two levels of approval for new protocols: regional and national. At the regional level, the regional fire ecologist approves the written protocol proposal. Approval at this level signifies acceptance of the protocol for use at the park, network, or regional level. Once a protocol is approved, the monitoring plan should be updated to include the new protocol.

At the national level, protocols are approved through the NPS Fire Ecology Steering Committee. The committee may approve the protocols themselves or may form task groups that include outside reviewers to provide recommendations to the committee.

Park units should use monitoring protocols and monitoring designs that best measure whether short- and long-term objectives are being met. They should first consider the NPS *Fire Monitoring Handbook* standard protocols, because these protocols were developed for use in many vegetation types and to address a wide range of fire and resource management objectives. However, other protocols and designs may be developed and utilized if they better meet the

program's objectives. Determination of appropriate protocols or the use of new protocols should be included in the development or revision of the fire monitoring plan.

Parks that choose to develop or use protocols not found in the NPS *Fire Monitoring Handbook* need to document the protocol and receive approval at the regional level. The decision to use other documented monitoring protocols or to develop new protocols should be conducted with input from park fire and resource managers, park scientists, the regional fire ecologist, the regional vegetation specialist, interagency or academic scientists, and other local experts. Pilot sampling should be considered to ensure the efficacy of the protocols and monitoring design. A written protocol proposal is required as outlined below and must be submitted to the regional fire ecologist for approval. When regional approval is received, the monitoring plan must be updated to include the new protocol. Protocol requests should include the following:

- Justification of the need for the new protocol and description of how the new protocol meets monitoring objectives.
- List of the target variables identified that directly measure objectives described in park fire and/or resource management plans.
- Detailed description of field methods to be used.
- Description of statistical tests to be used to analyze the data and determine minimum sample size needed to measure whether objectives are being met.
- Description of the repeatable plot location process and location documentation for permanent plots.

A list of monitoring protocols is maintained on InsideNPS on the Ecology page under Branch of Wildland Fire. When additional national protocols are developed and approved, they will be added to this list as an approved National Fire Ecology Program Protocol. This list will also include protocols that are not nationally approved but are being used at the regional level (they will be listed as a Regionally Used Protocols). The NPS Inventory and Monitoring Program Protocol Database website also maintains a list of protocols and is a useful reference.

4.6 Project Monitoring

The monitoring methodology outlined in the NPS *Fire Monitoring Handbook* is based on the monitoring of vegetation across *Monitoring Types*. Monitoring Types are areas of the landscape defined by similar vegetation, fuels, treatments, and objectives that often encompass multiple prescribed fire units. A limitation of this methodology is that it is not designed to discern whether the short-term management objectives identified in a prescribed fire plan were achieved by a single treatment.

In instances where immediate results are needed to evaluate the effectiveness of a treatment, monitoring protocols may be developed that specifically address whether treatment objectives are being achieved. Because time and energy spent assessing the short-term effects of treatments may detract from addressing longer-term park-wide objectives, the fire ecologist will work with fire management staff to determine the appropriateness of project-specific monitoring.

4.7 Coordination with Park and Network Monitoring Efforts

Fire effects monitoring is one of numerous monitoring activities that may occur within a park. The NPS Inventory and Monitoring (I&M) Program consists of networks of parks that monitor a wide range of natural resources within parks. Moreover, resource management staff in individual parks may conduct specific types of monitoring.

Fire ecologists must coordinate with park and network staffs who are conducting monitoring. The degree of coordination will vary by program, but at a minimum the various monitoring programs should communicate with one another to ensure that there are no potential conflicts in their monitoring activities or treatments. More intensive coordination may entail the sharing of data or the sharing of personnel and resources.

Coordination is also necessary to avoid potential conflicts with treatments. For example, fire ecologists should work with exotic plant management teams to coordinate timing of prescribed fire and mechanical treatments to maximize effectiveness of treatments.

4.8 Fire Monitoring Plans (see exhibit 2)

Monitoring is a critical component of fire management because it is the primary means of assessing whether the fire program is meeting management goals and objectives. All NPS units applying prescribed fire, using wildland fire use, or altering the arrangement of wildland fuels for the purpose of modifying fire behavior must prepare a fire monitoring plan or plans. The fire monitoring plan describes in detail how monitoring will be conducted. It identifies the reasons for monitoring, and it specifies the objectives, methods, locations, and frequency of monitoring. The fire monitoring plan is an appendix to the fire management plan, which is tiered to the resource management plan, which in turn is tiered to the general management plan. Fire monitoring plan(s) can be developed concurrently with the fire management plan or independently; in either case, it needs to be completed prior to the initiation of a wildland fire use program, prescribed fire projects, or non-fire fuels treatments.

For units without wildland fire use and prescribed fire programs, the decision regarding whether a fire monitoring plan is necessary should be made collaboratively by the regional office fire staff, the unit fire staff, and the unit resource management staff. This decision should be revisited over time as the program evolves. In lieu of a separate monitoring plan, parks that use only suppression as a management strategy may follow the guidance for monitoring and evaluation found in their respective fire management plans and in the descriptions of Level 1 and 2 monitoring in the NPS *Fire Monitoring Handbook*. The fire monitoring plan should work in concert with monitoring plans that are developed by the NPS Inventory and Monitoring (I&M) Program, as well as with any other monitoring occurring in the park and with park neighbors. In the event of Burned Area Emergency Response activities, the BAER plan will incorporate monitoring strategies specific to the BAER treatments. These may be, but are not required to be, incorporated into the monitoring plan.

There are several types of monitoring that a park can do, so there are several different monitoring plan options: park monitoring, community monitoring, and project monitoring (see exhibit 2 for the elements of the different monitoring plans). The decision of what type of plan or plans to develop and maintain will be made by the park, with guidance and approval from field and regional fire ecologists, the FMO and/or fuels specialist, and local fire effects monitoring staff, if available. Parks should consult and collaborate with park resource managers, local network Inventory and Monitoring Program personnel, and adjacent parks and land management agencies, as appropriate. Peer review of fire monitoring plans by the NPS, other agencies, NGOs, and academic scientists in the disciplines of vegetation, fire ecology, and monitoring is strongly recommended. The fire monitoring plan should be viewed as a living document. It should be updated regularly as new information becomes available through analysis of data and research. If possible, these updates should coincide with the annual update of the fire management plan.

4.8.1 Park Monitoring Plan

The park fire monitoring plan is a single plan that contains information about all fire effects monitoring being conducted in the park—all the monitoring units and protocols are described in one place within the park fire monitoring plan document. Park, project, and community plans may be incorporated into the main document or may be addenda to the plan. Parks with only one or a few monitoring projects may find that a park fire monitoring plan is not necessary, and that one or several project plans may be sufficient. Park plans should be submitted by the fire ecologist, at a minimum reviewed by the chief of resource management and the fire management officer, and approved by the regional fire ecologist.

4.8.2 Community Monitoring Plan

Community monitoring is defined as monitoring the effects of treatments on a single monitoring unit across the park or on a landscape scale, usually in several project areas. The monitoring unit is relatively homogeneous in ecological or fuels-defined attribute(s) and treatment objectives. Treatments are often similar across the monitoring unit. The NPS *Fire Monitoring Handbook* describes the stratification of ecological- or fuels-based monitoring types as the appropriate method for defining monitoring units when objectives relate to restoring or maintaining a vegetation community at a landscape scale. Review requirements for community plans are at the discretion of the regional fire ecologist.

4.8.3 Project Monitoring Plan

Project monitoring is defined as monitoring the effects of treatments in a single project area, such as a burn unit, with sufficient intensity to enable the evaluation of treatment objectives. This type of monitoring is not restricted by time frame or similarity of treatment(s). The monitoring unit is spatially defined by the project and characterized ecologically or through fuels objectives. Examples of objectives include mechanical hazardous fuels reduction, maintenance of a historic scene, and reduction of an invasive species. Project monitoring can be used to determine whether the objectives of an individual treatment were met, and it can provide specific feedback for adaptive management in a relatively short time frame and/or over the long term. Review requirements for project plans are at the discretion of the regional fire ecologist.

4.9 Data Management

NPS fire ecologists and fire effects monitors will primarily use the Fire Ecology Assessment Tool (FEAT) software to collect, store, and analyze fire effects monitoring plot data until the integrated FEAT-FIREMON software is available. Data will have complete Federal Geographic Data Committee (FGDC) metadata and be posted annually to the Natural Resource Datastore.

Park-level fire ecologists are responsible for developing a data stewardship plan for fire effects plot data (Level 3 and 4 monitoring data). The data stewardship plan will be referenced or included in the fire monitoring plan. The chapter on Information and Technology Management in *RM 18* should be consulted when developing a data stewardship plan because it provides guidance on

stewardship, standards, documentation, sharing, and archiving of data. The data stewardship plan, at a minimum, should address the critical elements listed below. In addition, the NPS I&M Program website is an excellent reference for data stewardship planning. Data stewardship plans should be reviewed annually and updated as needed. Regional fire ecologists will ensure that data stewardship plans are completed for parks that are not covered by a park-level fire ecologist.

Addressing Level 1 and 2 monitoring data in the data stewardship plan is optional. Level 1 and 2 data (i.e., smoke, fire weather, fire behavior) are included in the wildland fire report, WFIP Stage 1, and the prescribed burn summary report. At a minimum, on-site fire weather and behavior data should be archived (electronically or as a hard copy) with the other information pertaining to the fire (i.e., wildland fire report, WFIP, prescribed burn report). Fire management staff must make sure adequate mechanisms are in place to ensure long-term protection of this data. To ensure long-term protection and use of burn severity assessments completed by the NPS–USGS National Burn Severity Mapping Project, all assessments are archived and available on its website.

Data Stewardship Plan Critical Elements

- Number, location, and type of monitoring plots
- Location of databases and type of databases that store fire effects monitoring data
- Location of hard copies of data
- Status of metadata
- Quality Assurance/Quality Control (QA/QC) processing
- Type of quality control completed
- Quality control issues encountered in the data
- Changes made to the data
- Processes and procedures that ensure long-term protection of data
- Procedures for backing up data that will minimize potential for data loss
- General procedures for addressing requests for data from stakeholders, managers, and the public
- Species of concern that need to be flagged because the location of these species cannot be released to the public (e.g., rare species, threatened and endangered [T&E] species, and culturally significant species)
- Data analysis completed and location of results or summaries

4.10 Research vs. Monitoring

A distinction has traditionally been made between research and monitoring, but as monitoring programs become better designed and more statistically robust,

this distinction becomes more difficult to discern. Monitoring is driven by fire and resource management objectives as part of the adaptive management cycle, and therefore its primary function is to evaluate progress toward or success at meeting an objective.

Research, on the other hand, is often focused on identifying correlation of change with a potential cause. Few monitoring projects can identify this type of correlation. Because a monitoring program does not control for potential causes, monitoring data should not be mistaken for information on cause and effect. If cause and effect relationships are needed to address a management objective, input from a statistician and/or research scientist for a research study design should be obtained. Consultation with a statistician may be warranted for monitoring program design as well, especially if new protocols are being considered or sensitive resources are involved. Regional or national fire ecologists can provide statistical consultation.

See the Fire Research chapter in *RM 18* for sources of research funding and assistance.

5 Fire Ecology Program Safety

Employee and public safety is the first priority in every fire management activity. The chapter on Standards for Operations and Safety in *Reference Manual 18* deals specifically with safety and health related to wildland fire activities but does not address fire monitoring activities explicitly.

The Safety chapter in *Interagency Standards for Fire and Fire Aviation Operations* identifies safety items that should be considered for safe fire monitoring activities. Two of the primary sections in this chapter are risk management and job hazard analysis (JHA). The risk management process ensures that critical factors and risks associated with operations are considered during decision making. This process must be applied to all fire operations prior to taking action. The process includes gathering information, estimating or identifying hazards, identifying controls for hazards, and evaluating personnel. Job hazard analysis information is available at USDA Forest Service and Occupational Safety and Health Administration (OSHA) websites.

Parks and fire effects monitoring teams should review the documents posted on the Forest Service and OSHA websites listed above to determine if they meet their local programmatic needs. For those job aspects unique to local fire ecology programs, each fire effects monitoring crew should develop JHAs for their monitoring activities. The JHAs may apply to an individual park or a network of parks.

6 Fire Ecology Program Funding

Funding for the fire ecology program is included under the overall NPS Fuels Management Program budget. Permanent and seasonal staffing levels are determined by the regional fire management staff. Project level and supplemental travel funding is requested through NFPORS. Fire ecologists should play an active role in developing and overseeing the budget of their program.

6.1 Fire Ecology Business Rules

Specific information on staffing levels and budget is contained within the *NPS Wildland Fire Management Budget - Business Rules* which are updated periodically and can be found on InsideNPS on the Planning and Budget page under Branch of Wildland Fire.

The following topics of interest to the fire ecology program are covered in the business rules:

- Park and network fire ecology program staffing level definitions
- Fire effects networks: definitions, development, and modification processes
- Management override rules
- Fire effects travel funding calculations and request processes
- Reporting requirements for regional and national program managers

6.2 Supplemental Travel Funds

Programmatic support funding should be used for general program functions, including supplies and equipment and travel for fire ecology training, workshops, and conferences.

Fire ecologists need to track NFPORS project-entry deadlines for requesting funds for travel support for fuels monitoring projects. These additional travel funding requests should be coordinated with regional ecologists. See *NPS Wildland Fire Management Budget - Business Rules* for guidance on using support funding and requesting additional travel funding.

6.3 Additional Funding and Staffing Sources

In addition to wildland fire funding for staffing and projects, other sources of funding may be available to enhance or supplement existing fire ecology programs. These sources include:

- Interagency positions and partnerships
- Student Conservation Association positions
- Collaborative partnerships with the NPS Inventory and Monitoring program

Proposals to create these types of positions should be coordinated with the regional fire ecologist and regional fire management officer.

6.4 Budget Planning Cycle and Deadlines

Fire ecology program staff should monitor Wildland Fire and Fuels Management Program annual budgetary planning cycles. Checklists for both of these cycles can be found as appendices in *NPS Wildland Fire Management Budget - Business Rules*. Changes to the network configurations must be approved by the regional fire ecologists prior to the annual deadline.

Exhibit 1

FIRE ECOLOGY PROGRAM ROLES AND RESPONSIBILITIES

General responsibilities for program personnel are given below. The information below is meant to serve as a general guideline, as responsibilities may vary from park to park. See *RM 18*, Fuels Management chapter, for additional responsibilities.

A. Agency Administrator

The park's superintendent functions as the agency administrator for all ecology and monitoring program activities. The agency administrator:

- Ensures that the fire management plan meets *RM 18*, Fire Management Plans chapter policy standards including clear articulation of programmatic fire management goals and objectives.
- Ensures that required fire monitoring plans are closely linked to fire and resource management plans and are completed according to policy guidelines.
- Ensures that all monitoring program activities are conducted in accordance with established standards and guidelines.

B. Park Fire Management Officer

The fire management officer (FMO) is responsible to the agency administrator for overall planning, implementation, and monitoring of the fuels program. The FMO:

- Ensures that activities and plans reflect a commitment to safety and comply with established standards and safe practices.
- Ensures that the prescribed fire and non-fire treatment plans meet NPS policy and direction for monitoring.
- Ensures that the fire ecology and fuels program is well-integrated with the overall fire management program.
- Hires, trains, and supervises the network or park fire ecologist.
- Provides opportunities for training and employee development as outlined in approved employee development plans.
- Creates and maintains the unit fire management plan.

C. Park Fire Ecologist

The fire ecologist serves as the program expert in fire ecology and coordinates with other resource managers to collect scientific information regarding long- and short-term effects of fire and fuels management activities. Individual parks and networks delegate the following responsibilities according to local needs and resources. The fire ecologist:

- Assists with the development and review of fire management plans.
- Assists with the development of prescribed fire and other fuels management plans.
- Recommends and/or reviews prescribed fire and other fuels treatment plans.

- Develops and implements a monitoring program(s) that provides a basis for adaptive management; this includes scheduling, ensuring consistency of protocols, data analysis, results reporting, and quality control.
- Reports results of the monitoring program to fire and park staff and partners.
- Contributes to the development of, and providing the ecological basis for, quantifiable objectives for prescribed burn and non-fire fuels treatment plans.
- Identifies potential areas to be treated with prescribed fire and non-fire treatments, in conjunction with the fuels management specialist, the FMO, and resource management specialists.
- Recommends fire treatment intervals and non-fire fuel treatment schedules for both restoration and maintenance phases of fuels management.
- Coordinates monitoring with the Inventory and Monitoring Program and other resource management monitoring programs to minimize the duplication of efforts.
- Acts as a liaison with park natural and cultural resource programs.
- Provides fire ecology-related technical information for NEPA compliance documents associated with fuels management, such as the Environmental Screening Form and Environmental Assessments, in coordination with resource management personnel.
- Identifies fuels and fire-related research needs, and leads efforts to have research conducted.
- Acts as liaison between the fuels project manager and the researcher during research fires and non-fire treatments.
- Can function as a resource advisor on wildland fires.
- Manages the fire monitoring database.
- Hires, trains, and supervises fire effects monitors.
- Writes and maintains the fire monitoring plan for host and network parks.
- Conducts literature reviews to address fire ecology questions; interprets and presents results.
- Manipulates and presents spatial monitoring data using ArcGIS.
- Has budget and fiscal responsibility for the program.
- Serves as a member of the Exotic Plant Management Team.
- Coordinates with the regional and national fire ecologists.
- Assists with implementation of treatments as needed and as available.
- May provide ecological expertise, in conjunction with the regional fire ecologist, on fire effects and vegetation for Burned Area Emergency Rehabilitation (BAER) teams.
- Collaborates with communication and education and information specialists or designee and regional ecologists to assemble success stories and lessons learned in order to promote acceptance of and support for the role of fire in ecosystems.

D. Lead Fire Effects Monitor

The lead monitor collects and stores vegetative monitoring data needed to determine the effectiveness of the fire program in meeting objectives at host and network parks. The lead fire effects monitor:

- Assists with hiring and training the monitoring field crew.
- Leads the field crew in collection and entry of vegetation monitoring data according to standard protocols at host and network parks.
- Directs and oversees the daily operations of fire effects monitors in the field and office.
- Ensures data quality and management.
- Sets the monitoring schedule and communicates the schedule to host parks.
- Identifies plants to the species level in a variety of ecosystems and resolves the identification of unknown species.
- Creates and maintains voucher specimens.
- Assists with the implementation of treatments as needed and as available.
- Assists the fire ecologist with budget and fiscal activities.
- Collects and manages spatial data relating to monitoring plot locations.
- Collaborates with the fire ecologist on planning and annual reporting documents.

E. Assistant Lead Fire Effects Monitor

The assistant lead monitor performs field and laboratory work associated with the collection and storage of fire effects monitoring data at host and network parks in order to determine effectiveness in meeting prescribed fire objectives. The assistant lead is able to lead the crew in the absence of the lead monitor (see lead monitor duties).

F. Prescribed Fire Specialist or Fuels Specialist

The prescribed fire specialist serves as the primary contact person between fuels and prescribed fire personnel and the fire ecology program. Specific roles may be addressed in the respective fire management plan. The prescribed fire specialist:

- Acts as a primary contact person between the fuels and fire ecology program to ensure that goals and objectives are developed collaboratively and that the fire ecology program staff members are kept current regarding treatment planning and implementation status.
- Collaborates to ensure that annual and five-year prescribed fire work plans are developed with input from the fire ecologist.
- Communicates with the fire ecologist to provide the opportunity for input into prescribed fire plan development.
- Collaborates to ensure that prescribed fire plan goals and objectives are consistent with those outlined in the fire management and fire monitoring plans.
- Collaborates on the fuels and fire effects monitoring plan.

G. Prescribed Fire Burn Boss

Exhibit 1

The prescribed fire burn boss is responsible to the agency administrator or prescribed fire manager for implementing the prescribed fire burn plan. The prescribed fire burn boss:

- Reviews the prescribed fire burn plan prior to implementation and ensures that all the objectives and prescriptions are compatible and that monitoring has been addressed.
- Collaborates with pertinent personnel to determine that all monitoring requirements outlined in the prescribed fire plan are met during burn plan development.
- Determines when the prescribed fire is not within prescription parameters or is not meeting objectives.
- Coordinates with ecology program personnel to ensure that the applicable post-burn reports (as determined by the fire management plan) are completed.

H. Fuels Technician

The fuels technician performs a variety of fire management support functions, including aiding in the implementation and monitoring of wildland fire and non-fire treatment projects. The fuels technician:

- Leads and participates in the monitoring, collation, and reporting of specified fuel monitoring data.
- Works in conjunction with fire effects monitors as needed.
- Establishes fuel monitoring plots in a variety of fuel models.
- Enters natural resource field data using available support software.
- Performs analyses of fire weather, behavior, and fire history; works with fire behavior models such as BEHAVE.
- Collects GPS information for field plots; prepares field maps.

I. Fire Communication and Education Designee

Fire communication and education facilitates communications about the NPS wildland fire management program with internal and external audiences. The fire communication and education designee:

- Collaborates with regional ecologists to assemble success stories and lessons learned in order to promote acceptance and support for the role of fire in ecosystems.
- Develops factual and understandable fire ecology messages from results communicated by fire ecology staff.
- Aids in the determination of the most appropriate and effective outlets for information dissemination.
- Participates in information-sharing meetings discussing fuels treatment results.
- Collaborates with natural resource specialists and programs related to fuels and fire management.

J. GIS Specialist

The GIS specialist provides a variety of support functions, such as geospatial expertise, data layers, and map products. Responsibilities of the GIS specialist vary throughout the program. The GIS specialist:

- Supports the GIS needs of the wildland fire management program and may provide GIS data layers, map products, and data analysis as requested.
- Ensures that the fire management staff has access to current data, software versions, training, and assistance.
- Facilitates the wildland fire management program's utilization of existing GIS capability.
- May represent the wildland fire management program on NPS/interagency committees and task groups related to fire management and GIS.

K. Resource Management Specialist

The resource management specialist provides guidance in determining monitoring objectives related to resource management objectives for fire. As applicable, resource management specialists provide input for the fire management and prescribed fire plans. Additional responsibilities may include consultation in the development, completion, and evaluation of research projects and compliance documentation. The resource management specialist:

- Identifies projects where fire is an appropriate resource management tool and helps identify monitoring objectives related to resource management objectives for fire.
- Aids in completion of environmental compliance.
- Reviews fire management and prescribed fire plans.
- Provides input into the development, completion, and evaluation of research projects.

L. Regional Fire Ecologist

The regional fire ecologist serves as the coordinator and administrative lead for fire ecology and monitoring related activities throughout the region. Communication and coordination are critical components of this position. The regional fire ecologist:

- Coordinates with other regional fire, resource management, and Inventory and Monitoring staff to ensure the fire ecology program is recognized and considered in programmatic decisions.
- Assists with the preparation and review of fire management and fire monitoring plans for parks and networks.
- Coordinates with parks regarding monitoring funding request requirements and reviews and approves park National Fire Plan Operations and Reporting System (NFPORS) monitoring request entries.

Exhibit 1

- In association with appropriate personnel, ensures that Fire Effects Teams serving network parks are provided with the most current project list information available.
- Coordinates research needs at the regional level and assists with prioritization of park level research requests.
- Compiles park level annual reports into the annual regional fire ecology program report.
- Participates in site visits and programmatic reviews.
- Determines network configuration, in conjunction with parks.
- Provides technical advice and oversight to parks not covered by a park fire ecologist.
- Approves fire monitoring plans.
- Serves on the Fire Ecology Steering Committee.
- Approves other monitoring protocols at the regional level.
- Assesses and prioritizes overall programmatic staffing and budget needs.
- Coordinates with resource management and fuels staff to assist with the development of prescribed fire and other fuels management objectives and prescriptions.
- Provides ecological expertise on fire effects and vegetation for Burned Area Emergency Rehabilitation (BAER) teams as needed; may approve BAER plans.
- Works in conjunction with park ecologists to coordinate fire effects monitoring training.
- Collaborates with fire communication and education designee and park ecologists to assemble success stories and lessons learned in order to promote acceptance and support for the role of fire in ecosystems.

Exhibit 2

FIRE MONITORING PLAN ELEMENTS

Monitoring plans should include the following elements:
R – Indicates a required element
S – Indicates a strongly suggested element
O – Indicates an optional element

Element	Park	Community	Project
Table of Contents	R	S	O
Introduction	R	R	R
Fire and fuels management	S	S	O
Ecology and landscape management	R	S	S
Management goals and objectives			
Resource & fire mgt, fire ecology	R	R	S
Treatment & monitoring objectives	R	R	R
Desired conditions	R	R	R
Monitoring design	R	R	R
Data management and analysis			
Data management, quality control	R	R	R
Data analysis	R	R	R
Reporting and adaptive management	R	R	R
Roles and responsibilities			
Staff roles and responsibilities	R	S	S
Work plans and prioritization	R	S	S
Consultation, collaboration, and review			
Plan input	R	R	R
Agency/interagency collaboration	R	S	S
Review	R	R	R
References	R	R	R
Appendices			
Data collection tools	S	S	S
Plant list and voucher collection	R	S	O
(Custom) data sheet examples	R	R	O
Acronyms and abbreviations	S	S	S
Maps	S	S	S
Monitoring schedule	R	S	S
Job hazard analysis	S	O	O

Exhibit 2

Description of Monitoring Plan Elements
Note that the amount of detail within each element is at the discretion of the author and the reviewing and approving officials.

Title Page with Signatures

- Park plans should be submitted by the fire ecologist and at a minimum reviewed by the chief of resource management and the fire management officer, and approved by the regional fire ecologist.
- Review requirements for community and project plans are at the discretion of the regional fire ecologist.

Table of Contents

- Self-explanatory.

Introduction

- Include the purpose and need for a monitoring plan, and a brief history of monitoring at the park. The introduction may also include an overview of the park's fire management and fire ecology programs.

Fire and Fuels Management

- Describe how the activities of the fire and fuels management program support the management goals and objectives of the park. If an adequate description exists in the fire management plan or elsewhere, it could be referenced and summarized.

Ecology and Landscape Management

- Provide the biological basis for the development of measurable goals and objectives. If an adequate model exists in the fire management plan, resource management plan, inventory and monitoring plan, or elsewhere, it can be referenced and summarized. Consider ecological models including box-and-arrow diagrams illustrating functional relationships between vegetation communities, successional trajectories associated with various fire regimes and other disturbance regimes, and environmental influences and impacts of stressors. If cultural landscapes are present, describe how fire and fuels treatments are used to restore or maintain these landscapes. There should be ecological descriptions of the vegetation communities being monitored. These descriptions may also include information about special status species and species of concern (including threatened and endangered species affected by fire, as well as invasive plants), the historical role of fire and altered fire regimes, fire behavior fuel models, relevant monitoring data, the relationship of vegetation communities to monitoring units, and reference conditions.

Management Goals and Objectives

- Describe resource management, fire management, and fire ecology goals and objectives; treatment and monitoring objectives (include both restoration and maintenance objectives, by monitoring unit); and desired conditions (by monitoring unit).

  Goals are intended to provide the general direction for a given resource initiative (ecological, economic, social, and administration/coordination). Park goals should be identified from Desired Conditions contained in higher level planning documents, such as general management plans or resource management plans, and may be further refined in fire management plans.

  Objectives are subordinate to goals. Objectives describe the changes in resource conditions that managers hope to achieve through management actions. Objectives should be realistic, achievable, specific, measurable, clearly articulated, and focused. Objectives should operate on multiple temporal and spatial scales; e.g., short-term objectives to measure the success of individual treatments, long-term objectives to track changes and trends in vegetation and fuels across the landscape.

Monitoring Design (See NPS *Fire Monitoring Handbook* [2003 or latest version] for more detailed descriptions of these elements).

- Overview: Specify which levels of monitoring are occurring for each type of disturbance: wildland fire, prescribed fire, wildland fire use, non-fire treatments, and other disturbances that may be monitored.
- Environmental (Level 1) and Fire Observation (Level 2) Monitoring.
- Short-term (Level 3) and Long-term (Level 4) Change Monitoring: State desired level of precision, minimum sample size, and minimum detectable change, as appropriate.
- Monitoring units: Include monitoring unit parameters—ecological parameters (monitoring type description) or geographic boundaries—and naming convention and identification codes.
- Sampling Design: Describe plot layout (including schematic diagrams when appropriate); results of pilot sampling, if conducted; monitoring frequency, based on plant phenology and treatment dates; and method of plot selection/location (describe the randomization process) in sufficient detail so that someone else can pick up where the original author left off.
- Field Measurements: Include variables measured and specific protocols for each variable.

Data Management and Analysis

- Data Management and Quality Control: Describe the data management system. Include the location of hardcopy and electronic data, GIS layers, photos,

accessibility, and the process for backing up data. Specify quality control measures. Refer to the data stewardship plan, if one exists.
- Data Analysis: Explain the intended analysis of data, including timing of analysis and minimum plot calculations.

Reporting and Adaptive Management

- Discuss how, when, and to whom the data and results will be communicated, and how they will affect adaptive management. Describe how results will be incorporated into updates of the fire management plan. List any publications, works submitted for publication, and formal presentations at conferences or meetings that incorporate monitoring results or data.

Roles and Responsibilities

- Staff Roles and Responsibilities: Describe the roles and responsibilities of the fire ecologist, lead and assistant lead fire effects monitors, FMO, chief of resources, prescribed fire specialist, regional fire ecologist, and others.
- Work Plans and Prioritization: Discuss the process for development of annual work plans and work prioritization.

Consultation, Collaboration, and Review

- Consultation: List all the people who provided input into the plan, describing each person's contributions.
- Collaboration: Discuss collaboration with other park divisions or programs, the NPS Inventory and Monitoring program, Exotic Plant Management Teams, interagency groups, and others as necessary.
- Review: Three peer reviews are required. Peer reviews may be conducted by a regional fire ecologist, a park or regional ecologist, a relevant faculty member from a university, a scientist from the local I&M network, or other individuals with relevant qualifications and experience.
- References: Provide citations for scientific literature and policy documents.

Appendices

- Data Collection Tools and References (Describe and state the location of field reference guides, plant reference guides, plant books and keys, herbarium, etc. Information pertaining to PDAs, field computers, or any special field equipment can be included here.)
- Plant List and Plant Specimen Voucher Collection (Include the lists themselves or else explain where they are stored; also mention the naming standard(s) used.)
- Data Sheet Examples (If customized data sheets are used, include them here. Otherwise, refer in the text to the location or source for standard sheets.)
- Acronyms and Abbreviations

Exhibit 2

- Maps
- Monitoring Schedule
- Job Hazard Analysis

AIR QUALITY AND SMOKE MANAGEMENT

1 Introduction

Visibility and clean air are primary natural resource values in all NPS units. The protection of these resources must be given full consideration in fire management planning and operations.

In order to minimize negative smoke effects on air resources, NPS units must comply with the regulations and standards covered in this chapter. NPS units are required to identify the effects of smoke on air resources, establish current levels of pollutants, estimate levels of pollution for different fire management actions, and identify effects on public health and enjoyment. The NPS must then identify and pursue the best measures to control or mitigate smoke emissions.

Guidance in this section should be supplemented by *Reference Manual 77 (RM 77): Natural Resource Management* (formerly *NPS 77: Natural Resource Management Guideline*). *RM 77* is the definitive authority for direction on all air quality issues in National Park Service areas. The Environmental Protection Agency (EPA) establishes National Ambient Air Quality Standards (NAAQS) and other air quality rules, but the federal government has delegated to the states the responsibility for planning and enforcing air management programs that meet these requirements. Therefore, all NPS units are required to comply with state regulations on these matters regardless of the type of legal jurisdiction that applies to other activities within the NPS unit. NPS units will also adhere to the EPA's *Interim Air Quality Policy on Wildland and Prescribed Fires, 1998*.

Internal NPS unit programs for planning and monitoring air quality and smoke emissions must be augmented by participation in external (interagency) planning and regulatory actions where appropriate.

This chapter covers the following topics:

- Legal requirements for air quality that must be met by the fire management program.
- Directions for establishing acceptable within-unit standards.
- A statement of the need to monitor essential variables.
- Recommendations for working with state and local regulatory boards and agencies.
- Guidance on how and with whom to coordinate smoke management questions and practices.
- Reference to the Environmental Protection Agency's (EPA) *Interim Air Quality Policy on Wildland and Prescribed Fires*.

2 Responsibilities

2.1 National Level—Air Resources Division (ARD) Coordination

When the draft fire management plan is sent to the regional office for review, smoke management portions of the plan will be sent to the ARD for review and comment. Comments from the ARD will be returned to the regional office and will be forwarded to the NPS unit along with regional comments. The regional air quality coordinator will also review the plan's smoke management portion and comments from ARD before they are returned to the NPS unit. A copy of the air quality section(s) of the approved fire management plan will be sent to the ARD.

2.2 Regional Level

The regional office air quality coordinator or a representative from the NPS unit may be the agency representative for the development of interagency or regional smoke management plans. When a decision is made to develop an interagency or regional plan, the agency representative will inform the ARD and the NPS Branch of Wildland Fire Management, and an agreement will be reached on the degree of their subsequent involvement. An agreement should also be reached between the NPS unit and regional director's office on the extent of involvement for each.

2.3 Park Level

In addition to the effects of smoke on health and safety, effects on the visual resource must also be considered. Many NPS units were established and are visited because of their scenic views.

Fire, and therefore smoke, is a natural process, but the presence of chronic or severe episodes of smoke may unacceptably impinge upon the NPS unit's visual resources, visitors, or employees.

Each NPS unit is required to develop methods to manage smoke from prescribed fires and, to the extent possible, wildland fires. Air quality management objectives must be set, and prescriptions and techniques must be developed to meet these objectives. These objectives should appear in all project implementation plans.

In some areas, local or state air quality offices may have already established visibility standards or smoke management programs and requirements. Smoke management should be discussed with the appropriate local or state air quality office and the regional air quality coordinator.

NPS units should identify the key vistas and smoke sensitive areas (highways, campgrounds, developments) for which smoke management objectives will be created. Some views may have been identified during the integral vista survey, which was conducted in many NPS Class I units several years ago. The description of these important views should be obtained from park resource managers, the regional air quality coordinator, or the ARD for inclusion in park fire management planning and implementation documents.

Surveys of visitor reaction to visibility impairment may be conducted to assist the NPS unit in identification of visual resources. The ARD provides assistance in survey design and implementation. Certain views may be so popular that virtually no impairment by smoke would be tolerated. Such sensitive areas must be identified before air quality management objectives are developed and a prescribed fire program is implemented.

Air quality management objectives must be quantifiable and measurable at designated points in the NPS unit. Objectives could include avoiding impacts on integral vistas, maintenance of acceptable visual range, allowable loss of detail or clarity of a key feature, the number of consecutive days in which the visual range is attenuated below the acceptable standard, consecutive nights with the odor of smoke in a developed area, or maintenance of acceptable visibility on highways.

The techniques and prescribed conditions used to achieve smoke management objectives should be defined in a fashion similar to the way techniques and burning prescriptions are defined for achievement of fire management objectives. Critical mixing heights, transport wind speeds, and wind directions should be stated. Smoke management techniques should include an appropriate combination of dilution of particulate matter, avoidance of targets, and emission reduction. The RX-410 Smoke Management Course provides instruction in these techniques. Prescribed burn plans and wildland fire implementation plans (WFIPs) may define actions taken to minimize emissions. These actions may be discussed with the appropriate local or state air quality regulatory office and the regional office air quality coordinator.

The smoke management sections of the fire management plan and the project implementation plans must describe personnel and methods to be used to monitor and measure the degree to which objectives have been met. The presence or absence of prescribed conditions for smoke management will also be recorded.

Prescribed fire plans and WFIPs will describe holding actions that may be used to keep the fire within prescription for air quality objectives. For example, the following actions may be specified:

- Using firing crews to ignite smoldering fuels so that the fuels burn with flaming rather than with glowing combustion.
- Constructing fire lines to halt fire spread.
- Mopping up smoldering heavy fuels until conditions improve for smoke dispersion.
- Using hose lays and pumps to wet fuels to extinguish all or a portion of the fire front.

All such actions must be approved by the superintendent as part of a prescribed burn plan or wildland fire implementation plan.

Some wildland fires can be reasonably expected to significantly affect air quality in and around the NPS unit. Large wildland fires may affect the number of burning permits that can be issued by the air regulatory agency and may therefore affect the fire management accomplishments of neighboring land management agencies.

3 Legal Authorities

3.1 General Authorities for Air Resource Management

There are several Congressional Acts that relate to the National Park Service's general authority to manage air resources of national park units. These include the NPS Organic Act of 1916, the National Environmental Policy Act of 1969, the Wilderness Act of 1964, and other statutes. These laws, together with the parks' enabling legislation and legislative histories, collectively provide the NPS with opportunities to manage air resources and protect other park resources and values that are dependent upon air quality.

3.2 The Clean Air Act (42 United States Code (USC) 7401 et seq.)

The most explicit legislation pertaining to NPS air resource management is the Clean Air Act, as amended, which defines the authority and duty of the National Park Service to protect park resources from air-pollution-related adverse effects. The Clean Air Act establishes specific air quality management programs that provide special protection for many national parks and NPS wilderness areas.

Sections 160 though 169 of the Act establish a program to Prevent Significant Deterioration (PSD) of air quality in "clean air areas" of the country (i.e., attainment areas), which include many national park units. Among the purposes of the PSD program are "to preserve, protect and enhance air quality in national parks, monuments, national seashores, and other areas of special national or regional natural, recreational, scenic or historic value."

The PSD program also establishes an area classification scheme, which determines the level of air quality protection afforded these clean air areas. All PSD areas were initially classified as Class I or Class II areas, with provisions for state or tribal reclassification of some Class II areas to either Class I or Class III. Class I areas, which include 48 national park units, receive the highest degree of protection. Congress provided additional protection for Class I areas in Section 169A of the Clean Air Act, which specifies a national goal of "remedying any existing and preventing any future manmade visibility impairment" in these areas.

The NPS was also provided the opportunity to identify scenic vistas associated with Class I areas that are important to visitor enjoyment, including those views that may extend beyond NPS unit boundaries. Some states have included the NPS-identified vistas in their air pollution control regulations and will enforce protection of these important views. In addition, these lists of vistas are incorporated into park planning documents as unit-related visual resources that may warrant protection from the effects of air pollution, including smoke from managed fires, especially during times of high visitor use.

For NPS units within or near a non-attainment area (i.e., an area violating a NAAQS such as the standard for ozone or fine particulate matter), there may be additional restrictions imposed by state or local air authorities to ensure fire management activities do not interfere with attainment of the appropriate ambient standard. For example, ambient standards for fine particulate matter smaller than 2.5 microns (PM-2.5) could significantly affect management of smoke from wildland fires because a large fraction (up to 90%) of smoke particles are smaller than 2.5 microns. These small particles also have significant effects on visibility.

The EPA *Interim Air Quality Policy on Wildland and Prescribed Fires* provides general direction for federal land managers and state air quality authorities. This direction states the following:

> Public land managers have the responsibility to participate with the other stakeholders and air quality managers in developing State Implementation Plans. Public land managers, as experts in what is needed to meet land use and other environmental objectives, need to provide information on the areas that are to be treated with fire, air pollutant emissions estimates, and assistance in developing programs to track emissions, monitor air quality and visibility, and mitigate air quality impacts. Land managers of mandatory Class I Federal areas must participate in the development of SIPs for regional haze and visibility impairment. Congress gave land managers a key consulting role in the administration of visibility protection and “affirmative responsibility to protect air quality related values (including visibility) in mandatory Class I Federal areas” (see section 165 of the Clean Air Act).

3.3 NPS Compliance Responsibilities

NPS fire management activities that result in the discharge of air pollutants (e.g., smoke, carbon monoxide, and other pollutants from fires) are subject to, and must comply with, all applicable federal, state, interstate, and local air pollution control requirements, as specified by Section 118 of the Clean Air Act, as amended (42 USC 7418). These requirements are the same substantive, procedural, and administrative requirements that apply to a private person or other non-governmental entity.

It was not a primary intent of the Clean Air Act to manage the impacts of natural sources of impairment. Fire plays a principal role, and in some cases a dominant role, in maintaining the integrity of NPS unit resources. The inevitable smoke must be accepted as a by-product of management that serves to protect the function of fire in these ecosystems. Since fires are not point sources, but rather tend to be spatially distributed singular events, temporary impacts to visibility and visitor enjoyment must be recognized, expected, and managed. This may include temporary closures or warnings during the progress of beneficial, ecologically essential fires. Interpretive programs should include clear and reasonable explanations for such necessary practices.

All NPS units, including those with exclusive jurisdiction, are required to comply with the National Ambient Air Quality Standards (NAAQS) both inside and outside unit boundaries, obtain necessary permits for prescribed fires, and protect visibility in congressionally mandated Class I areas. These and other potential requirements are discussed further in this section and in more detail in the Air Quality chapter of *RM 77*.

There may be additional state and/or local air quality rules and regulations that must also be complied with if the jurisdictional boundaries of these agencies include lands managed by the NPS or lands that may be affected by activities occurring on NPS lands.

Such additional requirements may be procedural or substantive and may include the following:

- State or local ambient air quality standards more stringent than the NAAQS.
- Protection of state-identified scenic views that may or may not be associated with NPS areas.
- Possible quantitative standards for protection of visibility in Class I areas, such as specified minimum acceptable levels of visual range or contrast.
- Review and/or approval of smoke management aspects of fire management plans.

Compliance with these requirements may necessitate the use of computer simulation models or instrument monitoring in the field, as specified by the regulatory authority.

An additional concern is whether smoke emissions from prescribed fires are considered to be "natural" or "manmade" emissions. At present, there is no national policy on this issue with respect to planned ignitions. Without a well-defined national policy on this issue, however, state and local air quality agencies may reasonably interpret air pollution caused by prescribed fires to come within the scope of the Clean Air Act.

Failure to comply with any applicable requirements, such as open burning permit requirements, could subject the NPS to fines or other sanctions.

3.4 Intra-agency and Interagency Coordination

A good working relationship within the NPS and between the NPS and interstate, state, and local air quality officials and neighboring land management agencies should help assure that both air quality and fire management objectives are met with the least amount of conflict.

3.4.1 State Agency Coordination

Coordination with the state is required during the development of fire management plans. NPS unit staff may want to first consult with the regional air quality coordinator on the proper procedures for coordination with the state or states in which the NPS unit is located.

The regional air quality coordinator may handle the coordination activities with the state or may recommend that the NPS unit staff work directly with the state. If more than one NPS unit with fire management concerns is located in a state, it may be advantageous for each NPS unit to coordinate with local representatives of the state agency while the regional air quality coordinator maintains coordination with the central state office. In states where more than one state agency is involved—for example, one for smoke management and one for air quality—it is important that there be adequate coordination with each.

