



**Report of the  
eGov Disaster Management  
Task Group  
to the  
National Fire and Aviation  
Executive Board**

*MARCH 31, 2006*



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## EXECUTIVE SUMMARY

This report presents the results of the work of the eGov Disaster Management Task Group (EDTMEG), chartered by the National Fire and Aviation Executive Board (NFAEB) in September 2005 to provide recommendations for implementation of Disaster Management within the wildland fire community, consistent with a set of objectives and principles and the intent of the Disaster Management initiative. In chartering the EDTMG, the NFAEB noted that "Prior to making significant investments in hardware, software, changes to business practices, and personnel necessary for continued implementation of Disaster Management in the wildland fire community, the National Fire and Aviation Executive Board requires an assessment of business practices and procedures for collecting and disseminating fire information, an inventory of information systems and their capabilities, an understanding of user requirements for wildland fire information, and alignment and integration with the National Wildland Fire Enterprise Architecture." This report fulfills the direction from the NFAEB to provide a report by March 31, 2006. In addition, this report fulfills a milestone in the Department of the Interior's Disaster Management e-Gov Project Plan to "conduct detailed analysis of customer requirements and system capabilities to provide alert messages and develop recommendations for implementation of such capability."

The report reviews the "as is" Disaster Management and wildland fire environments and presents a series of Findings, Recommendations, Conclusions, and Implementation Steps for a "to be" future wildland fire environment consistent with the goals of Disaster Management and the forthcoming National Wildland Fire Enterprise Architecture. Action on the recommendations and implementation steps lies with a number of entities, including the National Fire and Aviation Executive Board, the National Wildland Fire Coordination Group, the National Wildland Fire Enterprise Architecture Steering Group, and agency leadership in the Departments of Agriculture and the Interior.

Each year there are 70,000 to 80,000 wildland fires, of which about 25% or nearly 20,000 occur on lands protected by federal land managing agencies. Federal agencies suppress around 98% of all fires at the "initial attack" phase; 94% of federal fires are 100 acres or less. Although federal wildland fire protection takes place in some of the most complex settings in the country, such as southern California, most activity takes place in rural, sparsely populated parts of the West. In those areas communication capabilities are often limited.

The eGov Disaster Management Task Group identified findings in four areas: Notifications, Fire Situation Information, Historical Fire Information, Incident Coordination, and Integration of Fire Information Systems and Processes. These findings include:

- The wildland fire community meets the broad goals of Disaster Management by providing appropriate alerts and notifications and by providing information about wildland fire status and activity to the public and other users through a wide variety of means. Implementation of the Common Alert Protocol capability of Disaster Management within wildland fire at this time does not meet wildland fire business requirements and would require installation and implementation of a stand-alone system that would require local dispatchers to re-enter data already entered into multiple, separate, and unconnected systems. Requirements for providing alert and notification of fire activity are met through current business practices. Providing alert or notification information about fires directly to the public or the news media is the responsibility of agency management, public affairs offices, or those organizations taking action as a result of fires (such as closing roads, evacuating residents, or closing recreation areas).
- The Disaster Management DMIS toolset does not meet wildland fire business needs. The use of the DMIS toolset solely to provide electronic alert (notification) messages is impractical and costly at this time.
- Fire status information is published on a wide variety and number of government sponsored wildland fire websites, but is often different and potentially inconsistent, which can be confusing to users.

- Historical, final fire information is important for program planning and analysis, but there is no universal, consistent method of collecting official fire information among the five federal wildland fire management agencies, or with state and local partners. Historical fire information is not reported and available in a timely manner, nor is historical fire information readily available in a location and format convenient to all users.
- The use of Computer Aided Dispatch (CAD) within wildland fire is inconsistent, which could result in decreased efficiency of local dispatch operations.
- Core wildland fire data elements are entered multiple times in multiple systems.

The report concludes that:

- Implementation of Common Alert Protocol messaging within the wildland fire community is not feasible or appropriate at this time.
- Wildland fire should adopt EDXL standards
- Eliminating multiple entries of common wildland fire data in multiple systems would reduce errors and inconsistencies and would increase efficiency
- A common approach to computer-aided dispatch would increase efficiency and effectiveness
- There is no need to adjust the content of wildland fire situation reports to meet external user requirements
- Guidelines for posting fire information on websites would reduce confusion about the accuracy of information posted at various times.