Following initial consultation with the state agency, procedures for compliance with state air quality regulations should be drafted for the fire management plan. A copy of the draft procedures should be supplied to the state agency for review prior to approval of the fire management plan.

The NPS unit should continue to coordinate with the state during implementation of the fire management plan to ensure compliance with state regulations. It may be helpful to invite selected state air quality officials to visit the NPS unit when a prescribed fire or wildland fire is in progress.

In some states a memorandum of understanding with the state may be appropriate. Such memoranda should clearly specify any procedural and substantive requirements that must be met by the NPS in conducting its fire management programs. Assistance in writing such agreements may be sought from the regional office and the regional solicitor, and should include consultation with the NPS Air Resources Division.

When an NPS unit is notified by the state or local air agency that an air pollution violation has occurred due to the NPS unit's fire activities, the NPS unit will work with the state, as necessary, to investigate and verify the cause of the violation. If appropriate, the NPS unit will provide the air agency with a compliance plan and schedule. The regional office air quality coordinator should be notified, and the NPS Air Resources Division should be contacted if technical assistance is required.

3.4.2 Public Coordination

Educating the public on the values of both clean air and the natural process of fire is important for increasing public understanding and support of NPS unit fire management programs. Interpretation at the NPS unit is the primary method for providing this education. The public should be aware that the NPS is striving to protect air resources in the unit from human-caused sources of impairment while allowing the natural process of fire and smoke to proceed to the fullest extent possible.

Shortly before prescribed fires are anticipated and during the management of wildland fires, information will be made available to state contacts, NPS unit visitors, local citizenry, and the press about what is happening in the NPS unit. On-site information can also be used to alleviate visitor concerns about the apparent impacts to NPS unit resources by fire or impairment of views due to temporary smoke.

TRAINING, QUALIFICATIONS, AND CERTIFICATION

1 Introduction

The National Park Service is responsible for training and developing employees to implement all aspects of the NPS wildland fire management program. All personnel engaged in wildland fire duties (wildfire, prescribed fire, and wildland fire use) must be qualified based on qualifications identified in the current edition of the *Wildland Fire Qualification System Guide* (PMS 310-1). Additionally, all NPS employees who have dedicated fire program management responsibilities at the park, regional, or national level will meet established interagency and NPS competencies and concomitant qualifications.

2 Responsibilities

The responsibilities at the national, regional and park level are not broken out in this chapter. This chapter is intended to be read in its entirety.

3 Fire Management Training

3.1 Program Administration

Individuals will not be assigned to duties for which they lack training and/or certified experience. NPS wildland fire management training is based on criteria specified within the training curriculum approved by National Wildfire Coordinating Group (NWCG). This curriculum is supportive of positions described in the *Wildland Fire Qualification System Guide* (PMS 310-1). For positions not included in PMS 310-1 (e.g., technical specialist positions), the fire management officer must certify the qualifications based on local and geographic area standards. Agency-specific position qualification requirements and training are identified in the *Interagency Standards for Fire and Fire Aviation Operations*.

Additional fire management training necessary to improve employee proficiency, but not addressed within the NWCG curriculum, will generally continue to be developed at the geographic area or national level. This training often addresses an agency-specific need or is targeted toward the development of skills for positions that have not yet been adopted by NWCG.

Training-need analyses should be developed each year at the park level. The assessment provides the information needed to determine which courses will be required and which employees should attend. Courses identified should be

based on position needs and should reflect the goals established in individual employee development plans.

The park is the foundation for all lower-level training, and course management is directed by the park's fire management officer. Parks with a significant history of wildland fire should maintain a sufficient number of individuals qualified at the appropriate level to meet the park's wildland fire management needs.

3.2 Fire Management Curriculum

Details relating to course descriptions and trainee/instructor qualifications are provided in the *Field Manager's Course Guide* (PMS 901-1).

3.2.1 Basic Fire Training

All personnel, including emergency firefighters engaged in fireline operations, must have completed at a minimum the following courses:

- S-130, Firefighter
- S-190, Introduction to Fire Behavior
- L-180, Human Factors on the Fireline (unit 4 of the 2003 S-130 course)
- Either I-100, IS-100, or Q-462, Introduction to ICS

3.2.2 Annual Fireline Safety Refresher Training

Refer to the *Wildland Fire Qualification System Guide (PMS 310-1)* for those positions requiring annual fireline safety refresher training.

NPS personnel will attend at least eight hours of annual safety refresher training. Training time may be extended in order to effectively complete this curriculum or to meet local training requirements. Annual fireline safety refresher training will have a 12-month currency. Refer to the *Interagency Standards for Fire and Fire Aviation Operations* Training and Qualifications chapter for the core topics.

Training information and resources are available at the Wildland Fire Safety Training Annual Refresher website.

3.2.3 Fire Program Management

The NPS requires that all components of the Fire Program Management course be successfully completed by all full-time fire management officers (FMOs). It is also highly recommended that collateral duty FMOs, chief park rangers, and others with acting FMO duties attend this course.

3.2.4 Fire Management Leadership

The NPS requires that all components of the Fire Management Leadership course be successfully completed by superintendents with fire management responsibilities within their park.

3.3 Training Nomination Process

The Incident Qualifications and Certification System (IQCS) is the online training management system for all NWCG and associated fire management training. This system includes training nominations, course session management, trainees' course completion records, and instructors' histories.

3.3.1 National Level Training

500- and 600-level courses (with the exception of S-520 and S-620) and National Advanced Fire and Resource Institute (NAFRI) courses

Both fire and non-fire employees identified for national-level training will be nominated for the training through the regional fire management officer. Nominations will be forwarded to the Fire Management Program Center (FMPC) in priority order. The National Wildland Fire Training Program manager will then establish national priorities. Regional nominations should be consistent with regional or geographic area direction. Such consistency should be indicated on the nomination in order to assist the FMPC in establishing national priorities.

3.3.2 Intermediate Level Training

300- and 400-level courses as well as S-520 and S-620

Nominations should be routed to the regional training representative for prioritization. Nominations will then be forwarded to the geographic area training representative. Additional information on the nomination process can be found on the National Wildland Fire Training website.

3.3.3 Local Level Training

Nominations should be routed through the fire management officer and local training officers, as appropriate. Generally the park is responsible for sponsoring 100- and 200-level training courses. It is highly recommended that all training, regardless of level, be presented by interagency instructors and to interagency audiences.

3.4 Fire Management Instructor Program

Each region is responsible for the selection, training, and certification of an adequate number of National Park Service instructors for fire management training. Instructor qualification criteria can be found in the *Field Manager's Course Guide* (PMS 901-1).

Certification of instructors is the responsibility of lead instructors, not of managers or supervisors. However, regional fire management officers may occasionally designate and certify lead and unit instructors based upon personal knowledge of skills and instructional abilities. The *Field Manager's Course Guide* (PMS 901-1) defines the requirements for the Lead, Unit and Adjunct instructor. Instructor experience should be recorded in IQCS to maintain a database of qualified instructors.

3.5 Training Certification Process

Training is certified when requirements identified in the *Field Manager's Course Guide* (PMS 901-1) are met. The requirements include instructor qualifications, course length (recommended hours), and course prerequisites. It is the responsibility of the lead instructor to issue certificates of completion to successful trainees. Fire management officers are responsible for ensuring that appropriate training completion data are entered into IQCS. For those parks without access to IQCS, the responsibility for entries reverts to the regional fire management officer or other designated IQCS account manager.

If fire training is received from non-NPS sources, the park fire management officer is responsible for ensuring the training course meets NWCG requirements and objectives and for entering training completion data.

3.6 Training Materials

All NWCG-approved training packages and course materials are readily available through the Publications Management System. NWCG *National Fire Equipment System Catalog Part 2: Publications* identifies all materials and ordering procedures.

3.7 Course Equivalency

Equivalency courses are courses that have been determined by evaluators to be equivalent to courses identified in the approved curriculum of the National Wildfire Coordinating Group. Awarding course equivalency is an agency-specific responsibility. The benefits gained by awarding course equivalency should be

evident through cost savings, a broadened target audience, or an enhanced learning experience for students.

3.7.1 Evaluation Process

Park, regional, or Branch of Wildland Fire staff will identify the need for an equivalency analysis of a specific course. Qualifications and Training staff at the FMPC should be consulted prior to forming an evaluation team. The evaluation initiator will assign an evaluation team to conduct the analysis, document their findings, and submit recommendations through agency channels to the NPS Wildland Fire Training Program Manager at the FMPC for final equivalency determination and posting to the website. When conducting the analysis, the following guidelines apply:

- All learning and performance objectives of the required course must be met or exceeded in the equivalent course.
- Instructor qualifications must be maintained.
- Course prerequisites will not be altered.
- The equivalent course will not conflict or contradict established NWCG guidelines or standards.
- The equivalent course will not be numbered or named using the NWCG course numbering system.
- A new analysis must be completed when the equivalent NWCG course is revised.

3.7.2 Evaluation Team Composition

The evaluation team will be composed of a minimum of three members from the following categories: lead instructor, cadre member, course developer, or subject matter expert for the respective NWCG course. Evaluators should either have been involved in instructing the equivalent NWCG course within the past three years or be familiar with the course development and revision process. Interagency evaluation teams are encouraged.

3.8 Training Funding

Parks and regions can request funds for training of NPS personnel during the annual budget requests. This includes funding of instructor support for national and geographic area training. Any overtime paid for training must be within the pay guidelines for exempt and non-exempt employees.

4 Qualifications and Certification

The NPS utilizes the National Interagency Incident Management System which outlines minimum training, experience, and physical fitness requirements to meet this goal. These standards are described in the *Wildland Fire Qualification System Guide* (PMS 310-1).

4.1 Program Management

The NWCG Incident Qualifications and Certification System (IQCS) is the interagency fire qualifications and certification system of record. The responder master record report provided by the IQCS meets agency requirements for maintaining fire qualifications records.

The IQCS is a tool to assist managers in certification decisions; it does not replace the manager's responsibility to verify that employees meet all requirements for position performance based on bureau standards. Employees with responsibility for maintaining qualification and training management records must attend IQCS training prior to receiving access to the system. Additional information can be found on the IQCS website.

Hard copy files of training certificates, work capacity test records, and the employee master record report must be maintained for each employee. These records are subject to the Privacy Act, so they must be kept in locked files and access must be limited. When employees leave the unit, these hard copy records should be given to them for personal maintenance (see 43 CFR 2.56).

It is strongly recommended that each park establish an incident qualifications committee to review individual qualifications and performance and make recommendations to the fire management officer. These committees should be interdivisional and should include interagency involvement whenever possible.

4.1.1 Certification of NPS Personnel

Certification of Area Command, Type 1 Command and General Staff position task books will be done at the national office level; certification of Type 2 Command and General Staff, Fire Use Manager Type 1 (FUM1), and park fire management officer position task books will be done at the regional level. All other position task books may be certified at the local unit level.

The agency administrator (or delegate) is responsible for the entry, maintenance, accuracy, and annual certification of all data, including incident qualification cards.

The regional fire management officer (or delegate) is responsible for the accuracy and annual certification of their parks' fire management officers' incident qualification cards. In addition, the regional fire management officer is responsible for monitoring the accuracy of field input, determining and addressing region-wide qualifications and training needs, and assisting those field units not having online access.

The Chief, Division of Fire and Aviation (or delegate) is responsible for the accuracy and certification of the regional fire management officer's incident qualification card.

4.1.2 Certification of Non-NPS Personnel

Refer to the current edition of the *Interagency Standards for Fire and Fire Aviation Operations* Training and Qualifications chapter.

4.2 Performance

A key concept of the NWCG *Wildland Fire Qualification System Guide* (PMS 310-1) is that it is performance-based—that is, based on the skills of the employee, rather than based solely on training. An individual becomes qualified for a position through a combination of experience and education. This process includes a subjective evaluation by fire management staff of an employee's job performance. Even though an employee may be technically qualified by the IQCS, agency administrators, or their designees, may withhold a job certification if the employee has demonstrated inadequate performance.

When a certified employee's performance of fire management duties does not reflect full compliance with Service-wide policies, directives, guidelines, or established standards of conduct, supervisors must take prompt and effective corrective action through counseling, training, trainee assignments, suspension of certifications, or disciplinary action, as appropriate.

The NPS policy on employee advancement to higher incident management positions is as follows:

- The employee must experience at least two assignments after completing a position task book (PTB) and receiving certification before moving to the next higher level.
- The employee must experience at least two qualified assignments in a position before becoming a position performance evaluator.

Exceptions to this policy should be rare and well-founded. The fire management officer is responsible for ensuring these criteria are met. IQCS does not check to ensure these requirements have been met during the analysis process.

4.3 Loss of Currency

If an employee loses currency in an incident command system position, IQCS will convert that person back to trainee status. In order to regain full qualification, the employee will need to demonstrate an ability to perform the job by completing a performance assignment. The current position task book will be used as a guide during performance assignments. The fire management officer should use discretion in requiring the employee to complete the entire position task book or only a specified portion as a trainee. The following items should be considered when making this determination:

- The position in question
- The complexity and duration of the training assignment
- Changes in position duties and prerequisites since the duties were last performed
- The employee's past experiences

4.4 Physical Fitness Levels

Refer to the *Wildland Fire Qualification System Guide* (PMS 310-1) or *Interagency Standards for Fire and Fire Aviation Operations* for information on physical fitness requirements.

WILDLAND FIRE REPORTING

1 Introduction

Hardcopy wildland fire reports are permanent records of wildland fires on NPS lands and/or fire responses completed by the NPS. They include descriptive and statistical information such as; fire name, date, location, cause, resources dispatched, fire size, etc.

Information collected is important data used in long-range wildland fire planning, operational decisions, general information reporting, and programmatic performance analysis. It is imperative that the park collect, record, and input wildland fire data accurately and promptly and store permanent records accordingly. The data contained in the wildland fire reporting system is frequently requested and used to fulfill a number of queries from interested members of the public, lawmakers, and researchers – all who rely on the accuracy of the reports.

All fires burning in natural or landscaped vegetation are considered wildland fires. The Departmental Policy defines wildland fire as any non-structure fire that occurs in the wildland. A 2000 NPS Memorandum, Y14 (9560), titled Wildland Fire Reports (found on the Fire Reporting - NPS User Guides and Information website) clarifies the types of wildland fires that are reportable.

In addition to reporting all wildland fires that burn NPS land and/or fires that are responded to by the NPS as mutual aid or threat fires, all fire responses including false alarms and out-of-park support actions must be reported.

The information contained on the NPS Wildland Fire Report Form is entered in the NPS electronic wildland fire reporting database (e.g. Wildland Fire Management Information System (WFMI) Fire Reporting module). This system also serves the Bureau of Indian Affairs, the Bureau of Land Management, and the Bureau of Reclamation as their wildland fire reporting database. Along with wildland fire reporting, this system provides NPS users access to lightning and weather information as well.

While it is required to enter the information provided on the NPS Wildland Fire Report Form into the electronic database, the primary record is the hardcopy report which is maintained at the local unit until transfer to archival storage. These are permanent records with no scheduled disposition. The specific manner in which they are maintained should be enumerated in the park's fire management plan and be in accord with the *NPS Records Management Handbook 2005* and/or the Interagency Wildland Fire Records Project.

Permanent wildland fire records are now called NPS Wildland Fire Report Form and replace the DI-1202, Department of the Interior Individual Fire Report. The data fields that are required are specified by the different types of fires and protection responsibilities. Exhibit 1 in this chapter provides the wildland fire type / protection type definitions. There is one blank form and eight templates, which are shaded gray for the non-required fields, for the various fire types / protection types. In addition there is a trespass investigation sub-form for human caused wildfires and a fuels management sub-form for prescribed and wildland fire use fires. See NPS Wildland Fire Report Form Instructions and NPS Wildland Fire Report Forms by Fire Type – Protection Type.
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2 Responsibilities

2.1 National Level

The Branch of Wildland Fire is responsible for the management and direction of the wildland fire reporting program. It is also responsible for reporting fire statistics for program reviews, Government Performance and Results Act (GPRA) performance standards, and all official end-of-year fire statistics to the public and other research groups. The Branch provides a representative to the WFMI Change Management Board to address management of the wildland fire reporting requirements. The following is a list of other responsibilities:

- Assist regions in the review of wildland fire reports.
- Provide a subject matter expert when necessary.
- Maintain and update the WFMI Fire Reporting Module documentation.
- Coordinate with interagency partners to ensure reporting fields in the fire report are consistent in content and definition with other agency's wildland fire reports where possible.
- Provide Level 2 support in providing direction to parks and regions on filling out fire reports.
- Provide a process for access to the WFMI Fire Reporting Module.

2.2 Regional Level

It is the responsibility of the regions to ensure; all parks have completed accurate fire reports, entered them in the WFMI Fire Reporting Module, and are managing the records correctly at the end of each fiscal reporting quarter and at the end of each calendar year. The regions must ensure that prescribed fires and fire use fires entered in the National Fire Plan Operations and Reporting System (NFPORS) also have a hardcopy fire report and are entered accurately into a WFMI Wildland Fire Report. An audit of each park's wildland fire report data for

the previous five years should be conducted once every five years. All wildland fire reports need to be reviewed for the following items:

- Determination of whether the fire is reportable as a wildland fire.
- Adequate completion of the fire report narrative in the "Remarks" field.
- Comparison of fire report information with narrative information for accuracy.
- Accuracy Fire Type/Protection Type fields.
- Accurate and consistent fire acreage size among agencies and throughout the report.
- Accurate Point-of-Origin locations.
- Accurate Point-of-Origin land ownership.
- Accurate Point-of-Origin/Perimeter location map is attached to the appropriate fire type/protection type reports.
- Signature blocks with signatures from the appropriate people.
- Trespass information for all human-caused wildfires.
- Accurate Fire Codes and accounting codes.
- Assurance that wildland fire records and supporting documentation are stored in a secure location.

2.3 Park Level

Parks are required to accurately document all wildland fire actions using the Wildland Fire Report form templates found in the WFMI Fire Reporting Module and the NPS Wildland Fire Report Form Instructions and NPS Wildland Fire Report Forms by Fire Type – Protection Type. **Wildland Fire Reports are required to be entered and completed in the WFMI Fire Reporting Module no later than ten (10) days after the incident has been declared out.**

Detailed instructions for filling out the report can be found in the *NPS Wildland Fire Report Form Instructions* (2007 or latest edition). An individual user name and password is required for each user accessing the WFMI Fire Reporting Module. Typically, it is the responsibility of the fire management officer to ensure reports are submitted completely and accurately for the park.

The original hard copy Wildland Fire Report and all supporting incident records are to be filed and maintained at the park following the *NPS Records Management Handbook,* under *Director's Order 19, Records Management*. More specific guidance for wildland fire incident records are found in the NIFC Incident Records Management website. Note in particular the Retention Guidance section detailing the specific documents to retain for large fire incident records.

3 Importance of Accurate Wildland Fire Data

Information collected on wildland fire reports is important historical data used in wildland fire planning, information reporting, budget formulation and risk analysis to improve the understanding of program actions and outcomes. In addition, this information is used in bureau performance evaluations to determine how successfully each bureau is achieving its wildland fire goals and objectives. Wildland fire managers, researchers, predictive services, fire planning groups, Geographic Area Coordination Centers groups, Multi-Agency Coordination (MAC) groups, and others depend on the accuracy of this information to provide long-range fire planning, support resource allocations, and funding decisions. The point-of-origin of a fire determines who is legally responsible for any action as a result of that fire. It is imperative the park determines as accurately as possible the point-of-origin, and that location must be entered accurately into the WFMI Fire Reporting module (see *RM 18*, Information and Technology Management chapter, Fire Occurrence Points. There are numerous requests each year from the public, lawmakers, and researchers to provide accurate wildland fire occurrence information.

It is the responsibility of each park and region to verify the data collected and to ensure data accuracy. It is also the park's responsibility to provide a complete account and determination of what took place and enough information to support and verify the statistical data in the report.

Exhibit 1

NPS WILDLAND FIRE TYPE / PROTECTION TYPE DEFINITIONS

The National Park Service wildland fire report captures the following fire types / protection incidents. These wildland fire type / protection incidents are captured in the BLM's Wildland Fire Management Information System (WFMI) Fire Reporting module.

Fire Type 1 – Wildfires Suppressed

All wildfires suppressed that originate on or burn onto NPS land including; wildfires suppressed by the NPS on NPS protected land, wildfires suppressed by cooperators or contractors on NPS land, and wildfires that originate on non-NPS land that burn onto NPS land. Also includes wildfires responded to as mutual aid and/or threat fire by the NPS regardless of land ownership.

Special Case: Fire Type 1 also includes the escaped portions of prescribed fires and wildland fire use fires that exceed their prescriptions and are converted to wildfires.

- **Protection Type 1 -** Point of origin of fire located on NPS land under NPS fire suppression responsibility.
- **Protection Type 2 -** Point of origin of fire located on NPS land protected by a different federal agency under a local agreement.
- **Protection Type 3 -** Point of origin of fire located on NPS land protected by a non-federal agency under a local agreement or contract.
- **Protection Type 4 -** Point of origin of fire located on NPS land when the management goal is other than full suppression, or when conditions dictate a limited suppression response.
- **Protection Type 5 -** Point of origin of fire located on non-NPS land where NPS response was not under a local agreement but was initiated to prevent fire spread onto NPS land. For wildfires originating on non-NPS land that are not under a local agreement that burn onto NPS land.
- **Protection Type 6 -** Point of origin of fire located on non-NPS land where NPS response was initiated under a local agreement. For wildfires originating on non-NPS land that are under a local agreement that burn onto NPS land.

Fire Type 2 – Natural Outs

All wildland fires discovered after they have been extinguished by natural causes. No suppression action took place.

- **Protection Type 1 -** Point of origin of fire located on NPS land under NPS fire suppression responsibility.
- **Protection Type 2 -** Point of origin of fire located on NPS land protected by a different federal agency under a local agreement.
- P**rotection Type 3 -** Point of origin of fire located on NPS land protected by a non-federal agency under a local agreement or contract.
- **Protection Type 5 -** Point of origin of fire located on non-NPS land where NPS response was not under a local agreement but was initiated to prevent fire

spread onto NPS land. For wildfires originating on non-NPS land that are not under a local agreement that burn onto NPS land.

- **Protection Type 6 -** Point of origin of fire located on non-NPS land where NPS response was initiated under a local agreement. For wildfires originating on non-NPS land that are under a local agreement that burn onto NPS land.

Fire Type 3 – Support Actions

Requested out-of-park support that is provided for active or anticipated wildland fires including; wildfires, wildland fire use and prescribed fires.

- **Protection Type 7 -** Support actions by NPS resources.

Fire Type 4 – Prescribed Fires and Wildland Fire Use

All wildland fires that burn NPS land, implemented or managed in accordance with an approved Fire Management Plan, using either a Prescribed Fire Burn Plan or a Wildland Fire Implementation Plan. This includes management-ignited prescribed fires and wildland fire use to accomplish resource objectives.

Special Case: Prescribed fires and wildland fire use fires that exceed their prescriptions and are converted to a suppression fire require two fire reports. Prepare one report, using Fire Type 4, to account for the portion of the fire that burned within prescription. Prepare another report, using Fire Type 1, to account for acres of the wildfire portion of the fire.

- **Protection Type 8 -** Management-ignited prescribed fires.
- **Protection Type 9 -** Naturally-ignited wildland fires managed with a WFIP to accomplish resource objectives.

Fire Type 5 – False Alarms

All reported fires for which a response was initiated (e.g. detection patrol, initial attack resources dispatched, etc.), but no suppression action took place because the fire was not located, did not occur, or was not a wildland fire.

Special Case: If no response action was taken (such as dispatching a crew or doing a recon flight) do not prepare a report.

- **Protection Type 1 -** Point of origin of fire located on NPS land under NPS fire suppression responsibility.
- **Protection Type 2 -** Point of origin of fire located on NPS land protected by a different federal agency under a local agreement.
- P**rotection Type 3 -** Point of origin of fire located on NPS land protected by a non-federal agency under a local agreement or contract.
- **Protection Type 5 -** Point of origin of fire located on non-NPS land where NPS response was not under a local agreement but was initiated to prevent fire spread onto NPS land. For wildfires originating on non-NPS land that are not under a local agreement that burn onto NPS land.

- **Protection Type 6 -** Point of origin of fire located on non-NPS land where NPS response was initiated under a local agreement. For wildfires originating on non-NPS land that are under a local agreement that burn onto NPS land.

FIRE FACILITIES

1 Introduction

The Wildland Fire Facilities Construction/Deferred Maintenance Fund is appropriated through a congressional line item. Congress established this fund to pay for new construction of wildland fire facilities and for deferred maintenance of existing fire facilities requiring expenditures of more than $100,000. All bureaus of the Department of the Interior (DOI) are eligible to compete for funding through this source. The appropriation is divided among the DOI wildland fire bureaus by ranking criteria identified in Attachment G of the DOI budget each year.

The DOI develops a five-year plan incorporating all proposed DOI wildland fire facilities projects, and the five-year plan is submitted two years in advance of funding. Each year the plan is revised and resubmitted. New projects are added to the list each year and considered for inclusion based on bureau needs and ranking criteria. Funding is project-specific and cannot be used for other purposes. Once funding is allocated for a specific project, that funding cannot be moved to fund other facility projects without justification and Washington Office (WASO) approval.

National Park Service requests for fire facility new construction and deferred maintenance must be entered into the Project Management Information System (PMIS) web-based intranet program under the funding source “Wildland Fire Facilities.” Only fire facility requests are considered under this funding source. Funding requests for fire equipment, supplies, or studies are requested through the normal fire management budget process. Once a fire facility request in PMIS has been funded, additional project revisions or additional funding requests cannot be added to the original request. A new PMIS request is required and will be considered through the normal review process. Funded projects exceeding the allocation will be reviewed by the region and WASO to identify possible project reduction options, other funding sources, or additional contingency funds.

PMIS user names and passwords can be obtained through the park or regional PMIS coordinator in order to access the system to submit project funding requests. To learn more about the system, visit the PMIS website and select "About PMIS" on the welcome screen. The “Help” screen also provides information on using the PMIS program. A log-in is not required to access this information.

Additional information on the process of requesting fire facilities funding can be found at the NPS Service-wide Comprehensive Call (SCC) and Wildland Fire Facilities SCC Guidance websites.

2 Responsibilities

2.1 National Level

The Washington Office Branch of Wildland Fire coordinates with the other DOI bureaus to create and revise the annual DOI Wildland Fire Five-Year Construction/Deferred Maintenance Plan Summary. The Branch is also responsible for the distribution of funding when Wildland Fire Construction/Deferred Maintenance funds are allocated to the bureaus each year. In addition, the Branch is responsible for maintaining a contingency fund for facility projects that exceed the allocated funding. Facility projects that exceed the allocated funding by greater than 10 percent will be reviewed by the Branch using the same criteria listed under regional responsibilities.

Other responsibilities include the following:

- Assisting regions in reviewing facility requests.
- Assisting regions in tracking project costs.
- Submitting the annual DOI Wildland Fire Construction/Deferred Maintenance Completion Report.
- Reporting to DOI on funded facility construction that has changed in scope or requires changes in funding allocations.

2.2 Regional Level

The regional offices are responsible for providing regional direction on time frames for completion and review of facilities projects. The time frames for completion should be coordinated with non-fire project requests as determined by regional Service-wide Comprehensive Call (SCC) guidelines. These time frames can be found under “Links to Regional Guidance” on the SCC website.

The regional offices are also responsible for reviewing the wildland fire facility projects proposed by their park units to determine the following:

- The functional need for the facility.
- Whether there is sufficient wildland fire occurrence in the park to justify the need for such a facility.
- Whether the facility is functionally designed for the best economical use of space as determined by the number of fire positions and the amount of fire equipment assigned to the park.
- Whether the facility is to be used exclusively for wildland fire activities (if the facility is designed to also accommodate non-wildland fire functional needs, the region must coordinate with the park to identify and acquire other non-fire funding sources and determine the appropriate funding split).

After these determinations are made, the regional office must indicate in PMIS which wildland fire facility project requests within the region have been approved and which ones have not been approved. WASO will consider only the facility funding requests that have received regional approval. The regional office must also prioritize the approved projects. The order of priorities can be designated in the PMIS program or a list can be sent directly to the Branch of Wildland Fire.

After funding is allocated, the regions must track the progress of each project and monitor costs to determine whether the expenditures are reasonable and appropriate.

2.3 Park Level

Parks must complete the following steps if they are requesting funding for new construction of wildland fire facilities, major renovation of existing wildland fire facilities, or conversion of a non-fire facility to a facility whose primary use is for wildland fire activities:

- Fire managers must follow established internal processes to gain park approval for the proposed project. The proposed location, size, and purpose of the facility; alternatives to construction; environmental compliance issues; and other matters need to be discussed with park leaders and managers prior to initiating a PMIS request.
- Once the initial concept has been approved, project proponents must consult with park facility managers to determine a preliminary design and cost estimate for the project. They must also discuss the project with regional fire managers to ensure regional and national guidelines are met. Accurate project cost estimates and detailed component costs are essential.
- After the fire facility project has been entered in PMIS under the Wildland Fire Funding source as a "draft," the park manager should indicate park-level approval for the project in the PMIS program.
- Until the funding is approved by WASO, design elements and project costs should be reviewed and updated annually in PMIS. Parks may also need to adjust the fire facility funding request in PMIS according to regional direction.
- After projects are funded, parks are required to establish a unique funding account to track costs throughout the life of the project. Guidance for tracking project costs can be found in the yearly *NPS Wildland Fire Management Budget – Business Rules*. Parks are also required to provide quarterly progress reports to the region following regional guidance.

FIRE EQUIPMENT

1 Introduction

In this chapter two national programs are addressed:

- Remote Automated Weather Stations (RAWS) Maintenance Program
- Working Capital Fund (WCF) Vehicle Replacement Program

These programs are managed and coordinated through the NPS Branch of Wildland Fire at the Fire Management Program Center. The RAWS program provides funding and technical support for the maintenance of station sensors and the accuracy of station data for the wildland fire program. The WCF replacement program provides a funding mechanism for the cyclic replacement of specialized wildland fire vehicles that are more difficult to replace using other vehicle acquisition options.

Individual parks or regions are responsible for acquiring, maintaining, and replacing all other wildland fire capital equipment not covered under the RAWS and WCF programs. Types of equipment not eligible for the RAWS and WCF programs may include the following:

- Portable pumps
- Chain saws
- Slip-on water pumping units
- Aerial and ground ignition devices
- Common utility vehicles
- All-terrain vehicles
- FM radios

Structural fire equipment and apparatus are not discussed in this chapter. Guidance and direction for equipment related to structural fire can be found in *Director's Order 58*.

2 Responsibilities Remote Automated Weather Stations Program

2.1 National Level

The NPS Branch of Wildland Fire is responsible for maintaining the interagency Memorandum of Understanding (MOU) for Remote Automated Weather Station support in coordination with the other DOI bureaus. The Branch develops the yearly Statement of Work and Budget (SWB) with BLM to determine the stations

maintained by the Remote Sensing Fire Weather Support Unit (RSFWSU) and the associated cost per station.

The Branch represents the NPS on the Interagency RAWS Partners Committee to provide programmatic interagency oversight and to recommend strategic direction, vision, and operational standards in commitment to the RSFWSU.

The NPS Branch of Wildland Fire supervises one electronics technician working in the RSFWSU to provide interagency support for RAWS maintenance.

2.2 Regional Level

The regional offices will:

- Monitor maintenance schedules for wildland fire RAWS within their region to ensure the stations meet NFDRS standards.
- Ensure "Points of Contact" (POCs) have updated maintenance documentation in ASCADS and Computer Maintenance Management System (CMMS) websites.
- Coordinate locations of wildland fire RAWS sites to maintain optimum coverage for primary wildland fire occurrence areas.
- Coordinate new purchases of wildland fire RAWS.
- Coordinate with the Branch of Wildland Fire on the number of stations within the region to be maintained by BLM on the MOU.

2.3 Park Level

Parks that have wildland fire RAWS will assign a Point of Contact for each station. The POC will be responsible for the operation, maintenance, and data quality of the station and will also be available as the first-line contact for questions about the specifics of that station. The POC may be responsible for more than one station and may personally do the annual station maintenance and periodic repairs or may supervise or contract those activities. The responsibilities of the POC include the following:

- Is available to be contacted by the RSFWSU to provide troubleshooting help for the period the station is in operation.
- Ensures repairs at the RAWS can be achieved within two days of any malfunction for the period the station is in operation.
- Monitors the station data for accuracy of readings.
- Ensures components on the station are maintained to standards as defined in NFDRS Weather Station Standards website and *PMS 426-3*.
- Documents station maintenance and repairs in ASCADS and CMMS websites.

- Ensures personnel servicing the station are properly trained (the schedule for RAWS maintenance training can be found at the USDA Forest Service RAWS website under Training).
- Maintains the RAWS site, removing vegetation around the station in accordance with *NFDRS Weather Station Standards* (PMS 426-3).

3 Remote Automated Weather Stations Maintenance Program

The Remote Automated Weather Station (RAWS) system is an interagency network of approximately 2,200 stand-alone monitoring stations located throughout the United States (including Alaska, Hawaii, Guam, Puerto Rico, and the U.S. Virgin Islands) whose express purpose is to supply weather observations. Although station ownership, maintenance processes, and data use differ among the RAWS network agencies, each station funded by and supplying data to the wildland fire program must meet specific standards (see *NFDRS Weather Station Standards*, PMS 426-3). The weather data generated by the stations is used in fire business applications, such as the National Fire Danger Rating System (NFDRS) and fire behavior, in order to support critical fire decision-making requirements.

Through an interagency agreement, the Bureau of Land Management (BLM) provides data collection and communications support to the entire network from its Information Resource Management facility at the National Interagency Fire Center (NIFC) and imports data into the Automated Sorting, Conversion, and Distribution System (ASCADS). From ASCADS, weather data is sent to the Weather Information Management System (WIMS), Real-time Observation Monitoring and Analysis Network (ROMAN), Western Region Climate Center (WRCC), Wildland Fire Management Information system (WFMI), and the Alaska Fire Service (AFS) in support of wildland fire management efforts. The WRCC is under contract for long-term storage of weather data and provides this data to customers upon request.

To ensure a common data format, a coordinated transmission plan and data quality parameters are enforced. All stations must meet this common standard, which has been defined by the National Fire Danger Rating System (NFDRS). The NFDRS RAWS maintenance requirements are found in *NFDRS Weather Station Standards*, PMS 426-3. This document provides common standards for weather stations used by the wildland fire agencies for calculation of NFDRS outputs.

Stations that do not meet these standards should not be used for making wildland fire operational decisions

3.1 RAWS Maintenance

To ensure continuity of operations for RAWS, a maintenance support system must be in place for each station. Maintenance support includes calibration and repair of station components and annual maintenance. For stations operated by the NPS, maintenance is normally accomplished using the interagency MOU for Remote Automated Weather Station support with the Remote Sensing Fire Weather Support Unit (RSFWSU) of the BLM at NIFC. Currently, the RSFWSU only provides service for "Vaisala" and "Forest Technology Systems" (FTS) brand stations.

The RSFWSU provides three levels of service to its customers.

- Under a *Depot Maintenance Agreement*, the local unit provides a trained person to remove components from the station, send them in for calibration and repair, and install replacement components.
- Under a *Modified Maintenance Agreement*, the RSFWSU sends a technician to the site each year to replace the required components with refurbished, calibrated components.
- Under a *Full-Ride Maintenance Agreement*, the RSFWSU performs annual calibration and replacement and also provides emergency repair response according to standards specified in *NFDRS Weather Station Standards*, PMS-426-3.

The NPS wildland fire program will only fund maintenance service for permanent RAWS providing primary benefit to the wildland fire program, and only at the depot maintenance level of service. Upgraded levels of maintenance and maintenance costs for stations having primary benefit to other programs are chargeable to the benefiting programs. Maintenance of portable RAWS procured by parks is the responsibility of those parks and will not be considered for maintenance under the interagency RAWS MOU. Stations that have lacked maintenance for two or more years will be removed from the maintenance agreement and de-activated in ASCADS to prevent data transmission.

To be considered a wildland fire weather station and to be qualified for inclusion in the interagency RAWS MOU, a proposed or existing RAWS must meet eligibility requirements. The following factors will be considered in making this eligibility determination:

- Proximity to other qualified weather stations
- Whether the station meets NFDRS standards
- Level of fire management activity in the area
- Level of use for determining representative fire danger rating indices for the park

- Whether the proposed station is a replacement of a manual station used primarily for wildland fire activities
- Ability of the park to provide trained maintenance support

3.2 Procurement of new RAWS

Procurement of new stations will be coordinated with the region and the NPS Branch of Wildland Fire prior to purchase to determine whether the station meets the wildland fire criteria listed above. If stations do not meet the listed criteria, maintenance arrangements will be the responsibility of the park and will not be included in the NPS wildland fire maintenance agreement.

3.3 RAWS Resource Ordering

Portable RAWS can be ordered for wildland fires and other resource projects through the NIFC cache system by submitting a resource order through established dispatch channels. There are two types of portable RAWS described in the *NWCG Fire Supplies and Equipment Catalog* (NFES 0362). The Fire Remote Automated Weather Stations (FRAWS NFES #5869) are used for wildfire incidents and prescribed fire projects. The Project Remote Automated Weather Stations (PRAWS NFES #5870) are primarily for non-fire use and resource related projects. Instructions on ordering these stations can be found in the *National Interagency Mobilization Guide* under Equipment/Supplies.

Portable RAWS (both FRAWS and PRAWS) can be ordered without RSFWSU technicians provided there is someone trained to set up and operate the station. If the park intends to supply the technician rather than using an RSFWSU technician, the request to do so must be documented on the resource order. The name of the trained person setting up the station must also be documented on the order.

The NPS maintains a portion of the cache of PRAWS that are located at the RSFWU, which enables parks to order and retain stations for an extended duration on specific projects. Parks should contact the Branch of Wildland Fire RAWS Coordinator at FMPC to address specific needs.

Costs charged for each dispatch include the following:

- Shipping of the station or “use rate” for RAWS vehicle travel.
- Refurbishment and recalibration of the station upon return to the RSFWSU.
- RSFWSU technician travel per diem (normally for two technicians).

4 Responsibilities Working Capital Fund Program

4.1 National Level

The national office will:

- Coordinate with BLM to replace WCF vehicles.
- Provide chairperson for the NPS Equipment Committee.
- Coordinate with venders on new vehicle purchases.
- Conduct acceptance inspections on new vehicle purchases.
- Provide a representative to the NWCG Fire Equipment Working Team.
- Coordinate with BLM on the disposal of old or surplus WCF vehicles.
- Present regional proposals and WCF business rule proposals to the FMLB.

4.2 Regional Level

The regional offices will:

- Conduct periodic readiness inspections of WCF vehicles.
- Report periodic vehicle conditions to the Branch of Wildland Fire, and review replacement cycles of vehicles.
- Coordinate the placement of WCF vehicles with the Branch.
- Provide representatives to the NPS Equipment Committee.
- Provide written justifications for proposed additions, modifications, and deletions of vehicles to the WCF program in the region.
- Maintain accurate inventories of all wildland fire capitalized equipment within the region.

4.3 Park Level

Parks that have received WCF vehicles will:

- Provide covered storage for all WCF engines.
- Maintain the condition of WCF fire vehicles such that they can respond to fires 95% of the time.
- Perform scheduled maintenance in a timely manner.
- Keep vehicle weight under the listed Gross Vehicle Weight (GVW) rating at all times.
- Maintain accurate, detailed maintenance records for each vehicle.
- Maintain an accurate inventory of supplies and equipment on WCF fire vehicles.

5. Working Capital Fund Vehicle Replacement Program

Prior to 1997, National Park Service (NPS) wildland fire vehicles were replaced based on the most urgent needs and available funding. To ensure a safe wildland fire vehicle fleet, however, the NPS needed a reliable program to replace engines at the end of their life cycle and to remove old equipment from the NPS inventory.

Starting in 1997, the NPS entered into an agreement with the Bureau of Land Management (BLM) to manage an NPS Working Capital Fund (WCF) program. The NPS entered into this agreement to provide a reliable process for the replacement of wildland fire engines, tenders, and other non-standard vehicles that require dependable replacement schedules. The BLM, in accordance with the Federal Land Policy and Management Act of 1976, has the sole authority within the Department of the Interior (DOI) to administer a WCF program (43 U.S.C. § 1736 Working Capital Fund). Coordination through the BLM ensures fire vehicles are standardized among federal interagency wildland fire partners. The BLM also provides interagency standard specifications for wildland fire vehicles.

Each new NPS wildland fire vehicle purchase is entered into the WCF program. The BLM establishes Fixed Ownership Rates (FOR) for each type of vehicle, and FOR charges begin the year the vehicle is received by the park. The fixed ownership rate is derived from a formula using the expectant life of the vehicle, the average surplus value of the replaced vehicle, and a built-in inflation factor. The NPS provides FOR funding annually for each NPS vehicle in the program. Upon receiving the vehicle, the park funds 10% of the FOR through its wildland fire support funds. The remaining 90% comes from the NPS Branch of Wildland Fire. For parks that are not provided wildland fire support funding, 100% of the cost is financed by the Branch. When the vehicle reaches the end of its life cycle, BLM replaces the equipment for the NPS, using funds provided by the WCF program. The NPS also pays an administrative fee to BLM for this service, as provided for in the BLM agreement. Vehicle repairs are the responsibility of each park and are not part of the WCF program at this time.

For accounting purposes, the NPS annually obligates FOR funds through the interagency agreement. This funding is treated as an “advance of funds” and remains as an un-liquidated obligation in the NPS accounting system. At the time of replacement, the new vehicle is entered into the NPS Fixed Asset System and the un-liquidated obligation is expended for the replacement cost of the vehicle. As an un-liquidated obligation, it is not part of any carryover funding.
The Branch of Wildland Fire administers the agreement with BLM and is a contact for the regions and parks on matters of quality control and standards. In addition, the NPS has an Equipment Committee that is made up of fire management officers, operational specialists, the Branch's equipment specialist,

a regional representative, and a BLM representative. This committee oversees the NPS standards and general specifications for fire engines and other fire equipment. They also recommend business rules to the Fire Management Leadership Board (FMLB) for administering the program.

The following types of wildland fire vehicles are currently purchased through the WCF program:

- Type 6 and Type 3 engines
- Water tenders
- Hotshot crew carriers
- Fire Use Module support vehicles
- Helitack support vehicles

Engines are placed into the WCF program based on the amount of wildland fire occurrence, fuels projects, and mutual aid assistance each park experiences. FIREPRO, a discontinued fire management analysis program, formerly provided a process for determining engine placement. Although FIREPRO has been discontinued, the output data can still provide historical perspective on engine placement. A new interagency fire management analysis program is under development but is not expected to be operational in the near future. In the interim, no placement changes or additions to the WCF program will occur unless approved by the FMLB. Requests for changes will be submitted through the NPS Branch of Wildland Fire at FMPC and presented to the Board. Written justification is required for a request to be considered.