The report recommends that the following actions be taken:

- Conduct a demonstration or pilot application of CAP messaging in wildland fire
- Create one national wildland fire (incident) computer aided dispatch (CAD) application based on a thorough analysis of the business needs of the dispatch and fire management communities
- Create an “end-to-end” fire reporting system that would provide an integrated and coordinated process for collecting incident/event data
- Adopt appropriate EDXL standards and incorporate those standards into existing and new applications
- Update or revise the ICS-209 to better capture non-fire incident information requirements.
- Develop business rules for web sites that display fire situation information to reduce confusion over the source and accuracy of the information
- Develop an integrated implementation plan for addressing wildland fire information system improvements
- Utilize the NWFEA Program for future wildland fire system improvements.

The report identifies steps and criteria for successful implementation as well as major barriers to implementation. Next steps are:

- Concurrence with the recommendations
- Develop a High Level Implementation Plan (HLIP) for accomplishing the recommendations
- Align or redirect current projects and activities to be consistent with an end-to-end approach to fire information reporting
- Identify resources
- Establish a formal process for participating in EDXL standards development
- Participate in the NWFEA Project

Critical success factors include:

- Policy and executive level commitment
- Good project management and oversight
- Involvement of Practitioners
- Education and Marketing



Major obstacles to implementation include:

- Lack of interoperability to support interagency users
- Limited resources
- Incomplete NWFEA Project

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*The Task Group benefited from the participation and contribution of Suzanne Acar, Department of the Interior Chief Data Architect, and Bill Kalin, of the Department of Homeland Security Disaster Management program, who generously contributed their time and resources to the discussions and analysis of the issues. The report reflects their contributions.*

# 1. INTRODUCTION

## ***EGOV DISASTER MANAGEMENT TASK GROUP***

The National Fire and Aviation Executive Board (NFAEB) chartered the eGov Disaster Management Task Group in September 2005 to provide recommendations for implementation of Disaster Management within the wildland fire community, consistent with a set of objectives and principles and the intent of the Disaster Management initiative. In chartering the EDMTG, the NFAEB noted that "Prior to making significant investments in hardware, software, changes to business practices, and personnel necessary for continued implementation of Disaster Management in the wildland fire community, the National Fire and Aviation Executive Board requires an assessment of business practices and procedures for collecting and disseminating fire information, an inventory of information systems and their capabilities, an understanding of user requirements for wildland fire information, and alignment and integration with the National Wildland Fire Enterprise Architecture." This report fulfills the direction from the EDMTG to provide a report by March 31, 2006. In addition, this report fulfills a milestone in the Department of the Interior's Disaster Management e-Gov Project Plan to "conduct detailed analysis of customer requirements and system capabilities to provide alert messages and develop recommendations for implementation of such capability."

### **Objectives and Principles**

In chartering the EDMTG the NFAEB established Objectives and Principles for implementation of Disaster Management in the wildland fire community:

#### Objectives:

- Improve the efficiency and effectiveness of providing fire related information to users, including:
  - Notifications of critical fire information
  - Situation reports and national/regional activity
  - Predictive services ("threat") information and analyses
- Minimize data entry workload by using information systems that follow the "write once/read often" concept
- Align Disaster Management implementation with NWFEA planning and implementation

#### Principles:

- Fire business needs and requirements will drive technical solutions
- Solutions do not create new workloads for dispatch, incident management, or other personnel
- Solutions are not agency-centric and are implemented consistently within the Federal agencies and to the degree feasible with state and local wildland fire partners
- Solutions will comply with NWCG IRM standards and requirements

### **Tasks**

The EDMTG was given four primary tasks:

- (1) Determine user requirements for fire information. Users include the wildland fire community (incident commanders, dispatch/coordination, fire intelligence, fire management officials), agency managers and policy officials, other emergency management organizations (local, regional, state, national), other stakeholders (such as utilities and local law enforcement), and the public.
- (2) Inventory the current set of business processes and technical systems for collecting and disseminating fire information to users.
- (3) Identify gaps, deficiencies, and inefficiencies in the current set of business processes and technical systems for collecting and disseminating fire information to users.