When the WCF program began, the size or type of engine placed in a park was originally determined by historical need. (FIREPRO analysis did not address engine typing.) Engine typing and determination of general specifications can be found in appendix A of the *Fireline Handbook* (PMS 410-1).

Upgrades in engine type must be approved by the FMLB. Requests for changes in engine type must be submitted through the FMPC and presented to the Board. Written justification is required before a request can be considered. The difference in cost between the FOR purchase price of the original engine type and the cost of an upgraded engine will be the responsibility of either the park or the region.

The Branch of Wildland Fire will consider, on a case-by-case basis, the placement and type of vehicles other than engines in the WCF program. Addition of tenders to the WCF program requires approval by the FMLB and entails the same justification process required for engines. Determination of need for fire use module support vehicles will be the responsibility of the fuels program at the FMPC. Vehicles provided by the WCF program are assigned to specific

locations, and permanent relocation or trading of WCF vehicles requires approval from the FMLB.

The care, operation, and staffing of all WCF vehicles is guided by the *Interagency Standards for Fire and Fire Aviation Operations* (see the chapter on Firefighting Equipment). The minimum supply stocking levels for engines is also discussed. Parks are required by NPS policy to provide covered storage for all engines in the WCF program. Where cold weather may freeze plumbing, heated storage is required.

5.1 Ordering WCF Vehicles

Ordering replacement WCF vehicles through the BLM will be coordinated by the Fire Equipment and Facilities Specialist at the FMPC. The call for replacement of WCF vehicles will be announced to the parks through an electronic memorandum with an attached order form. The WCF program funds only the minimum standard of vehicles, and these standards are determined by the NPS Fire Equipment Committee. Parks are responsible for covering the cost of any additional options for wildland fire vehicles. The order form lists the most common optional items for consideration. For options not listed, contact the FMPC.

Prior to the delivery of new engines to parks, the Branch of Wildland Fire will conduct final inspections at the manufacturing location in coordination with the BLM. After inspections are completed, parks will be notified and given options for vehicle delivery. If possible, parks should send operators to the manufacturing location to pick up vehicles. The manufacturer is contracted to provide training on new vehicle care and operation to park operators, particularly for engines or tenders. The Branch will provide travel funding for one operator for each vehicle.

5.2 Disposal of Surplus or Old WCF Vehicles

The disposal of surplus or old WCF vehicles is handled by the BLM. Prior to the delivery of new WCF vehicles, information and instructions for disposal will be sent to the parks by the Branch of Wildland Fire. WCF vehicles cannot be turned over to GSA or offered to other parks. Revenue from the resale provides 20% of the replacement cost for the new vehicle. For instructions on filling out Standard Form 126 for wildland fire equipment exchange sales, see exhibit 1.

Exhibit 1

Memorandum of Understanding

for

REMOTE AUTOMATIC WEATHER STATION SUPPORT

Among the

Bureau of Land Management
Bureau of Indian Affairs
Fish and Wildlife Service
National Park Service

of the

United States Department of the Interior

and the

Forest Service

of the

United States Department of Agriculture

BLM No. FA-MOU05-0001
BIA No. 5K0441875
FWS No. 93252-5-MOU-003
FS No. 05-MU-11130206-082
NPS No. 9560-05-0054

I. STATEMENT OF MUTUAL BENEFIT AND INTERESTS.

This Memorandum of Understanding (MOU) is made and entered into by and among the Bureau of Land Management, National Park Service, Bureau of Indian Affairs and Fish and Wildlife Service of the United States Department of the Interior, and the Forest Service of the United States Department of Agriculture, hereinafter collectively referred to as the "agencies." Each of the signatory agencies has designated their National RAWS Program Manager to provide programmatic interagency oversight, and recommend strategic direction, vision and operational standards in commitment to the Remote Sensing Fire Weather Support Unit (RSFWSU). These designees are hereinafter collectively referred to as the "RAWS Partners Group."

The Federal agencies with wildland fire management responsibilities have individual agency missions, but all share common goals with respect to reducing the wildland fire threat to human life and property, community well-being and ecosystem health.

Each individual agency's mission can be more effectively and efficiently accomplished if resources and expertise in Remote Automatic Weather Station (RAWS) maintenance and data retrieval services are shared, and efforts are coordinated. The signatory agencies have agreed this document will be in support of the existing RAWS program and any subsequent stations added to the network.

The wildland fire management community currently owns and operates approximately 2200 automated weather stations in support of various fire and environmental management activities. The Bureau of Land Management has established a Remote Sensing / Fire Weather Support Unit (RSFWSU) at the National Interagency Fire Center (NIFC) located in Boise, Idaho. This facility provides necessary support to ensure that services related to this MOU and under the individual

funding agreements result in accurate and reliable weather data, and that costs are shared equitably. The RSFWSU also maintains, administers and deploys an interagency owned cache of portable Fire RAWS (National Fire Equipment System (NFES) 5869) for response to wildland fire and all risk incidents, and an interagency owned cache of portable Project RAWS (NFES 5870) for response to non-emergency and other environmental monitoring projects.

II. PURPOSE.

The purpose of this MOU is to establish further cooperation among the wildland fire management Federal agencies by establishing the framework for providing Remote Automatic Weather Station (RAWS) maintenance and data retrieval services to the signatory agencies. Implementation of this MOU will benefit participating agencies by providing a single document that defines support service offered, and in turn provides program stability and consistency for the overall Interagency RAWS Program and supporting functions. The US Forest Service represents the participating State and Private Forestry (S&PF) cooperators for the purpose of this MOU.

This MOU supersedes all previous Interagency Agreements and MOUs relating to maintenance of Remote Automated Weather Stations, specifically:

1. The Interagency Agreement between the Bureau of Land Management and USDA – Forest Service for Remote Automatic Weather Stations (RAWS) Maintenance and Down-linking (93-IA-061) effective March 16, 1993, and all amendments and modifications thereto.
2. Interagency Agreement between BLM and the FWS, numbered IA-14-48-0009-93-904, signed in Federal Fiscal year 1993.
3. Interagency Agreement between BLM and NPS dated April 27, 2000, numbered 1443-IA9560-A-0001.

III. OBJECTIVES.

1. To define the RAWS service options offered by the RSFWSU, and the procedures required to provide funding for those options.
2. To define program support and funding procedures for the Fire RAWS and Project RAWS programs.
3. To provide for shared utilization of personnel, equipment, supplies, and services among the agencies in support of the RAWS program.
4. To identify commitments of participating agencies in support of the RAWS program.

IV. AUTHORITY.

1. Federal Land Policy and Management Act of 1976 (43 U.S.C. 1702).
2. National Park Service Organic Act of August 1916 (16 U.S.C. 1).
3. National Wildlife Refuge Administration Act of June 27, 1998 (16 U.S.C. 668dd)

4. National Indian Forest Resources Management Act of 1990 (25 U.S.C. 3101 et seq.).
5. Cooperative Forestry Assistance Act of 1978 (P.L. 95-313, 92 Stat. 365 as amended; 16 U.S.C. 2101 (note), 2101-2103, 2103a, 2103b, 2104-2105).
6. Reciprocal Fire Protection Act of May 27, 1955 (69 Stat. 66; 42 U.S.C. § 1856a).

V. DEFINITIONS.

When the following terms are used in this MOU, they will have the meanings defined as follows:

Agency RAWS Program Manager – Individual authorized to act as the single point of contract for their respective agency concerning all issues and activities outlined in this MOU.

ASCADS – Automated Sorting, Conversion and Distribution System

BIA – US Department of the Interior, Bureau of Indian Affairs

BLM – US Department of the Interior, Bureau of Land Management

DCP – Data Collection Platform

DOMSAT – Domestic Satellite

DRGS – Direct Readout Ground Station

DROT – Direct Readout Terminal

FENWT – National Wildfire Coordinating Group (NWCG) Fire Environment Working Team

Fire RAWS (FRAWS) – Portable remote automated weather station with alert/alarm capability intended for temporary deployment to support wildland fire operations and other all-risk incidents

Fire RAWS Technician – Technician specifically trained for installation, programming and maintenance of Fire RAWS.

First Responder – Individual (not employed by RSFWSU) trained in RAWS maintenance procedures.

FS – US Department of Agriculture, Forest Service

FWS – US Department of the Interior, Fish and Wildlife Service

GOES – Geostationary Operational Environmental Satellite

IGO - Intra-Governmental Order (funding agreement)

LRGS – Local Readout Ground Station

NESDIS – National Environmental Satellite, Data, and Information Service

NFDRS – National Fire Danger Rating System

NFES – National Fire Equipment System

NIFC – National Interagency Fire Center

NOAA – National Oceanic and Atmospheric Administration

NPS – US Department of the Interior, National Park Service

NTIA – National Telecommunications and Information Administration

NWCG – National Wildfire Coordinating Group

PMS – Publication Management System branch of NWCG

Project RAWS (PRAWS) - Portable remote automated weather station with user-specified sensor configuration intended for temporary deployment to non-emergency projects.

RAWS – Remote Automatic Weather Station

RAWS Partners Group – Interagency group consisting of all RAWS program managers

RSFWSU – Remote Sensing Fire Weather Support Unit

RSFWSU Field Technician – Professional employed by the RSFWSU with duties exclusive to the performance of RAWS field maintenance, calibration, and programming.

STIWG – Satellite Telemetry Interagency Working Group

WIMS – Weather Information Management System

VI. RESPONSIBILITIES.

1. THE BLM AGREES TO:

Provide through individual agency agreements, separate from this MOU, the following available service agreement options through the RSFWSU in support of RAWS maintenance, tracking, data recovery and distribution. Note: RAWS systems and sensors covered under this MOU are those described in the NWCG NFDRS Weather Station Standards (PMS 426-3), and manufactured by specific vendors meeting the NESDIS GOES satellite transmission and agency established specifications. Pricing and maintenance procedures regarding special application RAWS sensor configurations will be dealt with on a case-by-case basis between the RSFWSU and the requesting agency.

A. **Depot Maintenance Agreement** – The RSFWSU will perform depot repair, refurbishment and calibration of RAWS components according to PMS 426-3, unless otherwise specified. The receiving agency will identify and provide local unit field technicians/first responders to perform all field service functions, with telephone support from RSFWSU and assistance from the Interagency RAWS Web Page as necessary. Replacement of components that are beyond economical repair, refurbishment or calibration will be paid for by the receiving agency. In order to facilitate rapid sensor exchange, the following procedures are established:

a. Upon component failure or expiration of sensor minimum calibration/replacement date as established by PMS 426-3, the receiving agency's local unit orders replacement component according to instructions posted on the Interagency RAWS Web Page.

b. Upon receipt of order, RSFWSU ships replacement component by next business day, or notifies receiving agency of inability to do so.

c. Local unit field technician replaces component and ships return components to RSFWSU within 14 business days of receipt. Components held beyond 30 business days from receipt of replacement will be charged to the receiving agency after notification to Agency Program Manager. Agency program manager will have 30 business days to respond before charges are processed.

B. **Modified Maintenance Agreement** – The RSFWSU performs annual maintenance and calibration, but does not provide emergency repair response. More specifically, under the Modified Maintenance Agreement, the RSFWSU will:

a. Establish a maintenance cycle for each RAWS system. Annual calibration/replacement service will be performed to ensure that each station meets the requirements of PMS 426-3, and installation specifications provided by the manufacturer's service manuals. Additional station support will be provided upon request with the associated additional costs incurred by the local station owner. During this visit the local field unit must supply a field technician/first responder to accompany the RSFWSU Field Technicians. This will serve as refresher training for the field technician.

b. Furnish a written record of accomplished maintenance and service via ASCADS database and forward to POC by email. Any time there is a change to station information, the station description report will be generated and emailed to the Agency RAWS Program Manager.

c. Annually assess the weather station for compliance with PMS 426-3 standards relating to station location, vegetation management or any other concerns or problems with the station. Identify deficiencies to the local first responder, provide a written report of any deficiency to the Agency RAWS Program Manager, and document the assessment in ASCADS narrative.

d. Hawaii Field Service – The Hawaii agreement is a modified agreement with special pricing to capture additional associated travel costs.

C. Full-Ride Maintenance Agreement – In addition to the services provided under Modified Maintenance Agreement, the RSFWSU performs emergency repair response according to the standards specified in PMS 426-3.

D. **Fire RAWS and Project RAWS –** This equipment is ordered using the Resource Order process per the National Interagency Mobilization Guide and PMS 449-1. When released from an incident, the units are returned to RSFWSU for refurbishment and recalibration. Issues regarding the inventory and availability of this equipment shall be addressed by the RAWS Partners Group.

E. **Interagency RAWS Web Page** - The US Forest Service maintains the Interagency RAWS Web page (http://www.fs.fed.us/raws/). Issues regarding the content and cost sharing of this service shall be addressed by the RAWS Partners Group. Each agency RAWS Program Manager is responsible for submission and validation of agency specific content.

F. **Research & Development** - The RSFWSU is the interagency focal point for RAWS, and remote environmental monitoring research and development issues. The RSFWSU will provide technical assistance and information to the RAWS Partners Group, as available.

G. **Personnel Assignment –** Receiving agencies may assign personnel to the RSFWSU in support of accomplishing joint goals. Personnel costs associated with this support will be administered according to section VI.3.D of this MOU.

H. **Data Recovery and Distribution -** For the purposes of this Interagency MOU, the term "data recovery" is defined as the process of receiving the data transmitted from the RAWS site via the Geostationary Operational Environmental Satellite (GOES). This process is accomplished either solely by the RSFWSU Direct Readout Ground Station (DRGS), or in combination by the DOMSAT Receive only Terminal (DROT) and Automated Sorting, Conversion and Distribution System (ASCADS). Data routing is defined as moving the data either in raw or predefined formats from the DRGS/DROT to a single point distribution center as identified by the agencies, for example: WIMS in Kansas City. The following are the standards of operation for ASCADS:

a. Minimum 97% system availability per NIFC-BLM IRM standards.

b. Planned system outages from Mar 1 – Nov 30, 12pm – 7pm Mountain Time will be minimized.

c. Any anticipated downtime will have at least 24-hour notice and duration not planned to exceed 5 hours. Notice will be passed by RSFWSU Program Lead to agency RAWS program managers for further distribution to the user level.

d. 24-hour trouble call answering service.

e. Weekly software backup and daily data backup stored off-site.

ASCADS is recognized and required for use by the PMS 426-3 as the maintenance-tracking database for all NFDRS reporting automated weather stations. Access to ASCADS is allowed according to agency National RAWS program manager preference in order to properly document and track maintenance of these stations, and to use in troubleshooting station problems. This access will be available under

the same reliability schedule stated above.

I. **General Services Provided –**

a. Support RAWS maintenance training, as requested by the RAWS Partners Group, to participating agency's field technicians/first responders, either onsite, classroom, or at the RSFWSU. The training-related instructor costs are factored into the costs of each of the levels of service the agencies can select. The related instructor travel costs will be reimbursed by the requesting agency.

b. Report to the receiving agency's RAWS Program Manager, prior to billing, for parts that are not returned within 14 business days, to describe parts issued, issue date, agencies cost structure and delivery point. The receiving agency National RAWS Program Manager has 30 business days to resolve the situation or authorize the BLM to process billing.

c. To inspect and verify the acceptability of RAWS equipment as delivered by the vendor and prior to deployment on site.

d. Ensure receiving agencies are billed for related costs at the level established by the individual funding agreements. Billings/Payments will be processed for the agreements by Intra-Governmental Payment and Collection (IPAC), as appropriate and pursuant to the individual agreements, or other appropriate financial arrangements.

e. Provide RAWS Partners Group with service agreement cost analysis for recommended approval.

f. Provide 30 day written notice to the RAWS Partners Group when depot services are forecast to become unavailable due to inventory or other such circumstances.

g. Provide technical phone assistance for any RAWS operations problems for users holding valid service agreements.

h. Administer NOAA/NESDIS Satellite User Agreements (SUA) and NTIA frequency registration associated with all Department of the Interior (DOI) RAWS transmitters. The USFS and S&PF will administer their own frequency registration process and provide their own representation to STIWG.

i. Provide end of the year Maintenance Report to all receiving agencies.

j. Provide weekly e-mail notification to all receiving agencies identifying RAWS under a full-ride or modified service agreement that are not operating according to NFDRS standards (PMS 426-3).

k. Establish the costs charged for each type of maintenance service agreement

and notify RAWS Partners Group 18 months prior to the upcoming fiscal year. The amount charged for any service agreement will be the same for all parties to this MOU, with exceptions made for any special RAWS service requirements.

l. The RSFWSU will coordinate with NOAA on behalf of all DOI agencies and take the necessary administrative action to establish connectivity and proper data transmission via GOES. The USFS RAWS program manager will perform the same function for all DOA S&PF activity.

2. THE RECEIVING AGENCIES AGREE TO:

A. Assume all costs for loss of RAWS components damaged beyond normal repair.

B. Incur all costs for helicopter flights or special transportation to stations not accessible by road (Full Ride and Modified agreements).

C. Identify a local point of contact to serve as first responder/field technician to accompany RSFWSU Field Technicians during the annual service visit (Modified Maintenance agreements).

3. JOINT RESPONSIBILITIES MUTUALLY AGREED TO:

A. The agencies will communicate through the RAWS Partners Group, telephone, facsimile, e-mail and other means. Each agency will share data and information, to the extent appropriate, practicable and consistent with the requirements of Federal law, regarding RAWS-related activities at the local, state, and national levels.

B. Parties to this MOU will mutually confer and come to agreement on the contract costs on an annual basis. Responsible parties will affect an Intra-Governmental Order (IGO (agreement)) and/or modifications to an existing agreement, or other appropriate financial arrangement on an annual basis to obligate funding, and establish annual work plans and staff appropriately.

C. The RAWS Partners Group will update the MOU Points-of-Contact list, as warranted.

D. Any personnel provided by the agencies to the RSFWSU in support of this MOU will result in an adjustment of the total dollars paid to the RSFWSU for the respective funding agreements (Intra-Governmental Orders (IGO)) and modifications, or other appropriate financial arrangement. This adjustment will be the actual costs incurred by the agencies to support these personnel (wages, benefits, premium pay, uniform, and supplies). Travel and per diem for specific job duties associated with these personnel will be paid by the RSFWSU. Agency required training will be funded by the parent agency. Required technical training recommended by the RSFWSU Group Leader will be funded by the parent agency.

Optional professional development training will be funded by the parent agency as approved on a case-by-case basis. Non-incident overtime will be pre-approved by the parent agency prior to occurrence. Non-incident overtime will be reimbursed by agreement.

E. The agencies receiving the services will prepare an Intra-Governmental Order (IGO (agreement)) or modifications to an existing agreement, or other appropriate financial arrangement on an annual basis to obligate funding, and establish annual work plans and staff appropriately. The following timeline applies.

Date	
April 1st *18 Months Prior to the Fiscal Year.*	The RSFWSU will establish and distribute costs to the RAWS Partners Group, and confirm the number and type of RAWS service agreements available for the fiscal year.
July 1st *Prior to upcoming federal fiscal year.*	The agencies will submit to the RSFWSU a proposed IGO or modification to an existing agreement. This will include name and number of stations, type/level of service agreement requested, and total funding required for the up-coming fiscal year. The RSFWSU will confer with their agreements and budget offices for concurrence/negotiation comments.
October 1st, *Subject to Continuing Resolution authority, or upon appropriation of new Fiscal Year funding.*	The agencies will develop and submit a funding agreement (IGO or modification) for acceptance and signature by the BLM for the services. The requesting agency will sign and forward a copy of the fully executed document to the BLM-NIFC, Budget Office for processing and establishment of an agreement account.

F. Fire RAWS and Project RAWS are acquired and used by all agencies for the benefit of the wildland fire management program and all risk incident response. The RAWS Partners Group will monitor and evaluate the program and procedures to assure that the equipment is adequate and meets the needs of the field.

G. A pool of spare components and other capital assets are acquired by RAWS Partner agencies and used for the benefit of all agencies who participate in the service agreements offered at RSFWSU. Should any agency withdraw from this program, or it be significantly altered in any way, the RAWS Partners Group will determine an equitable way to divide the assets. Should additional working capital investments be necessary, the RSFWSU Group Leader will work with the RAWS Partners Group to determine the funding method. The RSFWSU will maintain a master list of agency contributions.

VII. GENERAL PROVISIONS.

Exhibit 1

1. Signatory agencies are not obligated to make expenditures of funds or provide services through their participation under the terms of this MOU unless such funds are available through appropriations by the Congress of the United States, or are otherwise available under the Annual Appropriations Acts for the signatory agencies.

2. Signatory agencies and their respective offices are responsible to manage their own activities and costs, and will utilize their own resources, including the expenditure of their own funds, in pursuing the objectives of this MOU. Each party will carry out its respective separate activities in a coordinated and mutually beneficial manner.

3. Nothing in the MOU shall obligate either the USDA-Forest Service or the USDOI-Bureau of Land Management, Bureau of Indian Affairs, Fish and Wildlife Service, and National Park Service to obligate or transfer any funds. Specific work projects or activities that involve the transfer of funds, services or property among the various agencies and offices of the signatory agencies will require execution of separate agreements, and be contingent upon the availability of appropriated funds, except Fire RAWS and non-fire emergency RAWS, which will be funded through Resource Order obligation documents when required. Indirect administrative surcharges or overhead will not be assessed by any signatory agency for the MOU-related activities performed for another agency signatory to this MOU pursuant to the attached excerpt from the January 2005 NIFC Governing Board Minutes, as amended and approved, and incorporated into this MOU by this reference as Appendix B.

4. The terms of this MOU shall become effective with and upon execution of the last signature by the participating agencies and shall remain in effect for a period of five (5) years from the date the last signature was placed on the approval section, or until such time as the MOU is terminated by mutual agreement. The MOU shall be reviewed by all participating entities to determine its suitability for renewal, revision, or termination. Any signatory may terminate their participation in this MOU with sixty (60) days written notice to the other signatories. The remaining signatories may continue the provisions of this MOU as long as the BLM remains a signatory.

5. Modifications to this MOU may be initiated by any signatory agency. The modifications shall not take effect until documented and signed by all signatory agencies. The Bureau of Land Management is designated as the agency responsible for all administrative oversight of modifications to this MOU.

6. Any information furnished to, or shared among, the signatory agencies under this instrument is subject to the Freedom of Information Act (5 U.S.C. 552).

7. This MOU in no way restricts the signatory agencies from participating in similar activities with other public or private agencies, organizations, and individuals or from implementing their respective programs in accordance with the applicable statutes, regulations or policies.

8. Signatory agencies acknowledge that this MOU is not intended to, and does not create, any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity, by a party against the United States, its agencies, its officers, or any person, or the parties to this MOU.

VIII. RESOLUTION OF DISAGREEMENT.

Should disagreement arise on the interpretation of the provisions of this Memorandum of Understanding, or amendments and/or revisions thereto, that cannot be resolved by the affected parties, each party shall state the area(s) of disagreement in writing and present them to the National Agency RAWS Program Manager for consideration. Any problems related to this MOU that cannot be reconciled shall promptly be referred through channels to RAWS Partners Group for resolution. If agreement on interpretation is not reached within thirty (30) days, the parties shall forward the written presentation of the disagreement to the NIFC Governing Board for appropriate resolution.

IX. PRINCIPAL CONTACTS

The principal contacts for this instrument are listed in Appendix A:

X. SIGNATORY.

This Memorandum of Understanding shall be effective for a period of five (5) years commencing on the date the last signature is placed in this signature section.

/s/ Timothy M.Murphy (Acting) — July 29, 2005
Larry Hamilton, Director — Date
DOI - Bureau of Land Management, Office of Fire and Aviation

/s/ Lyle Carlile — 07-29-05
Lyle Carlile, Director — Date
DOI - Bureau of Indian Affairs, Office of Fire and Aviation

/s/ Phil Street — 07-29-05
Phil Street, Chief — Date
DOI-Fish and Wildlife Service, National Fire Management Branch

/s/ Mike Wallace — 8-1-05
Mike Wallace, National Fire Management Officer — Date
DOI-National Park Service, Fire Management Program Center

/s/ Alice R. Forbes — 8/1/2005
Alice Forbes, Assistant Director — Date
USDA, Forest Service, Wildland Fire Operations

Exhibit 2

EXCHANGE SALE INSTRUCTIONS
NPS Working Capital Fund

The National Park Service's **Working Capital Fund** (WCF) was developed in 1996 in cooperation with the Bureau of Land Management (BLM) to insure funding for timely replacement of NPS wildland fire apparatus. The BLM provides administrative assistance and support to the NPS WCF program.

Proceeds from the sale of surplus fire equipment replaced by the WCF will form one component of this program, along with annual amortization payments [FOR's = Fixed Ownership Rates] for each piece of new equipment placed in the WCF. The fire engines and water tenders being replaced [***excluding slip-on pumpers***] **MUST BE REPORTED TO BLM on a Standard Form 126 and disposed of as "exchange sale"**, which allows received sales revenue to be credited to the NPS WCF program. Any other method of sale results in the loss of the income to the program.

If there is any known interest from local rural fire departments (RFD), a negotiated fixed-price sale can be worked between the RFD and NPS. Annotate the name of the RFD, a contact person and telephone number on the SF-126. The fair market value will be established, computed from several available means. The Kelley Blue Book, NADA Blue Book, or Truck Paper.com can give a rough idea of the fair market value. BLM also uses 20% of the original cost of the engine as another estimating tool. The Working Capital Fund Program Manager will determine that value, which then should be included in the description of the SF-126.

Specific Instructions for the SF-126:

Use an electronic form so it can be e-mailed.
Do not send a hard copy form.

Block 1: Bureau of Land Management, Property Operations Branch (BC-653), Attn: Property Utilization Specialist, Building 50, P.O. Box 25047, Denver CO 80225-0047.

Block 2: Locally Assigned

Block 4: ***2320***

Block 6: Name and contact information for the person who can arrange for an inspection of the unit

Block 7: Location where the vehicle can be inspected**.**

Block 8: Address for the GSA office that services your area

Block 9: Recommend that you check this block NO unless you want to get stuck with loading the engine on a flatbed for someone.

Block 10: Yes

Block 11: Yes

Block 12: National Park Service, Fire Management Program Center
Attention: WCF Mgr.
3833 S. Development Ave.
Boise ID 83705-5354

Block 13: ***14X6875***

Block 14: *14-11-0008*

Block 15: These vehicles are not available for donation.

Block 16:

- Indicate the manufacturer
- List the VIN [vehicle identification number]
- License plate (Tag) number
- Identify the model
- List the model year
- Describe the body type [*e.g.,* pick-up; van; cab/chassis; etc.]
- List the gross vehicle weight rating [GVWR]
- Wheelbase in feet and inches
- Number of cylinders [CID or CC]
- Type of transmission
- Color
- Fuel type (gas or diesel)
- Accessories [*e.g.,* **PS** = power steering; **PB** = power brakes; **RA** = radio; **AC** = air conditioning; etc.]
- List the mileage/hours [**a statement MUST be provided indicating that the odometer reading is "*Correct*", "*Turned Over*", or "*Incorrect*", and whether it has "*Not been altered*", "*Been altered-correct*", or "*Been altered-incorrect*".**
- Indicate the condition code 1, 4, 7, X, or S; a list of repairs required, and missing or broken parts. The new condition code definitions are as follows:
    1. New. Property which is in new condition or unused condition and can be used immediately without modifications or repairs.

Exhibit 2

4. Usable. Property which shows some wear, but can be used without significant repair.
7. Repairable. Property which is unusable in its current condition but can be economically repaired.
X. Salvage. Property which has value in excess of its basic material content, but repair or rehabilitation is impractical and/or uneconomical.
S. Scrap. Property which has no value except for its basic material content.

E-mail to the NPS Working Capital Fund Manager at the Fire Management Program Center**.** Label the SF-126 form by the Tag number. Example; I1234567_sf126

Take at least four electronic photos of the surplus vehicle from different angles viewing the different sides of the vehicle. Before taking pictures, remove the NPS Arrowhead decal on both sides of the vehicle. If there is any damage, take close-ups of the damaged area and explain the damage on the SF-126 form. Label the file using the tag number and the view. The view to be described as follows; Front (frt), Rear (rr), Left Side (ls), Right Side (rs). An example being I1234565_rr. E-mail the photos to the Working Capital Fund Manager at the Fire Management Program Center**.**

The FMPC staff will review either of the forms and then forward to the BLM WCF Sales Coordinator. They will then input the information in the automated property management system to initiate the exchange sale or transfer action. Do not have your local property people put the unit up for sale. If this is done, any proceeds from the sale may go to the U.S. Treasury and be lost to the WCF program.

If there is known interest from another park or another federal government agency, use of the SF-126 is not necessary. A DI-104, Transfer of Property, or an SF-122, Transfer of Excess Property, form can be used. That park or agency will still be required to pay the “fair market value” of the engine. Again, the Working Capital Fund Program Manager will determine this cost. If a DI-104 form is used, be sure to enter the financial charge code information of the acquiring agency, somewhere on the form. If the SF-122 form is used, enter “N/A” in Block 3 and **do not send to GSA**. Also enter the financial charge code of the acquiring agency in the appropriate block. Send either the completed DI-104 or SF-122 to the above address.

Questions concerning the NPS Working Capital Fund Program should be addressed to the Working Capital Fund Manager at the Fire Management Program Center.

BUDGET ANALYSIS AND PROGRAM PLANNING

1 Introduction

The following sections provide an overview of and guidance on the National Park Service wildland fire program planning and budget analysis system. Specific details and associated computer programs are available on the Branch of Wildland Fire, Program Planning & Budget web page. Because funding structures and analysis tools may change periodically, wildland fire program managers should regularly visit this web page. Guidelines for managing and tracking wildland fire management funds are provided in the chapter on Fire Financial Programs in *Reference Manual 18*.

Funding for wildland fire management activities is provided through the Department of the Interior and Related Agencies Appropriation Act, which may be supplemented by the emergency authority provisions of Section 102 of the Title 1 Act contained within the Wildland Fire Management Appropriation. Wildland fire management funds are non-ONPS (Operations of NPS), no-year funds. The NPS Branch of Wildland Fire at the Fire Management Program Center (FMPC), through the WASO Budget Office, distributes these funds to parks and regions.

The wildland fire management funding analysis is intended to identify the appropriate staffing and support level each park's fire management program should achieve. In the event that adequate wildland fire management funds are not appropriated, parks may need to supplement wildland fire management funding with ONPS (Operations of NPS) funding to achieve minimum fire management capability.

Parks may use ONPS funds to augment the basic wildland fire management funded preparedness operation in order to achieve a higher level of response capability, to retain a stronger initial attack capability outside the defined fire season, or to meet local interagency commitments. Preparedness activities may also be augmented using fire severity funds. Fire severity funding is the authorized use of suppression operations funds (normally used exclusively for suppression operations, and distinct from preparedness funds) for extraordinary preparedness activities that are required due to an abnormal increase in fire potential or danger, or to fire seasons that either start earlier or last longer than planned in the fire management plan. Authorization to use severity funding is only provided in writing based on a written request with supporting documentation. Supplemental policy on fire severity funding is found in Chapter 10, Preparedness in the *Interagency Standards for Fire and Fire Aviation Operations*.

2 Responsibilities

2.1 National Level

Responsibilities at the national level include:

- Formulating the NPS portion of the Interior Wildland Fire Budget while working with Department of the Interior partners and the Office of Wildland Fire Coordination (OWFC) through the entire cycle of budget formulation.
- Preparing and distributing the current year budget to regional directors.
- Developing, delivering, and maintaining the common interagency decision support tools for wildland fire planning and budgeting and other custom fire applications.
- Determining national coordination and support funding by individual program requirements and interagency obligations including interagency coordination activities at the national level.
- Managing the emergency suppression operations funds for the NPS.
- Conducting site visits to park and regional offices for program reviews and audits.
- Developing training courses.
- Serving on task forces and work groups to develop and review policy and procedures.

2.2 Regional Level

Responsibilities at the regional level include:

- Determining park program complexity and eligibility to receive base fire funding and staffing.
- Determining coordination and support funding needs by individual program requirements and interagency obligations (such as interagency shared resources including retardant bases, smokejumper bases, area coordination centers, aerial fire detection, and helicopters for initial and extended attack).
- Managing the regional budget package.
- Managing the use of all positions within the region and finding efficiencies where possible.
- Conducting site visits to parks for direct oversight, fire management planning, and program reviews.
- Training for all personnel involved in fire management planning and budget analysis.
- Establishing park capital equipment needs.
- Formulating fire cache needs for parks that do not qualify to receive base fire funding or staffing.

2.3 Park Level

Responsibilities at the park level include:

- Analyzing, determining, and justifying park fire management needs including the following:
  - Permanent and career seasonal staffing.
  - Seasonal staffing and support for wildland fire initial attack.
  - Project funding for ecological prescribed burning.
  - Project funding for hazardous fuel reduction.
  - Temporary staffing and support for wildland fire managed for resource benefits management.
  - Temporary staffing and support for fire effects monitoring.
  - Training.
  - Interagency shared resources.
  - Capital equipment.
  - Working Capital Fund.
  - Fire facilities deferred maintenance and construction.
- Managing positions and Full Time Equivalencies (FTEs) within the park's authorized amount.
- Tracking status of funds for the park.
- Working with the regional office on funding needs, staffing issues, and project work.
- Corresponding through the regional office on issues requiring national involvement.

3 Budget Analysis and Fire Management Planning

The National Park Service will use common interagency decision support tools for budgeting and wildland fire program planning. These tools enable wildland fire managers in the five federal land management agencies to coordinate and jointly plan fire program needs at the local level. Specific details and associated computer programs are available on the Branch of Wildland Fire, Program Planning & Budget web page.

The interagency analysis system will be used as follows:

- To inform the budget formulation.
- To assist in the allocation of appropriated funds.
- To assist in trade-off evaluations for potential investments at both local and national scales.

Support tools for wildland fire planning and budgeting will meet the following objectives:

- Encourage state, local, and tribal agency participation.
- Incorporate geospatial data to provide the means to map levels of wildland fire risk on lands across the country.
- Generate outcomes from the fire planning unit that inform the national budget planning process.
- Provide a way for land managers to compare trade-offs between wildland fire program components.
- Ensure wildland fire management actions help meet performance measures outlined in the *10-Year Comprehensive Strategy*.

4 Funding and FTE Management

The Office of Management and Budget allocates funding and FTEs separately to the fire program, and these funds and FTEs are detached from the ONPS appropriation. Parks receiving base fire funding must utilize these funds for fire dedicated functions. This requirement means that at least 80 percent of the normal tour-of-duty of base-fire-funded employees must be spent on wildland fire activities, and that these employees must not be assigned management of other major programs that would require more than 20 percent of their time. Expenditures and obligations for fire accounts are reported separately from ONPS accounts at the close of each fiscal year.

5 Allocation of Base Fire Funds

The fire funding analysis will be run each spring, and the results will be sent to each park receiving these funds. This report will display the permanent and seasonal staffing for each park along with the funding amount required to support each position. Parks will have until a specified date to review the analysis and identify errors or request supplemental funding for special workload requirements falling outside of the analysis. At the same time, parks may also request supplemental funding for capital equipment, hazard fuel reduction, and ecosystem management prescribed fire projects. Park requests are reviewed and consolidated at the regional level for submission to the NPS Branch of Wildland Fire at FMPC.

Final budget decisions will be made in September, and final budget reports will be sent to each park receiving base fire funds. This report will display staffing, FTEs, support funding, and project funding by account number. The authorized funding for each account will be uploaded into the Federal Financial System

(FFS) from the Fire Management Program Center. Analysis schedules will be posted on the Branch of Wildland Fire, Program Planning & Budget web page.

FIRE FINANCIAL PROGRAMS

1 Introduction

The Wildland Fire Program and Planning Section, in accordance with the National Park Service's (NPS) Budget Office, provides financial information and guidance for managing the fire management appropriation through the *Annual Financial Management Guide* distributed with each regional budget package. This document is also available on the NPS Branch of Wildland Fire, Program Planning & Budget web page.

Regional coordinators, park and program managers, incident commanders, and prescribed fire managers must be aware of the operation of wildland fire account authorizations and special administrative procedures related to financial management of these funds. They must also understand the responsibilities and limitations pertaining to the use of these authorizations and procedures.

2 Responsibilities

2.1 National Level

Responsibilities at the national level include:

- Formulating the NPS portion of the Interior Wildland Fire Budget, working with Department of the Interior partners and the Office of Wildland Fire Coordination (OWFC) through the entire cycle of budget formulation.
- Preparing and distributing the current year budget to regional directors.
- Loading funding into the financial system at the park allocation level.
- Tracking status of funds to ensure the NPS stays within its spending authority for the Wildland Fire Appropriation.
- Working with Interior counterparts as required during the fire season to maintain adequate emergency funding for all bureaus.
- Providing funding adjustments as needed during the fiscal year.
- Providing within-region adjustments when requested by the regional office.
- Working directly with regional contacts and avoiding direct contact at the park level without regional involvement.

2.2 Regional Level

Responsibilities at the regional level include:

- Managing the use of all positions within the region and finding efficiencies where possible.
- Managing the regional budget package; moving funding within the same Project Work Element (PWE) around the region as needed to enable parks to manage their programs.
- Providing the national office with a record of all within-region transfers of funds.
- Tracking status of funds within the region and informing the national office of any overage/shortage of funds that cannot be used or covered within the region.

2.3 Park Level

Responsibilities at the park level include:

- Managing positions and FTEs within the park's authorized amount.
- Corresponding through the region on issues requiring national involvement.
- Tracking status of funds for the park.
- Working with the regional office on funding needs, staffing issues, and project work.

3 Funding Authorities

Funding for wildland fire management activities is provided through the Department of the Interior and Related Agencies Appropriation Act, which may be supplemented by the emergency authority provisions of Section 102 of the Title 1 Act contained within the Wildland Fire Management Appropriation provided to the Bureau of Land Management. Wildland fire management funds are non-ONPS (Operations of NPS), no-year funds. The NPS Branch of Wildland Fire at the Fire Management Program Center (FMPC), through the WASO Budget Office, distributes these funds to parks and regions.

The wildland fire management funding analysis described in *RM 18*, Budget Analysis and Program Planning chapter, is intended to identify the appropriate staffing and support level each park's fire management program should achieve. In the event that adequate wildland fire management funds are not appropriated, parks may need to supplement wildland fire management funding with ONPS funding to achieve minimum fire management capability.

Parks may also use ONPS funds to augment the basic wildland fire management funded preparedness operation in order to achieve a higher level of response capability, to retain a stronger initial attack capability outside the defined fire season, or to meet local interagency commitments.

4 Guidelines for Managing Wildland Fire Management Accounts

4.1 Account Integrity

The wildland fire management appropriation provides funding for essential fire planning and oversights functions and for budgeted activities necessary in preparation for the normal fire season (refer to the *Annual Financial Management Guide* for the various activities identified in the current year appropriation). Wildland fire management funds must not be diverted for non-fire program support.

4.2 Account Structure

The current year account structure is annually updated and included in the *Annual Financial Management Guide*. A glossary and explanation of budget terms is found on the NPS WASO Budget website.

The National Park Service uses the Federal Financial System (FFS) for budget execution.

- Service-wide authorizations for each wildland fire management program are loaded by the FMPC Budget Office into the FFS Allocation (ALCT) tables for the park by organizational (ORG) code.
- Regional and park offices are responsible for inputting accounts into FFS at the project and subproject levels.
- The activity funding is also broken out by sub-activity (PWE -- Project Work Element), and each region must balance within each PWE total funding allocation at fiscal year-end.
- The activities and sub-activities are outlined in the annual budget and reflect the distribution apportionment of the NPS wildland fire appropriation.

4.3 Authorizations

The Fire Management Program Center (FMPC), acting through the NPS WASO Budget Office, will establish funding and FTE authorizations within Project Work Elements (PWE) for national and regional offices and for parks receiving wildland fire management funds. These authorizations may be adjusted periodically by the FMPC through the WASO Budget Office, with the concurrence of the regional staff.

4.4 Accountable Property

The purchase and tracking of accountable property is in accordance with the NPS property system. The following Director's Orders offer NPS guidance on property:

- *DO 44, Personal Property Management*
- *DO 62, Property Acquisition*
- *DO 80, Real Property Asset Management*

The authorization process for purchasing accountable property within a park is described in the *Annual Financial Management Guide*. This document also identifies the appropriate and inappropriate use of certain activities and sub-activities (PWEs) for funding accountable property.

4.5 Account Management and Tracking

The NPS Branch of Wildland Fire staff located at the Fire Management Program Center will track funding obligations at the program level. Parks and regional offices may establish *optional* project levels within each program for non-emergency sub-activities, except in the specific programs identified in the *Annual Financial Management Guide*. Significant over- and under-expenditures within a program may indicate the need for a more detailed program review through the regional office.

Emergency Suppression Operations funds for the NPS are managed at the national level. The Interior Budget Team monitors daily activity, moving funding between agencies to maintain the required funding for each agency. The total funding for this activity within the Interior Wildland Fire Appropriation may be insufficient to cover these emergency expenditures during severe fire years. For this situation, the Secretary of the Interior will request that the president activate the Emergency Contingency, if possible, or will utilize the authority under Section 102 of the general provisions of the Interior Appropriation Act to transfer funds from other programs. An emergency supplemental appropriation may also be requested.

National Resource Crews: Hotshot Crews, Fire Use Modules, Administrative Payment Teams, and Burned Area Emergency Rehabilitation (BAER) Teams are mobile national resources that can be assigned to wildland fire suppression and wildland fire use fires. Hotshot crews are normally base funded from Wildland Fire Preparedness accounts, and fire use modules are base funded from Hazardous Fuels Operations accounts. Administrative payment teams and BAER teams are not necessarily base funded by wildland fire accounts, but they are interdisciplinary resources that can be dispatched in response to specific incidents. BAER teams may be composed of interagency personnel. Procedures for the call-out of one of these national teams are outlined in the current year *National Interagency Mobilization Guide* available on the National Interagency Coordination Center (NICC) website. The guidance for management of base funding for the team members while they are on an incident is available on the chart attached to the *Annual Financial Management Guide*.

4.6 Account Adjustments

The most current procedures for account adjustments are available in the *Annual Financial Management Guide*.

4.7 Year-End Reconciliation

Year-end accountability will be managed at the activity level. The WASO Budget Office will report all expenditures and obligations to the Department. Although wildland fire allocations are no-year funds, they are managed as though they are an annual appropriation, and any unobligated funds will be withdrawn at the activity level.

The wildland fire accounts follow the year-end closing procedures, distributed each year by the NPS comptroller's office. This document is posted on the AFS3 home page.

Accounts for wildland fire suppression, wildland fire use, and emergency stabilization that have negative balances will have all obligations covered by a funding advice to each region issued by the WASO Budget Office at year-end. This funding advice is issued at the regional activity level only.

4.8 FTE Management

Full Time Equivalent (FTE) allocations are made through wildland fire management allocations and from all approved project requests. FTEs are managed by activity at the national level. FTEs are counted by actual usage. One FTE is counted for every 2080 hours of base time charged to an activity. The *Annual Financial Management Guide* details the appropriate use of FTE within an activity.

5 Fire Account Auditing Procedures

The wildland fire program review is a regional process. It is a total program review and includes the financial auditing of wildland fire accounts. The regional fire management office maintains a schedule of program reviews. The national fire management office is available to assist at the request of a region.

6 Collections

6.1 Trespass Fires

Public Law 94-579, the Federal Land Policy and Management Act of 1976, section 305, authorizes the collection of fire trespass funds. This allows the NPS to collect for the federal costs of the fire, including the costs of rehabilitation rendered necessary by the incident. The 1999 Interior Appropriation (Department of the Interior and Related Agencies Appropriations Act, 1999, as included in Public Law 105-277) allows the NPS to credit the funds to the Wildland Fire Appropriation.

6.2 Fire Protection Assistance

The 1999 Interior Appropriation (Department of the Interior and Related Agencies Appropriations Act, 1999, as included in Public Law 105-277) allows the NPS to credit the Wildland Fire Appropriation for sums received for fire protection assistance. The NPS has a separate activity within the appropriation to collect and expend the money collected through fire protection activities.

FIRE BUSINESS MANAGEMENT

1 Introduction

There are important administrative functions which pertain to all aspects of wildland fire management. The National Park Service (NPS) has adopted the National Wildfire Coordinating Group (NWCG) *Interagency Incident Business Management Handbook* (IIBMH) as the official guide to execution of the incident business management program. For additional guidance and policy on items in this chapter, see the current edition of the *Interagency Standards for Fire and Fire Aviation Operations*.

2 Responsibilities

2.1 National Level

The national office will:

- Serve as a member of National Park Service and interagency teams to direct fire business communications, education, and information at the national level.
- Coordinate the NPS mission objectives when developing interagency and Service-wide fire business policy, guidance, and standards.
- Provide interdisciplinary coordination with other Service-wide programs relative to fire business management and other mission assignments.
- Provide oversight and program reviews of fire business management practices to the regional offices and contribute when requested on park reviews.
- Serve as a resource to regions and parks on technical issues related to fire business management practices.

2.2 Regional Level

The regional offices will:

- Manage the implementation of fire management business practices at the regional level.
- Provide direction and serve as a resource to the parks in the region for compliance with Department of the Interior and Service-wide fire business policies and standards.

- Provide on-going evaluation of all park-level fire business management practices to ascertain effectiveness, efficiencies, and prudent management of the fire business management program.
- Serve as an advocate for integrated programs within the region.

2.3 Park Level

Each park with a fire program will:

- Plan, manage, and provide on-going evaluation of the wildland fire management program that fosters adherence to fire business management standards, accomplishes park fire management objectives, and supports regional and national goals.
- Make cost effective fire business decisions to efficiently manage the fire program.
- Correspond with the region on issues requiring regional involvement.

3 Fire Management Support of Non-fire Programs

Wildland fire funds may be used to provide direct administrative program support by funding permanent administrative support positions. These positions are expected to be used for fire-dedicated budget and administrative duties. Caution must be exercised to ensure that the duties of these fire-dedicated positions do not exceed the 20 percent allowable time available for non-fire job performance. Parks and regional offices may request additional funds for direct administrative support of fire programs. These requests must clearly identify the unfunded administrative burden created by the fire management organization. It is the policy of the National Park Service to pay non-fire program administrative costs directly through funding requests based on documentation of administrative support requirement needs, rather than through indirect “assessments” on the wildland fire program.

4 Agreements and Contracts

Parks should develop agreements with local agencies and fire departments to meet mutual needs. Concerns of area-wide scope should be addressed through regional agreements. Exhibit 1 is a guide for selecting the proper agreement or other appropriate instrument. Drafts of all agreements and contracts for fire protection will be submitted to regions and to field solicitors, where appropriate, for review prior to implementation. The authority to enter into interagency agreements is extensive and is expressed in *Director's Order 20, Agreements* and the *Departmental Manual Part 620 (620 DM)*.

Multi-agency fire activities may be in one of the three following categories: (1) mutual aid agreements, (2) contracts, or (3) emergency assistance.

4.1 Mutual Aid Agreements

Agreements for mutual aid are essential and must be a part of the fire management program in each park. The national agreement, which serves as an umbrella for interagency assistance among federal agencies, is the *Interagency Agreement for Fire Management Between the Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service, of the United States Department of the Interior and the Forest Service of the United States Department of Agriculture* (1997 and amended 1999). This agreement and other national agreements provide a framework for, and grant substantial latitude in, the development of regional and local agreements. Refer to *DO 20* for detailed instructions and the format for developing agreements.

Agreements should lead to positive interaction among the participating parties by incorporating areas of interaction beyond crisis operations and by encompassing all potential areas of cooperation and coordination in fire management programs. In addition to meeting the requirements of *DO 20*, they should specifically address the following, as appropriate:

- Cooperation in prevention, preparedness, suppression, and prescribed fire management operations.
- Coordination in development and implementation of fire management plans, including fire management strategies, tactics, and methods.
- Identification of parties responsible for implementing various aspects of the agreement.
- Resolution of differences in qualification standards for suppression and prescribed fire personnel.
- Joint training and exercises.
- Procedures for initial attack, notification, and transition into extended attack.
- Incident management responsibilities, including unified command within the Incident Command System (ICS) framework and resolution of command responsibility in particular situations.
- Special considerations for fire management along administrative boundaries.

All park units must also adhere to the following general guidelines relating to agreements:

- Any agreement that obligates federal funds or commits anything of value must be signed by the appropriate warranted contracting officer.
- Specifications for funding responsibilities should include billing procedures and schedules for payment.

- Any agreement that extends beyond a fiscal year must be made subject to the availability of funds.
- Any transfer of federal property must be in accordance with federal property management regulations.
- All agreements must undergo periodic joint review and revision, as appropriate.

4.2 Contracted Protection

Contracts may be used when they are the most cost-effective means for providing fire protection commensurate with established standards. A contract, however, does not absolve a superintendent of the responsibility for managing a park's fire program. The park's approved fire management plan must define the role of the contractor in the overall program.

Contracts should be developed and administered in accordance with federal acquisition regulations. In particular, a contract should specify conditions for abandonment of a park fire in order to respond to a new call elsewhere.

4.3 Emergency Assistance

In the absence of any formalized agreements, emergency assistance may be provided by the Service to adjacent jurisdictions upon their request. However, some state and local departments will not provide assistance to neighboring jurisdictions without a completed agreement. Even parks with very infrequent fire occurrence must develop agreements with their neighboring agencies so emergency assistance can be provided and reimbursed.

The authority for rendering emergency fire or rescue assistance outside the National Park System is contained in the National Park Service Organic Act; (16 USC 1b1); and *620 DM*.

5 Office of Workers' Compensation (OWCP) Costs

Personal injuries or occupational illnesses covered by OWCP are processed by, and charged to, the employee's home or employing unit, regardless of where the injury or illness occurs.

When the bureaus reimburse OWCP, all costs under their respective charge-back codes should be identified as payable under specific sub-activity codes—for example, E11 for suppression, P11 for preparedness, and W11 for wildland urban interface. Proper coding will accurately display the OWCP costs in the correct activity category.

6 Claims

Incident management teams do not have the authority to approve personal property claims or authorize expenditure of funds to replace items. The park or incident agency's policy must be followed for claims processing. The incident agency will review the claim for accuracy and completeness and will forward it to the appropriate adjudicating official. Employee claims should be forwarded to the employee's home unit if the home unit is not part of the incident agency.

Individual tort claims that do not exceed $2,500 and are associated with wildland fire activities should be charged against the appropriate wildland fire activity account. Tort claims in excess of $2,500 are forwarded by the NPS Accounting Operations Center (AOC) to the Justice Department for payment from their account. It is possible, however, that the solicitor(s) and/or justice may remand these claims back to the NPS unit for payment.

7 Administrative Payment Teams

7.1 Purpose/Objectives

The purpose of the Administrative Payment Team (APT) is to expedite payment of financial obligations incurred as a result of an emergency incident, and to relieve the local administrative unit of additional work generated by the incident.

7.2 Responsibility

After receiving written delegation of authority from the agency administrator, the team is responsible for payment of all financial obligations incurred during the incident.

7.3 Determining Need

When an incident generates a large volume of obligations that may not be paid in a timely manner, or when the demand on local suppliers is so great that financial hardship may result, the agency administrator may request the assistance of an administrative payment team. The administrative payment team is authorized to make payments for supplies, services, and rental equipment utilized on an incident. They can also input payment requests for personnel hired under the Administratively Determined Pay Plan for Emergency Workers (AD Pay Plan).

7.4 Organization

The type and number of team members needed is determined based on the individual incident. More definitive information on duties, responsibilities, and procedural guidelines can be found in the *National Interagency Mobilization Guide*.

NPS Administrative Payment Teams are coordinated through the NPS Branch of Wildland Fire. The Administrative Payment Teams are made available on a rotational schedule and the schedule is listed on the website above.

8 Resource Order Form

The resource order form is used on interagency fires as a requisition document. The form also serves as a record of all resources ordered (personnel, equipment, supplies, aircraft, etc.) for initial attack fires, sustained wildland fire, wildland fire use, and step-up or severity actions. The form may also be used as a substitute for a requisition form to track resources ordered from a non-federal cooperator who may re-bill for services utilized.

The current interagency agreement between the DOI Bureau of Land Management, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, National Park Service, and the USDA Forest Service describes the billing and payment procedures for fire management activities. The chapter on Cooperation in the *National Interagency Mobilization Guide* provides complete information. Federal wildland fire management agencies do not reimburse one another for fire suppression activities.

Expenses for interagency suppression cooperation are tracked using the FireCode system. FireCode is an Internet-based program that allows dispatch offices to generate a four-character alpha-numeric code that is unique for each incident. It will be used for the assignment of incident and severity project numbers. (FireCode is not used for step-up activities.) Once a fire is discovered, it is assigned the FireCode project code and each wildland fire management agency will use that four-character alpha-numeric code in their accounting string.

Each agency will utilize the FireCode system to assign an account and to track the expenses for the resources provided to another agency on wildland fire assignments that were not cross billed. Agencies may share the unique FireCode account identifier.

9 Personnel-related Issues

9.1 Emergency Workers

In accordance with the Department of the Interior Administratively Determined (AD) Pay Plan, the National Park Service may use the Emergency Workers hiring authority on unplanned ignitions regardless of the management strategy selected. Consequently, emergency workers may be hired for wildland fire use (fires which are managed for resource benefits) as well as for wildfire suppression incidents. The NPS can also use this authority to hire employees for hazardous fuels projects. The AD Pay Plan is updated annually and should be reviewed each year for changes in the authorities.

Federal and state taxes are now being deducted from emergency employee pay. Emergency workers must complete a W-4 (and W-5 if needed). If these documents are not submitted with the other payroll documents (e.g., I-9, OF-288, etc.) to payroll, a flat 28 percent will be deducted for taxes. Electronic Funds Transfer (EFT) is now recommended for all emergency hires. Further information can be found on the Department of the Interior National Business Center home page. Current rates for emergency hire employees and position matrices for rates of pay can be found at the National Wildfire Coordinating Group website.

Completed firefighter time reports (OF-288) and W-4s should be sent directly to the NPS Accounting Operations Center (AOC) for payment. If an administrative payment team has been activated, they will handle the payments.

National Park Service employees on furlough **should not** be hired under the AD Pay Plan. NPS policy is to complete a personnel action to return the employee to pay status to accomplish the needed work.

9.2 Shifting Non-fire Personnel Regular Hours to Fire Accounts (Base 8)

Personnel that are not funded by wildland fire funds (preparedness funds) may shift their base-eight funding to an incident account when they are assigned to a wildland fire incident. Their regular positions can then be backfilled with lapse funds created by the shift of funds. Guidance for shifting regular hours is described annually in the current year *NPS Wildland Fire Management Budget - Business Rules*. Base salary and benefits shifting is further referenced in exhibit 1 of that document.

The park or region has the option of either shifting base-eight funding to an incident and backfilling with the lapse funds or not shifting the base-eight funds and charging the backfill position base funding directly to the incident. This

mechanism for backfilling positions alleviates the impacts of wildland fire operations on routine day-to-day operations.

Backfilling or base-eight shifts apply only to those hours when an employee is assigned to a wildland fire incident, and may not be used to augment program capabilities. Backfilling must be based on, and limited to, the normal duty hours of the employee who is unavailable because of an incident assignment.

This policy does not apply to prescribed fires. Prescribed fires are planned events. Managers may decide in advance whether it is appropriate for employees from various programs to participate in these operations. They also have the ability to hire or contract for additional staff to manage prescribed fires, in contrast to unplanned wildland fires. The prohibition on shifting base-eight salaries or backfilling for prescribed fires is in compliance with budget rules for Wildland Fire Operations agreed to by the National Park Service, the Bureau of Land Management, the Bureau of Indian Affairs, the U.S. Fish and Wildlife Service, and the Forest Service.

9.3 Local Staff Assigned to Their Park's Incidents

The incident usually assumes no responsibility for the meals and/or per diem of local staff who do not meet the qualification criteria in the *Federal Travel Regulations*. Under some circumstances, however, the incident commander may deem it necessary to restrict an employee's work and off-clock hours to the incident location (e.g., spike camp, fire camp, etc.), which would preclude spending a portion of the day at home for rest and food. Under these circumstances the employee would be qualified for meals and/or per diem at the expense or provision of the incident.

9.4 Compensatory Time Not Authorized for Suppression Work

Compensatory time will not be authorized for employees performing suppression or suppression-related work for the following reasons: (1) suppression accounts must reflect expenditures as they occur and not many months later, (2) compensatory time used (041) is paid at base rate, and preparedness personnel cannot charge base time to a suppression account, and (3) lump sum payments at the end of the six-month period would have a detrimental impact on the year-end closeout for suppression funds.

9.5 Paid Day Off

To maintain safe and productive incident activities, incident management personnel must appropriately manage work and rest periods, assignment duration, and shift length for personnel, including casuals, contracted crews, and

other emergency resources. To assist in mitigating fatigue, days off are allowed during and after assignments. See the *Interagency Incident Business Management Handbook* and the *Interagency Standards for Fire and Fire Aviation Operations* for further guidance on paid days off.

9.6 Management Directed Days Off at Home Unit

Supervisors must manage schedules for initial attack, dispatch, and incident support personnel during extended incident situations on their home unit. Guidance and policy for management directed days off at the home unit may be found in the *Interagency Incident Business Management Handbook* and the *Interagency Standards for Fire and Fire Aviation Operations*.

10 Pay Entitlements

10.1 Overtime for Exempt Employees

Exempt employees are entitled to be compensated at a rate equal to one and one-half times their hourly rate of basic pay under the following circumstances as authorized by Public Laws 106-558 and 107-20:

1. Employees are engaged in emergency wildland fire suppression and wildland fire use activities.
2. They are involved in the preparation and approval of a Burned Area Emergency Stabilization and Rehabilitation Plan (ESR). Once the ESR plan is submitted for approval, the exempt employee is no longer entitled to full overtime under the provisions of the two laws.
3. They are required to augment planned preparedness staffing levels to enhance short-term suppression response capability, severity activities, accident or after-action reviews, or emergency wildland fire funded prevention activities.
4. They are involved in similar wildland fire activities that are approved for coverage on a case-by-case basis by an agency fire director.

Exempt employees who perform nonexempt emergency duties for more than 20% of the total duty hours within a calendar week are considered nonexempt for that week for the purpose of pay entitlements (see 5 CFR §551.208 (d)(ii)). Each week stands on its own and should be analyzed separately. Such claims must be supported with a justification and have supervisory approval.

Public Law 108-136 enacted on November 24, 2003, amends 5 USC 5542(a)(2) and allows exempt employees to receive at least their hourly rate of basic pay or the overtime rate for a GS-10/1, whichever is greater. This applies to non-

wildland fire activities and has no effect on the full overtime provision in Public Laws 106-558 and 107-20.

The overtime provision does not apply to personnel involved in prescribed fire, other fuels management activities, implementation of fire rehabilitation plans, or to overtime incurred in conjunction with any other activity not specified above. It is important to remember that the full overtime provision authorized by Public Laws 106-558 and 107-20 applies *only* to wildland fire and related activities and cannot be extended to other activities.

10.2 Overtime for Nonexempt Employees

Nonexempt employees are entitled to full overtime when their basic workweek requirements have been met regardless of the type of work they are doing.

10.3 Biweekly Pay Cap

Employees (exempt and nonexempt) are subject to a biweekly pay cap that is equivalent to the biweekly earnings of a GS-15. This pay cap is waived for any pay period that they were determined to be performing work in connection with an emergency (see USC 5547(b) and 5 CFR §550.105). They will then be subject to the annual maximum earnings of a GS-15 step 10, effective on the last day of the calendar year (see 5 CFR §550.106). The biweekly pay cap is waived when employees are involved in the wildland fire related activities listed above in section 10.1, items 1–4.

10.4 Other Biweekly Pay Cap Waivers

In accordance with Title 5, Code of Federal Regulations (5 CFR 550), the biweekly pay cap may be waived for non-wildland fire related activities in emergency situations. An emergency is “a temporary condition posing a direct threat to human life or property” or any situation requiring action to preserve and protect the natural or cultural resources that has been defined by the Director as being “mission critical” for the National Park Service. The biweekly pay cap can also be waived for other emergencies if approved by the Office of Personnel Management (OPM), the president of the United States, or the head of a federal agency. Examples of waivers of the biweekly pay cap are the Columbia Shuttle Recovery and Exotic Newcastle Disease incidents.

According to Title 5, Code of Federal Regulations, Chapter 1, Subpart A, (5 CFR 550) the following entitlements apply:

- Full overtime is authorized only for wildland fire suppression, wildland fire use, and related activities.

- Biweekly earnings limitation applies to all employees (exempt and nonexempt).
- Biweekly earnings limitation is waived for wildland fire suppression, wildland fire use, and related activities.
- Biweekly earnings limitation may be waived for non-fire emergencies if declared by OPM, the agency head, or the president of the United States.

See table 1 below for pay entitlement and payroll coding information.

TABLE 1. Pay Entitlement Chart

Category	Overtime Pay Rate	Earnings Limitation	Remarks & Payroll
1. Exempt employee working on wildfire, wildland fire use, or severity in exempt position.	Full overtime. One and one-half times basic rate of pay.	Not to exceed maximum annual rate of basic pay of GS-15 including locality or special rate.	Payroll code 113.
2. Exempt employee working on wildfire, wildland fire use, or severity in non-exempt position for more than 20% of total hours worked per week.	Full overtime. One and one-half times basic rate of pay.	Earnings paid under the Fair Labor Standards Act (FLSA) are not subject to the maximum annual pay cap.	Payroll code 110 with X and LB in message code box. Employee could be exempt for one week and nonexempt for the other week. Each week is figured and coded separately.[1]
3. Exempt employee working on project in exempt position.	Either the employee's basic rate of pay or overtime rate of GS-10/1, whichever is greater.[2]	Not to exceed biweekly earnings of GS-15.	Payroll code 110.
4. Exempt employee working on project in nonexempt position for more than 20% of total hours worked per	Either the employee's basic rate of pay or overtime rate of GS-10/1, whichever is greater. Employee would be entitled to	Not to exceed biweekly earnings of GS-15.	Payroll code 110.[1]

Category	Overtime Pay Rate	Earnings Limitation	Remarks & Payroll
week.	full overtime only if they continued in the nonexempt position for a minimum of 30 days.		
5. Exempt employee working on non-fire emergency in exempt position.	Either the employee's basic rate of pay or overtime rate of GS-10/1, whichever is greater.[2]	Not to exceed biweekly earnings of GS-15. For biweekly pay cap to be waived, the emergency must be declared by the President of the United States, agency head, or OPM.	Payroll code 110.
6. Exempt employee working on non-fire emergency in nonexempt position for more than 20% of total hours per week.	Full overtime. One and one-half times their basic rate of pay.	Not to exceed biweekly earnings of GS-15. In order for biweekly pay cap to be waived, the emergency must be declared by the president of the United States, agency head, or OPM.	Payroll code 110 with LB in message code box.
7. Exempt employee working in exempt position on hurricane recovery of 2005.	Either the employee's basic rate of pay or overtime rate of GS-10/1, whichever is greater.[2]	Not to exceed maximum annual rate of pay of GS-15, including locality or special rate. Biweekly pay cap was waived by the agency heads.	Payroll code 110 with LB in message code box.
8. Nonexempt employee working on hurricane recovery of 2005.	Full overtime. One and one-half times their basic rate of pay.	Biweekly pay cap was waived by the agency heads. Earnings paid under the Fair	Payroll code 110 with LB in message code box.

Category	Overtime Pay Rate	Earnings Limitation	Remarks & Payroll
		Labor Standards Act (FLSA) are not subject to the maximum annual pay cap.	
9. Nonexempt employee working on wildfire, wildland fire use, or severity in nonexempt position.	Full overtime. One and one-half times their basic rate of pay.	Earnings paid under the Fair Labor Standards Act (FLSA) are not subject to the maximum annual pay cap.	Payroll code 110 with LB in message code box.
10. Nonexempt employee working on wildfire, wildland fire use, or severity in exempt position.	Full overtime. One and one-half times their basic rate of pay.	Earnings paid under the Fair Labor Standards Act (FLSA) are not subject to the maximum annual pay cap.	Employees classified as nonexempt are always nonexempt, regardless of the position to which they are assigned. Use payroll code 110 with LB in message code box.

1. The difference between categories 2 and 4 is that one is an emergency and one is not. In terms of pay entitlement, a wildfire or wildland fire use fire qualifies for a waiver in the biweekly pay cap and the project work does not *unless* a mission critical situation exists and a request for waiver is submitted and approved (see HR Bulletin 2003-06).
2. Effective 11/24/03, PL 108-136 section 1121, enacted on 11/24/03, amends 5 USC 5542(a)(2) to modify the overtime hourly pay cap for exempt employees.

10.5 Payroll Procedures

- An employee's time will be recorded on OF-288, Emergency Firefighter Time Report. All time will be verified and signed by incident personnel and forwarded to the employee's unit for processing through the Federal Personnel Payroll System (FPPS). Further payroll information may be found in the *FPPS T&A Codes Manual* and the *Client Interface Manual, FPPS Program Version*. The National Business Center web page should be periodically reviewed by timekeepers for the latest payroll updates and changes. To retrieve the latest payroll update and to download the manuals,

visit the National Business Center Payroll News website.

11 Use of Emergency Equipment Rental Agreements

Emergency Equipment Rental Agreements (EERAs) may be prepared by a warranted contracting officer. Park units may use resources assigned to EERAs for suppression and related work, including wildland fire use projects. Park units may use agreements that have been authorized by other bureaus and agencies (e.g., Bureau of Land Management, Forest Service) and should follow payment instructions as indicated on the agreement. If the EERA does not define payment instructions, the payment request, including the signed invoice and all backup documentation, should be processed through the NPS Accounting Operations Center.

12 Cross Charging Procedures for Hazardous Fuels Reduction Operations

The FY 1998 Wildland Fire Management appropriation funded the Hazardous Fuels Reduction Operations request submitted by the five federal cooperating agencies. In the section on Fuels Management, the *Congressional Appropriation Conference Report* stated the following:

> Interior and Forest Service should not charge each other for personnel and other resources…To ensure that both agencies use the same approach, the Committee requests a joint report from the two Departments…that explains how all fuels management activities and land and water rehabilitation will be funded and implemented.

The joint report was completed as requested and contained a statement (in the section on General Field Guidelines for Hazardous Fuel Reduction Operations) excluding administrative surcharges and cross billing for interagency hazardous fuel treatments and ecosystem prescribed burning projects. All five fire directors concurred that the general policy to exclude cross billing is appropriate and meets congressional intent. Fuels management projects are considered planned land management activities as opposed to emergency activities; therefore, offices have the right to turn down requests from other offices to assist in fuels management activities. Offices should not consider providing personnel and resources at the expense of their own target accomplishments, and no office should be placed in a position of subsidizing another office's fuels management activities. However, the fire directors also concurred that there are some unique situations warranting reimbursement (cross billing). Refer to *RM 18*, Fire Financial Programs chapter, for the project coding to be used when assisting other agencies with hazardous fuel reduction projects.

When assistance cannot be fully offset by sharing personnel and resources between DOI and Forest Service offices, arrangements should be made for the requesting office to provide as many prepaid services as possible, such as travel, lodging, food, and fuel, by covering these items on a blanket purchase order, charge card, or through other appropriate means, thereby eliminating the need for reimbursement.

DOI agencies (BLM, BIA, FWS, and NPS) have established assistance funding reserves at the state/regional office to cover expenditures when working for partners on fuels projects. The regional fire program management assistant should be contacted for direction on obtaining these funds.

WILDLAND FIRE AND PROGRAM REVIEWS

1 Introduction

The following direction is supplemental to that provided in the current edition of the *Interagency Standards for Fire and Fire Aviation Operations*.

All wildland fires and fire-related incidents must be reviewed. All prescribed fires will be reviewed as appropriate. Reviews are conducted for one or more of the following purposes:

- To examine the progress of an on-going fire incident and to confirm effective decisions or to correct deficiencies.
- To identify new or improved procedures, techniques, or tactics.
- To compile consistent and complete information to improve or refine park, regional, or national fire management programs.
- To examine anomalous fire-related incidents in order to determine cause(s), contributing factors, and where applicable, to recommend corrective actions; if negligence is indicated, the circumstances will be reported and investigated in accordance with applicable regulations, policies, or guidelines.
- To determine the cost effectiveness of a fire operation.

2 Responsibilities

The responsibilities at national, regional and park levels are intertwined and not reasonably differentiated by level. To indicate the connectivity of these responsibilities, they are not broken out by level in this chapter. This chapter is intended to be read in its entirety.

The authority to convene a fire review rests with the park superintendent, regional director, or the Associate Director, Visitor and Resource Protection. It is the clear responsibility of the park superintendent to call for a review, to insure timely completion, and to implement recommended actions. The regional director is responsible for following up with the park superintendent and ensuring that reviews are established and completed in a timely manner and that recommended actions are completed. The park superintendent may request technical support from the Branch of Wildland Fire, Fire Management Program Center (FMPC), and regional, park, or interagency personnel with the appropriate expertise.

The Associate Director, Visitor and Resource Protection, will convene an ad-hoc team to review Service-wide fire management programs subsequent to the

occurrence of any significant, controversial, or unusual wildland fire management activities.

All reviews will be conducted as constructive critiques aimed at determining the facts related to the specific fire or fire management program. They will identify commendable actions, techniques, and decisions, as well as areas that need improvement. Reviews are intended to resolve operational issues, not impose punitive actions.

All wildland fire incidents which result in human entrapment, fatalities, or serious injuries, or result in incidents with potential, will be investigated and reviewed. See the chapter on Standards for Operations and Safety in *Reference Manual 18 (RM 18)*.

3 Fire Reviews

3.1 "Hotline" Review

See the *Interagency Standards for Fire and Fire Aviation Operations*. These reviews require no special reporting. Documentation of hotline reviews should be included in the normal fire report narrative.

3.2 Incident Management Team (IMT) Closeout and Review

See the *Interagency Standards for Fire and Fire Aviation Operations*.

3.3 Park Level Review

See the *Interagency Standards for Fire and Fire Aviation Operations.* The superintendent or his or her designated representative should conduct the park level review. The superintendent will appoint other qualified persons, including the park fire management officer (or an official who has designated fire program management responsibilities) to be a part of the review. The purpose of this review is to provide the superintendent with information to recognize commendable actions and to take needed corrective action(s).

Costs associated with the review will be charged to the account assigned to the fire with the approval of the regional fire management officer. A copy of the complete report will be sent to the regional fire management officer, who will review it and, if appropriate, forward a copy to the Branch of Wildland Fire, FMPC.

3.4 Regional Level Review

See the *Interagency Standards for Fire and Fire Aviation Operations*. A regional level review may be conducted for any fire that

- Crosses a park's boundary into another jurisdiction without the approval of an interagency agreement.
- Results in adverse media attention.
- Involves serious injury to fewer than three personnel, significant Departmental property damage, or an incident with potential. This review is separate from and in addition to any specific accident investigation.
- Results in controversy involving another agency.

The regional level review will normally be conducted at the park where the fire occurred. The regional fire management officer or his or her designated representative will convene the review. Review team members will include the superintendent of the park, the park's fire management officer (or the official who has designated fire program management responsibilities), the incident commander(s) for the fire, and other individuals agreed upon by the regional director and superintendent.

If possible, the review team should visit the actual fire site as part of the review. A copy of the review report will be sent to the Branch of Wildland Fire, FMPC. Costs associated with the review will be charged to the account assigned to the fire.

3.5 National Level Review

See the *Interagency Standards for Fire and Fire Aviation Operations.* A national level review may be conducted for any fire that involves Service-wide or national issues, including

- Significant adverse media or political interest.
- Multi-regional resource response.
- A substantial loss of equipment or property.
- A fatality, or multiple, serious fire-related injuries (three or more personnel). This is in addition to the required serious accident investigation (see *Reference Manual 18,* Standards for Operations and Safety chapter).
- Any other fires that the Associate Director, Visitor and Resource Protection wants reviewed.

The national level review will normally be conducted at the park where the fire occurred. The Chief, Fire and Aviation or his or her designated representative will convene the review. It will be attended by the superintendent of the park, the

park's fire management officer (or an official who has designated fire program management responsibilities), the regional fire management officer, the incident commander(s) for the fire, and other individuals agreed upon by the national fire director, the regional director, and the superintendent.

If possible, the review team should visit the actual site of the fire as part of the review. All costs associated with the review will be charged to the account assigned to the fire.

Exhibit 1 provides an outline for final reports of fire reviews. Exhibit 2 provides a checklist of sample questions that might be asked during a fire review.

These two documents should be used for park, regional, and national level reviews.

4 Program Reviews

4.1 Operations Evaluations

Operations evaluations of parks and regions may include review of fire management programs to assure compliance with established National Park Service standards.

4.2 Annual Service-wide Fire Program Review

The Associate Director, Visitor and Resource Protection, will convene an ad-hoc team to review Service-wide fire activity during any year in which significant, unusual, or controversial fire activity occurs. This review team will analyze the reports from national level reviews and appropriate regional level reviews to determine what, if any, policy or operational changes should be initiated. The review team will develop findings and recommendations and establish priorities for action.

4.3 Fire Preparedness Reviews

For information on fire preparedness reviews see the *Interagency Standards for Fire and Fire Aviation Operations*. Fire preparedness reviews, utilizing the Interagency Preparedness Review Checklists as adapted for park-specific needs, will be conducted annually by park fire management staff. Trained regional readiness review teams should be used to conduct more in-depth, objective reviews on a scheduled basis (once every three to five years). These teams benefit from being interagency in composition. To make the best utilization of time and to minimize the impact to the park, fire program reviews and fire

readiness reviews should be conducted concurrently by a single team.

4.4 Park Fire Program Reviews

The purpose of park wildland fire and fire aviation program reviews is to provide support to park management in improving program effectiveness, customer service, employee safety and morale, and fiscal accountability. There are basically three levels of reviews: site visits, surveys, and the most intensive, full reviews, which this document addresses. The less-intensive levels may utilize portions of this program review process and checklists as appropriate.

These program reviews will be conducted in accordance with *DO/RM 18; DO/RM 60, Aviation Management*; *Departmental Manual 485*, chapter 6; and the *Interagency Standards for Fire and Fire Aviation Operations*. The authority to conduct program reviews stems from 16 USC, *DO/RM 18; DO/RM 60*. The regional director will convene review teams to review park wildland fire and aviation management programs on a regularly scheduled basis, or subsequent to the occurrence of any significant, controversial, or unusual wildland fire management activities.

Fire and fire aviation program reviews provide comprehensive program management and operational evaluations. Involvement of line management and cooperators, where applicable, is critical. The objectives of these park fire program reviews are as follows:

- Ensure consistency with current planning and program analysis, budget allocations, and acceptable administrative procedures.
- Ensure operations are conducted in compliance with Departmental, NPS, and interagency regulations and policies.
- Compile consistent and complete information to improve or refine the park's fire and fire aviation management program.
- Produce a written report that contains an executive summary, along with findings, recommendations, and action plans, in the areas of program management, operations, fuels management, fiscal management, health and safety, facilities, and fire aviation management.

All reviews will be conducted as constructive critiques aimed at determining the facts related to the specific program. They will identify commendable actions, techniques, and decisions, as well as areas needing improvement. A written report will be developed by the review team and forwarded to the park superintendent by the regional director.

The park fire program review template is found at the bottom of the NPS-specific Interagency Preparedness Review Checklists.

4.5 Regional Fire Program Reviews

The purpose of regional wildland fire and fire aviation program reviews is to provide support to regional management in improving program effectiveness, customer service, employee safety and morale, and fiscal accountability.

The review is designed to obtain, analyze, and evaluate information concerning the management, planning, and operational procedures of the program. The review will look at what guides the program now, what is in place, and how that is working; and it will focus on policy, procedures and practices. If a policy or procedure is not being followed, the reason must be determined and suggestions for change identified.

In general, the focus of the review is accountability, clarity and adequacy of policy and guidance, the region's interpretation and implementation of policy, and areas where policy change or addition is required. The evaluation is a systematic method to determine effectiveness of projects through implementation of current Federal Wildland Fire Management Policy.

Fire program reviews provide comprehensive program management and operational evaluations. Involvement of line management and cooperators, where applicable, is crucial.

The general objectives of the regional fire program review are to accomplish the following:

- Validate adequacy of management policy, structure, and guidance to support field organizations in performing their duties.
- Confirm compliance with laws, regulations, and Departmental and Service guidance.
- Identify opportunities to share ideas, methods, and techniques developed by other offices or individuals.

All reviews will be conducted as constructive critiques aimed at determining the facts related to the specific program. They will identify commendable actions, techniques and decisions, and areas needing improvement. A written report will be developed by the review team and forwarded to the regional director by the Associate Director, Visitor and Resource Protection.

The regional fire program review template may be found with the NPS-specific Interagency Preparedness Review Checklists.

Exhibit 1

OUTLINE FORMAT FOR SUPPRESSION ACTION REVIEW WRITTEN REPORT

This format is provided to develop consistency in the Service-wide fire review reporting system. This format will assure more efficient review of reports at the park, regional, and national levels.

Fire reviews will follow the general outline listed below. The list of subjects is included for consideration, but only those subjects that the review team identifies as commendable actions, policy issues, or correctable deficiencies need be included in the written report. Identified action items will be monitored by the region for compliance in the future.

I. Introduction

This section will include the names, titles, agency/home units, fire qualifications, and business phone numbers of the review team members. Information regarding the date and place of the review will also be included.

II. Summary Narrative

This section should contain the basic who, what, when, where, how and why, and should serve the purpose of an executive summary. Unusual major events should be mentioned but not detailed.

III. Readiness Evaluation

A. Pre-fire weather conditions
B. Fuel conditions
C. Topography
D. Special constraints
E. Planning status

1. Fire management plan
2. Pre-attack plan
3. Agreements
4. Prevention
5. Step-up plan

Exhibit 1

IV. Management Evaluation

A. Initial attack evaluation

1. Dispatch
2. Description of management effort
3. Personnel qualifications
4. If unsuccessful, why?

B. Extended attack—Type II or Type I incident

1. WFSA: completed by whom, review clause?
2. Fire complexity analysis
3. Delegation of authority/agency administrator briefing
4. Personnel qualifications
5. Park preparations for extended attack and overhead transition
6. Safety
7. Operations
8. Planning
9. Logistics
10. Finance and procurement
11. Human resources management
12. Public information
13. Interagency coordination

V. Fire Effects

VI. Rehabilitation

VII. Mobilization/Demobilization

VIII. Appendices

Exhibit 2

SAMPLE QUESTIONS FOR FIRE REVIEWS

I. Readiness Evaluation (Pre-fire Conditions)

A. What were the weather conditions?

1. What were the weather indices at the time of ignition?
2. Describe the recent precipitation pattern and how many days since last measurable precipitation.
3. Describe any significant weather factors such as frontal systems, downbursts, thunderstorms, etc.
4. How did existing weather conditions compare to the predicted "normal fire year" conditions?

B. What were the fuel conditions?

1. What were the fuel conditions at the point of origin (include fuel model(s), major species present, age class, live and dead fuel moisture, live/dead ratio, etc.)?
2. Were fuel conditions significantly different at other points within the final perimeter? If yes, what was different?
3. How did fuel conditions compare to conditions expected during a "normal fire year"?

C. What were the topographic conditions?

1. What were the topographic conditions at the point of origin, including slope, aspect, elevation, and position of fire on slope?
2. Were these conditions generally constant throughout the fire? If not, how were they different?

D. Were there any special constraints?

1. What was the land ownership pattern for the lands burned, and those lands immediately adjacent to the burn?
2. Were there structures or other improvements that hampered suppression? If so, describe them.
3. Describe any problems with access during suppression efforts.

Exhibit 2

E. Planning status

1. Was the fire management plan current and appropriate?
2. Was preparedness planning current and adequate?
3. Were agreements and contracts in place?
4. Was step-up plan in place and current?
5. Were preparedness staffing and specific actions appropriate on the day of ignition, and consistent with the step-up plan?

F. Prevention

1. Was the fire preventable? If so, what could have been done to prevent it?
2. Is prevention adequately covered in the fire management plan (to include a prevention plan)? If not, describe deficiencies.
3. Was the investigation action prompt, appropriate and thorough?
4. If the fire was caused by human activity, describe law enforcement action taken and cost recovery initiated.

II. Suppression

A. Initial Attack

1. Dispatch

a. Was the duty dispatcher qualified?
b. Did a failure in the initial attack dispatch contribute to an escape? If so, how?
c. Were the initial attack dispatch procedures followed as outlined in the fire management plan? If not, describe differences.

2. Description of suppression effort

a. Were the initial fire conditions accurately portrayed?
b. Was the initial attack response appropriate for known conditions, in terms of both numbers and strategy?
c. Were the proper types of equipment sent?
d. What was the initial attack strategy?
e. Was resource status accurate? If not, what needs to be corrected?
f. Did initial attack equipment work properly?

g. Were communications adequate?
h. Was equipment usable and properly maintained?
i. Were initial attack forces dispatched from the nearest available source?

3. Were all initial attack forces qualified?

4. If initial attack was unsuccessful, describe specifically why.

a. Were conditions beyond control?
b. Were insufficient resources dispatched?
c. Did forces take too long to arrive?
d. Was suppression action inappropriate?
e. Was fire potential underestimated during the size up?
f. What could have been done to give initial attack a better chance of success?

B. Extended Attack/Type II or Type I Incident

1. Wildland Fire Situation Analysis (WFSA)

a. Was a comprehensive Wildland Fire Situation Analysis completed? If not, why?
b. Who prepared the WFSA?
c. Did the agency administrator (superintendent) approve the WFSA?
d. Did the WFSA reflect the fire management plan?

2. Was a fire complexity analysis done?

3. Personnel qualifications

a. Was a qualified Incident Commander (IC) assigned? If not, why?

4. Park preparation for an extended attack

a. Did the park anticipate the needs of the IC and line up the necessary overhead, firefighters, equipment, and support personnel?
b. Was an incident action plan prepared?
c. Were there adequate records of the park actions to date?
d. Was an appropriate incident management team requested? If not, how

can we improve in the future?
e. Was it ordered soon enough?
f. Did it arrive at the requested location and on time?
g. Was the team properly equipped and supplied when it arrived?
h. Was a limited delegation of authority prepared prior to the IC/team arrival? If not, what was the reason?
i. Did the superintendent conduct a briefing for the IC, including discussion of the limited delegation of authority?
j. Was the takeover transition by the team smooth?
k. Was the WFSA used in the briefing?
l. Were the necessary staff specialists and command staff present at the briefing?
m. Were human rights and training needs covered in the briefing? If not, what will be done to ensure the subject is covered in the future?

5. Safety

a. What were the safety problems on the fire?
b. What was done to resolve them?
c. Were all safety concerns resolved?
d. Was the safety officer position filled and properly used? If not, how is this to be addressed in the future?
e. How did the team incorporate safety in planning strategy, briefings, tactics, and supporting logistics? Was the ICS-215a, Incident Safety Analysis process utilized?
f. What was the incident commander's attitude toward safety?
g. How did the IC communicate safety considerations to incident personnel?
h. Was safety an obvious priority?
i. What preventive actions were instituted?
j. Was a medical unit established? If not, why?
k. Was it adequate to the incident's needs?
l. Were emergency medical plans appropriate to the incident and did they work?
m. Did the IC assure that each accident was thoroughly investigated by qualified personnel?
n. Were the necessary forms and documentation completed?
o. Describe monitoring of crew condition to identify tired crews and provide adequate rest.
p. Were the 24-hour rest/work cycles considered and implemented for this

incident?

q. Did employees routinely work in excess of the standard 12 hours after the first operational period?
r. Did the safety officer monitor work schedules?
s. What can be done to improve safety on future incidents?

6. Suppression operations

a. Were incident action plan objectives and targets realistic and achievable?
b. Were there unapproved deviations from the incident action plan?
c. Was aircraft use prudent and safe?
d. Were line production targets achieved?
e. Were operational period changes completed at estimated times?
f. Were strategies and tactics employed sound and consistent with accepted fire suppression policies and procedures?
g. Were probabilities of success calculated and subsequently updated as the incident progressed?
h. Were the control objectives achieved? If not, what would have helped achieve objectives?
i. Were safety objectives attained? If not, why?
j. Was the incident management team kept intact throughout the incident? If not, why?
k. Did line supervisors stay with their assigned resources during the operational period? If not, why?
l. Describe how the agency administrator was involved.
m. Was the agency administrator readily available for consultation?
n. Did the agency administrator attend IMT strategy meetings and any interagency meetings?
o. Did the agency administrator keep the regional director informed of the incident's progress?
p. Did the agency administrator participate in all major decisions?
q. Did the agency administrator visit camps, airports, and other incident facilities?
r. Did the agency administrator tie up communication lines with non-fire business?
s. Was the agency administrator interested and involved in all personnel issues?

7. Aviation operations

   a. Was aviation safety paramount?
   b. Was air attack effective? If not, how could it have been improved?
   c. Were aircraft used according to their best capability?
   d. Did air attack meet incident objectives?
   e. Was it cost effective?
   f. Were drops accurate?
   g. Was an airspace closure put in place? If used, were there any problems?
   h. Was fugitive retardant utilized? If not, is it possible to use in the future?
   i. Was aviation support available commensurate with incident need? If not, what would have improved support?
   j. Were aircraft maintained in an airworthy state throughout the incident?