- (4) Identify options for revising and updating business practices and information collection and dissemination mechanisms to better address user requirements, with particular emphasis on implementing Disaster Management.

## **Membership**

To ensure that a wide range of perspectives, both wildland fire business and information technology, were brought to bear on these tasks, the NFAEB designated membership from the dispatch/coordination communities, fire operations, public affairs, emergency management, enterprise architecture, and information technology.

## **Report**

This report represents the research, analysis, findings, conclusions, and recommendations of the EDMTG. In particular, the EDTMG was directed to include in its report:

- Description of the “as is” information environment for collecting and disseminating wildland fire information (including business practices, systems, requirements)
- Identification of gaps and problems – in the context of Disaster Management initiative objectives and the objectives and principles contained in this Charter
- Description of the recommended “to be” information environment to accomplish the Disaster Management initiative objectives and the objectives and principles contained in this Charter
- Recommendations for accomplishing the “to be” environment
  - Business rules (what information is to be transmitted, when and under what circumstances is the information transmitted, who receives the information, where is the information sent, how is the information sent, who is responsible for sending the information)
  - Systems (hardware and software)
  - Priorities
  - Roles and Responsibilities (including incident, local unit, public affairs, local/regional/national dispatch)
  - Principal users or customers and their requirements (including incident, dispatch, intelligence, agency officials, political officials, local/county/state/national emergency managers, non-governmental organizations, and the public)

## ***RELATED ACTIVITIES***

The EDMTG worked in the context of two other related initiatives – the National Wildland Fire Enterprise Architecture and the Department of the Interior Disaster Management e-Gov Project. The National Wildland Fire Enterprise Architecture (NWFEA), described in greater detail below, will establish a wildland fire enterprise architecture program that provides the tools, guidelines, and strategy to improve the effectiveness of business strategic planning, decision-making, and prioritization within the wildland fire community. The NWFEA Project Business Lead is a member of the EDMTG.

Subsequent to the creation of the EDTMG, the Department of the Interior initiated a formal Disaster Management e-Gov Project to integrate various Disaster Management activities and requirements within the department. The wildland fire implementation of Disaster Management will need to be consistent and integrated with the department’s more comprehensive approach. At the time of the work of the EDMTG the Interior project was just getting started. The Interior project manager participated in the EDMTG work to ensure coordination between the two efforts.

## ***READERS/USERS OF THIS REPORT***

Although commissioned by the National Fire and Aviation Executive Board, the report will provide background, insight, and recommendations to a variety of users and readers, including:

- The National Wildland Fire Enterprise Architecture Project
- The Department of the Interior Disaster Management e-Gov Project
- The Department of Agriculture Disaster Management implementation activities
- Department of Homeland Security Disaster Management program
- Office of Management and Budget

## ***METHODOLOGY***

Prior to the formal chartering of the EDMTG a number of preliminary activities took place to understand the appropriate scope and direction of the effort. During the summer of 2005 field visits took place, including the National Interagency Fire Center in Boise, Idaho, the National Interagency Coordination Center, the Boise Interagency Logistics Center, the Bureau of Land Management Vale District Dispatch Office, the Northern Utah Interagency Coordination Center, and the Eastern Great Basin Coordination Center.

In August 2005 a group of fire management and information technology subject matter experts visited the Riverside and San Diego areas of Southern California, visiting with local, county, state, and federal officials, coordination centers, and emergency operations centers to discuss emergency notification and fire information distribution issues in one of the most complex interagency and intergovernmental wildland and wildland-urban fire settings.

Individual members of the EDMTG also met with the National Weather Service and received briefings and demonstration on their use of the DMIS toolset and alert messaging for significant weather events. In addition, a number of meetings were held with emergency management officials in the Departments of the Interior and Agriculture, with representatives of the Department of Homeland Security, and with the Office of Management and Budget to better understand the background and purpose of the Disaster Management e-Gov initiative.

The EDMTG met twice in formal sessions. The initial meeting took place in Lakewood, Colorado for two and one-half days. At this meeting the EDMTG received background presentations on Disaster Management (including demonstrations of the DMIS toolset and the DisasterHelp.gov web portal), the NWFEA, and the Interior Disaster Management project. The second meeting took place at the Eastern Great Basin Coordination Center in Salt Lake City, Utah. During this latter meeting a number of members visited the Northern Utah Interagency Coordination Center to see a demonstration of dispatch business procedures and systems.