8. Planning

   a. Was the planning organization adequately staffed? If not, what was needed?
   b. Was the WFSA properly used?
   c. Did the agency administrator recertify the WFSA at least daily?
   d. Was the WFSA updated as conditions changed?
   e. Did intelligence gathering function smoothly and provide incident management with the information needed in a timely fashion?
   f. What methods were used to collect intelligence?
   g. Was available intelligence sufficient?
   h. Were calculations and assumptions of probable fire behavior and location calculated for successive intervals?
   i. How accurate were the projections?
   j. Were resource needs calculated based upon these projections?
   k. Were incident action plans prepared for every operational period? If not, why?
   l. Were the suppression objectives clearly stated?
   m. Was there a clear description of the work to be accomplished?
   n. Were expected production rates defined?
   o. Was there a discussion of weather and fuels?
   p. Was there a current map of the fire?
   q. Was there a communications plan?
   r. Was there information concerning pick up and drop off points and transportation times?

s. Were all resources identified and correctly listed?
t. Was there a safety message?
u. Did line overhead understand all elements of the plan?
v. Were plan briefings held and were they adequate?
w. How were local overhead forces incorporated in the team structure?
x. Was span of control within acceptable limits?
y. Were divisions and branches appropriate to the incident's complexity?
z. Were single increments and strike teams combined into groups or task forces when possible to reduce the span of control?
aa. Were contingency plans considered in the planning process? If not, how would they have helped in the final analysis?

9. Logistics

a. Was the communications plan adequate?
b. Were there adequate frequencies available?
c. Was there frequency interference from other incidents or non-incident users?
d. Was there adequate communications hardware and was it available in a timely fashion?
e. Was the food service adequate?
f. Was the availability, quality, and quantity of food acceptable to fire fighters?
g. Were sanitation standards met?
h. Was a national caterer used?
i. Was the transportation plan responsive to incident needs?
j. Was there sufficient transportation to get crews to/from line assignments in a timely fashion?
k. Were access roads adequately maintained?
l. Was dust abatement adequate?
m. Were access routes marked and was traffic flow adequately controlled?
n. Were duty hours for drivers within the standards established by Department of Transportation?
o. Were all drivers qualified to operate assigned vehicles?
p. Was the logistics organization able to meet operational period change deadlines? If not, why?
q. Was incident base security adequate?
r. Were there adequate controls on the issuance of supplies and equipment?
s. Were incoming/outgoing supplies manifested and checked off?

t. Were personal effects of fire fighters protected?
u. Were there any criminal incidents?
v. To what extent were commissioned law enforcement personnel involved in the overall security program?
w. Was the incident base layout and operation acceptable?
x. Was the incident base size manageable?
y. Were camps efficiently run?
z. Were inmate crews separated from the rest of incident base population?

10. Finance and procurement

a. Were established procurement channels and procedures followed?
b. Did all orders go through a single point (supply unit)?
c. Was a buying unit used? If not, would it have helped?
d. Were any supplies or services ordered outside the system? If so, why was the system not the better method?
e. Were nearest available sources used?
f. Was the most reasonable mode of transportation used?
g. Were equipment rental agreements properly completed prior to equipment use?
h. Were equipment rental records kept current?
i. Were food, lodging, and other purchases reasonable in terms of quantities and cost?
j. Were reasonable orders placed?
k. Were lead times adequate?
l. Were item amounts reasonable?
m. Were requested items consistent with incident complexity and needs?
n. Were receiving procedures in place and always used?
o. Were specific individuals responsible for receiving and receipting all incoming supplies?
p. Was property identified and marked upon receipt?
q. Were proper property issue, transfer, and return procedures in place and used?
r. Was all property accounted for during the demobilization phase?
s. Was timekeeping and associated record-keeping accurate?
t. Were crew time reports used and signed by the appropriate overhead?
u. Was posted time current for both personnel and equipment?
v. Were all compensation claims investigated in a timely fashion?
w. Were complete records established for all claims?

x. Were all claims investigated by trained and qualified persons?
y. Were payments completed in compliance with the prompt payment act?
z. Was an Administrative Payment Team (APT) used? If not, would one have helped?
aa. Did the APT arrive on time?
bb. Were there any coordination problems with the APT?
cc. Did the finance section chief participate in the preparation of the incident status report? If not, how would that participation improve the report?
dd. Was monitoring of cost effectiveness ongoing and adequate for the command staff's needs? If not, what could have been improved?
ee. Were standard commissary procedures followed? If not, how was commissary handled?
ff. Were procedures adequate to track oil and gasoline issues? If not, what would have been better?
gg. Were procedures in place to monitor exempt Fair Labor Standards Act personnel who might approach maximum pay limitations? If not, why?

11. Human Resources Management

a. Were all personnel qualified and carded for their assignments? If not, what assurance was provided regarding their qualifications?
b. Were there difficulties in obtaining qualified personnel?
c. Were opportunities for training assignments identified and taken advantage of?
d. Were identified shortage category positions given priority for training?
e. Was a training specialist assigned to the incident?
f. Were trainees evaluated in writing?
g. Was the performance of all individuals evaluated continuously? If not, why?

Exhibit 2

h. Were written evaluations completed and discussed with all overhead prior to their release?
i. Were evaluations objective, factual, and honest?
j. Was immediate action taken to correct any noted deficiencies?
k. Were all crews provided a written evaluation of their performance prior to release? If not, why?
l. Were all human rights complaints promptly documented and investigated? If not, why?
m. What section was human rights placed in?
n. Were there any complaints?
o. Who conducted the investigations?
p. How were situations resolved?

12. Fire Information

a. Did the incident management team use the information officer position effectively? If not, how could it have been improved?
b. Was accurate information provided to the media in a timely fashion?
c. Was the Information Officer (IO) function conducted with minimum impact upon the fire management and the park as a whole?
d. Was the IO available to the media?
e. Was the park interpretive program effective in relaying fire information to visitors? If not, what could improve it?
f. Did the interpretive program address fire management issues prior to the fire?
g. What interpretive techniques were in use during the fire?
h. Was the interpretive effort proactive or reactive?

13. Interagency Coordination

a. What was the extent of interagency involvement in the incident?
b. Was pre-planning adequate? If not, how could it have been improved?
c. Was there any cost sharing involved? If not, how could sharing have been advantageous?
d. Were there any problems in assessing shares?
e. Was a Multi Agency Coordinating (MAC) group activated? If not, was it needed?

Exhibit 2

f. Was the MAC group effective in setting priorities and allocating resources?
g. Did the MAC group become involved in the management of the incident?
h. Did all agencies feel they were effectively represented on the MAC group?
i. Were the MAC representatives qualified?
j. Was Area Command (AC) established? If not, was it needed?
k. Was AC effective in coordinating the management of the various incidents?
l. Were affected agencies allowed input to the AC decision process?
m. Were all members of area command qualified?
n. Were there any conflicts between AC and MAC?

III. Fire Effects/Suppression Rehabilitation

A. Was a resource advisor designated and available for consultation regarding all aspects of environmental impacts resulting from suppression action? If not, would resource damage have been reduced?
B. Were there irreversible effects upon park cultural or natural resources?
C. Were environmental considerations discussed at all strategy meetings?
D. Were fire lines, access routes, camps, helispots, and other facilities located and constructed with minimal environmental impact in mind?
E. Was the use of heavy equipment restricted?
F. Was post fire rehabilitation carried out and was it effective?

IV. Mobilization/Demobilization

A. Were mobilization and demobilization orderly and adequate to meet the IC's objectives?
B. Was the closest forces concept applied to the mobilization?
C. Were interagency resources realistically used?
D. Were requested time frames for arriving resources realistic?
E. Was the most reasonable mode of transportation used?
F. Did all resource orders go through the established dispatch channels?
G. Were priorities established and followed?
H. At what point was demobilization addressed by the IC?
I. Was the demobilization plan in writing?
J. Was timing of transportation reasonable and was it cost effective?
K. Were park resources the last to be demobilized?

Exhibit 2

V. APPENDICES

Include all documents relevant or required for the particular fire to provide a clear and detailed picture of the incident, including:

A. WFSA with all updates.
B. Incident Action Plans showing incident strategy and any changes in tactics.
C. Map of the fire, by burning periods.
D. Incident Status Summaries (ICS-209).
E. Precipitation record and National Fire Danger Rating System (NFDRS) ten-day fire danger records with graph of fire danger indices.
F. Weather information including previous day's forecast, subsequent daily forecasts throughout the incident, and all fire behavior predictions generated as a result of these forecasts.
G. Completed Individual Fire Report, DI-1202.
H. Display maps showing fuel models, transportation system, communication points, and any other information deemed necessary to understanding of the incident.
I. Personnel and equipment charts showing buildups by burning periods.
J. Detailed financial summary of the incident.

Distribution of Reviews

Regional fire management officers will be responsible for determining specific information from fire reviews that might be of interest or concern to other park areas. Such information might be specific problems that occurred or recommendations that might be applicable elsewhere. Regional FMOs will forward such information within 30 days to the Branch of Wildland Fire, Fire Management Program Center for appropriate distribution.

FIRE RESEARCH

1 Introduction

The primary objective of fire research in the National Park Service is to ensure that fire management activities are informed and supported by the best available scientific information. Research plays a critical role in fire management programs by identifying area-specific fire regimes; determining whether human activity has affected native ecosystems; defining the historic role of fire; assessing the effects of excluding fire from the landscape; developing techniques for predicting fire behavior; defining desired conditions for park resources; documenting and analyzing fire effects; assessing treatment effectiveness; and many other topics. This information is critical for formulating and implementing fire management plans and actions. Through research, fire managers gain a better understanding of how our natural and cultural landscapes are changing, what factors play a role in these shifts, which management actions best address the changes, and what may be the consequences of any actions.[1]

2 Responsibilities

2.1 National

- Identify critical fire research needs for the NPS and interagency fire community and advocate for funding of these needs.
- Facilitate funding of park-level research.
- Support national level fire related research programs and initiatives.
- Facilitate knowledge transfer.

2.2 Regional

- Identify critical regional and park-level fire research needs for the NPS and interagency fire community and advocate for funding of these needs.
- Track ongoing park-level fire-related research.
- Facilitate knowledge transfer.

2.3 Park

- Identify critical fire research that will support park management decisions.
- Integrate fire research into park management plans.
- Communicate research needs and share research results with park staff and cooperators.

[1] See *Reference Manual 18*, Fire Ecology and Monitoring chapter, for a brief explanation of the difference between monitoring and research.

3 Research and Management Plans

Fire management and natural and cultural resources staff must work together to ensure that fire research needs are clearly identified and included in park resource management and fire management plans. In particular, research identified in cultural and natural resource management plans that are needed to implement or refine the fire management program must be included in the fire management plan. The plan should also identify any research needed to implement fire management objectives that are not included in resource management plans. Key questions that these plans should address are:

- What fire-related information is lacking or the depth of knowledge is shallow that additional research will provide direction or support for management decisions?
- How will the park staff integrate past and current research in to its decision making process?
- What do park staff and other experts think are the priority research needs relating to fire and what are the weighting factors that influence these priorities?
- How do the priority research needs relate to current or past studies within either the park or the eco-region?
- How can the park staff leverage current and future research with adjacent and regional landowners and institutions to strengthen these studies?

4 Collaboration and Resources

Research is a collaborative process, and fire management staffs play a significant role in initiating this process and ensuring that research results are used effectively. Collaboration includes being a co-principal investigator, implementing a research burn, writing a letter of support for a proposal, providing logistical support to visiting scientists, or assisting with fieldwork. NPS fire management staffs need to work with other park staff when facilitating research to ensure that the research conforms to park policy and to take advantage of potential opportunities to collaborate with other ongoing park research studies. In addition, local research may have implications for adjacent and regional land managers, so park staff should work with these groups. This type of working relationship will enable the leveraging of local research to meet broader needs and strengthen answers to the questions being asked.

When developing a research project it is important that the research question is framed correctly. A properly framed question will facilitate collaboration, increase funding opportunities, improve project design, and increase the overall level of success for the project. Using the following guidelines can assist in effectively framing research

questions and help ensure that research projects address important fire management information [2]:

1) Questions need to be **answerable** within a reasonable time limit.

2) Questions need to demonstrate a **comparison** that has some meaningful basis in common sense, logic, or an interesting general concept.

3) Questions should not have an obvious or predetermined answer, but rather, should be **new and fascinating**.

4) Questions need to be expressed in **simple** everyday language that will make them useful to managers.

5 Funding Sources and Resources

Some of the primary resources for funding, support and assistance, and technical information and references that can help meet fire management research needs can be found in exhibit 1.

Fire management staffs are encouraged to pursue these avenues. In addition, fire management staffs may want to contact regional and national fire and resource management staffs to help identify other research funding opportunities (e.g., state and county grants) and support services.

[2] Feinsinger P. 2001. Designing Field Studies for Biodiversity Conservation. Washington (DC): Island Press.

Exhibit 1

FIRE RESEARCH FUNDING SOURCES

The Joint Fire Science Program (JFSP)
JFSP is a partnership of the Forest Service, the Bureau of Indian Affairs, the Bureau of Land Management, the National Park Service, the U.S. Fish and Wildlife Service, and the U.S. Geological Survey. The purpose of the program is to provide credible research tailored to the needs of fire and fuel managers.

NPS Service-wide Comprehensive Call (SCC)
SCC identifies all NPS funding programs that target natural resource issues. Fire staff should work with the park's chief of resource management to coordinate submissions. Several different funding sources are available, each with different requirements.

FMPC Reserve Fund Request
The Fire Management Program Center holds a small reserve account of unallocated funding each fiscal year to be applied to accomplishing fuels projects. These funds can be used to contract research studies that will facilitate the planning and implementation of fuels projects. Park fire staff must work with either their regional fire ecologist or fuels specialist in developing these requests.

RESEARCH SUPPORT AND ASSISTANCE

Cooperative Ecosystem Studies Units (CESUs)
A network of cooperative research units was established to provide research, technical assistance, and education to resource and environmental managers. Each CESU is structured as a working collaboration among federal agencies and universities.

NPS Research Learning Centers
Research Learning Centers (Centers) have been developed to facilitate NPS research efforts and provide educational opportunities.

Natural Resources Technical Assistance Call
The Natural Resources Technical Assistance Call provides a coordinated means for parks to request professional assistance from the programs under the Associate Director, Natural Resource Stewardship and Science.

USFS Missoula Fire Sciences Lab
The Fire Sciences Lab is home to the Fire Behavior Project, Fire Chemistry Project, Fire Ecology/Fuels Project and LANDFIRE.

The National Center for Landscape Fire Analysis
The Center develops, integrates, and synthesizes remote sensing, social assessments, economic considerations, and other information technology applications to improve fire and fuels management at the landscape scale and develops innovative approaches for delivery of these products.

REFERENCE AND RESEARCH SERVICES

Fire Effects Information System (FEIS)
FEIS summarizes and synthesizes research about living organisms in the United States—their biology, ecology, and relationship to fire.

Fire Research and Management Exchange System (FRAMES)
Supports wildland fire professionals, by facilitating information and technology sharing, exchange, collaboration, and development through a clearinghouse and web portal.

Tall Timbers Fire Ecology Database and Thesaurus
This searchable resource includes a broad collection of fire ecology literature.

USGS Science Topics, Fire
The USGS Science Topics directory provides an alternate way to browse USGS science programs and activities.

NPS Science and Research
This web page provides a list of NPS research and science resources.

NPS Fire Ecology Web Page
This web page provides a short list of fire research resources.

NPS Library Program
A comprehensive public portal that provides access to research and reference information available on the Internet that is of high relevance to NPS via links to: NPS Voyager; NPS FOCUS Digital Library and Research Station; OCLC FirstSearch;

nps.gov; the Internet Public Library, public websites for individual NPS libraries; USA.gov; InsideNPS.

NPS Social Science Program
The objectives of the NPS Social Science Program are to conduct and promote state-of-the-art social science related to the mission of the National Park Service and to deliver usable knowledge to NPS managers and to the public.

Reference Manual 77, NPS Natural Resource Management
Reference Manual 77 offers comprehensive guidance to NPS employees responsible for managing, conserving, and protecting the natural resources found in National Park System units.

The U.S. Department of the Interior Library
The DOI Library provides a full range of professional reference and research services, available to Interior employees in both the Washington, DC, area and nationwide.

JSTOR
JSTOR offers researchers the ability to retrieve journal issues as they were originally designed, printed, and illustrated. Contact the National Fire Ecology Program Lead for information on how to access JSTOR.

BURNED AREA EMERGENCY RESPONSE

1 Introduction

This chapter provides policy and direction for all activities associated with the management of Burned Area Emergency Response (BAER) in the National Park Service. The BAER program encompasses the immediate actions taken to minimize post-wildfire threats to life and property and to prevent unacceptable resource degradation resulting from a wildfire. BAER consists of two funding activities, Emergency Stabilization (ES) and Burned Area Rehabilitation (BAR). Funds for post-wildfire treatments and activities will only be allocated for actions identified in approved ES or BAR plans.

The National Park Service Fire Management BAER Program is dedicated to protecting lives, property, and resources while promoting the restoration and maintenance of healthy ecosystems. The BAER program determines the need to prescribe and implement emergency treatments to meet the following objectives:

- Minimize threats to life or property.
- Stabilize and prevent further unacceptable degradation to natural and cultural resources resulting from the effects of a fire.
- Repair or improve lands damaged directly by a wildland fire.
- Rehabilitate or establish healthy, stable ecosystems in the burned area.

Natural recovery after a wildfire is preferable if immediate stabilization and rehabilitation needs have been met or are assessed to not be necessary.

2 Responsibilities

2.1 National Level

The Chief, Division of Fire and Aviation, is responsible for designating a National BAER Coordinator for the National Park Service. The NPS Chief, Division of Fire and Aviation, is the approving authority for Emergency Stabilization plans over $500,000 and is the approving authority for all Burned Area Rehabilitation plans.

The National BAER Coordinator, as directed by the Chief, Division of Fire and Aviation, plans program development and evaluation guidance, coordinates program issues, establishes funding priorities, and provides training, oversight, and information. The coordinator is also responsible for supporting, managing, and conducting overall performance reviews and evaluation of emergency stabilization, rehabilitation, and BAER team activities. The coordinator must

involve other program areas such as wildland fire management, budget, and cultural and natural resources, as necessary and appropriate, to ensure an integrated interagency program. The coordinator reviews, and recommends for approval to the Chief, Division of Fire and Aviation, all plans submitted to the national office.

2.2 Regional Level

NPS regional fire management officers are responsible for designating a BAER coordinator for each region and providing support and funding to administer the program.

The regional BAER coordinators are responsible for reviewing Emergency Stabilization and Burned Area Rehabilitation plans produced by the parks in their regions, and recommending them for approval to the appropriate approving authority. The regional BAER coordinators provide training, oversight, and information to parks within their region and coordinate activities with other regions, agencies, and states as necessary and prudent for the program. They are also responsible for supporting, managing, and conducting overall performance reviews and evaluation of emergency stabilization and rehabilitation activities. The coordinators must involve other program areas such as wildland fire management, budget, and cultural and natural resources, as necessary and appropriate, to ensure an integrated interagency program.

2.3 Park Level

Park superintendents are responsible for the following:

- Developing, implementing, and evaluating ES and BAR plans, treatments, and activities within their parks.
- Submitting the plans to the regional office for review and approval.
- Designating a coordinator for ES and BAR plans and their implementation.
- Ensure that their employees are trained and made available to participate in the BAER program as the situation demands.

Employees involved in BAER are responsible for knowing appropriate policies and guidance. They are also responsible for knowing, understanding, and practicing safe operations. Employees with operational, administrative, or other skills will support the ES and BAR effort as necessary.

3 Background, Definitions, Objectives, and Mission Goals

While many wildfires cause little damage to the land, some wildfires create situations that pose threats to life and property from flash floods and debris flows. In other cases, natural and cultural resources may need to be stabilized to prevent unacceptable degradation resulting from the effects of a wildfire. There may also be damages to resources, lands, and facilities resulting from wildfire suppression actions, in contrast to damages resulting directly from a wildfire.

BAER management activities are prescribed as a result of a wildfire when (1) the actions are essential to the protection of human life, personal property, and critical natural and cultural resources, and (2) when they further the accomplishment of the NPS mission. *Critical resources* are those defined in law, for example, the Endangered Species Act or National Historic Preservation Act. The Burned Area Emergency Response (BAER) program consists of the collective actions of Emergency Stabilization (ES) and Burned Area Rehabilitation (BAR) as defined below.

Emergency stabilization is an extension of emergency actions and consists of planned actions taken to minimize threats to life or property resulting from the effects of a wildfire. These actions may also include stabilization, repair, replacement, or construction of physical improvements in order to prevent unacceptable degradation to natural and cultural resources. The objectives of emergency stabilization are to first determine the need for emergency treatments, and then to prescribe and implement the treatments. Life and property are the first priority. Cultural and natural resources treated through ES should be unique and immediately threatened.

Burned area rehabilitation consists of non-emergency efforts undertaken to repair or improve wildfire-damaged lands unlikely to recover naturally, or to repair or replace minor facilities damaged by wildfire. The objectives of burned area rehabilitation are to (1) evaluate actual and potential long-term post-wildfire impacts to critical cultural and natural resources and to identify those areas unlikely to recover naturally from severe wildfire damage; (2) to develop and implement cost-effective plans to emulate historical or pre-wildfire ecosystem structure, function, diversity, and dynamics consistent with approved land management plans, or if that is infeasible, to restore or establish a healthy, stable ecosystem in which native species are well represented; and (3) to repair or replace minor facilities damaged by wildfire.

Fire suppression activity damage repair is not the responsibility of the BAER program. These are actions that are planned and performed primarily by the suppression incident organization as soon as possible prior to demobilization. However, some actions may need to be conducted by the local unit following

containment and incident management team demobilization. For fires where the local agency administrator delegates the authority for fire suppression repair to an incident management team, the incident management team must document the fire suppression activity repair actions and those still needed to ensure that all planned actions are completed during transition back to the local unit.

4 Federal BAER and BAR Policy and Guidance

For policy and guidance on items in this chapter, refer to the following documents:

- *Departmental Manual Part 620,* Chapter 3: Burned Area Emergency Stabilization and Rehabilitation
- *Interagency Burned Area Emergency Response Guidebook*
- *Interagency Burned Area Rehabilitation Guidebook*
- *Interagency Standards for Fire and Fire Aviation Operations*
- *Director's Order 18*

It is the intent of this chapter to define NPS-specific guidance and not to redefine guidance found in the guidebooks and manuals listed above. This chapter will tier from these documents so that it will not have to be updated when new Service, Departmental, or interagency policy is implemented. These documents, as well as other helpful guidance, can be found at the following websites:

- Department of the Interior Burned Area Emergency Response Program
- NPS BAER Program

5 Operational Principles, Policies, and Procedures

5.1 Principles

The National Park Service will continue to utilize the least intrusive and least resource damaging methods to manage wildland fire, and the least intrusive and least resource damaging BAER actions required to mitigate actual or potential damages caused by wildfire. It is not the intent of the BAER program to stop all erosion or eradicate all non-native species that may appear following wildfire. Erosion following wildfire is an element of natural landscape change, and should not necessarily be viewed as a deleterious effect, especially in natural areas. For example, erosion should be reduced only when it threatens values to be protected, such as the domestic water supply or critical cultural and natural resources, or where it is unnaturally severe due to unnatural changes in fire regimes.

5.2 Pre-Planning

To prepare for burned area emergency response activities, parks should plan to take the following actions prior to the fire season:

- Develop goals and measurable objectives for the BAER program and incorporate them into the fire management plan. The fire management plan should identify resources and values to be protected, fire-related stressors, and anticipated treatment strategies. For example, pre-planning for emergency stabilization may include identifying the locations of critical resources that might be threatened by post-fire events such as flooding, slides, erosion, or debris flows. Pre-planning for burned area rehabilitation may include identifying the types of invasive species that are likely to colonize and persist in burned areas and the likelihood of seed germination during the primary fire season at the park.
- Based on the resources of the park and the values to be protected, identify and/or locate disciplines necessary to prepare ES and BAR plans, as well as individuals to implement the treatments proposed.
- Hold a preseason meeting with emergency stabilization and rehabilitation technical specialists, fire management staff, and other appropriate staff to discuss roles and responsibilities, to clarify areas of disagreement and/or confusion, and to annually review the rehabilitation and restoration section of the fire management plan.
- Identify key internal and external agency contacts.
- Identify in advance suppliers, equipment, storage facilities, seed mixes, and implementation personnel.
- Compile an incident library consisting of the park's general management plan, resource management plan, fire management plan, vegetation management plan, and other resource and land management plans. Park resources should be inventoried and entered into a GIS database that can be made accessible to incident management teams, BAER teams, or other interdisciplinary teams brought in to assist the park. Some of the potential themes to be entered into GIS that would be useful for ES and BAR activities include the following:
  - Soils
  - Vegetation
  - Topography
  - Facilities
  - Roads and trails
  - Hydrography
  - Slope instability
  - Cultural resources
  - Wildlife
  - Threatened and endangered species habitat

  - Non-native plants
  - Research and monitoring sampling locations
  - Past fires (fire history to understand post-fire trajectories and impacts)
  - Disturbance histories
  - An annotated bibliography or an overview of the effect of fire on each resource of concern
- Ensure that there are protocols for monitoring treatment effectiveness and all other monitoring needs and that they are part of the fire monitoring plan as discussed in the chapter on Fire Ecology and Monitoring in *Reference Manual 18*.

5.3 Plant Materials

Natural recovery of native plant species is preferable when possible. Seeding or planting native and non-native species produces unnatural changes in successional patterns and vegetative communities and should be used on a limited basis to prevent erosion damage or to combat invasion of non-native species.

Policies for selection, use, and storage of native and non-native plant materials are as follows:

- Ensure the appropriate native ecotypes of plant materials are given primary consideration.
- Restrict the use of non-native, non-invasive plant materials to urgent situations or to cases where timely reestablishment of a native plant community, either through natural regeneration or through the installation of native plant materials, is not likely to occur. For example:
  - When emergency conditions exist that require actions to protect life and property or resource values (e.g., flooding, mass wasting, and threats to soil stability and water quality, and potential invasive species establishment).
  - When native plant materials are not available and/or are not economically feasible.
  - In permanently, highly altered plant communities, such as road cuts, and sites dominated by exotic weeds.
  - In designated historical sites where maintenance of historical vegetation communities (including agricultural crops) is needed to maintain historical integrity.
- Select non-native plants as interim, non-persistent plant materials, provided they will not hybridize with local species, permanently displace native species, or offer serious long-term competition to the recovery of endemic plants, and provided they are designed to aid in the reestablishment of native plant communities. Decisions to use non-native plant species must take into

account long-term recommendations that are not funded under BAER beyond three years, including evaluation and, as appropriate, removal of the plants and replacement with native plant communities.

- Base determination and selection of genetically appropriate plant materials on the site characteristics and ecological setting, using the best available information and plant materials.
- Ensure that development, review, and/or approval of revegetation plans, including species selection, genetic heritage, growth stage, and any needed site preparation, is done by a qualified plant specialist who is knowledgeable and certified or trained in the plant community type where the revegetation will occur. These specialists may include state heritage ecologists and botanists, rangeland ecologists, forest ecologists, silviculturalists, plant geneticists, aquatic plant specialists, or botanists. When native species are used, species and life form mixtures (forbs as well as grasses) should be used, and single species seeding should be avoided.
- Ensure that seed mixes, mulch, and/or straw wattles contain no federally or state designated noxious weeds. Do not use seed sources that contain invasive plant species. In addition, seed mix, mulch, or straw wattles must be tested for noxious weeds prior to application.
- Cooperate and coordinate within the National Park Service and with other federal agencies, organizations, and private industry in the development of native plant materials and supply sources.
- Anticipate plant material needs for emergency and planned revegetation. Develop core plant lists, planting guidelines, plant material sources, seed caches, and seed storage facilities. Request that seed providers obtain certification through State Seed Laboratories. Certification must be current.

5.4 Cultural Resources

The BAER program can assess cultural resources to determine whether known historic properties may be further degraded as a result of a wildfire. The BAER program does not assess the cultural resource damage directly caused by the fire. Cultural resource assessments and treatments are limited to those sites documented before the wildfire occurred and sites that are discovered incidentally while assessing and treating documented sites. BAER funds cannot be used to conduct systematic surveys of a burn area to document sites that may have been exposed by the wildfire unless the surveys are conducted for environmental compliance related to land-disturbing treatments.

5.5 Funding

NPS regional directors are the approving authority for Emergency Stabilization plans less than $500,000. The NPS fire director is the approving authority for ES plans greater than $500,000. Supplemental requests that would increase the

total ES plan cost beyond $500,000 must receive national approval. The NPS fire director is the approving authority for all Burned Area Rehabilitation plans. Wildland fire use or prescribed fires are not eligible for emergency stabilization or burned area rehabilitation funds.

5.6 Personnel Funding

Emergency Stabilization
All wildland fire funded personnel (except hazardous fuels personnel) will fund their base eight hours from their base funding when working on emergency stabilization activities. All non-fire funded and hazardous fuels personnel will charge their base eight hours to emergency stabilization accounts when performing those work activities. Fire and non-fire funded personnel overtime hours will be charged to the emergency stabilization account.

Burned Area Rehabilitation
All participants may fund their base eight hours from the burned area rehabilitation account. Burned area rehabilitation treatments are planned activities and overtime should be reasonably managed.

5.7 Emergency Hiring Authority

The Administratively Determined (AD) Pay Plan for Emergency Workers can be used to support immediate mobilization of BAER emergency stabilization resources for up to ninety days following the containment date of a wildfire. After this time, normal hiring procedures must be used. This authority cannot be used to circumvent other hiring authorities. The AD Pay Plan cannot be used for non-emergency burned area rehabilitation activities. Criteria for using the AD Pay Plan to meet emergency stabilization objectives are as follows:

- To cope with floods, storms, or any other emergency that threatens damage to federally protected property unless brought under immediate control
- To carry out emergency stabilization work where there is an immediate danger of loss of life or property or when prompt remedial action is essential before potentially damaging climatic events occur
- During a transition period, not to exceed ninety days, following the containment date of the wildfire or following a natural emergency, to develop plans and manage an emergency stabilization effort until regular employees can handle the situation or until other employment methods can be initiated

5.8 GIS Data Management

Base and incident GIS data layers can be used in formulating emergency stabilization and burned area rehabilitation plans. Any incident-related GIS data

that is created during the BAER process should follow GIS Standard Operating Procedures naming conventions and directory structures, which can be found in the chapter on Information and Technology in *Reference Manual 18*. Documentation should be included for all GIS data. When reports and data resulting from the BAER process are generated, all of the data should be copied to a folder on the NPS Data Store. Go to the *NPS Data Store* website for guidance on metadata standards and for procedures on posting data to the NPS GIS website. Suggested data layers for BAER work can be found in the Information and Technology chapter, Exhibit 1, GIS Data and Fire Management Matrix.

5.9 Monitoring and Treatment Effectiveness Evaluations

Monitoring is required to provide feedback in the adaptive management process, as is discussed in the chapters on Fuels Management and Fire Ecology and Monitoring in *Reference Manual 18*. Monitoring is carried out to assess whether proposed treatments were properly implemented, whether actual treatments were effective, and whether additional maintenance or treatments are needed to make the project successful.

Funding for monitoring is contingent on the submission of reports documenting the success or failure of treatments. The reports will be sent to regional and national offices and will be archived at the parks. Information derived from the reports will be broadly disseminated, and monitoring results and the evaluation of treatments and techniques will be shared through websites and other electronic means as described in section 6.4, Monitoring Data Management and Reporting.

6 Program Requirements

6.1 Timeframes, Plan Submittal, and Approval Authorities

Emergency Stabilization

Emergency stabilization treatments are projects requiring immediate action. They are therefore funded for only one year from the containment date of the wildfire. However, ES funding may be used to repair or replace emergency stabilization structures or treatments for up to three years following containment of a wildfire where failure to do so would imperil watershed functionality or result in serious loss of downstream values. Monitoring ES treatments for up to three years is also allowable. ES funding cannot be used to continue seeding, plantings, and invasive plant treatments beyond one year.

The initial ES plan must be submitted to the regional director within seven calendar days after total containment of the wildfire, and a concurrent copy must

be sent at the same time to the NPS Branch of Wildland Fire, Fire Management Program Center. If additional time is needed, extensions may be negotiated with those having approval authority. The approval authority is dependent on the funding thresholds as indicated in the table below:

TABLE 1. Funding Approval Levels for ES Projects

Approval Authority	ES Funding Approval Level
Local Approval Level	$0 Park Superintendent
Regional Approval Level	< $500,000 Regional Director
National Approval Level	>$500,000 Chief, Division of Fire and Aviation

Approval/disapproval of ES plans at regional offices will be limited to a maximum of $500,000. Any plan request larger than the regional limit will be approved by the national office in consultation with the regional office. Supplemental requests within the first year (or in subsequent years) for treatments, monitoring, or repair or replacement of structures that would increase the total plan cost beyond $500,000 must receive national approval. Plans will be approved within six business days of receipt. The regional and national offices will review the plan and make recommendations for approval/disapproval within the same six-day period. Amendments to plans as a result of new information should be prepared and submitted as needed, and the same time frames as for initial plans will apply.

If ES treatments need to be installed prior to full plan approval, then the description of the treatment, justification, and funding needed may be submitted to the anticipated approval authority. This abbreviated process is usually followed when life and property resources are in imminent danger from the onset of rains that may trigger floods and debris flows. The treatments will still need to be included in the final ES Plan.

Burned Area Rehabilitation

Funding for burned area rehabilitation treatments and activities is provided for no more than three years following containment of a wildfire.

All BAR plans are approved at the national office because the funding is interagency and competitive. Parks will submit the plans to the regional director, and the regional office will make a recommendation of approval.

TABLE 2. Funding Approval Levels for BAR Projects

Approval Authority	BAR Funding Approval Level
National Approval Level	All BAR plans are approved by the Chief, Division of Fire and Aviation

BAR plans will be written as separate plans, independent of emergency stabilization plans. The BAR plan will specify the non-emergency treatments and activities that are to be carried out within three years following containment of a wildfire. BAR plans must be consistent with approved land management plans.

Funding for BAR is competitive among bureaus and is based on proposed projects submitted through a common database and evaluated using common criteria. The competitive funding awards are determined by the Department of the Interior National Burned Area Emergency Response coordinators at the National Interagency Fire Center. BAR treatments and activities are normally funded the fiscal year following the wildfire unless rehabilitation contingency funds are available. Projects are funded in one-year increments, and activities or treatments are reviewed at the end of each fiscal year and funded with the next fiscal year funds, as appropriate. If requests exceed available funding, plans are arranged in order of priority based on values to be protected and resource objectives.

Selection of the funding awards on prior-year wildfires will occur shortly after the start of the fiscal year. Funding will be distributed upon passage of the Interior Appropriation bill.

BAR plans may be submitted at any time within the three-year anniversary of the containment date of the wildfire. To receive consideration for the beginning of the fiscal year awards, plans should be submitted prior to September 15 so they can be reviewed by regional and national coordinators prior to the October funding awards. The data related to the plans (e.g., planned acres, requested funding, treatment dates, etc.) should be entered into the Department of the Interior's Database of Record by the same deadline.

6.2 Funding

Funds for post-wildfire treatments and activities will only be allocated for actions identified in approved ES or BAR plans.

- ES projects are funded through the fire suppression operations activity (8530), emergency stabilization sub-activity, with a Project Work Element (PWE) of E13.
- BAR projects are funded through the burned area rehabilitation and monitoring activity (8540). The BAR activity consists of two sub-activities:
  - PWE B11—Burned Area Rehabilitation (for burned area rehabilitation treatments and activities)
  - PWE B14—Monitoring of Burned Area Rehabilitation (for monitoring and evaluating the burned area rehabilitation treatments)

Funding for subsequent fiscal years must be formally requested. Funds will not be provided until accomplishment and monitoring reports are submitted and accomplishments are recorded in the National Fire Plan Operations and Reporting System (NFPORS).

6.3 Accomplishment Reports

For each BAER project, parks must prepare annual and final reports that document total funding approved and expended, treatments, and treatment effectiveness as determined through monitoring. The annual reports are due by September 15 of each year until the project expires. The final report is due within 15 days of the fire containment expiration date of the project.

At a minimum, the following information must be provided:

- A summary table of what was actually spent, by treatment or activity specification
- A short narrative for each treatment specification or activity, with accounting detail
- Treatment effectiveness monitoring data

The report will specify procedures for transition of any long-term monitoring and continued maintenance of mitigation actions to normal park programs. The length and format of the report will be commensurate with the scope and complexity of the BAER project.

6.4 Monitoring Data Management and Reporting

Accomplishment reports and monitoring data will be submitted electronically to the national office for posting on appropriate websites to ensure that future managers have access to the reports and can learn from past successes and failures. The national office will be responsible for posting the reports and maintaining the websites. Monitoring data is necessary to provide feedback for

the adaptive management process (see the chapters on Fuels Management and Fire Ecology and Monitoring in *Reference Manual 18*).

Accomplishments will also be recorded quarterly by the designated park, regional, or national official in the Department of the Interior's Database of Record.

INFORMATION AND TECHNOLOGY MANAGEMENT

1 Introduction

This chapter establishes and defines the policies, procedures, and guidance for all activities and tasks associated with information and technology management in support of all business areas of wildland fire. *Director's Order 11A* defines the following terms:

- *Information Management (IM)* is the means by which we support the organization's data and learning activities: identifying information needs, acquiring information, organizing and storing information, developing information products and services, distributing information, and using information.
- *Information Technology (IT)* is the architecture and technology that supports information management. IT includes any activities relating to computers, equipment, software, firmware, voice communication systems, and similar procedures, services, and other resources.

As noted in *OMB Circular A-130*, "the Federal Government is the largest single producer, collector, consumer, and disseminator of information in the United States. Because of the extent of the government's information activities, and the dependence of those activities upon public cooperation, the management of Federal information resources is an issue of continuing importance to all Federal agencies, State and local governments, and the public." The majority of policies, practices, procedures, and standards are established by OMB, the Department of the Interior, the National Park Service Chief Information Office, and the interagency wildland fire community (National Wildfire Coordinating Group). Throughout this chapter, there will be many references to external and internal websites and documents.

The National Park Service (NPS) Fire Management Program has grown significantly over the past decade. Changes in federal policy, new organizational models, and increased planning requirements have resulted in a greater need for data-consuming applications that support fire management decisions and activities. The requirements to provide and utilize accurate geospatial and administrative information have significantly grown with an ever-increasing number of systems and applications (NFPORS, IQCS, ROSS, WFMI, plus an entire suite of GIS/Geospatial tools, applications, and systems). Even for small fire management programs, there is a moderate level of complexity and time commitment to meet information management requirements. Complexity and time commitment rapidly increase as the fire program complexity increases.

A significant portion of this chapter provides guidance for information management which includes data relating to Geographic Information Systems (GIS). NPS staff uses mapping and other spatial information tools that support the management and planning activities necessary to carry out the mission of the National Park Service. Because the NPS is a land management agency, location-based information is the backbone for most NPS information systems. A geographic information system (GIS) consists of computer hardware, software, and georeferenced (or geospatial) data. To georeference something is to define its existence in physical space; in most cases this is the surface of the earth. Data that is georeferenced is also referred to as geospatial data, meaning it has a geographic location. A GIS is capable of inputting, storing, manipulating, analyzing, and outputting georeferenced data. The power of a GIS is its ability to analyze the location of features or objects (such as a stream) and feature characteristics (such as water quality, direction of flow) in relation to the location and characteristics of other features. In recognition of this need, the NPS made the commitment to fund (within the existing budgetary allocation) regional and field-level fire GIS specialists.

2 Responsibilities

2.1 National Level

2.1.1 Chief Information Officer (CIO)

The responsibility for oversight of NPS IT governance is delegated to the NPS Chief Information Officer (CIO). The CIO provides strategic direction for information and technology management and activities. In addition, the CIO develops, maintains, and facilitates the implementation of sound and integrated information technology architecture and promotes the effective and efficient design and operation of all major information resources management processes.

2.1.2 Deputy CIO's for National Information Technology Center (NITC) and National Information Systems Center (NISC)

The Deputy CIOs for the two Centers are responsible to the CIO for development of specific enterprise-wide policies and standards. The NITC is located in the Washington, D.C., office and is responsible for the topology and technology of the NPS. The NISC is located in Denver, Colorado, and supports data and software activities. National level management of non-fire GIS in the NPS is coordinated through the National Information Systems Center (NISC) and reports to the NPS CIO. The NPS also has Service-wide programs that use GIS to manage park

resources, regional technical support centers, and park-based GIS specialists.

2.1.3 Superintendents, Center Directors, and Program Managers

Management of IT infrastructure occurs in the regions, parks, and programs. Certain authorities and responsibilities are delegated to superintendents and program managers, and they are responsible and accountable for the management of IT assets and systems within their respective areas.

2.1.4 Wildland Fire Information Resource Management (IRM) Program Lead

The Wildland Fire Information Resource Management Program Lead is responsible for the information and technology management for the NPS Division of Fire and Aviation Management. Responsibilities include providing strategic direction and oversight for information and technology management and carrying out IT practices and information management following "best practices" to meet wildland fire activities. The responsibilities of the program lead include the following:

- Provides advice and assistance to the wildland fire senior management personnel and wildland fire community to ensure that information technology is acquired and information resources are managed in a manner that implements policies and procedures for this Division.
- Develops, maintains, and facilitates the implementation of sound and integrated wildland fire information technology architecture.
- Promotes the effective and efficient design and operation of wildland fire information management resources.
- Manages operational duties such as all IT assets and infrastructure components that are contained within the Branch of Wildland Fire at the Fire Management Program Center.
- Is responsible for functions such as geographic information systems (GIS), security, information, reliable data, and technology for wildland fire.

Regional Level

2.2.1 Regional and Associate Directors

Information Officers (IO), technology officers (TO), security managers, and GIS coordinators are designated by the regional/associate directors for the purpose of managing the IT assets directly under their organizational area

of responsibility and authority. The IO, TO, and Security Manager conform to *Director's Order 11A*, DOI IT standards and requirements, and all NPS standards and policies.

2.2.2 Regional Fire GIS Specialist

The Regional Fire GIS Specialist provides a variety of support functions, including geospatial expertise, data layers, and map products. Responsibilities of the GIS specialist vary throughout the program. Parks without a fire GIS specialist or regular GIS specialist may have more need for help with basic cartography and technical support. The responsibilities of the regional fire GIS specialist include the following:

- Supports the GIS needs of the wildland fire management program throughout the region; may provide GIS data layers, map products, and data analysis as requested.
- Ensures that fire management staffs at the parks in the region have access to current data, software, training, and assistance.
- Facilitates the wildland fire management program's park level utilization of existing GIS and GPS hardware, software, and data capabilities.
- Represents the wildland fire management program both regionally and nationally on NPS/interagency committees and task groups related to fire management and GIS, as appropriate.
- Serves as a member of the Fire Geospatial Systems Committee (FGSC) to help set national policy for fire GIS-related issues, and serves as the NPS Fire Geospatial Coordinator on a rotating basis.
- Ensures that as the steward of fire GIS data, standards for collection/creation, naming, documentation, and storage are implemented as written in section 6, Information and Data.
- Ensures guidelines in GSTOP are understood and followed with reference to *GIS Standard Operating Procedures on Incidents,* chapter 2, File Naming and Directory Structure.

2.3 Park Level

2.3.1 Park Fire GIS Specialist

Responsibilities of the Fire GIS Specialist vary from park to park:

- Supports the GIS needs of the wildland fire management program at one or more area parks.
- Provides GIS data layers, map products, and data analysis as requested.

- Ensures that fire management staff has access to current data and software.
- Facilitates the wildland fire management program's utilization of existing GIS capability and data at the park, including training and support.
- Ensures that as the steward of fire GIS data, standards for collection/creation, naming, documentation, and storage are implemented as written in section 6, Information and Data.
- Coordinates fire program efforts with the park GIS specialist
- Ensures that during an incident, GIS Standard Operating Procedures are understood and followed with reference to *GIS Standard Operating Procedures on Incidents*, chapter 2, File Naming and Directory Structure.

2.3.2 Park GIS Specialist or Cartographer (non-fire)

The GIS Specialist provides a variety of support functions, such as geospatial expertise, data layers, and map products, to one or more divisions at a park. Responsibilities of the GIS specialist vary throughout the program and include the following:

- Supports the GIS needs of the park; may provide GIS data layers, map products, and data analysis as requested by fire management.
- Assists park staff with access to current data, software versions, training, and assistance.
- Facilitates all park staff's utilization of existing GIS capability and data at the park.
- Ensures that all GIS data follow NPS standards for collection, creation, naming, documentation, and storage as described in section 6, Information and Data.

3 Information Management

Information is essential to properly execute the DOI and NPS mission. Because accurate information is integral to making responsible decisions, the NPS must ensure the quality and usefulness of its electronic information and IT systems. There is a growing body of federal statutes and regulations that govern IT in the federal sector that require compliance. The following is a brief explanation of some of the information management and technology activities wildland fire management staff need to be aware of to ensure the quality and usefulness of wildland fire information and data.

Within the NPS there are two Director's Orders—*11A* and *11B*—which identify the NPS commitment to information management tasks that are required by federal law and by Department of the Interior policies. The NPS is required to adopt this policy to manage its information as a national resource. Any information disseminated must be quality information. *Director's Order 11B* provides policy and procedural guidance on ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) throughout its life cycle. This requirement applies to all NPS managers, employees, volunteers, contractors, and partners engaged in the management or use of IT assets owned or operated by the NPS.

3.1 Information Quality

The federal government is the largest single producer, collector, consumer, and disseminator of information in the United States. In order to improve public access and dissemination of government information, the information must be organized and categorized and made searchable across agencies.

Information collection guidance states that agencies must collect or create only information necessary for the proper performance of agency functions and having practical utility. The wildland fire program is responsible for collecting, managing, and maintaining information and data essential to the performance and operations of wildland fire business. The wildland fire program also needs and uses information and data that is not subject to these maintenance and management guidelines.

3.2 Privacy and Security

Privacy and security of data are important elements of planning, acquisition, and management of federal information technology systems. The E-Government Act of 2002 and the Federal Information Security Management Act (FISMA) provide significant privacy and security responsibilities for federal information technology system operators. FISMA requires agencies to integrate IT security into their capital planning and enterprise architecture processes, to conduct annual IT security reviews of all programs and systems, and to report the results of those reviews to OMB. The Act provides the framework for securing the federal government's information technology.

There are numerous guidelines and policies issued by the Department of the Interior and the National Park Service in regard to safeguarding IT systems. All agencies are required to incorporate security into the architecture of their information systems. Security requirements must be built into the life-cycle budgets for information systems. The funding must be identified in wildland fire capital planning and investment control (CPIC) processes.

The wildland fire program will comply with a provision in *375 DM 19: IRM Program Management, Information Technology Security Program* by providing a document that expresses the rules of behavior for computer users. This document is titled *NPS Responsibilities for Computer Use (RCU) Version 2007-1*. All wildland fire employees are required to acknowledge that they have read, signed, and will abide by this document before being granted access to NPS systems. In addition to complying with this document, all wildland fire employees will complete and pass the current version of the Department of the Interior *End User Computer Security Awareness* training annually.

3.2.1 Personally Identifiable Information (PII)

Personally Identifiable Information is any information about an individual maintained by an agency, including, but not limited to, education, financial transactions, medical history, and criminal or employment history, and information that can be used to distinguish or trace an individual's identity, such as name, social security number, date and place of birth, mother's maiden name, biometric records, etc., including any personal information that is linked or linkable to an individual.

The Federal Information Security Management Act of 2002 requires all agencies to report security incidents to a federal incident response center, the United States Computer Emergency Readiness Team (US-CERT). In accordance with the Memorandum for Chief Information Officers (M-06-19), agencies are required to report Personally Identifiable Information (PII) Spillage incidents to US-CERT within one hour of discovery.

US-CERT has released PII reporting requirements and Spillage Incident Procedures that all wildland fire employees are required to follow.

3.3 Rehabilitation Act Compliance

The Rehabilitation Act ensures that offices and bureaus understand that anyone who writes systems requirements should address Section 508 of the Rehabilitation Act. The Rehabilitation Act requires the wildland fire program to make its electronic and information technology accessible to people with disabilities.

Additional guidance is provided in the Rehabilitation Act to ensure technical standards are followed for various types of technologies, including the following:

- Software applications and operating systems.
- Web-based information or applications.
- Telecommunication products.

- Video and multimedia products.
- Self contained, closed products (e.g., information kiosks, calculators, and fax machines).
- Desktop and portable computers.

3.4 Web Information

The NPS web program is managed as a whole by the NPS CIO. *Director's Order 11C, Web Publishing*, defines responsibilities and establishes the standards for information published by the NPS on the World Wide Web (WWW) including the Internet (nps.gov), and intranet (*InsideNPS*). The program is aimed at improving the overall communication of the National Park Service, both internally on the intranet and externally on the Internet.

Through the NPS content management system (Commonspot) that is used to create park websites, each park has the capability of posting information about fire management within a template. Information about a park's fire regime may be posted under Nature and Science > Environmental Factors > Fire Regime; further information about a park's fire management program may be located under Management > Fire Management.

A sub-section of the nps.gov website linked through the Nature & Science section, the NPS Fire and Aviation Management website facilitates information dissemination for the three separate branches associated with the Division of Fire and Aviation: Wildland Fire, Structural Fire, and Aviation Management. In addition, other portions of the NPS Fire and Aviation Management website contain information relevant to the entire division and those interested in NPS fire management.

Communication and education staff within the Branch of Wildland Fire manages and maintains the wildland fire, aviation, and general sections of the external website. Staff from the Branch of Structural Fire manages and maintains the structural fire portion of the website. It is the responsibility of each individual within the division to inform the web managers about any website issues.

The Fire section on the intranet (*InsideNPS Fire*) is housed under "Visitor and Resource Protection." Like the external site, the three branches of the division are also represented on the internal site. The Branch of Wildland Fire section contains topic areas loosely aligned with program areas from the Fire Management Program Center. Document managers from the Branch of Wildland Fire have login and password access to the administrative portion of the website and are responsible for maintaining the topic areas most relevant to their program area. Staff from the Branch of Structural Fire maintains the structural fire section of the website. The aviation section and miscellaneous topic areas

are maintained by communications and education staff from the Branch of Wildland Fire.

The Division hosts the Fire and Aviation Application Portal (FAAP) on an internal server linked to through *InsideNPS Fire*. The FAAP serves as a gateway and "one-stop shopping" to several databases serving the needs of Aviation, Structural Fire, and Wildland Fire. As the needs of the Division of Fire and Aviation grow and evolve, additional databases may be added to the portal.

4 Technology Management

Information Technology is defined in *DO 11A* as “the architecture and technology that supports information management. IT includes any activities relating to computers, equipment, software, firmware, voice communication systems, and similar procedures, services, and other resources.”

4.1 Technology Acquisition

The Department is coordinating and consolidating the acquisition and management of commonly used IT hardware and software products and services across the Department to support the Department’s key mission and programs. This strategy will promote technical standardization and cost efficiency consistent with enterprise architecture and IT security guidelines. In August of 2003, the Department established a Business Purchase Agreement (BPA) for IT products and services. The National Park Service is required to utilize Department-wide contracts for purchasing IT products and services. The DOI acquisition policies and contracts for hardware, software, and other IT products are updated on the Department’s website.

4.2 Capital Planning and Investment Control (CPIC)

The Clinger-Cohen Act requires federal agencies to view their investments in IT as a single portfolio of investments, similar to a portfolio of financial investments. All of the programs for the NPS develop capital plans and justifications for all capital asset acquisitions, including major IT systems. NPS CPIC information is available on *InsideNPS*. The NPS established the IT Investment Council (ITIC) to review all major IT investments from a business perspective in order to ensure that they meet the mission, goals, and objectives of the NPS. The ITIC is chaired by the Deputy Director and is composed of key NPS managers.

Interagency wildland fire IT projects follow their bureau and department Capital Planning and Investment Control (CPIC) processes when managing a wildland fire IT project for the interagency wildland fire community.

4.3 NPS Software

The NPS has a standard suite of software such as Microsoft Office Suite, Symantec AntiVirus, and Lotus Notes, which is purchased by the Department of Interior or National Park Service under an Enterprise License Agreement (ELA). The standard suite of software used by the NPS is funded through the general NPS IT software assessment approved by the NPS Information Technology Investment Council. NPS users across the NPS can install and utilize products from the ELA.

4.4 Geographic Information Systems (GIS)

The DOI ESRI Enterprise License Agreement (ELA) is a Blanket Purchase Agreement (BPA) and GSA SmartBuy amendment for the federal government that allows the NPS to deploy state-of-the-art GIS software Service-wide at considerable cost savings. The ELA was renewed in September 2005 and effectively gives DOI bureaus unlimited licensing of all ESRI non-royalty software products. This includes ArcGIS products, especially ArcInfo.

The NPS ELA costs are funded through the general NPS IT software assessment approved by the NPS Information Technology Investment Council. Currently and until further notice, the ELA assessments are based on total number of computers. NPS GIS users can install and utilize products from the ELA. However, potential users and administrators are cautioned to ensure that sufficient computer resources and GIS and IT technical support are available to manage this highly-technical software before adding new users. The minimum computer requirements are considerable (more RAM, graphics, and hard drive space), as are system administration costs.

To request ESRI software, users will need their Lotus Notes (iNotes) username and password.

4.5 Wildland Fire Tools and Applications

The wildland fire program works closely with the other wildland fire bureaus within DOI and with the USDA Forest Service when developing wildland fire applications. The intent is to find cost-sharing opportunities and to promote inter-operability at the local, regional, and national levels whenever possible. NWCG provides guidance and standards for IT projects.

The NPS is required to follow the Fire and Aviation Management Information Technology, which outlines procedures and processes that must be employed from the development or acquisition of new applications through the point at which the system is retired and eliminated.

The interagency wildland fire community has a wide variety of fire tools and applications. For a listing of various wildland fire tools and applications visit the Fire and Aviation Management Information Technology website. This website is organized by the business area that uses the application. Some of the applications appear under two or more categories.

5 Services

5.1 File Transfer Protocol (FTP)

File Transfer Protocol (FTP), a standard Internet protocol, is the simplest way to exchange files between computers on the Internet. Like the Hypertext Transfer Protocol (HTTP), which transfers web pages and related files, and the Simple Mail Transfer Protocol (SMTP), which transfers e-mail, FTP uses the Internet's TCP/IP protocols. A web browser can be used to copy files and folders from an FTP server to a hard drive. A username and password is required to log onto an FTP server. However, publicly available files are easily accessed using an anonymous FTP. With an anonymous FTP server, the user ID is usually "anonymous" and there is no password.

An FTP client program with a graphical user interface must usually be downloaded from the company that makes it. WS_FTP is one such program. With WS_FTP, users can connect to any remote system that has a valid Internet address and an FTP server program, browse through directories and files, and transfer files between the two systems. In addition, users can create, change, and remove directories and view, execute, rename, or delete files.

The following are recommended FTP servers:

- Internal NPS
  This site is an Anonymous FTP site. It can only be accessed internally, which means you must be on an NPS network or be logged in through a VPN client. It is meant to be a temporary storage place to transfer large electronic files rather than sending them as e-mail attachments. FTP is *not* meant for long-term storage. This FTP site is cleaned regularly, and files and folders are deleted. FTP should not be used as a back-up system or replacement for archiving files locally. The FTP instructions for the internal site are posted on the site.

- Public NPS (ftp://63.220.43.40/)
  The NPS maintains this public FTP server to share files with interagency partners and contractors. Uploading and downloading data requires a username and password. NPS staff may share this account information with

cooperators, but all are reminded that this site is to be used for NPS business only. To conserve limited storage space, all folders and files on the server will be deleted 15 days from the date posted. Users are strongly encouraged to delete files and folders as soon as their contact or cooperator has downloaded them. Users are reminded that this is a public, non-reviewed site, and therefore they should not post sensitive or proprietary data on the site for use by staff or for transfer of files outside of the NPS.

- Fire Interagency
  Ftp.nifc.gov has been established as an official site for interagency wildland fire incident data and documents. This single site provides "one-stop shopping" for incident personnel to download data when it is available; to upload incident-relevant data (such as remotely sensed images and incident GIS data); and to share incident information with interagency websites such as Active Fires and GEOMAC. All information that is posted to ftp.nifc.gov must meet the following requirements:
  - Public data—Information that is non-sensitive, unclassified, not copyrighted, and viewable by everyone may be posted.
  - Official content—Only official information directly related to wildland fire may be posted. Restrictions include (1) no Individual Indian Trust Data may be posted, and (2) this site may not be used for distributing licensed software or any other licensed or copyrighted media. Posted files will be reviewed on a regular basis to ensure appropriate use of the FTP server. Inappropriate or unofficial postings will be removed and are subject to investigation.
  - No information subject to the Privacy Act may be stored on this site.

  A password is necessary to upload information to the FTP site, but a password is not needed to download data.

5.2 NPS Data Store

The NPS Data Store is a one-stop shop which maintains a Service-wide resource for storing, finding, and retrieving NPS information. It is for both NPS staff and the public to discover and learn about available NPS information resources through a web interface. The NPS Data Store manages and shares natural resource and GIS metadata and data generated by the natural resource and Service-wide GIS programs of the National Park Service. The NPS Data Store is part of the NPS Metadata System and provides two functions: the NR-GIS Metadata Database and the NR-GIS Data Server. The NR-GIS Metadata Database is a repository of and search engine for metadata describing natural resource and GIS data. The NR-GIS Data Server hosts information not only related to natural resources but other programs including Fire. Data can be

searched and downloaded through queries or using a map interface on the NPS Data Store.

Fire-related GIS layers are available from this location, including some, but not all, fire perimeters and FARSITE landscapes for many parks that have fire programs.

NR-GIS Data Store instruction documents include directions for creating, parsing, editing, and deleting metadata and for uploading metadata and data. General metadata authoring guidance with details on the use of the NPS Metadata Profile is also available.

5.4 NPS Focus Digital Library

The NPS Focus Digital Library provides a Service-wide archiving system for images, documents, drawings, and maps about the National Park Service. For additional information on how to post photos or other information see the NPS Focus Digital Library**.** Completion of e-course training is required to perform data entry on the NPS Focus Digital Library. The NPS Focus e-course is available on DOI Learn. Once you have completed the e-course, you need to register as a new user. Contact NPS Focus staff by e-mail (NPS_Focus@nps.gov) and ask to be authorized as a new user.

5.5 NPS NatureBib

NatureBib is the NPS master web-based database for scientific citations presented as bibliographic references. NatureBib merges a number of previously separate databases dealing with natural resource related topics such as air, deer, geology, and paleontology. In addition, citations from individually maintained databases like NPSpecies and the Water Resource bibliography are imported to facilitate searching.

Although currently focusing on natural resource references, NatureBib will eventually be linked to references on cultural resources and other park operations. Fire management plans and Burned Area Emergency Response (BAER) plans may be posted on NatureBib. To post documents, National Park Service employees can obtain a password for the web version of the database, which is on a secured server, by sending via e-mail or fax the Login Request form to the Bibliographic Coordinator from the Inventory and Monitoring Program, Fort Collins, Colorado.

5.3 TOPO!

The National Park Service has purchased the TOPO! software and associated data from the National Geographic Society. The program and related data are available for official use by all NPS personnel. The data consists primarily of seamless scanned topographic maps for the entire contiguous United States plus Alaska and Hawaii. The data can also be used as a background data layer in a GIS. To obtain a copy of this program and/or the related data, contact the regional fire GIS specialist or regional GIS specialist.

6 Information and Data

To improve efficiency, promote data, and minimize system redundancy, OMB's Federal Enterprise Architecture (EA) will be used. The ability to improve the quality of, access to, and sharing of data is part of EA.

6.1 Federal Enterprise Architecture (EA)

The Federal Enterprise Architecture (EA) Program sets policy and direction for information and data. Enterprise Architecture is the explicit description and documentation of the current and desired relationships among business and management processes and information technology. The EA describes the logical dependencies and relationships among business activities. The EA must provide a strategy that will enable an agency to support its current state and also provide a road map for transition to its target environment. In order for agencies to create and maintain the EA, the following framework needs to be identified and documented:

- *Business processes:* identify the work performed to support mission, vision, and performance goals plus document change agents.
- *Information flow and relationships:* identify the information utilized and the movement of information.
- *Applications:* identify, define, and organize the activities that capture, manipulate, and manage the business information to support the business processes.
- *Data descriptions and relationships:* identify how data is created, maintained, accessed, and used.
- *Technology infrastructure*: Describe and identify the functional characteristics, capabilities, and interconnections of the hardware, software, and telecommunications.

OMB requires agencies to document and submit an Enterprise Architecture (EA). When significant changes occur to the EA, agencies must resubmit the

document. For the wildland fire community, a National Wildland Fire Enterprise Architecture (NWFEA) project has been initiated and is being sponsored by NWCG.

The federal EA consists of five models. The Performance Reference Model (PRM) and Data Reference Model (DRM) address the information and data portion of the architecture.

6.1.1 Performance Reference Model (PRM)

This model describes the data or information sharing, standardization, reliability, quality, and storage capacity. It is a standardized framework to measure the performance of major IT investments and their contribution to program performance. The PRM has three main purposes:

- To help produce enhanced performance information to improve strategic and daily decision making.
- To improve the alignment of—and better articulate the contribution of—inputs to outputs and outcomes, thereby creating a clear line of sight to desired results.
- To identify performance improvement opportunities that span traditional organizational structures and boundaries.

6.1.2 Data Reference Model (DRM)

This model describes the data and information supporting government business line operations. The model enables agencies to describe the types of interaction and exchanges within the federal government and between government and external stakeholders. There are three standardization areas:

- *Data description* describes the data in entity/attribute form to support its discovery and sharing.
- *Data context* identifies the data needed to support the business/mission needs and provides categorization of data that identifies data sources and stewardship.
- *Data sharing* entails the access and exchange of data and exchange of fixed, recurring transactions between parties.

6.2 Privacy and Security of Data

The E-Government Act of 2002 and the Federal Information Security Management Act (FISMA) provide significant privacy and security responsibilities for all federal technology systems. The FISMA requires agencies to integrate IT security into their capital planning and enterprise architecture processes. This Act

provides the framework for security of the federal government's information and data.

6.3 Data Stewardship

Director's Order 11A states, "All information owners will maintain all official NPS data in a manner which meets the highest data integrity standards, including timeliness, accuracy and completeness. Each information owner will take whatever steps necessary to ensure that NPS systems have sufficient data quality reviews and audits from both an internal system perspective, as well as externally through control reviews."

Data stewardship is the process of managing information necessary to support program and financial managers, and ensuring that data captured and reported is accurate, accessible, timely, and usable for decision making and activity monitoring. The goal of the data stewardship policy is to synchronize data collection processes, reduce data redundancy, and increase data accessibility, availability, and flexibility in a systematic manner. Effective data stewardship requires that (1) definitions clearly describe requirements and characteristics of data to be maintained in financial management systems; (2) data be created, recorded, and reported in compliance with definitions; (3) feedback is provided when data are inadequate to meet user needs for information; and (4) data assurance provides attestation to, or comments on, the integrity of the information within the system.

Data management systems are established with the following goals:

- *Quality:* Awareness of the quality of data is fundamental to their proper use. Analyses performed to detect ecological trends or patterns require data with minimal error or bias. This is addressed more fully in section 6.4, Data Standards.
- *Security:* Data management systems are established to ensure network security and systems backup. Both digital and hard copy data are maintained in environments that protect against loss from electronic failure or poor storage conditions. Data archiving suggestions are outlined in section 6.5, Data Documentation and Archiving.
- *Longevity:* Countless data sets have been lost or have become unusable over time either because the format became outdated or because documentation was insufficient to determine a data set's collection methods, scope and intent, quality assurance procedures, limitations, or format. While proper storage conditions, backups, and migration of data sets to current platforms and software standards are basic components of data longevity, comprehensive data documentation is equally important. Following the

guidance in section 6.5, Data Documentation and Archiving, will help ensure data longevity.

- *Availability:* One of the most important responsibilities of data stewardship is to ensure that data collected, developed, or assembled are available for decision making, research, and education. The Internet provides an essential mechanism for ensuring data and information reach the broadest community of users possible through the use of the NR-GIS Data Store. See section 6.6, Data Sharing and Distribution.

Parks may have a data stewardship plan in place that includes the fire management program. If there is not a data stewardship plan in place, the park fire GIS specialist should consider writing one for the park's fire management program. The NPS Inventory and Monitoring Program website is an excellent reference to use when developing the data stewardship plan. Data stewardship plans should be reviewed annually and updated as needed. Regional fire GIS specialists should ensure that fire data stewardship is addressed for parks that are not covered by a park-level fire GIS specialist.

One of the main areas of responsibility for any data steward is the enforcement of data integrity. Most data administration texts define data integrity as attention to the consistency, accuracy, and correctness of data stored in a database or other electronic file. Commonly, data integrity refers to the validity of data in all its incarnations (electronic, paper, etc.).

The wildland fire program is responsible for managing and maintaining data essential to the performance and operation of wildland fire business. This data is a valuable asset. The data the wildland fire program is responsible for may be classified for different types of use. Data may be for public use, internal use only, or it may be highly sensitive. All federal employees are responsible for the integrity, timeliness, accuracy, and completeness of federal data regardless of the use.

As data stewards, all federal employees are responsible for ensuring protection of data if it is highly sensitive, ensuring the accuracy and quality of all data within their area, and reporting any breach in security or illicit use of highly sensitive data.

6.3.1 Wildland Fire Program Data

There are several data layers that are critical to multiple program areas of fire management and for which the fire program could be considered the steward. Those include but are not limited to:

- Fire Occurrence (ignition) Points

- Fire Occurrence Perimeter Polygons (wildland and prescribed)
- Non-fire Fuels Treatment Area Polygons
- Fuel Model Data Layer (NFBPS with canopy characteristics)

Fire Occurrence Points

All wildland fire incidents must be documented by a Wildland Fire Report. The completed report must be entered into the wildland fire reporting system (WFMI) within 10 working days after the fire has been declared out. The Wildland Fire Report that is retained by the park must determine as accurately as possible the *point of origin*, and that location must be entered accurately into WFMI Fire Reporting Module. Locations should be collected with GPS whenever practicable and plotted in GIS to ensure that high levels of accuracy and precision are captured. Digitizing hand-drawn points in GIS also provides acceptable accuracy when the use of GPS is not appropriate. The minimum set of attributes that should be included in the GIS data layer is the same as that required by the NWCG interagency fire perimeter standard.

When possible, hard copy maps should also be attached to, and archived with, the hard copy Wildland Fire Report. See section 6.3, Data Stewardship, for specific guidance on the creation of fire occurrence points (ignitions) and polygons (perimeters).

Locations should be recorded in latitude and longitude (usually degrees, minutes, seconds, to at least 1 decimal place when possible) or in UTM easting and northing (including UTM zone). Datum must also be recorded on the Wildland Fire Report and entered into WFMI (See the *Reference Manual 18*, Wildland Fire Reporting chapter. When possible, hard copy maps should also be attached to, and archived with, hard copy Wildland Fire Reports.

Fire Perimeter Polygons

All fires greater than 100 acres should have a GIS-compatible (shapefile or geodatabase feature class) polygon data layer of the final fire perimeter collected, preferably by GPS. Fires less than 100 acres that are considered by the park to have had a significant impact on park resources should also be mapped. All fire perimeters should be collected using GPS where practicable (considering safety and efficiency). This work should be done by the park where the fire occurred. If a park is not able to complete this work, the regional fire GIS specialist should be contacted for help. Where GPS is not used to capture a fire perimeter, a GIS layer should be developed of the approximate perimeter, and the process used to develop the layer should be documented. Maps of fires that have been mapped by the National Remotely Sensed Burn Severity Program (see *Reference*

Manual 18, Fire Ecology and Monitoring chapter) will be considered adequate. The minimum set of attributes to be included in the GIS data layer is that required by the NWCG Interagency Fire Polygon Standard. Documentation should be included for all GIS data. See section 6.5, Data Documentation and Archiving, for specific guidance.

Fuel Treatment Polygons

Treatments of vegetation to alter fuel characteristics need to be documented, and the interagency process for documenting these treatments is described in the National Fire Plan Operations and Reporting System (NFPORS). Currently NFPORS requires a point location for each fuel treatment along with other associated information about the treatment. NFPORS also enables GIS polygons of the treated area to be uploaded. Treatment area polygons will be required by NFPORS within the next few years. Because the polygons stored in NFPORS will be available for later use and analysis outside of NFPORS, there is no other NPS requirement for storing this data. However, individual parks are encouraged to keep copies of the GIS polygons for local use in planning and editing fuel layers. A national process will be developed to link the fire occurrence database used by the National Park Service to the prescribed fire polygons collected by NFPORS. This linkage will ensure that prescribed fire polygons are readily available for analysis within the NPS while eliminating the need for duplicate data entry.

Fuel Layers and Fire Behavior Analysis

For parks that have a wildland fire use program or the potential for large fires, the data layers and pre-fire analysis listed below should be completed. These data layers are valuable for predicting fire spread and behavior, which aids decision making during managed fires, especially wildland fire use and appropriate management response fires.

Up-to-date fuels information is especially important when deciding how to manage long-duration fires such as wildland fire use fires. Because decisions on how to manage these fires are often needed soon after the start of a fire, having up-to-date fuels data available when the fire starts can be crucial for making the best decisions. GIS layers that characterize fuel conditions typically include fire behavior fuel model number, forest stand height, percent canopy cover, height to live canopy base, and canopy bulk density. These characteristics change over time and when disturbed by such events as fuel treatments, fires, hurricanes, and insect infestations. It is crucial that the fuel GIS layers reflect these changes to the extent possible. Other characteristics are sometimes collected, including measurements of coarse woody debris and duff depth.

One of the most valuable ways to use fuel GIS layers to support fire management decisions is with tools such as FARSITE, FlamMap, and FSPro. These tools are used to predict the spread and intensity of fires, and they provide valuable information for fire managers. The fuel data for these tools are FARSITE landscapes, which are GIS-based layers that include the fuel characteristics discussed in the paragraph above. Therefore, it is important that the data is not only collected but also updated as required to reflect significant changes in fuel conditions. It is also critical that the fuels data is well documented and readily available to fire managers and decision makers. For this reason, the up-to-date fuels data and FARSITE landscape data need to be well documented with metadata and posted to a web location where the data can be easily downloaded for use, even at night and on weekends when park staff and the data developers may not be available.

The following are recommended Fuel and Fire Behavior data guidelines:

- Fuel layers and FARSITE landscapes using the new 40 Scott and Burgan fuel models as well as the original 13 fuel models should be completed and made available on the Natural Resource Data Store website. These landscapes may be created from local vegetation data such as that obtained through the Inventory and Monitoring Vegetation Mapping Program or from LANDFIRE data layers.
- Updates to the fuel layers and FARSITE landscapes should be done when needed to reflect significant changes in fuels as a result of disturbances (fires, fuel treatments, blowdown, etc.).
- Where park FARSITE landscapes are better than LANDFIRE layers, the parks should ensure that their landscape theme “units” match LANDFIRE data so landscapes can be merged with LANDFIRE data, and fire behavior modeling (FARSITE, FlamMap, RERAP, FSPro) can be performed beyond park boundaries.
- Where possible, LANDFIRE data sets (see exhibit 2, LANDFIRE Fuel Data Validation, Editing, and Updating) should be evaluated, refined, and updated at the Fire Planning Unit (FPU) level with interagency participants to create seamless fuel layers/FARSITE landscapes for fire behavior modeling as well as for fire management analysis.
- All FARSITE landscapes should be tested and calibrated (using past fires where possible) to ensure their viability for modeling fire behavior growth and spread.
- Criteria for fire-season-ending events should be determined and documented, and term files should be prepared for use in RERAP.
- Where wind interaction with terrain causes significant impact on wind speed and direction (areas with steep terrain and strong winds during fire season), winds of concern should be determined and run in the

WindWizard program to prepare wind vector maps and gridded wind files for use in FARSITE and FlamMap.

- Areas of concern should be identified, and RERAP or FSPro should be run, for insight into fire spread probabilities to help with predicting areas and times of the year when fires may pose particular problems or be especially good candidates for wildland fire use.

This data should be posted to the NPS Data Store. Examples of the metadata and data layers can be found at the Data Store by searching on the word *FARSITE*.

Additional data layers that are useful when managing fires can be found in exhibit 1, GIS Data and Fire Management Matrix, and *GIS Standard Operating Procedures on Incidents*, chapter 4, Minimum Essential Datasets.

6.3.2 Directory Structures and Naming Conventions

All incident-created data should be named with GIS Standard Operating Procedures naming conventions and stored in appropriate folders. Standard names and directory structure can be found in *GIS Standard Operating Procedures on Incidents*, chapter 2, File Naming and Directory Structure.

All data should be stored in the park GIS data library. Data created by fire staff must be incorporated into this data library for archiving. Coordination with the park GIS or resource specialist who manages the data library is crucial to ensure that fire data is named correctly and stored appropriately.

For parks without preexisting data libraries, suggestions for park directory structures can be found by referring to the NPS Inventory & Monitoring Recommended GIS File Folder/Directory Structure under GIS Standards and the NPS Intermountain Region Suggested Directory Structure. Fire data must be maintained by the stakeholders (fire staff). Additional data layers that the fire program uses often and that the fire program is ultimately responsible for can be found in exhibit 1, GIS Data and Fire Management Matrix, and *GIS Standard Operating Procedures on Incidents*, chapter 4, Minimum Essential Datasets.

6.4 Data Standards

The purpose of geospatial standards in wildland fire management is to facilitate data sharing and increase inter-operability among geospatial technologies.

Standards increase the reliability and effectiveness of the GIS products we produce.

Executive Order 12906, Agency Adherence to Standards, states, "Federal agencies collecting or producing geospatial data, either directly or indirectly (e.g., through grants, partnerships, or contracts with other entities), shall ensure, prior to obligating funds for such activities, that data will be collected in a manner that meets all relevant standards adopted through the FGDC process."

Director's Order 11A states, "Geographic information must meet all Federal standards, DOI standards and NPS standards." *Director's Order 11B* states, "Information will be developed only from reliable data sources based on accepted practices and policies utilizing accepted methods for information collection and verification."

6.4.1 NPS Standards

NPS-wide and Regional Data Standard
The standard projection for most NPS regions and national programs is geographic, and the following parameters have been identified in Executive Order 12906 and the Federal Geographic Data Committee (FGDC) standards:

- Datum: North American Datum 1983
- Spheroid: GRS 1980
- Units: Decimal Degrees

Park Unit Data Standard
The standard projection for most NPS park programs is Universal Transverse Mercator (UTM) with the following parameters:

- Projection: Universal Transverse Mercator
- Datum: North American Datum 1983
- Spheroid: GRS 1980
- False Easting: 500,000
- False Northing: 0
- Units: Meters

The National Map Accuracy Standard (NMAS) published by the USGS is the NPS minimum standard for map data accuracy. Typically a GPS will provide much better accuracy then NMAS if it is used carefully and with full attention to the parameters that the user can set or track. To achieve a reasonable and reliable level of accuracy with a GPS, please use the parameter settings described below. Note that different GPS units use different names for these parameters or define them slightly differently. The discussion below tries to accommodate these differences. Questions

should be directed to the NPS GPS program manager or the regional GIS coordinator. Additional information is available regarding NPS Field Data Collection with Global Positioning Systems.

NPS Data and GIS standards for resource mapping, inventories, and studies are also available.

6.4.2 Interagency Fire Standards

Use of the existing interagency structure of the National Wildfire Coordinating Group (NWCG) and its working team's data standards is established and approved for the wildland fire community. Establishing data standards under NWCG improves data consistency and data quality throughout the wildland fire community. Utilization of standards provides a common interface for data exchange and sharing among systems, which improves the quality of the information gathered and disseminated by the wildland fire community.

The Data Administration Working Group (DAWG), under the direction of the NWCG Information Resource Management (IRM) Working Team, establishes and publishes interagency data standards to be used across wildland fire information systems.

The NWCG GTG (Geospatial Technology Group) develops and recommends wildland fire geospatial data standards. Interagency geospatial data standards are available for daily fire perimeter and fire history (historic fire occurrence perimeters).

6.5 Data Documentation and Archiving

Metadata is information about a database, or "data about the data." It describes several attributes about a particular database, including data quality, data content, and data condition. The Federal Geographic Data Committee (FGDC) identifies three major uses of metadata. First, metadata helps to organize and maintain an organization's investment in data. Second, it provides information to data clearinghouses. Finally, metadata aids in data transfer. The creation of metadata is a growing necessity as the amount of digital geospatial data and the number of producers of data increase. Because data development is the most expensive part of a GIS, metadata can help the user decide if an existing data set is useful for a particular GIS analysis.

6.5.1 Documentation Tools and Tips

Excellent metadata and map templates can be found on the NPS Intermountain GIS web page.

The NPS Midwest Regional GIS Technical Support Center has developed several ArcGIS software tools to aid in the creation of metadata. NPS Metadata Tools and Editor, NPS Metadata Tools Extension, and Metadata Browser Extension are all available, as is guidance on metadata.

While FGDC-compliant metadata is required for all data, there are situations that do not immediately allow for the timely completion of such documentation (such as the end of the season for the data collector or time limitations due to an ongoing fire). In these situations, a text file or Microsoft Word document recording information needed to later develop FGDC-compliant metadata is critical. A useful form for capturing metadata for GPS locations, the GPS Metadata Field Form, is located on the Geospatial Task Group website on the GPS training page under Job Aids and Reference Materials.

Projection (.prj) files are a very valuable piece of metadata that should be created for every new shapefile. The .prj file is a file that defines the projection and datum. It is helpful when loading data layers into ArcMap to ensure proper display with other projected data, and it is critical when sharing data with other users who may have their data in a different projection and datum. Projection files are required for some applications like ArcPad. Projection files can be created in ArcCatalog or ArcMap by using the “Define Projection” tool in ArcToolbox.

By developing FGDC-compliant metadata, parks can post their data to the NR-GIS Data Store, which serves as a very reliable backup of files. For more information on how to post data to the Data Store, see section 6.6, Data Sharing and Distribution.

6.5.2 Data Archiving

Archiving of fire data should be done at the park level. Incorporating fire data into the park GIS data library ensures that all data is backed up regularly according to park procedures. In addition, it is strongly suggested that data be backed up to external hard drives on a regular basis. This not only serves as a secondary place to store data, it is also helpful for transporting data to interagency meetings and fire assignments or when hosting an incident management team. The planning section will quickly have all the data they need within the first operational period.

6.6 Data Sharing and Distribution

Director's Order 11B states, "The National Park Service will ensure that information it releases will be developed from reliable data sources and will otherwise ensure information quality at each stage of information development. The NPS's methods for producing quality information will be made transparent, to the maximum extent practicable, through accurate documentation, use of appropriate internal and external review procedures, consultation with experts and users, and verification of the quality of the information disseminated to the public."

In 1992, the FGDC endorsed several policy statements for federal geographic data sharing. The FGDC asserted that agencies will manage geographic data in a way that facilitates data sharing and use by other agencies and the general public and that data sharing maximizes the net return on the investment of public resources. They also stated that federal agencies will maintain an information dissemination management system for geographic data that will include easily accessible information and data holdings—including quality assessments, supporting information, and guidance and aids for locating and obtaining the data.

The NPS Data Store application manages and shares natural resource and GIS metadata and data generated by the natural resource and Service-wide GIS programs of the National Park Service. Guidance is provided for NPS Data Store metadata and data uploading.

The NPS Focus Digital Library provides a Service-wide archiving system for images, documents, drawings, and maps about the National Park Service. For additional information on how to post information, see the NPS Focus Digital Library. Completion of e-course training is required to perform data entry on the NPS Focus Digital Library. The NPS Focus e-course is available on DOI Learn. Once you have completed the e-course, you need to register as a new user. Contact NPS Focus staff by e-mail (NPS_Focus@nps.gov) and ask to be authorized as a new user.

FTP sites are also an excellent way to share data with internal staff, interagency partners, and the public. Guidance on the use of FTP can be found in section 5.1, File Transfer Protocol (FTP).

7 GIS Training

The NPS has created in-house GIS training in the past and will likely continue to do so.

The ESRI Enterprise License Agreement (ELA) includes all ESRI online courses for NPS employees. ESRI offers self-paced courses via the World Wide Web on geographic information science, GIS applications, and GIS technology, including courses on ArcView and ArcGIS software.

The Geospatial Technology Group (GTG) web page lists several geospatial training resources. Currently posted is the CD reference from Geographic Information Systems Specialist for Incident Management, S-341 (GISS). S-341 is a course that teaches GIS specialists how to perform on an incident management team as a GISS. It is not a course to learn GIS.

The course materials for GPS for Fire Management and ICS are available on the NWCG Geospatial GPS training page. GPS for Fire Management and ICS targets fire staff needing to learn proper methodology for navigating and collecting data with GPS (for use in GIS). It emphasizes best practices for reducing GPS error while incorporating GIS data standards and documentation and includes hands-on navigation, data collection, and map creation exercises.

8 Contracting

8.1 Data Creation, Cleaning, and Storage

Director's Order 19 states, "Records and data that are collected, created or generated by other organizations working for the NPS under contracts, interagency agreements, cooperative agreements or other agreement instruments with the NPS, are considered NPS records unless the contract or agreement specifically states otherwise. All partnership agreements, contracts or other agreement instruments should clearly state this. Copies or originals of all project documents and data generated under these agreements should be obtained and retained by the NPS office managing the project."

Data developed by contractors must have FGDC-compliant metadata as outlined in *Executive Order 12906, Agency Adherence to Standards*. "Federal agencies collecting or producing geospatial data, either directly or indirectly (e.g., through grants, partnerships, or contracts with other entities), shall ensure, prior to obligating funds for such activities, that data will be collected in a manner that meets all relevant standards adopted through the FGDC process." Contractors

should review section 6, Information and Data, to ensure they are following proper guidance. The NPS must ensure adherence to this guidance.

8.2 Map Creation

Contractors should consult with NPS Contracting Officers Technical Representatives (COTR) to ensure accuracy requirements are met for all data displayed in maps. Proper map elements must be included to meet project requirements. Map standards for incidents can be found in *GIS Standard Operating Procedures on Incidents*. ArcView 3.x and ArcGIS Layouts and Templates can be found on the NPS Intermountain GIS website.

GIS Data Layer		Fire Management Programs								
		Fire Management Plans	Preparedness	Education, Prevention, and Information	Wildland Fire Management	Fuels	Fire Ecology & Fire Effects	Burned Area Emergency Rehabilitation (BAER)	Air Quality/Smoke Management	FIREPRO/FPA Analysis
Base Cartographic Data Layers	Administrative Boundary	X			X		X			
	Ownership Boundary	X		X	X	X	X	X	X	X
	Roads	X			X	X	X	X		X
	Trails	X			X	X	X	X		
	Hydrology (rivers, streams, lakes)	X	X		X		X	X		
	Communities (populated places)	X	X	X	X					
	Public Land Survey (PLSS) (Township, Range, Section)				X					
	Quad Boundaries (7.5 minute)				X					
	Digital Elevation Model Grids (DEM) (Elevation, Slope, Aspect)	X	X	X	X	X	X	X	X	X
	Digital Raster Graphics (DRGs) (digital USGS topo maps)	X		X	X	X	X			
	Orthoimagery (usually DOQQ)			X		X	X			
Fire	Fire Management Units (FMUs)	X			X	X	X			X
	Wildland Fire Management Options (fire use area, constraints, etc.)	X	X		X		X			X
	Maximum Manageable Area (MMA) (pre-planned or historic)	X			X					
	Response Areas (Direct Protection Areas)	X	X	X	X					
	Dispatch Locations	X	X							X
	Helibase/Helispots	X	X							
	Prescribed Burn Units	X				X	X			
	Wildland Urban Interface	X	X	X	X	X	X			X
	High-risk Ignition Areas (based on past occurrence, fuels, etc.)	X	X	X	X	X				
	Fire Occurrence Points (ignitions) (wildland & prescribed fire)	X				X	X			X
	Fire Perimeter Polygons (final) (wildland & prescribed fire)	X	X		X	X	X	X		X
	Fire Progression Polygons				X		X			
	Non-fire Treatment Areas	X			X	X	X	X		X
	Fuel Models	X	X	X	X	X	X	X		X
	Canopy Characteristics (tree ht., % canopy cov., canopy base ht.)	X			X	X	X	X		X
	Historic Fire Regimes	X			X	X	X	X		
	Fire Regime Condition Class	X				X	X			
	Fire Effects Monitoring Data (plots, georeferenced photos)	X			X	X	X			
	Other General and Research Plots	X			X	X	X			
	Burn Severity (imagery, grids, final perimeters)				X	X	X	X		
Facilities Data	Structures	X	X	X	X	X				
	Signs				X					
	Fences		X		X	X				
	Bridges		X		X					
	Culverts				X	X				
Natural Resources	Vegetation	X				X	X	X		
	Watersheds	X		X	X	X	X	X	X	
	Soils						X	X		
	Geology						X	X		
	Exotic Plants	X					X	X		
	Wilderness Boundary						X	X		X
	Wetlands						X	X		
Sensitive Resources	Archeological Sites	X	X		X	X	X	X		X
	Cultural Sites	X	X		X	X	X	X		X
	Sensitive Riparian Areas	X	X		X	X	X	X		X
	Airsheds (Class 1)	X			X	X		X	X	X
	Wildlife Breeding Habitat	X			X	X	X	X		X
	Vistas	X			X	X		X	X	X
	T&E Species and Critical Habitat	X	X		X	X	X	X		X
Safety Concerns (air,	HAZMAT		X	X	X	X	X	X		
	Mine Sites		X	X	X	X	X	X		
	Flight Routes/Restrictions		X		X				X	
	Power Lines		X		X	X		X	X	

LANDFIRE FUEL DATA VALIDATION, EDITING, AND UPDATING

Because LANDFIRE fuel data was developed for national and regional strategic decision making, it should be evaluated to see if it is appropriate for park or project level purposes or for use in making tactical decisions before it is used for these tactical purposes. Even if LANDFIRE data is not adequate as delivered for these purposes, it may be appropriate to use as a starting point for building good fuel data with input from local experts to aid in the editing and updating of the LANDFIRE data. This exhibit outlines one method of editing and updating LANDFIRE data for local and tactical use that has been found to be useful. Normally LANDFIRE data would be used in the form of a FARSITE landscape for supporting fire predictions; that is, after modifying LANDFIRE data it would normally be converted to a FARSITE landscape. However, the modified fuel layers are also useful for general fire, fuel treatment, and prescribed fire planning.