## 2. BACKGROUND AND OVERVIEW

### ***DISASTER MANAGEMENT***

Disaster Management (DM) is one of the twenty-four Electronic Government or E-Government (“e-Gov”) initiatives supporting the President’s Management Agenda for making government more focused on citizens and results. DM aims to:

- Meet the nation’s needs for a unified point of access to disaster preparedness, mitigation, response, and recovery information for citizens and appropriate local, tribal, state, federal, and non-governmental entities.
- Improve preparation, mitigation, response, and recovery for all hazards by creating the ability to seamlessly and securely share incident information across the nation’s emergency response community.

In support of its mission, DM has undertaken three initiatives:

- Develop a website ([www.disasterhelp.gov](http://www.disasterhelp.gov)) that contains disaster-related information and services for citizens and emergency organizations. DisasterHelp.gov is a collaborative effort of local, tribal, state, federal, and related non-government organizations to provide citizens and responders a unified point of access to disaster-related information. It is a place of integration for content, notifications, and web-based applications where 27 federal partners, NGOs, and other local and state agencies own and maintain content on the site.

DisasterHelp.gov provides a unified access point to nation-wide disaster-related information, including news headlines and notifications. The DisasterHelp.gov portal also hosts online tools that aid emergency response groups in administration, assessment, and collaboration to facilitate sharing best practices in preparation for or response to a disaster.

- Support the Disaster Management Interoperability Services (DMIS) toolset, which provides the emergency response community with basic incident management tools and the supporting infrastructure to share incident information.

DMIS provide the capability for the emergency management community to securely share digital information. To enable the nation’s municipalities to work more effectively with digital information and share this information with other members of the incident response community, DMIS provides basic tools and supporting infrastructure to give these organizations the “starter set” of applications: an infrastructure with common service functions that enable different automated information systems to exchange data; an interoperable platform to assist standards-bodies on prototyping, testing and implementation of emerging data standards; and a basic incident management toolset provided at no cost to registered emergency management user groups. The basic DMIS toolkit supports the following capabilities: alert other organizations of an incident, and supports the Common Alerting Protocol standard; a mapping tool that displays the location of an incident and provides the ability to display icons illustrating various response-related activities such as triage centers, shelters, road closings, bridge outages, etc.; Specific Needs Requests allows organizations to send and respond to requests for resources and assistance; and Tactical Information Exchange allows organizations to track and share situational awareness of an incident.

- Facilitate the development of data messaging standards for the emergency response community through the DM Messaging Standards Initiative.

The DM Messaging Standards Initiative is a practitioner-driven, public-private partnership to create information sharing capabilities, known as EDXL messaging standards, between disparate incident management software applications and systems. The resulting XML

standards assist the emergency response community in sharing data seamlessly and securely while responding to an incident. The EDXL family of messaging standards allows private industry to adopt these standards into their solutions, systems, and hardware so that critical incident information can be shared with other incident management systems.

The current set of EDXL standards includes the following:

- Common Alerting Protocol (CAP) - standardizes the content of alerts and notifications; version 1.1 adopted as a standard Oct. 1, 2005
- Distribution Element (DE) - messages that can be distributed by specific recipients, by a geographic area, or by other codes such as agency type (police, fire, etc.); approval expected in early 2006
- Resource Messaging (RM) - standard for resource requests; in the approval process
- Hospital Availability (HAVE) – for exchange of hospital bed capacity and availability; approval process underway

Of these, all but the HAVE standard are expected to have utility for wildland fire activities.