LANDFIRE data is delivered as GIS grid layers that include the following layers (as well as other layers not listed here):

- Surface Fuel Model (1-13)
- Surface Fuel Model (new 40 fuel model set)
- Tree Stand Height
- Percent Canopy Cover
- Canopy Bulk Density
- Height to Live Canopy Base

Of these layers, the most critical layers for fire behavior modeling that may need editing are the surface fuel model and the height to live canopy base. The surface fuel model is the primary driver for fire line intensity and spread rate, and the height to live canopy base (in conjunction with the surface fuel model) is the primary driver for transition to crown fire. Validation, editing, and updating can include factors other than these two, but these two are of primary importance. In general it is desirable to use the new 40 fuel model surface fuel model set as they are designed for year-round use (not just peak fire season) and handle live fuel moistures better than the original 13 fuel models. LANDFIRE does not currently have a mechanism for accepting, storing, and serving modified or updated layers. Therefore, it is important if the data is updated locally to have metadata written explaining how the updates were done. Also, to be useful, the data needs to be stored and served in a way that makes it known and available to potential users such as fire planners and incoming incident management teams. Two possibilities for providing accessibility are to put the data on external hard drives that are made available to users or on the NPS Data Store for web access.

Validation and Editing

For validating and editing the LANDFIRE surface fuel model, the following method has been found to be useful. This method can be used for a park (or preferably for a larger area such as an interagency fire planning unit).

- Load the LANDFIRE surface fuel model layer into a GIS.
- Load the LANDFIRE existing vegetation layer into the GIS.
- Set the color for all of the fuels to one color.
- Set the color for all of the existing vegetation to one color.
- Load ancillary data that will help local experts define the location of the various fuels and vegetation such as boundaries, roads, trails, streams, and other layers that would be helpful.
- Using an LCD projector and the LANDFIRE data in the GIS, project the vegetation data for the area of consideration with one vegetation type highlighted.
    - Based on local expert opinion and observed fire history from actual fires, determine if the selected vegetation type and associated LANDFIRE fuel model would appropriately model surface fire intensity and spread.
    - For each vegetation type and the associated surface fuel model, have the local fire behavior experts determine the set of environmental conditions (find dead fuel moisture/relative humidity, wind speed, and slope) that would cause a transition to crown fire.
        - Using Behave Plus or a tool like Nexus, determine the height to live canopy base that corresponds to transition to canopy fire with the given environmental conditions.
- If the assignments from LANDFIRE agree with local expert opinion, then move on to the next vegetation type, and if not, update surface fuel model and or height to live canopy base as needed.
    - Repeat for all vegetation types.
- NOTE: In some cases a single vegetation type may be a different fuel type and/or different height to live canopy base because of factors such as elevation or aspect. In those cases, update surface fuels and height to live canopy base including those other factors.
- Complete metadata explaining what was done, and make the data available to users who will need the data.

Updating

LANDFIRE data is based on remotely sensed imagery collected at a particular time (2001, for example). Either normal succession of plant communities or disturbances such as fires, hurricanes, or insect infestations can cause large changes in the vegetation and fuels characteristics of an area. The following is one method that can be used for updating LANDFIRE data.

- Overlay the LANDFIRE fuel and vegetation grids with a polygon showing the disturbed area.
    - For a fire that has remotely-sensed burn severity data, polygons can be created for each of the burn severities (low, medium, high) and each of these polygons can be treated separately.
- Working with local experts such as fire ecologists and fuel specialists, document the changes expected for each vegetation and/or fuel type within the disturbed area.
    - These changes should include at least surface fuel model and height to live canopy base (where there is an overstory of trees).
- Make changes to the layers as required.
- Complete metadata explaining what was done, and make the data available to users who will need the data.
- NOTE: In many cases regular updating will be required even in the absence of additional disturbances. Local experts should be consulted to determine when updates are likely to be required in the future based on expected plant succession and fuel modifications (such as dead trees falling to the ground), and a plan should be implemented to make these updates.

Further information about LANDFIRE can be obtained at http://www.landfire.gov.

COMMUNICATION AND EDUCATION

1 Introduction

The Fire Communication and Education Program is a key component of the National Park Service Fire Management Program. Facilitating, coordinating, and supporting proactive and coordinated communication with the National Park Service's internal and external audiences increases understanding and support for fire and fire management practices. A comprehensive communication and education program emphasizes the entire scope of wildland fire management activities, particularly the role of fire in ecosystems.

Communication and education needs vary depending on the specific program, the geographic area, and the stated objectives. The intent of this chapter is to accomplish the following:

1. Articulate the NPS commitment to communicate about wildland fire.
2. Present a brief overview of communication planning, crisis communication, and media relations (see sections 3–5).
3. Provide references and sample documents that can serve the fire community in the communication effort:
   Exhibit 1—*Tools, Templates, and Samples*
   Exhibit 2—*Memo: Release of Incident Information to the News Media and General Public*

To achieve a truly integrated interdisciplinary fire management program, communication is critical. Fire communication, education, and the dissemination of information regarding fire management is the responsibility of a wide variety of employees within and outside of fire management at the park, zone, fire planning unit, regional, and national levels. Every function within the program has communication responsibilities. The complexity of wildland fire management in the twenty-first century requires commitment to communicating and educating the public. Doing so improves the ability to preserve, protect, and restore National Park Service resources, and enables the manager to achieve the highest priority, firefighter and public safety.

Historically in the interagency fire community, wildland fire communication and education has focused on fire prevention and education efforts to achieve the goal of preventing unwanted human-caused fires. Prevention of unwanted human-caused fires remains one of the important goals of the wildland fire management program, both in the interagency community and within the National Park Service. Prevention and education should be included in a programmatic communication plan, which is addressed in section 3,

Communication Planning. Additional guidance on prevention planning, analysis, and traditional prevention and education activities may be found in the chapters on Fire Management Plans and Wildland Fire Prevention in *Reference Manual 18*.

The need for programmatic communication is not unique to wildland fire management. Practitioners should refer to Director's Orders and Reference Manuals that address Interpretation and Education (*DO 6*); Web Publishing (*DO 11C*); Communicating the National Park Service Mission (*DO 52A*); Civic Engagement and Public Involvement (*DO 75A*), and others, as applicable.

Volumes of information about communication are available, but key guides recommended for fire management programs include the following:

- *National Wildfire Coordinating Group Communicator's Guide for Wildland Fire Management: Fire Education, Prevention, and Mitigation Practices.*
  A publication of the National Wildfire Coordinating Group Wildland Fire Education Working Team, this guide was developed to address similar needs in fire management programs across the land management agencies.
- *Communicators Guide—For Federal, State, Regional, and Local Communicators.*
  This guide is produced by the Federal Communicators Network.

Incident and project related communication efforts are essential. In addition, implementation of broad programmatic communication and education efforts enhances public support and understanding of fire management actions. A comprehensive, well planned, and interdisciplinary communication and education program facilitates and enhances the entire wildland fire program at all levels of the National Park Service.

2 Responsibilities

2.1 National Level

Responsibilities at the national level include the following:

- Overseeing the NPS Fire Communication and Education Program and the day-to-day administration.
- Identifying and supporting Service-wide priorities and fire management initiatives.
- Serving as an advocate for fire communication and education programs, media development, and comprehensive fire communication planning throughout the Service.

- Providing interdisciplinary coordination with other Service-wide programs relative to fire management.
- Serving as a member of an interagency team to direct fire communication, education, and information at the national level.

2.2 Regional Level

Responsibilities at the regional level include the following:

- Serving as a resource to the parks in the region and coordinating all matters relating to fire communication and education.
- Serving as an advocate for integrated programs within the region.
- Seeking interdisciplinary coordination with other regional programs relative to fire communication and education in the parks.
- Assisting parks in using ongoing communication and education strategies, consultation, and collaboration to enhance fire management programs.
- Assisting parks in compliance with Department of the Interior and Service-wide communication policies and standards.
- Identifying regional fire communication and education priorities and initiatives.

2.3 Park Level

Responsibilities at the park level include the following:

- Creating, planning, and managing a fire communication and education program that fosters an ongoing dialogue with the public to accomplish park fire management objectives and support regional and national goals.
- Making effective decisions about delivery of messages including the use and balance of personal and non-personal services and appropriate media.
- Creating and prioritizing an annual plan of work to accomplish goals and objectives outlined in the park's fire management plan.
- Providing an ongoing evaluation of all park-level fire communication and education services to ascertain effectiveness with varied audiences.

3 Communication Planning

There are a variety of wildland fire management communication needs, including communication on wildland fire use, education, prevention, mitigation, and suppression efforts. A unit may not require planning for every one of these areas; hence this section is designed to provide an outline of key concepts that may be included in any communication plan, including fire situations.

The key concepts of a fire communication plan include the following:

- Situation Analysis
- Objectives
- Audiences
- Messages
- Strategies
- Tactics
- Timeline
- Evaluation
- Budget

Communication plan styles may vary depending upon the desired results, programmatic needs, immediacy of the event, and what works for the individual or group involved. While the style and/or goal of the plan may be different in each situation, the principles of communication planning remain the same. Overall, a clear plan enhances communication efforts by providing a road map to focus on the important issues and by ensuring a consistent message and delivery to key audiences. Systematic communication planning is essential for wildland fire messages to become heard and acted upon, and to build support for fire management policies and practices. Building rapport and trust takes time, and with time the credibility of the organization will follow.

3.1 Situation Analysis

The Situation Analysis presents what is known about the current environment in which outreach will be conducted, including social, economic, and related factors, and the expected goal for outreach.

For example, when developing a plan to communicate with residents about a prescribed burn in their area, provide an overview of the community and background on how residents might view the project. Has there been a large fire recently that caused heightened concern? Have residents been vocal about prescribed burns in the past? Are they educated about the need for a prescribed burn? Is smoke management an issue?

Consider the following factors when preparing a situation analysis:

- *Audience Analysis:* General analysis of target audiences.
- *Social Data:* What is the pulse of the affected community?
- *Political Data:* What are the federal, state, and local legal guidelines, organizational and agency missions, and local community concerns?

- *Economic Data:* What are the real and perceived economic impacts of fire events?
- *Organization Data:* What knowledge and skill sets are needed to communicate the issues?
- *Ecological Data:* What is known about the ecological history of the ecosystem, including the historical fire regimes?

Data should not be equated with knowledge or understanding of the situation. Data only becomes information after it is synthesized within the context of the bigger questions.

3.2 Objectives

The objectives outline exactly what the plan aims to accomplish. Objectives should be specific and measurable, which also helps in gauging the success of the implementation efforts.

Example objectives:

1. Increase community awareness about the long-term benefits of prescribed burns by 25 percent over a two-year period.
2. Generate support from community leaders, elected officials, and other influencers in fire management planning efforts.
3. Increase website traffic from 20,000 to 25,000 visitors per month by fiscal year-end.

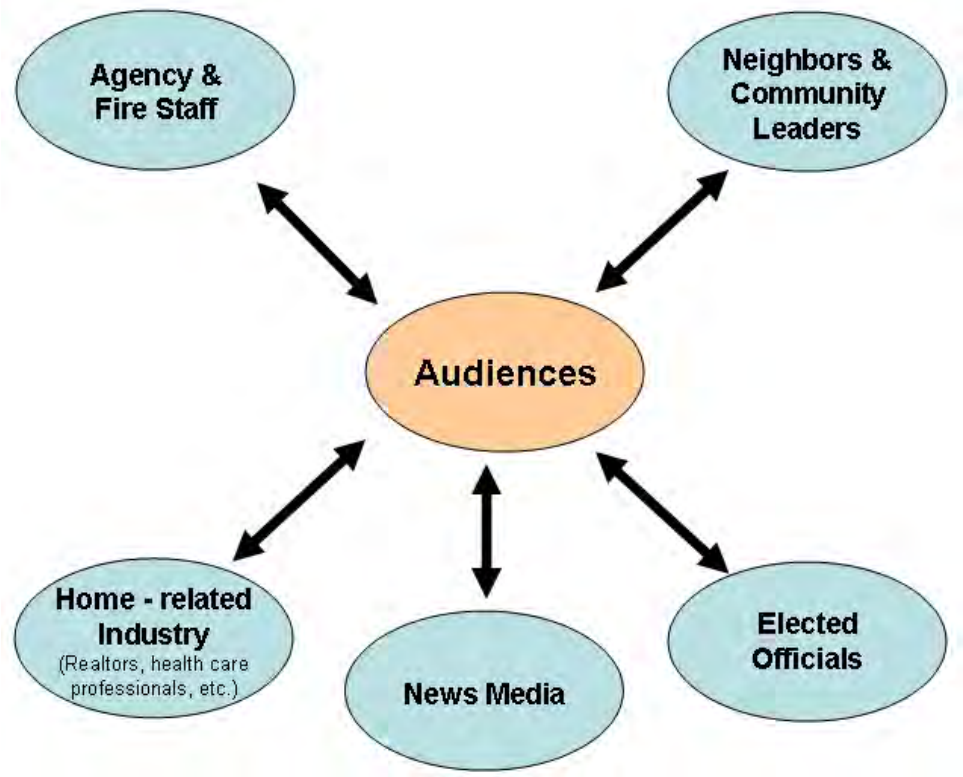
3.3 Audiences

Defining the audience(s) is one of the most important elements of communication planning. Every group or organization that might be affected by the fire management activity should be identified to ensure communication is appropriate for that audience.

Consider both internal and external audiences, as well as the people who influence those audiences. To ensure consistent communication with *external* audiences, be sure to communicate with the *internal* audiences as well. Interdisciplinary understanding of the fire management program within the National Park Service will have a ripple effect within and outside of the agency.

Figure 1 depicts key audiences that may be identified in wildland fire communication planning.

FIGURE 1. Key Audiences for a Fire Communication Plan



Surround key audiences with desired messages, and encourage dialogue with the park and fire management staff and among their own circles.

3.4 Messages

The cornerstone of any communication effort is a set of consistent, compelling messages for use in all proactive and reactive communication. Messages should be actionable where appropriate so that, in addition to educating, they will motivate the audiences to act on what they have learned.

Key messages are general concepts that can be incorporated into discussions, print materials, and other resources used in communication, education, information, and prevention efforts. Key messages are umbrella statements that require additional supporting points and examples for context.

Supporting points provide detail for the key messages and enable individuals to further explain the identified topic.

For example, the National Wildfire Coordinating Group (NWCG) Wildland Fire Education Working Team (WFEWT) has developed a set of core messages for

agencies to use in communicating the role of wildland fire. These messages have been through an extensive interagency development and review process, and have been approved by the NWCG:

- Wildland fire is an essential, natural process.
- Society's influence has altered historic fire cycles, leading to a dangerous and difficult buildup of vegetation in the wildland.
- Land management agencies are committed to a balanced fire program that will reduce risks and realize benefits of fire.
- Improving the health of the land and reducing risks to communities requires partnerships among federal and state agencies, tribal governments, fire departments, communities, and landowners.
- Public education is necessary to the success of fire management programs.

The complete messages, along with supporting points, are available online at the WFEWT website.

3.5 Strategies

Strategies define the general path to reach the identified objectives without providing specific directions. Strategies should tie directly back to objectives. Tactics identify the specifics of exactly how strategies will be implemented.

3.6 Tactics

Tactics are the specific activities needed to implement the plan. Each tactic should directly relate to the strategies and support the objectives. The tactics section should be detailed, and it can be organized to describe different tactics for each audience. Be as creative as possible with tactics, and consider the audiences and how they may be influenced.

3.7 Action Plan and/or Timeline

An Action Plan or Timeline ensures that the implementation of the plan stays on schedule and meets predetermined deadlines.

3.8 Evaluation

Establish a plan for measuring the success of the communication effort. Refer back to the objectives to determine what evaluation tactics will be necessary. The evaluation stage can range from basic to complex, depending on the scope of the project. The findings of the evaluation can improve the selection and implementation of future program strategies and tactics.

3.9 Budget

Budget planning can take place at the beginning of the communication planning process or after determination of what needs to be accomplished. Set priorities in the plan and allow for flexibility should there be funding limitations.

4 Crisis Communication

A *communication crisis* is often defined as an unplanned event that triggers a real, perceived, or possible threat to life, health and safety, the environment, financial status, or the organization's credibility. Crises in fire management can occur, and it is best to be prepared with a communication response plan before an actual event occurs. When a crisis occurs, it may be difficult to develop a communication plan initially. A plan should be developed, however, even if it is after the fact, in order to document communication response. In the unfortunate event of an accident, injury, fatality, or situation that warrants an investigation, refer to NPS policies that address Line of Duty Death (LODD), Serious Accident Investigations, and Law Enforcement Protocol.

4.1 Elements of a Crisis

The following elements are typical of a crisis:

- Crises happen with little or no warning; only in retrospect do little pieces of information start to add up.
- There is little or no information, especially in initial stages.
- During the initial stages, available information is contradictory, incomplete, or will change completely.
- Communication tools will probably not function properly.
- There may be physical damage or personal injury.
- There will be much confusion.

Crisis communication fails for the following reasons:

- They are not employed quickly enough. The first 24 hours are critical, and the first 2 hours are the most critical.
- They inadvertently prolong the crisis by failing to address it head on or by belatedly addressing the real issue, which is often being framed by the media and/or by critics.

4.2 Crisis Communication

In an immediate fire crisis, address the ABCs of communicating the basic crisis message:

A. Tell the audience fire managers recognize (or better yet, are the first in alerting them about) the problem.
B. Tell them the park cares about the impacts on them.
C. Tell them what park managers are going to do to help mitigate these impacts.

Generally news reports are restricted to tight time slots and sound bites. However, each fire crisis is a window of opportunity for opening in-depth dialogues with audiences about the issue at hand.

4.2.1 Two Goals of a Crisis Communication Plan

1. Control communication: Employ the front door strategy.
   Successful organizations adopt the simple premise that open, accurate, and direct communication with the media is the most effective way to share information with the public, build trust, and prevent the spread of misinformation: “Come in the front door and you will get complete cooperation—that is, we'll give you all you need to know as quickly as we know it.” Otherwise, if an organization closes the front door to the media, the media will try to get the information through a side window or a back door, and information obtained in that manner may be inaccurate and potentially damaging. An organization that allows this to happen loses credibility with the media and ultimately the public. In a crisis situation, define the issue quickly and accurately. Likewise, release the information (even if it is minimal) quickly and accurately.

   Knowledge of the questions frequently asked in a crisis situation may assist in organizing and responding in an expedient manner:

   - Who was involved? (*Caution*: If the crisis involved an injury, fatalities, or potential investigation, obtain approval prior to releasing the names of those involved).
   - What happened?
   - When?
   - Where?
   - Why? What was the cause?
   - How could you have allowed this to happen?
   - What are you going to do about it?
   - How much damage is there?

- Who is to blame? (*Caution*: Recognize this question will be asked, but there may in fact be no responsible party and/or answering the question may be inappropriate if the incident warrants an investigation).
- Do you accept responsibility? Liability?
- Has this ever happened before?
- What do you have to say to those who were injured? Inconvenienced?
- How does this affect your operations?
- What's next? (Timeline of events to occur).
- When will we know more? (Timeline of information releases to follow).

2. Restore order as smoothly and quickly as possible.
   During a crisis, communication can become unruly. The best way to restore order quickly is to remember to *get help and get it early.* Do not hesitate to ask for help—effective communication early on in the crisis will have a critical impact in the long term. Negative communication will preoccupy efforts, whereas positive and sincere efforts will reflect well on the park, region, or the Service.

   Therefore, take the following steps:

   - Anticipate rather then merely react to crisis.
   - Anticipate how the media might play a story so that the park can be ready to immediately respond or to announce information in a timely manner.
   - Prepare for the issue to shift quickly—for example, from a safety violation to a history of cover-ups of poor management practices.

4.2.2 Remember What the Media Can Do For You in a Crisis

The media can play a helpful role in efficiently and effectively disseminating information in the following ways:

- Assisting in pre-crisis education.
- Warning audience of situation(s).
- Getting requests or information to the public.
- Reassuring the public.
- Repudiating rumors.
- Helping the response.
- Being a source of information for the staff.
- Generating outside help.

5 Media Relations

The news media are valuable partners in sharing fire management news with the public. If the park has a public affairs officer who is available to assist in generating awareness of the fire management program, be sure to coordinate with him or her and work within the park's specific media guidelines and protocol. Communicating with viewers, readers, and listeners through the news media and establishing the park and the park's fire management program as a reliable source of information is an excellent way to educate and generate awareness of the fire management program.

In the age of "24/7" news, the media environment is ever-changing. There is a wealth of information available for enhancing an organization's media relations efforts. The following sections provide a media overview, news writing tips, and information on press kits.

5.1 Media Overview

Working effectively with the media requires knowledge and understanding of media tools, processes, constraints, and limitations.

5.1.1 General Guidelines

These guidelines should be followed when working with the media:

- *Be concise* when contacting media. The nature of the news business leaves reporters and editors on very tight schedules. Explain the event in 30 seconds and offer to e-mail or fax a media advisory.
- *Acknowledge deadlines* and what times a station airs its newscasts or a newspaper goes to print. While specific times vary, it is generally best to contact the media before 3 p.m.
- *Don't become a nuisance*. Once a reporter or editor has been contacted and has received the advisory, there is no need to call again unless there are changes.
- *Provide equal access.* Release the same information at the same time to everyone. Being labeled as a source that "plays favorites" damages credibility. The exceptions to this rule are when reporters call on their own initiative and want to do a story on a particular aspect of fire management, or when there is a story idea that fits a specific media outlet.
- *Encourage and facilitate site visits* by reporters so they can see fire management techniques that are being or have been applied. Be sure to include the appropriate escorts, safety briefing, and direction on personal protective equipment. More information on this topic may be

found in the annually revised *Interagency Standards for Fire and Fire Aviation Operations*.

- *Coordinate responses.* If the fire management program is currently facing any controversies that have caused backlash from media or the community, be sure to coordinate responses with the appropriate park, regional, and national offices prior to releasing any information.

5.1.2 Interview Guidelines

These guidelines should be followed when arranging, preparing for, and taking part in an interview.

Arranging an Interview

When a station or newspaper contacts the park to arrange an interview, tell the reporter that having as much information as possible to prepare would be helpful. Ask the reporter the following questions:

- What is the name of the person who will likely be conducting the interview?
- Will the interview take place via phone, or in person?
- Is it preferable that the interview takes place in the studio or at the newspaper, or can the interview occur at a site related to fire management activity?
- What date and time will the interview be?
- How long will the interview last?
- What story angle will be explored?
- What kinds of questions are expected?
- *TV/radio only*: Will the interview be live or taped?
- *TV/radio only*: What time will they start taping/go on air?

Before the Interview

- Know the reporter, publication or program, interview format, and audience.
- Know the goal for the interview. What should the interview accomplish?
- Know what you want to say; prepare key message points.
- Imagine what questions the reporter will likely ask, and then write down the appropriate answers. Be sure to work in the prepared message points.
- Prepare a range of potential questions that may be asked. Anticipate difficult questions.

Interview Tips—General

- Speak in "headlines." Offer a conclusion first, briefly and directly, and back it with facts or "proof points."
- Don't over answer. Short answers are better than long.
- Don't be confined by the question. Expand to a related point.
- Asked about a problem? Talk about a solution.
- Don't let false statements or figures offered by a reporter stand uncorrected.
- Don't repeat a reporter's negative statements or slurs. Frame the reply as a positive statement.
- Don't engage in hypothetical situations and "A or B" dilemmas. Only comment on actual situations.
- Speak clearly. Avoid jargon.
- Be engaging, likable.
- Don't know the answer? Don't fake it. If appropriate, assure the reporter you will find and provide the needed facts in a timely manner, or offer to assist the reporter in finding another source.
- Don't interrupt the interviewer's question; begin the answer when the reporter is finished.
- Keep cool. Don't be provoked.
- Never lie to a reporter.
- Do not speak "off the record." Reporters are not obligated to refrain from publishing any information that has been shared, regardless of the nature of the conversation. Don't share information with a reporter that the park would not be comfortable seeing in print or on the air.
- Do not say "no comment." Let the reporter know that you are not in the position to respond to certain questions so that "no comment" does not become the sound bite on the evening news. Offer a brief explanation, such as "The fire is currently under investigation" or "We are not in a position to provide details at this time."

Tips for Telephone Interviews

- Establish an "interview atmosphere" and mind-set.
- Use notes.
- Ask questions in order to gain feedback.
- For radio, speak visually; use words to paint pictures.

Tips for Television Interviews

- Sit erect, but not ramrod-straight, slightly forward in the chair.
- Resist the urge to shout into the microphone. Speak and gesture naturally.
- Talk to the interviewer and look at him or her, not the camera.
- Keep a pleasant expression; smile when appropriate.

- Hold an "interview attitude" from the moment the reporter and videographer arrive until they leave.

5.2 News Writing

There are several distinct tools used in news writing; this section addresses news releases, media advisories, and fact sheets.

5.2.1 News Releases

The news release is the tool most commonly used to generate news media interest in policies, programs, and activities. The purpose of a news release is to disseminate information. News releases should be well-written, informative, interesting, and brief. The content should be timely and newsworthy.

As a news release is being prepared, use the five "W's" and the "H" to organize and present thoughts:

1. *Who* is involved, who said or did something, to whom did something happen?
2. *What* was said or done or will happen?
3. *When* did or will the story/event take place?
4. *Where* did or will it take place?
5. *Why* did or will it happen?
6. *How* did or will it happen?

The order in which these facts appear depends on their importance in the story—the most critical go first. Avoid bureaucratic or technical jargon. Use small words rather than big ones.

The news release should be formatted according to the specifications of the park and should follow the park's distribution and approval policy. Appropriate approval is frequently required before releasing any information to the media.

A Note on Written Style
When preparing written materials, be sure to consult a style manual to ensure consistency. Several options follow:

U.S. Government Printing Office Style Manual. An excerpt from the Government Printing Office (GPO) website states, "By act of Congress the Public Printer of the U.S. Government Printing Office is authorized to determine the form and style of Government printing. The Style Manual is

the product of many years of public printing experience, and its rules are based on principles of good usage and custom in the printing trade. The Style Manual has served Federal printers since 1894, and with this 29th edition, the traditions of printing and graphic arts are carried forward into new technologies."

AP Stylebook. Perhaps the most universal style manual among news media and communication specialists, the *AP Stylebook* offers guidelines on spelling, usage, grammar, and punctuation.

The New York Times Manual of Style and Usage. Similar to the *AP Stylebook*, this manual offers guidelines on spelling, usage, grammar, and punctuation. It is available at bookstores.

5.2.2 Media Advisories

The media advisory is used as an invitation to encourage media to cover press conferences, media days, show-me tours, or special events. The media advisory should be kept to one page, and should answer the following questions about the event:

- *What* will happen at the event? Write a brief description of the event.
- *Who* will be present? List speakers, special guests, and any other key participants in the event. Be sure to include correct spellings of names along with appropriate titles.
- *When* it will take place? (date and time)
- *Where* it will take place? (including address, city, state, and any other pertinent details)
- *Why* it is happening? Write a few words explaining the importance of the event. Why should the reporter want to come to it?
- *Story angles* that may interest media. Be sure to include any special photo or interview opportunities, tips, or "news you can use" information.
- *Contacts* for media to call for more information. Be sure to include a cell phone number and e-mail address.

The advisory should be distributed two or three days prior to the event. Follow up by phone the day before the event and/or the morning of the event to encourage attendance.

5.2.3 Fact Sheets

A fact sheet is a simple, cost-effective method for sharing information about a specific topic. Often one or two pages and printed on an 8½" x 11" sheet of paper, a fact sheet can lay out the details of an issue or activity. Fact sheets also can be e-mailed as Microsoft Word or PDF files for immediate distribution. When developing fact sheets that may be shared electronically, convert them to PDF or use a Windows product such as Microsoft Word that most people are able to access.

5.3 Press Kit, Press Package, or Information Package

While the name implies a package focused solely on the media, a press kit is simply a packet of information. In fact, a "press kit" can be used as an informational folder for special events, briefings, or dignitary visits. Press kits present recipients with accurate information and key messages provided by the park, regional, or national office.

The contents of the information packet may include park and/or fire management history and accomplishments; profiles of key positions (i.e., burn boss, fire management officer, etc.); fact sheets; recent press releases; brochures; newsletters; website locations for additional information; business card and/or contact information; and photos in either hard copy or digitally on a CD.

Tips for a Quick Package

- Presentation is critical. The package need not be fancy, but it does need to be organized and concise. (More information may only serve to overwhelm the reader).
- Use a standard pocket folder to hold all information.
- Identify the press kit in some manner (adhesive sticker, illustrative photo stapled to the cover, etc.).
- Assemble all the information in a logical order. Consider a Table of Contents for the left and right side pockets which details the information found within the respective pockets.
- Insert a general park or an individual's business card in the slits of the pocket folder (if pre-cut slits exist), or staple the card to the folder pocket.
- Maintain general press kits on hand at the office so information is available to every news outlet and when significant visits occur.

5.4 News Conferences

News conferences provide an opportunity to share important information with multiple media sources at once. However, use news conferences sparingly and

limit them to important “hard news” subjects. The following are other tips to consider:

- The best time to hold a news conference is between 10:00 a.m. and noon. This helps ensure that most reporters meet their deadlines.
- Avoid weekends, Mondays, and Fridays as many media outlets are short-staffed on those days. Midweek days will usually provide better exposure for a message.
- Write a media advisory to announce the date; time, location, and subject of the news conference (see section on Media Advisories). However, do not disclose details about the subject being discussed because the media may use that information to write the story and skip the news conference. If a reporter calls and wants to talk about the topic before the news conference, politely refuse. If the story appears in one media outlet before the news conference, the rest of the media are less likely to attend.

6 Tools, Resources, and References

There are many documents and tools available to assist with fire communication and education, depending on the need. Below is a short listing of documents and other resources. The actual URLs are provided in appendix 1 as web links:

- *Agency Administrator’s Guide to Critical Incident Management*
- *A Guide to Successful Media Interviews*
- *Department of the Interior Interagency Memo, Interagency Media Guidelines for Wildland Fire, dated April 13, 2004*
- *Director’s Order 50B: Occupational Safety and Health Program* (currently undergoing revisions)
- *Firewise Communities Communication Guide*
- *Harpers Ferry Center Editorial Style Guide*
- *Incident Response Pocket Guide*
- Information Officer Toolbox
- *Interagency Standards for Fire and Fire Aviation Operations*

- Lessons Learned Website
  - Lessons Learned Center Library—Fire Education
  - Lessons Learned Wildland Fire Use Toolbox

- *Line of Duty Death Protocol*

- National Park Service Graphic Identity Program

- *National Park Service Memo—Release of Incident Information to the News Media and General Public, dated June 13, 2006*

- NWCG Wildland Fire Education Working Team
  - *Best Practices—Communication Planning* (Wildland Fire Education Working Team)
  - Electronic Bibliography of Wildland Fire Websites
  - Interagency Wildland Fire Key Messages

Exhibit 1

TOOLS, TEMPLATES, AND SAMPLES

There are many good examples of communication plans, strategies, and other guides that have been developed throughout the National Park Service in support of all types of fire and fuels management. Several plans have been placed on InsideNPS Fire to serve as an example and assist fire staff and Public Information Officers (PIO) in developing their own documents.

- ***Sample Information and Education Strategy***
  Source: Sequoia and Kings Canyon National Parks
  Last Update: January 2007

- ***Sample Fire Information Planning Worksheet***
  Source: Sequoia and Kings Canyon National Parks
  Last Update: January 2007

- ***Sample Public Information Officer Step Up Plan***
  Source: Alaska Regional Office
  Last Update: November 2006

- ***Sample Serious Accident Investigation Team (SAIT) Communication Plan***
  Source: WASO
  Last Update: June 2006

- ***Sample Fire Information Officer Resource Guide***
  Source: Midwest Regional Office
  Last Update: March 2007

- ***Sample Smoke Communication Strategy***
  Source: Yosemite National Park
  Last Update: 2006

Exhibit 2

United States Department of the Interior

NATIONAL PARK SERVICE
1849 C Street, N.W.
Washington, D.C. 20240

IN REPLY REFER TO:
A7623 (2400)

June 13, 2006

Memorandum

To: Regional Directors
Attn: Superintendents

From: Deputy Director, Operations **/s/ Steve Martin**

Subject: Release of Incident Information to the News Media and General Public

Purpose

This memorandum provides National Park Service (NPS) employees with guidance and direction regarding the release of incident information to the news media and general public. It specifically addresses which types of information may be released during, and shortly after, the occurrence of an NPS incident. This memorandum will serve as an interim policy until the completion of Director's Order 75-B, Media Relations.

Policy

The NPS takes its responsibility to protect the personal privacy of its visitors and employees very seriously. At the same time, the importance of providing appropriate, legal, and adequate information to the news media and general public is critical. After recent consultation with the Solicitor's Office, a legal determination has been made that certain information regarding NPS incidents is releasable under specific circumstances.

The NPS will provide pertinent information to the news media and general public in accordance with applicable laws, policies, and regulations. The NPS recognizes the public's legal rights to obtain information about government operations and activities. These rights are outlined in the Freedom of Information Act (FOIA), 5 U.S.C. § 552 and further influenced by provisions of the Privacy Act, 5 U.S.C. § 552a. Nothing in this memorandum changes existing NPS guidelines for processing FOIA requests or other information protected by the Privacy Act.

There are situations where it would be inappropriate to disclose information in the absence of a formal request. It is important for employees to exercise careful judgment in such instances and to request guidance from their FOIA/Privacy Act officer and/or the Solicitor's Office whenever questions about information release arise.

Exhibit 2

Responsibility
Regional Directors and Superintendents are responsible for ensuring that employees disseminating public information within their areas of responsibility are aware of the laws, policies, and regulations governing information release. When practicable, one person/office should be designated as the point of contact for the purposes of releasing information about NPS incidents.

Affirmative Incident Information Disclosures
Employees with personal knowledge of an incident (e.g., ranger that participates in a rescue effort; employee at the scene of a disaster, etc.) may disclose certain incident information as long as the information is not derived from a document or information contained in an official Privacy Act System of Records (e.g. official report). This information may be passed on to another employee (e.g., public affairs officer or park spokesperson) for release and dissemination to the media and general public. Information released under these circumstances should take place as the incident is occurring or shortly thereafter.

Criminal Incident Considerations
Because of the unique sensitivities surrounding law enforcement investigations and criminal cases, information may not be releasable due to varying factors. Employees should also be aware that when criminal complaints or other documents are filed with a court of law, information within those complaints is normally public record. The media is aware of this and should be directed to the court to obtain the information from those documents.

Employees should ensure that they use caution when describing the circumstances relating to criminal cases. Anyone arrested for a criminal violation is innocent until proven guilty and all statements pertaining to a person's criminal activities should be prefaced with "alleged" unless a judge/jury has issued a guilty verdict on the criminal charge(s). At no time should witness information be given out. Questions about release of information regarding law enforcement investigations should be directed to the park or regional senior law enforcement officer.

Information Disclosures – Emergent Circumstances
Information may be released regarding any person (including juveniles) when the media/public's assistance is necessary to either: 1) locate the person or, 2) warn the public of possible danger (e.g., dangerous criminal). Under these circumstances, information regarding the person's name, age, appearance, clothing worn, location/time last seen, alleged criminal activity, etc., should be disseminated as quickly as possible.

Releasable/Non-releasable Information
After taking these considerations into account, the following types of information may be released. If there are doubts as to the releasability of the information, it should not be disseminated publicly.

Releasable Information:
1. Names, ages, and hometowns of the individuals involved in the incident.
2. Relevant details pertaining to the incident.
3. Names of fatality victims whose next of kin have been notified, including juveniles.
4. Description of lost, stolen, or missing property.
5. Criminal charges if applicable.

Non-Releasable Information:
1. Names of fatally or seriously injured victims whose next of kin have not been notified.
2. Names of juveniles charged with criminal offenses.

3. Names of victims of sexual assaults.
4. Names of people or witnesses who may become victims of crimes or retaliation in the future.
5. Information on incidents where criminal action is still under investigation and information released could hinder or adversely affect the investigation.
6. Investigative information that goes beyond general incident reporting.
7. Explicit details, including graphic photos or images of extreme injuries or brutal fatalities.
8. Home addresses, telephone numbers, and social security numbers.

cc: Associate Regional Directors, Operations
Chief, Communications and Public Affairs

APPENDIX 1

WEB LINKS

These tables list links in order as they appear in the document. Repetitious links within a chapter are omitted.