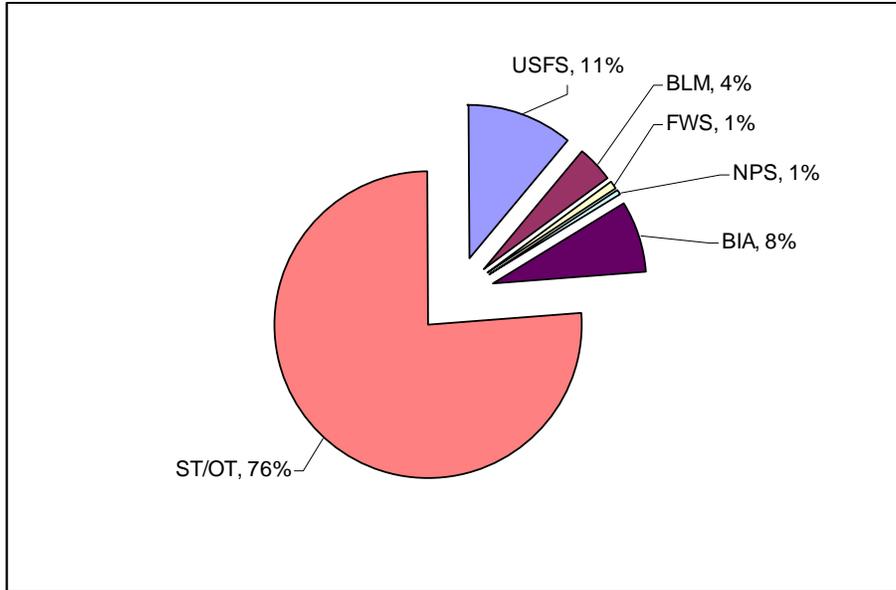
## ***WILDLAND FIRE***

The wildland fire community consists of three major components: federal land managing agencies, states, and local jurisdictions. Within the federal sector, the wildland fire program is based in five land managing agencies: the Forest Service in the Department of Agriculture and the Bureau of Land Management, National Park Service, Fish and Wildlife Service, and Bureau of Indian Affairs in the Department of the Interior. These five agencies operate in an integrated fashion, with common planning and operational protocols, facilities, and resources. The states are partners with the federal agencies, as land ownership and protection responsibilities are intermingled. In many areas of the country counties, local rural fire departments, and volunteer fire departments share wildland fire protection responsibilities through agreements with federal and state agencies.

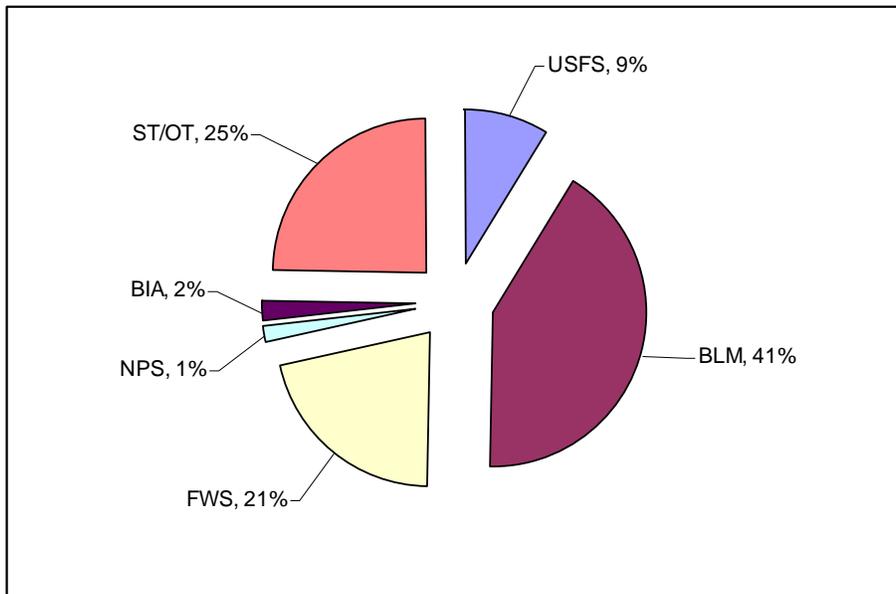
### **Scope of Wildland Fire**

The wildland fire community operates in a wide range of situations, ranging from very small single engine responses to wildfire campaigns involving thousands of personnel and equipment. The information flow structure, regardless of incident size and amount, is basically the same. The majority of wildfire operations are conducted in an interagency manner. The amount and kind of resources used are area and seasonably dependent and made available via multiple interagency agreements.