Chapter 1: Introduction

Reference	Website
Interagency Standards for Fire and Fire Aviation Operations	http://www.nifc.gov/policies/red_book.htm
Interagency Incident Business Management Handbook (IIBMH)	http://www.nwcg.gov/pms/pubs/IIBMH2/iibmh.pdf
National Park Service Morning Report	http://www.nps.gov/morningreport/
Federal Wildland Fire Management Policy (January 2001)	http://www.nifc.gov/fire_policy/
United States Department of the Interior, Departmental Manual	http://elips.doi.gov/app_home/index.cfm?fuseaction=home
The National Park Service Management Policies (August 31, 2006)	http://www.nps.gov/policy/MP2006.pdf
Director's Order 18	http://data2.itc.nps.gov/npspolicy/DOrders.cfm
Review and Update of the 1995 Federal Wildland Fire Policy (January 2001)	http://www.nifc.gov/fire_policy/history/index.htm
Interagency Strategy for Implementation of Federal Wildland Fire Policy (June 2003)	http://www.nifc.gov/fire_policy/pdf/strategy.pdf
National Interagency Mobilization Guide	http://www.nifc.gov/nicc/mobguide/index.html
Interagency Incident Business Management Handbook	http://www.nwcg.gov/teams/ibpwt/documents/index.htm

Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide	http://www.nifc.gov/fire_policy/rx/rxfireguide.pdf
Wildland Fire Use Implementation Procedures Reference Guide	http://www.nifc.gov/fire_policy/pdf/wildland_fire_use_guide.pdf
Interagency Fire Program Management Qualifications Standards and Guide	http://www.ifpm.nifc.gov/documents/IFPM_White_Paper.pdf
Quadrennial Fire and Fuel Review Report	http://www.nafri.gov/Assets/QFFR_Final_Report_July_19_2005.pdf

Chapter 2: Response to Wildland Fire

Reference	**Website**
Interagency Standards for Fire and Fire Aviation Operations	http://www.nifc.gov/policies/red_book.htm
Wildland Fire Use Implementation Procedures Reference Guide	http://www.nifc.gov/fire_policy/pdf/wildland_fire_use_guide.pdf
Wildland Fire Qualification System Guide	http://www.nwcg.gov/pms/docs/PMS310-1.pdf
National Interagency Mobilization Guide	http://www.nifc.gov/nicc/mobguide/index.html
Annual Financial Management Guide	http://inside.nps.gov/waso/custommenu.cfm?lv=4&prg=890&id=3323
Agency Administrator Guide for Wildland Fire Decision Making	http://gacc.nifc.gov/swcc/administrative/policy_reports/aa_guidelines/swa_aa_guidelines.htm
DO 60, Aviation Management	http://data2.itc.nps.gov/npspolicy/DOrders.cfm
Incident Status Summary (ICS-209)	http://www.nwcg.gov/pms/forms/ics209p1.pdf

Chapter 3: Standards for Operations and Safety

Reference	**Website**
Federal Wildland Fire Management Policy	http://www.nifc.gov/fire_policy/
Incident Response Pocket Guide	http://www.nwcg.gov/pms/pubs/nfes1077/nfes1077.pdf
Interagency Standards for Fire and Fire Aviation Operations	http://www.nifc.gov/policies/red_book.htm

Reference Manual 50B, Occupational Safety and Health	http://www.nps.gov/policy/DOrders/DO50BRM.doc
Safety Management Information System (SMIS)	http://www.smis.doi.gov/
Reference Manual 50B, Occupational Safety and Health	http://data2.itc.nps.gov/npspolicy/DOrders.cfm

Chapter 4: Fire Management Plans

Reference	**Website**
2002 Interagency Fire Management Plan Template (July 11, 2002)	TBD
Director's Order 12, Conservation Planning, Environmental Impact Analysis, and Decision Making	http://data2.itc.nps.gov/npspolicy/DOrders.cfm
DO 12 Handbook for Environmental Impact Analysis	http://data2.itc.nps.gov/npspolicy/DOrders.cfm

Chapter 5: Preparedness

Reference	**Website**
Interagency Standards for Fire and Fire Aviation Operations	http://www.nifc.gov/policies/red_book.htm
Interagency Preparedness Review Checklists	http://www.nifc.gov/policies/preparedness_reviews/checklists.htm

Chapter 6: Wildland Fire Prevention

Reference	Website
Interagency Standards for Fire and Fire Aviation Operations	http://www.nifc.gov/policies/red_book.htm
Risk Assessment and Mitigation Strategies (RAMS)	http://www.nifc.blm.gov/nsdu/fire_planning/rams/
National Park Service Wildland Fire Prevention Handbook (1991)	NOTE: This handbook is currently available only as a hard copy; however, it is scheduled to be revised. When the revision is completed, the handbook will be available on the web and the website will be provided here.
NWCG Publications Website	http://www.nwcg.gov./pms/pubs/pubs.htm
NWCG publication Wildfire Origin & Cause Determination Handbook	http://www.nwcg.gov/pms/pubs/nfes1874/nfes1874.pdf
Electronic Code of Federal Regulations (CFR), Title 36: Parks, Forests and Public Property	http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?sid=e78176ebe02247d017c036a950b42739&c=ecfr&tpl=/ecfrbrowse/Title36/36tab_02.tpl
National Interagency Mobilization Guide, Administrative Procedures chapter	http://www.nifc.gov/nicc/mobguide/Chapter20.pdf
National Interagency Mobilization Guide, Overhead/Crews chapter	http://www.nifc.gov/nicc/mobguide/Chapter60.pdf
USDA Forest Service Manual, Title 3100, Cooperative Fire Protection	http://www.fs.fed.us/im/directives/fsm/3100/3110.txt
USDA Forest Service Handbook, 5109.18, chapter 20, Smokey Bear Program	http://www.fs.fed.us/im/directives/fsh/5109.18/5109.18_20.txt
SmokeyBear.com	http://www.smokeybear.com
National Symbols Program	www.symbols.gov
Firewise Communities	www.firewise.org

Chapter 7: Fuels Management

Reference	Website
Interagency Prescribed Fire Policy Planning and Implementation Guide	http://www.nifc.gov/fire_policy/rx/rxfireguide.pdf
Handbook for Environmental Impact Analysis or *DO 12 Handbook*	http://www.nps.gov/policy/DOrders/RM12.pdf
Environmental Statement Memorandum 03-2 (ESM03-2)	http://oepc.doi.gov/memo.cfm?type=ESM
A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan	http://www.forestsandrangelands.gov/plan/documents/10-YearStrategyFinal_Dec2006.pdf
Incident Response Pocket Guide	http://www.nwcg.gov/pms/pubs/nfes1077/nfes1077.pdf
Interagency Standards for Fire and Fire Aviation Operations	http://www.nifc.gov/policies/red_book.htm
USDA Forest Service Job Hazard Analysis	http://www.fs.fed.us/r1/people/jha/jha_index_www.html
Occupational Health and Safety Administration Job Hazard Analysis	http://www.osha.gov/Publications/osha3071.pdf
NIFC Fire Program Review website	http://www.nifc.gov/policies/preparedness_reviews/checklists.htm
International Urban-Wildland Interface Code (2006)	Not Available online.
NPS Wildland Fire Management Budget - Business Rules	http://inside.nps.gov/waso/custommenu.cfm?lv=4&prg=890&id=3323
Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide (2006)	http://www.nifc.gov/fire_policy/rx/rxfireguide.pdf
Federal Register	http://www.blm.gov/natacq/FIRE/urbinter.html

Title 36 of the Code of Federal Regulations	http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=61ec29f66e3deb4ce00ece0b2bc00023&tpl=/ecfrbrowse/Title36/36cfr2_main_02.tpl
Title 36 of the Code of Federal Regulations, Part 2-Resource Protection, Public Use And Recreation	http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=61ec29f66e3deb4ce00ece0b2bc00023&rgn=div8&view=text&node=36:1.0.1.1.2.0.1.1&idno=36

Chapter 8: Fire Ecology and Monitoring

Reference	Website
National Fire Plan Operations and Reporting System (NFPORS)	http://www.nfpors.gov/index.cfm
Adaptive Management: US Department of Interior Technical Guide	http://www.doi.gov/initiatives/AdaptiveManagement/index.html
Fire Monitoring Handbook	http://www.nps.gov/fire/fire/fir_eco_mon_fmh.cfm
U.S. Fish and Wildlife Service	http://www.fws.gov/refuges/pdfs/WritingRefugeGoals_022504.pdf#search=%22Writing%20Refuge%20Management%20Goals%20and%20Objectives%22
Fuels, Science, and Ecology	http://inside.nps.gov/waso/custompages.cfm?prg=892&id=3422&lv=4&pgid=1752
Park Level Fire Program Review Template	http://www.nifc.gov/policies/preparedness_reviews/checklists.htm
Fire Program Review Materials	http://www.nifc.gov/policies/preparedness_reviews/checklists.htm
FRCC training	http://www.frcc.gov
Burn Severity Requests	http://inside.nps.gov/waso/custompages.cfm?prg=892&id=3422&lv=4&pgid=1752
NPS–USGS National Burn Severity Mapping Project	http://burnseverity.cr.usgs.gov/
Monitoring Trends in Burn Severity Project (MTBS)	http://svinetfc4.fs.fed.us/mtbs/index.html

Monitoring Protocols	http://inside.nps.gov/waso/custompages.cfm?prg=892&id=3422&lv=4&pgid=1752
Inventory and Monitoring Program Protocol Database	http://science.nature.nps.gov/im/monitor/protocoldb.cfm
Natural Resource Datastore.	http://science.nature.nps.gov/nrdata/
I&M Program	http://science.nature.nps.gov/im/datamgmt/dmplans.cfm
NPS–USGS National Burn Severity Mapping Project	http://burnseverity.cr.usgs.gov/
USDA Forest Service Job Hazard Analysis Forms	www.fs.fed.us/r1/people/jha/jha_index_www.html
OSHA	www.osha.gov/Publications/osha3071.pdf
NPS Wildland Fire Management Budget - Business Rules	http://inside.nps.gov/waso/custommenu.cfm?lv=4&prg=890&id=3323

Chapter 9: Air Quality and Smoke Management

Reference	**Website**
Reference Manual 77 (RM 77), Natural Resource Management	http://data2.itc.nps.gov/npspolicy/DOrders.cfm
NPS 77, Natural Resource Management Guideline.	http://www.nature.nps.gov/nps75/nps75.pdf
National Ambient Air Quality Standards	http://www.epa.gov/air/criteria.html
Interim Air Quality Policy on Wildland and Prescribed Fires	http://www.epa.gov/ttncaaa1/t1/memoranda/firefnl.pdf
NPS Organic Act of 1916	http://www.nps.gov/legacy/organic-act.htm
National Environmental Policy Act of 1969	http://data2.itc.nps.gov/npspolicy/getlaws.cfm
Wilderness Act of 1964	http://data2.itc.nps.gov/npspolicy/getlaws.cfm
Clean Air Act	http://data2.itc.nps.gov/npspolicy/getlaws.cfm

Chapter 10: Training, Qualifications, and Certification

Reference	Website
Wildland Fire Qualification System Guide (PMS 310-1)	http://www.nwcg.gov/pms/docs/PMS310-1.pdf
Interagency Standards for Fire and Fire Aviation Operations	http://www.nifc.gov/policies/red_book.htm
Field Manager's Course Guide	http://www.nwcg.gov/pms/training/training.htm
Wildland Fire Safety Training Annual Refresher	http://www.nifc.gov/wfstar/index.htm
Incident Qualifications and Certification System (IQCS)	http://iqcs.nwcg.gov/
National Wildland Fire Training website	www.nationalfiretraining.net
National Fire Equipment System Catalog Part 2: Publications	http://www.nwcg.gov

Chapter 11: Wildland Fire Reporting

Reference	Website
Wildland Fire Management Information Fire Reporting Module	https://www.nifc.blm.gov/cgi/nsdu/FireReporting.cgi
Fire Reporting - NPS User Guides and Information	http://www.nifc.blm.gov/nsdu/fire_reporting/NPS/doc/index.html
NPS Wildland Fire Report Form Instructions and NPS Wildland Fire Report Forms by Fire Type – Protection Type	https://www.nifc.blm.gov/nsdu/fire_reporting/NPS/doc/index.html
NPS Director's Orders	http://data2.itc.nps.gov/npspolicy/DOrders.cfm
NIFC Incident Records Management website	http://www.nifc.gov/policies/records/index.html

Chapter 12: Fire Facilities

Reference	Website
Project Management Information System (PMIS) web-based intranet program	http://165.83.198.10/pmis_newlook/welcome.cfm
NPS Service-wide Comprehensive Call (SCC) website	http://classicinside.nps.gov/budget3/call.htm
Wildland Fire Facilities SCC Guidance	http://classicinside.nps.gov/budget3/scc/FY_2009/FY_2009_Wildland_Fire_Guidance.pdf
NPS Wildland Fire Management Budget – Business Rules	http://inside.nps.gov/waso/custommenu.cfm?lv=4&prg=890&id=3323

Chapter 13: Fire Equipment

Reference	Website
NFDRS Weather Station Standards, PMS 426-3	http://www.nwcg.gov/pms/pubs/PMS426-3.pdf
NFDRS Weather Station Standards website	http://www.fs.fed.us/raws/standards.shtml
The USDA Forest Service RAWS website	http://www.fs.fed.us/raws
National Interagency Mobilization Guide	http://www.nifc.gov/nicc/mobguide/Chapter70.pdf
Fireline Handbook (PMS 410-1)	http://www.nwcg.gov/pms/pubs/large.html
Interagency Standards for Fire and Fire Aviation Operations	http://www.nifc.gov/policies/red_book.htm

Chapter 14: Program Planning and Budget Analysis

Reference	Website
Branch of Wildland Fire, Program Planning & Budget (NPS Wildland Fire Management Budget Business Rules)	http://inside.nps.gov/waso/waso.cfm?lv=4&prg=890
Interagency Standards for Fire and Fire Aviation Operations.	http://www.nifc.gov/policies/red_book.htm

Branch of Wildland Fire, Program Planning & Budget	http://inside.nps.gov/waso/waso.cfm?lv=4&prg=890

Chapter 15: Fire Financial Programs

Reference	Website
Annual Financial Management Guide	http://inside.nps.gov/waso/custommenu.cfm?lv=4&prg=890&id=3323
Program Planning & Budget	http://inside.nps.gov/waso/waso.cfm?lv=4&prg=890
Annual Financial Management Guide	http://inside.nps.gov/waso/custommenu.cfm?lv=4&prg=890&id=3323
NPS WASO Budget	http://data2.itc.nps.gov/budget2/sindex.htm
Director's Orders	http://data2.itc.nps.gov/npspolicy/DOrders.cfm
National Interagency Mobilization Guide	http://www.nifc.gov/nicc/mobguide/index.html
AFS3	http://www.afs.nps.gov/

Chapter 16: Fire Business Management

Reference	Website
Interagency Incident Business Management Handbook (IIBMH)	http://www.nwcg.gov/pms/pubs/IIBMH2/iibmh.pdf
Interagency Standards for Fire and Fire Aviation Operations	http://www.nifc.gov/policies/red_book.htm
Director's Order 20, Agreements	http://www.nps.gov/refdesk/DOrders/DOrder20.html
Departmental Manual Part 620 (*620 DM*)	http://elips.doi.gov
National Park Service Organic Act; (16 USC 1b1)	http://www4.law.cornell.edu/uscode/html/uscode16/usc_sec_16_00000001---b000-.html
National Interagency Mobilization Guide	http://www.nifc.gov/nicc/mobguide/index.html
NPS Administrative Payment Teams	http://www.nps.gov/fire/fire/fir_wil_administration.cfm
FireCode	https://www.firecode.gov/index.cfm?action=login&CFID=129283&CFTOKEN=15609390
Interior National Business Center	http://www.nbc.gov

Emergency Hire Employees and Position Matrices	http://www.nwcg.gov/teams/ibpwt/index.htm
NPS Wildland Fire Management Budget - Business Rules	http://inside.nps.gov/waso/custommenu.cfm?lv=4&prg=890&id=3323
Federal Travel Regulations	http://www.gsa.gov/Portal/gsa/ep/channelView.do?pageTypeId=8199&channelPage=%252Fep%252Fchannel%252FgsaOverview.jsp&channelId=-14863
5 CFR 550	http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?type=simple;c=ecfr;cc=ecfr;sid=76663e391ad2a2813c82bfaddf1f58ea;region=DIV1;q1=5%20CFR%20550;rgn=div5;view=text;idno=5;node=5%3A1.0.1.2.70
FPPS T&A Codes Manual	http://www3.nbc.gov/customer/personnelpay/Payroll/paycodes.pdf
Client Interface Manual, FPPS Program Version	http://www3.nbc.gov/customer/personnelpay/Payroll/CIM.pdf
National Business Center Payroll News	http://www3.nbc.gov/customer/personnelpay/Payroll/cusnews.html

Chapter 17: Wildland Fire and Program Reviews

Reference	**Website**
Interagency Standards for Fire and Fire Aviation Operations	http://www.nifc.gov/policies/red_book.htm
Interagency Preparedness Review Checklists	http://www.nifc.gov/policies/preparedness_reviews/checklists.htm
DO/RM 18; *DO/RM 60, Aviation Management*	http://data2.itc.nps.gov/npspolicy/DOrders.cfm
Departmental Manual 485	http://elips.doi.gov/app_DM/index.cfm?fuseaction=searchDM&keyword=Departmental%20Manual%20485
16 USC	http://www4.law.cornell.edu/uscode/

Chapter 18: Fire Research

Reference	Website
Ecology Webpage	http://inside.nps.gov/waso/custompages.cfm?prg=892&id=3422&lv=4&pgid=1752
The Joint Fire Science Program	http://www.firescience.gov/
NPS Service-wide Comprehensive Call	http://www1.nrintra.nps.gov/scc/2009/index.cfm
Cooperative Ecosystem Studies Units	http://www.cesu.psu.edu/
NPS Research Learning Centers	http://www.nature.nps.gov/learningcenters/index.cfm
Natural Resources Technical Assistance Call	http://inside.nps.gov/waso/waso.cfm?prg=4&lv=1
USFS Missoula Fire Sciences Lab	http://www.firelab.org/
The National Center for Landscape Fire Analysis	http://firecenter.umt.edu/
Fire Effects Information System (FEIS)	http://www.fs.fed.us/database/feis/
Fire Research and Management Exchange System	http://frames.nbii.gov/portal/server.pt
Tall Timbers Fire Ecology Database and Thesaurus	http://www.talltimbers.org/
USGS Science Topics, Fire	http://www.usgs.gov/science/
NPS Science and Research	http://www.nature.nps.gov/scienceresearch/index.cfm
NPS Fire Ecology Web Page	http://www.nps.gov/fire/fire/fir_eco_research.cfm
NPS Library Program	http://inside.nps.gov/waso/waso.cfm?lv=3&prg=198
NPS Social Science Program	http://www.nature.nps.gov/socialscience/index.cfm
Reference Manual 77, NPS Natural Resource Management	http://www.nature.nps.gov/rm77/
The U.S. Department of the Interior Library	http://library.doi.gov/

Chapter 19: Burned Area Emergency Response

Reference	Website
Departmental Manual Part 620, Chapter 3: Burned Area Emergency Stabilization and Rehabilitation	http://elips.doi.gov/app_DM/act_getfiles.cfm?relnum=3610
Interagency Burned Area Emergency Response Guidebook	http://fire.r9.fws.gov/ifcc/esr/P&G.htm
Interagency Burned Area Rehabilitation Guidebook	http://fire.r9.fws.gov/ifcc/esr/P&G.htm
Interagency Standards for Fire and Fire Aviation Operations	http://www.nifc.gov/policies/red_book.htm
Director's Order 18	http://www.nps.gov/fire/fire/fir_wil_pla_reference18.cfm
Department of Interior Burned Area Emergency Response Program	http://fire.r9.fws.gov/ifcc/esr/home.htm
NPS BAER Program	http://inside.nps.gov/waso/custommenu.cfm?lv=4&prg=891&id=3419
Reference Manual 18	http://data2.itc.nps.gov/npspolicy/DOrders.cfm
NPS Data Store	http://science.nature.nps.gov/nrdata/
NPS GIS website National Park Service Geographic Information Systems Data and Information	http://www.nps.gov/gis/data_info/metadata.html
Department of the Interior's Database of Record National Fire Plan Operations and Reporting System	http://www.nfpors.gov/index.cfm
Reference Manual 18	http://data2.itc.nps.gov/npspolicy/DOrders.cfm

Chapter 20: Information and Technology Management

Reference	Website
Director's Order 11A, Information and Technology Management	http://www.nps.gov/policy/DOrders/DO-11A.pdf
OMB Circular A-130: Management of Federal Information Resources	http://www.whitehouse.gov/omb/circulars/a130/a130trans4.html
Director's Order 11B, Ensuring Quality of Information Disseminated by the NPS	http://www.nps.gov/policy/DOrders/11B-final.htm
GIS Standard Operating Procedures on Incidents, chapter 2, File Naming and Directory Structure	http://www.nwcg.gov/pms/pubs/GSTOP7.pdf
Federal Information Security Management Act (FISMA)	http://csrc.nist.gov/sec-cert
375 DM 19: IRM Program Management, Information Technology Security Program	http://elips.doi.gov/elips/DM_word/3397.doc
NPS Responsibilities for Computer Use (RCU) Version 2007-1	http://classicinside.nps.gov/documents/2007-1-RCU-Final%208-28-07.pdf
United States Computer Emergency Readiness Team (US-CERT)	http://www.us-cert.gov/
PII reporting requirements and Spillage Incident Procedures	http://www.us-cert.gov/federal/reportingRequirements.html
Director's Order 11C, Web Publishing	http://www.nps.gov/policy/DOrders/DO-11C.pdf
Internet (nps.gov)	http://www.nps.gov/
Intranet (*InsideNPS*)	http://inside.nps.gov/
NPS Fire and Aviation Management	http://www.nps.gov/fire
Fire and Aviation Application Portal (FAAP)	http://inside.nps.gov/waso/custommenu.cfm?lv=2&prg=73&id=3789
Department's website (Department of the Interior-wide Contracts)	http://www.doi.gov/ocio/erm/index.html

InsideNPS (IT Policies, Standards, Procedures and Guidance)	http://inside.nps.gov/waso/custommenu.cfm?lv=3&prg=308&id=2135
DOI ESRI Enterprise License Agreement (ELA)	http://www.nps.gov/gis/factsheet
ESRI software	http://www.nps.gov/gis/contracts/ela_howto.html#egis
Fire and Aviation Management Information Technology	http://www.nps.gov/fire/utility/uti_it_applications.cfm
Internal NPS	ftp://ftp.den.nps.gov/incoming/FIRE
Public NPS (ftp://63.220.43.40/)	ftp://63.220.43.40/
Public FTP server	http://inside.nps.gov/waso/custommenu.cfm?lv=2&prg=62&id=2683
Fire Interagency FTP	ftp://ftp.nifc.gov/
Active Fires	http://www.activefires.net/
GEOMAC	http://www.geomac.gov/
Privacy Act	http://www.usdoj.gov/oip/privstat.htm
NPS Data Store	http://science.nature.nps.gov/nrdata
NR-GIS Data Store instruction documents	http://science.nature.nps.gov/nrdata/docs/metahelp/metahelp.cfm
NPS Focus Digital Library	http://focus.inside.nps.gov/docs/Inside/About.html
DOI Learn	https://doilearn.doi.gov/
Register as a new user (NPS Focus)	http://dataentry.focus.nps.gov/home.jsp?action=createuser
NPS Focus E-Mail	NPS_Focus@nps.gov
NatureBib	http://www.nature.nps.gov/nrbib/index.htm
Web version of the database (NatureBib)	http://science.nature.nps.gov/im/apps/index.cfm
Login Request form (NatureBib)	http://www.nature.nps.gov/nrbib/NRBIB_login.doc
Bibliographic Coordinator (NatureBib)	http://www.nature.nps.gov/EMail/EMailUs.cfm?Contact=NatureBib%20Contact
Inventory and Monitoring Program	http://science.nature.nps.gov/im/index.cfm
Federal Enterprise Architecture (EA) Program	http://www.whitehouse.gov/omb/egov/a-1-fea.html

National Wildland Fire Enterprise Architecture	http://www.nwcg.gov/nwfea/index.html
Federal EA consists of five models (National Wildland Fire Enterprise Architecture)	http://www.whitehouse.gov/omb/egov/a-2-EAModelsNEW2.html
Performance Reference Model (National Wildland Fire Enterprise Architecture)	http://www.whitehouse.gov/omb/egov/a-2-prm.html
Data Reference Model (National Wildland Fire Enterprise Architecture)	http://www.whitehouse.gov/omb/egov/a-5-drm.html
Data Stewardship Plan (Data Management Plans)	http://science.nature.nps.gov/im/datamgmt/dmplans.cfm
Fire perimeter standard (NWCG Data Layer Standard)	http://www.nwcg.gov/teams/pmo/products/standards/gdl_fire_perimeter/cover.htm
NWCG Interagency Fire Polygon Standard	http://www.nwcg.gov/teams/pmo/products/standards/gdl_fire_history/cover.htm
National Fire Plan Operations and Reporting System (NFPORS)	http://www.nfpors.gov/
NPS Data Store	http://science.nature.nps.gov/nrdata
GIS Standard Operating Procedures on Incidents, chapter 4, Minimum Essential Datasets	http://www.nwcg.gov/pms/pubs/GSTOP7.pdf
GIS Standard Operating Procedures on Incidents, chapter 2, File Naming and Directory Structure	http://www.nwcg.gov/pms/pubs/GSTOP7.pdf
NPS Inventory & Monitoring Recommended GIS File Folder/Directory Structure under GIS Standards	http://science.nature.nps.gov/im/policies/index.cfm
NPS Intermountain Region Suggested Directory Structure	http://imgis.nps.gov/gis_plans_mgmt.html

Executive Order 12906, Agency Adherence to Standards	http://www.fgdc.gov/policyandplanning/executive_order/?searchterm=Executive%20Order%2012906
NPS Field Data Collection with Global Positioning Systems.	http://www.nps.gov/gis/data_standards/field_data_collection_GPS.html
NPS Data and GIS standards	http://science.nature.nps.gov/nrgis/standards.aspx
Interagency Data Standards (NWCG)	http://www.nwcg.gov/teams/pmo/products/standards.htm
Interagency Geospatial Data Standards (NWCG)	http://gis.nwcg.gov/standards_data.html
The Federal Geographic Data Committee (FGDC)	http://www.fgdc.gov/
NPS Intermountain GIS Web Page	http://imgis.nps.gov/tips_templates.html
NPS Midwest Regional GIS Technical Support Center	http://www.nature.nps.gov/im/units/mwr/gis
NPS Metadata Tools and Editor	http://science.nature.nps.gov/nrdata/tools
NPS Metadata (Data and Information)	http://www.nps.gov/gis/data_info/metadata.html
GPS Metadata Field Form	http://gis.nwcg.gov/training_gps.html
Metadata and Data Uploading	http://science.nature.nps.gov/nrdata/docs/metahelp/NR-GISMetadataDataUploadGuidance.pdf
NPS Focus Digital Library	http://npsfocus.nps.gov/docs/NPSweb/About.html
DOI Learn	https://doilearn.doi.gov/
NPS Focus - Register As a New User	http://dataentry.focus.nps.gov/home.jsp?action=createuser
NPS Focus E-Mail	NPS_Focus@nps.gov
GIS Training	http://www.nps.gov/gis/outreach/training.html
ESRI Online Courses	http://training.esri.com/gateway/index.cfm?fa=catalog.gateway
S-341 (GISS)	http://gis.nwcg.gov/giss_2006/cd_contents.html
GPS for Fire Management and ICS	http://gis.nwcg.gov/training_gps.html
Director's Order 19, Records Management	http://www.nps.gov/policy/DOrders/DOrder19.html
GIS SOP on Incidents	http://www.nwcg.gov/pms/pubs/GSTOP7.pdf
LANDFIRE	http://www.landfire.gov/

Chapter 21: Communications and Education

Reference	Website
NWCG Communicator's Guide for Wildland Fire Management: Fire Education, Prevention, and Mitigation Practices	http://www.symbols.gov/catalog/products/fire_item.shtml?NFES%2099218
Communicators Guide – For Federal, State, Regional, and Local Communicators	http://www.fcn.gov
National Wildfire Coordinating Group Wildland Fire Education Working Team website	http://www.nwcg.gov/teams/wfewt/wfewt.htm
Interagency Standards for Fire and Fire Aviation Operations	http://www.nifc.gov/policies/red_book.htm
U.S. Government Printing Office Style Manual	http://www.gpoaccess.gov/stylemanual/index.html
AP Stylebook	http://www.apstylebook.com
Agency Administrator's Guide to Guide to Critical Incident Management	http://www.fs.fed.us/fire/safety/ref_material/content/guide_critical_incident_mgmt.doc
A Guide to Successful Media Interviews	http://inside.nps.gov/waso/custompages.cfm?prg=896&id=325&lv=4&pgid=1492
Department of the Interior Interagency Memo, Interagency Media Guidelines for Wildland Fire, dated April 13, 2004	http://inside.nps.gov/documents/MediaAccessGuidelinesMemo_NWCG.pdf
Director's Order 50B, Occupational Safety and Health Program (currently undergoing revisions)	http://data2.itc.nps.gov/npspolicy/DOrders.cfm
Firewise Communities Communications Guide	http://www.nps.gov/fire/public/pub_fwc.cfm
Harpers Ferry Center Editorial Style Guide	http://www.nps.gov/hfc/pdf/hfc-style-guide-2007.pdf
Incident Response Pocket Guide	http://www.nwcg.gov/pms/pubs/nfes1077/nfes1077.pdf

Information Officer Toolbox	http://www.nps.gov/fire/utility/uti_abo_iotoolbox.cfm
Lessons Learned Website	http://www.wildfirelessons.net/
Lessons Learned Center Library – Fire Education	http://www.wildfirelessons.net/BrowseResults.aspx?All=27&New=1&Level=1&Value=27&Cat=0&Sub=0&Topic=0&Subtopic=0&Page=1
Lessons Learned Wildland Fire Use Toolbox	http://www.wildfirelessons.net/documents/WFU_Toolbox_Final.pdf
Line of Duty Death Protocol	http://inside.nps.gov/waso/custommenu.cfm?lv=3&prg=175&id=4370
National Park Service Graphic Identity Program	http://www.graphics.nps.gov/
National Park Service Memo - Release of Incident Information to the News Media and General Public, dated June 13, 2006	http://data2.itc.nps.gov/release/Detail.cfm?ID=660
Best Practices – Communication Planning (Wildland Fire Education Working Team)	http://www.nwcg.gov/teams/wfewt/bp/comm-planning.pdf
Electronic Bibliography of Wildland Fire Websites	http://www.nwcg.gov/teams/wfewt/biblio/index.htm
Interagency Wildland Fire Key Messages	http://www.nwcg.gov/teams/wfewt/message/key_message.pdf
Sample Information and Education Strategy	http://www.nps.gov/fire/download/fir_wil_rm18_ch21_ex1a.doc
Sample Fire Information Planning Worksheet	http://www.nps.gov/fire/download/fir_wil_rm18_ch21_ex1b.doc
Sample Public Information Officer Step Up Plan	http://www.nps.gov/fire/download/fir_wil_rm18_ch21_ex1c.doc
Sample Serious Accident Investigation Team (SAIT) Communication Plan	http://www.nps.gov/fire/download/fir_wil_rm18_ch21_ex1d.doc
Sample Fire Information Officer Resource Guide	http://www.nps.gov/fire/download/fir_wil_rm18_ch21_ex1e.doc
Sample Smoke Communication Strategy	http://www.nps.gov/fire/download/fir_wil_rm18_ch21_ex1f.doc

Appendix 2: Definitions and Terms

Reference	Website
NWCG Glossary of Wildland Fire Terminology	http://www.nwcg.gov/pms/pubs/glossary/index.htm
NFPORS	https://www.nfpors.gov/home/index.cfm

APPENDIX 2

DEFINITIONS AND TERMS

For commonly used fire definitions and terms, please refer to the National Wildfire Coordinating Group's website Glossary of Wildland Fire Terminology.

Communication crisis – An unplanned event which triggers a real, perceived, or possible threat to life, health and safety, the environment, financial status, or the organization's credibility.

Computer Maintenance Management System (CMMS) – A system that tracks the maintenance of remote automated weather stations.

Data Standards – Geospatial data standards set the criteria and specifications to ensure that geospatial data follow a prescribed format. Standards are essential for efficient sharing of data and to provide information about the geospatial data.

Data Steward – Subject matter experts for their respective business subject areas who are responsible for developing data requirements, standards, access rules, business rules, and other data activities for their subject area of expertise.

Emergency Stabilization (ES) – Planned actions to stabilize and prevent unacceptable degradation to natural and cultural resource, to minimize threats to life or property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources.

Enterprise Architecture (EA) – A framework that describes how an organization develops, manages, and uses information technology to optimally support its business functions. It consists of definitions, processes, policies, technical standards, and an underlying architecture governance structure. Since business requirements and technology do not stand still, effective enterprise architecture must be adaptive in nature.

Fact sheet – A method for sharing information about a specific topic that lays out the details of an issue or activity. It is typically one to two pages in length.

Federal Financial System (FFS) – The Federal Financial System encompasses all accounting and financial records and activity for the National Park Service. NPS utilizes FFS for budget execution, accounts payable, disbursements, purchasing, travel, accounts receivable, general ledger and external reporting.

Fire Code – This is a unique four character alpha-numeric code assigned to each wildland fire regardless of agency, to track cost of the fire across all federal agencies. The code is assigned randomly.

Fire Management Program Center (FMPC) – Organizationally, the National Park Service's national Branch of Wildland Fire is located at FMPC at the National Interagency Fire Center (NIFC) in Boise, Idaho.

Fire Program Analysis (FPA) – A common interagency decision support tool for wildland fire planning and budgeting.

"Fire Use" Fires – Wildland fires that are allowed to continue burning for natural resource benefit (also called *wildland fire use*).

Firewise - The state of being knowledgeable and prepared for wildfire in residential or urban settings. The national interagency program carries the title "Firewise Communities."

Fixed Ownership Rate (FOR) – A rate charged each year for the cyclic replacement of wildland fire vehicles.

Forest Technology Systems (FTS) – A manufacturer of remote automated weather stations.

Full Time Equivalency (FTE) – Percentage of annual hours of service considered full-time for the position a program is filling. Full Time Equivalency is stated as a proportion. It is computed by dividing the number of work hours for an individual by the number of full-time hours for that position. Part time positions should also be reported in full time equivalency.

Geographic Area Coordinating Groups and Multi-Agency Coordinating Groups (MAC) – Representatives of involved agencies and/or jurisdictions who come together to make decisions regarding the prioritizing of incidents, and the sharing and use of critical resources. The MAC organization is not a part of the on-scene ICS and is not involved in developing incident strategy or tactics.

Geospatial Data - Digital information about the shape and location of natural or constructed features or boundaries that is referenced to geographic locations on the Earth's surface by a system of geographic coordinates. This information may be input directly via a digitizing process or it may be derived from, among other things, remote sensing, mapping, surveying technologies. This data can be in a variety of formats including vector, raster, or tabular.

Government Performance Results Act (GPRA) – Every fiscal quarter, a performance report is submitted to Congress for fire management performance measures. The fire occurrence reports provide some of the data for those reports.

Gross Vehicle Weight Rating (GVW) – The rating of a vehicle for the maximum weight that can be legally carried.

Intranet – The secure use of Internet technologies to limit communication of information in the National Park Service; access to the Intranet is restricted to NPS employees and authorized users of NPS equipment.

Key messages – General concepts that can be incorporated into discussions, print materials, and other resources used in communication, education, information, and prevention efforts. Key messages are umbrella statements that require additional supporting points and examples for context.

Metadata – Information about the content, quality, condition, and other characteristics of data. Metadata for geospatial data may document its subject matter; how, when, where, and by whom the data was collected; accuracy of the data; availability and distribution information; its projection scale, resolution, and accuracy; and its reliability with regard to some standard.

"Mutual Aid" Fires – Fires that start on a different agency's land for which a park has an agreement in place with that agency to provide wildfire protection on an agreed portion of that agency's land. When a park initiates a response for fires on that portion of land, they are termed Mutual Aid fires.

National Fire Equipment System (NFES) – An equipment inventory tracking system for fire cache supplies and equipment.

National Fire Plan Operations and Reporting System (NFPORS) – This system provides an interagency tracking and reporting capability for all fuels treatment projects.

"Natural-Out" Fires – Wildland fires discovered after they have been extinguished by natural causes, with no suppression action taking place.

NFPORS Documentation Library - Another helpful reference glossary can be found at the National Fire Plan Operations and Reporting System (NFPORS) website under NFPORS Documentation Library*:*
https://www.nfpors.gov/home/index.cfm.

NWCG Glossary - The main reference glossary for NPS Fuels Management is the NWCG glossary, which is updated periodically: http://www.nwcg.gov/.

Operational Management Plan – A plan that contains objectives reflecting the overall incident strategy and specific tactical actions and supporting information for the next operational period.

Operations of the National Park Service (ONPS) – NPS funding needs are met through a variety of sources, most from the NPS congressional appropriation titled Operation of the National Park Service (ONPS).

Office of Wildland Fire Coordination (OWFC) – Located in the Office of the Secretary, Department of the Interior, Washington D.C., OWFC is responsible for the coordination, integration, and oversight of Wildland Fire Management programs within the Department of the Interior (Bureau of Indian Affairs, Bureau of Land Management, U.S. Fish and Wildlife Service, and National Park Service).

PM 2.5 - Ambient standards for pollutants such as particulate matter smaller than 2.5 microns in size (PM-2.5)

Point of Contact (POC) – A local contact for each weather station that can assist technicians in maintaining remote automated weather stations.

Point-of-Origin – This is the location where a wildland fire started. This location determines the ownership of the fire.

Press kit – A packet of information that can be used to inform media and others for special events, briefings, or dignitary visits.

Prevent Significant Deterioration (PSD) - Sections 160-169 of the Clean Air Act establish a program to Prevent Significant Deterioration (PSD) of air quality in "clean air areas" of the country (i.e., attainment areas), which include many, if not most, national park units.

Project Management Information System (PMIS) – This is the NPS web-based intranet program used for entering construction or deferred maintenance project requests. This system also tracks the progress of projects that are funded and under construction. Outside of the Wildland Fire Program, this system is also used for entering and tracking other equipment and service budget requests.

Rehabilitation – Efforts undertaken within three years of a wildland fire to repair or improve fire damaged lands unlikely to recover to a management approved conditions or to repair or replace minor facilities damaged by fire.

Response – Activities that address the short-term, direct effect of an incident, including immediate actions to save lives, protect property, and meet basic human needs. Also includes the execution of emergency operations plans as well as mitigation activities designed to limit the loss of life, personal injury, property damage, and other unfavorable outcomes.

Restoration – The continuation of rehabilitation beyond the initial three years or the repair or replacement of major facilities damaged by the fire.

Service-wide Comprehensive Call (SCC) –The SCC provides NPS guidance and schedule information for the budget formulation process. This process starts two years ahead of current fiscal year. Wildland fire construction and deferred maintenance requests are required to follow this guidance.

Severity Support Action – Resources assigned to another park or agency unit in response to high fire danger and the threat of a high amount of wildfire activity.

Statement of Work and Budget (SWB) –This is a yearly budget document identifying the amount of stations to be maintained and associated costs to be paid.

Supporting points – Points that provide detail for the key messages and enable individuals to further explain the identified topic.

Threat Fire – Fires that start on non-NPS land that are not under an agreement to provide wildfire protection, but where NPS response was initiated to prevent fire spread onto NPS land.

U.S. General Services Administration (GSA) – The federal agency that oversees the procurement of goods and services.

Vaisala – A manufacturer of remote automated weather stations.

Washington Office, Branch of Wildland Fire (WASO) –This branch is formerly referred to as the Fire Management Program Center at the National Interagency Fire Center.

Wildland Fire Management Information System (WFMI) –This interagency system, managed by BLM, is designed to enter and display wildland fire occurrence reports, provide lightning occurrence data, display weather data for the U.S. and provide aviation tracking software for the BLM.

Working Capital Fund (WCF) – A program that provides cyclic funding for the replacement of wildland fire vehicles.

APPENDIX 3

ACRONYMS

AAR – After Action Review
AC – Area Commander
ACA – Alternative Consultation Agreement
AD – Administratively Determined Pay Plan
AFS – Alaska Fire Service
AMR – Appropriate Management Response
APT – Administrative Payment Team
ARD – Air Resources Division
ARD – Associate Regional Director
ASCADS – Automated Sorting, Conversion, and Distribution System

BAER – Burned Area Emergency Response
BAR – Burned Area Rehabilitation
BPA – Blanket Purchase Agreement / Business Purchase Agreement

CA – Community Assistance
CAA – Clean Air Act
CAR – Communities-at-Risk
CBI – Composite Burn Index
CE – Categorical Exclusion
CESU – Cooperative Education Studies Unit
CFFP – Cooperative Forest Fire Prevention Program
CFR – Code of Federal Regulations
CIO – Chief Information Officer
CMMS – Computer Maintenance Management System
CO – Contracting Officer
COR – Contracting Officer Representative
COTR – Contracting Officer Technical Representative
CPIC – Capital Planning and Investment Control
CWN – Call-When-Needed agreements
CWPP – Community Wildfire Protection Plan

DASHO – Designated Agency Safety and Health Official
DAWG – Data Administration Working Group
DIAR – Department of the Interior Acquisition Regulation
DM – Departmental Manual
DO – Director's Order
DOI – Department of the Interior
DOT – Department of Transportation

DRGS – Direct Readout Ground Station
DRM – Data Reference Model
DROT – DOMSAT Receive-only Terminal

EA – Enterprise Architecture
EA – Environmental Assessment
EERA – Emergency Equipment Rental Agreements
EFT – Electronic Funds Transfer
EIS – Environmental Impact Statement
ELA – Enterprise License Agreement
EPA – Environmental Protection Agency
ES – Emergency Stabilization
ESA – Endangered Species Act
ESF – Environmental Screening Form
ESM – Environmental Statement Memorandum
ESR – Emergency Stabilization and Rehabilitation

FAAP – NPS Fire and Aviation Applications Portal
FAR – Federal Acquisition Regulation
FEA – Federal Enterprise Architecture
FEAT – Fire Ecology Assessment Tool
FEIS – Fire Effects Information System
FEMO – Fire Effects Monitor
FFS – Federal Financial System
FGDC – Federal Geographic Data Committee
FIREMON – Fire Effects Monitoring and Inventory System
FISMA – Federal Information Security Management Act
FLE – Fire Line Explosives
FLSA – Fair Labor Standards Act
FMLB – Fire Management Leadership Board
FMO – Fire Management Officer
FMP – Fire Management Plan
FMPC – Fire Management Program Center
FMU – Fire Management Unit
FONSI – Finding of No Significant Impact
FOR – Fixed Ownership Rate
FPA – Fire Program Analysis
FPU – Fire Planning Unit
FRAMES – Fire Research and Management Exchange System
FRAWS – Wildfire Support Remote Automated Weather Station
FRCC – Fire Regime and Condition Class
FTE – Full Time Equivalency
FTP – File Transfer Protocol
FTS – Forest Technology Systems

FUM – Fire Use Manager
FUMT – Fire Use Management Team

GACC – Geographic Area Coordination Center
GACG – Geographic Area Coordinating Group
GIS – Geographic Information System or Geospatial Information System
GMP – General Management Plan
GOES – Geostationary Operational Environmental Satellite
GPO – Government Printing Office
GPRA – Government Performance Results Act
GPS – Global Positioning System
GSA – U.S. General Services Administration
GTG – NWCG Geospatial Technology Group
GVW – Gross Vehicle Weight Rating

HFI – Healthy Forests Initiative

I&M – Inventory and Monitoring
IA – Initial Attack
IAP – Incident Action Plan
IC – Incident Commander
ICC – International Code Council
ICP – Incident Command Post
ICS – Incident Command System
IDIQ – Indefinite Delivery, Indefinite Quantity
IDT – Interdisciplinary Team
IFPM – Interagency Fire Program Management
IGO – Intra-Governmental Order
IMT – Incident Management Team
IPAC – Intra-Governmental Payment and Collection
IQCS – Incident Qualifications and Certification System
IRM – Information Resource Management
IRPG – *Incident Response Pocket Guide* (NFES 1077, PMS 461)
ITIC – Information Technology Investment Council

JFSP – Joint Fire Science Program
JHA – Job Hazard Analysis

LAL – Lightning Activity Level
LCES – Lookouts-Communications-Escape Routes-Safety Zones
LODD – Line of Duty Death

MAC – Multi-Agency Coordinating Group
MCR – Human-caused Risk

MIST – Minimum Impact Suppression Tactics
MMA – Maximum Manageable Area
MOU – Memorandum of Understanding
MTBS – Monitoring Trends in Burn Severity

NAAQS – National Ambient Air Quality Standards
NAFRI – National Advanced Fire and Resource Institute
NEPA – National Environmental Policy Act
NFDRS – National Fire Danger Rating System
NFES – National Fire Equipment System
NFP – National Fire Plan
NFPA – National Fire Protection Agency
NFPORS – National Fire Plan Operations and Reporting System
NGO – Non-governmental Organization
NHPA – National Historic Preservation Act
NICC – National Interagency Coordination Center
NIFC – National Interagency Fire Center
NISC – National Information Systems Center
NITC – National Information Technology Center
NMAS – National Map Accuracy Standard
NOI – Notice of Intent
NWCG – National Wildfire Coordinating Group
NWFEA – National Wildland Fire Enterprise Architecture

OMB – Office of Management and Budget
ONPS – Operations of NPS funding
OSHA – Occupational Safety and Health Administration
OWFC – Office of Wildland Fire Coordination

PII – Personally Identifiable Information
PM – Particulate Matter
PMIS – Project Management Information System
PMS – Publication Management System
POC – Point of Contact
PPE – Personal Protective Equipment
PRAWS – A non-fire project support Remote Automated Weather Station
PRM – Performance Reference Model
PSD – Prevent Significant Deterioration
PTB – Position Task Book
PWE – Primary Work Element

QA/QC – Quality Assessment / Quality Control

RAMS – Risk Assessment and Mitigation Strategies

RAWS – Remote Automated Weather Station
RCU – Responsibilities for Computer Use
RFD – Rural Fire Department
RMP – Resource Management Plan
ROD – Record of Decision
ROMAN – Real-time Observation Monitoring and Analysis Network
RSFWSU – Remote Sensing Fire Weather Support Unit
RSS – Resource Stewardship Strategy
RX – Prescribed (fire)

SACS – Shared Application Computer System
SAIT – Serious Accident Investigation Team
SCC – Service-wide Comprehensive Call
S&PF – State and Private Forestry
SHPO – State Historic Preservation Office
SIP – State Implementation Plan
SMIS – Safety Management Information System
SMTP – Simple Mail Transfer Protocol
SOP – Standard Operating Procedure
SUA – Satellite User Agreements
SWB – Statement of Work and Budget

T&E – Threatened and Endangered
THPO – Tribal Historic Preservation Office

USC – United States Code

WASO – Washington Support Office
WCF – Working Capital Fund
WFEWT – Wildland Fire Education Working Team
WFIP – Wildland Fire Implementation Plan
WFMI – Wildland Fire Management Information System
WFSA – Wildland Fire Situation Analysis
WIMS – Weather Information Management System
WRCC – Western Region Climate Center
WUI – Wildland Urban Interface

-- End of Reference Manual 18 –

Any questions or comments may be directed to Richard Schwab at richard_schwab@nps.gov