Nation-wide state and local entities account for approximately 75% of all fires and about 25% of all acres burned. The Department of the Interior and the Forest Service account for the remainder, as show in Figures 1 and 2. These lands are located in and around some of the largest population centers, such the Los Angeles Basin in Southern California, or remote, unroaded areas such as the Selway-Bitterroot Wilderness in Montana. Wildfires occur throughout the entire calendar year, depending on the location in the US.



**Figure 1 - Distribution of Fires by Agency (2005)**



**Figure 2 - Distribution of Acres Burned by Agency (2005)**

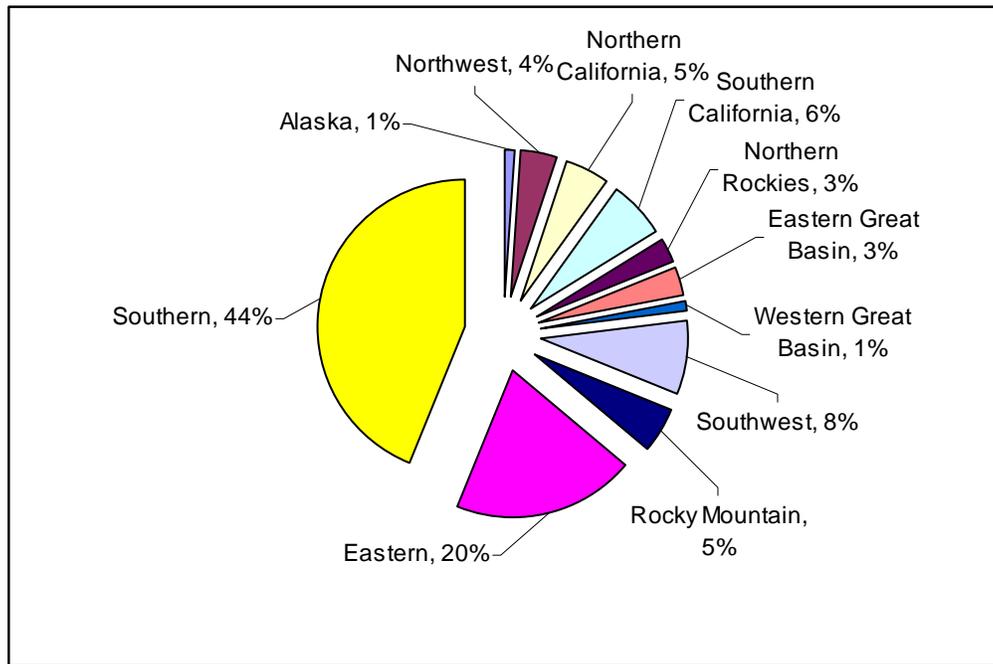
Federal land managing agencies in the Department of the Interior and the USDA Forest Service have responsibility for wildland fire protection on nearly 700 million acres throughout the United States. Each year there are nearly 20,000 fires on those lands. Acres burned vary considerably from year to year, depending on the locations of those fires. Table 1 provides a summary of fires and acres for the five federal wildland fire agencies. The large differences in acres burned

between 2005 and the 2000-2005 average are largely attributable to large fires in rural areas of Alaska, Nevada, Idaho, and other western states.

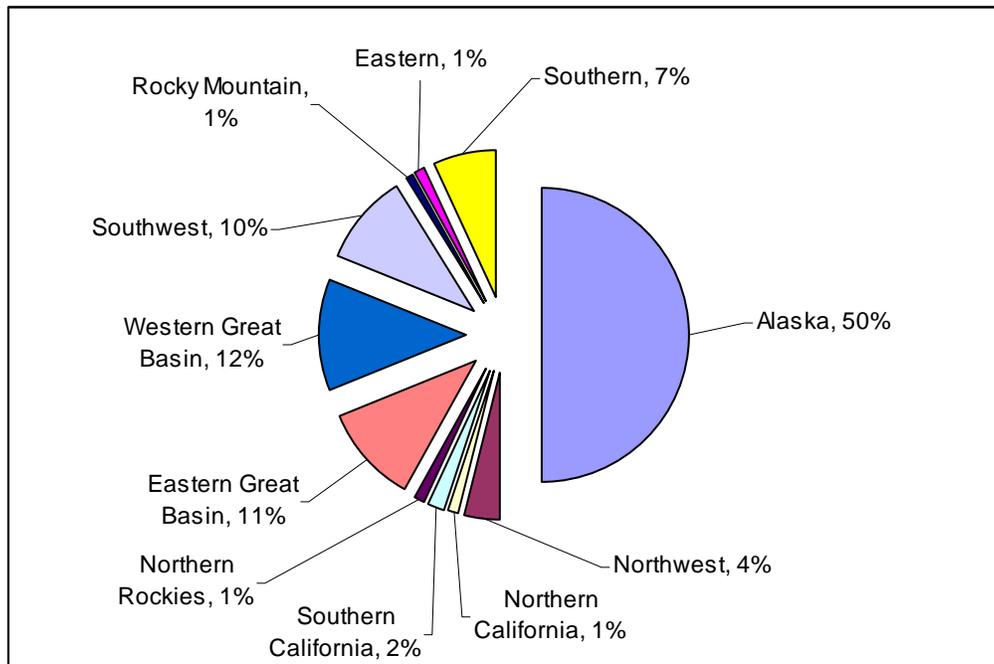
Agency	Acres Protected	Number of Fires		Number of Acres	
		2005	2000 – 2005 Average	2005	2000 – 2005 Average
USFS	193,000,000	6,361	9,182	677,610	1,191,946
BLM	261,000,000	2,585	2,767	3,658,930	1,395,179
NPS	84,000,000	395	559	142,963	127,421
BIA	57,000,000	5,994	5,552	132,166	258,144
FWS	96,000,000	707	568	1,998,210	829,082
<b>Federal Total</b>	<b>691,000,000</b>	<b>18,047</b>	<b>18,628</b>	<b>6,611,884</b>	<b>3,801,772</b>

**Table 1 - Summary of Size and Scope of the Federal Wildland Fire Program**

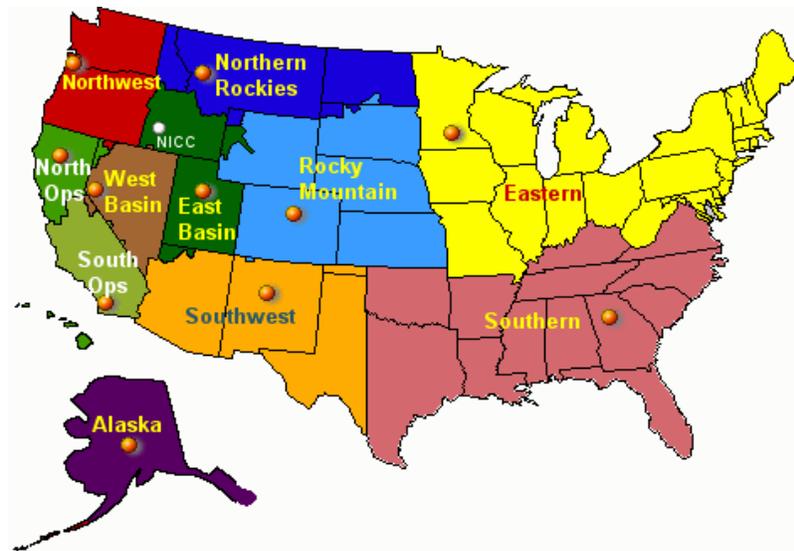
The distribution of fires and acres burned varies widely by location in the country, as shown in Figures 3 and 4. Those parts of the country with large open areas (such as Alaska and the Western Great Basin [Nevada]) tend to have a relatively fewer, but much larger, fires than the East and the South. Locations of the geographic areas in Figures 3 and 4 are found in the map at Figure 5.



**Figure 3 - Distribution of Fires by Geographic Area (2005)**



**Figure 4 - Distribution of Acres Burned by Geographic Area (2005)**



**Figure 5 - Locations of Wildland Fire Geographic Areas**

Of the thousands of wildland fires that occur every year, very few burn significant acreage. Typically federal agencies suppress about 98% of all fires at the “initial attack” phase – that is

within the first 24 hours or so. As shown in Figure 1, only 1% of all fires exceeded 5,000 acres over the period 2000-2005; 94% were contained at less than 100 acres. In 2005 only 25 fires exceeded 40,000 acres – or 0.14 % of all fires that year.

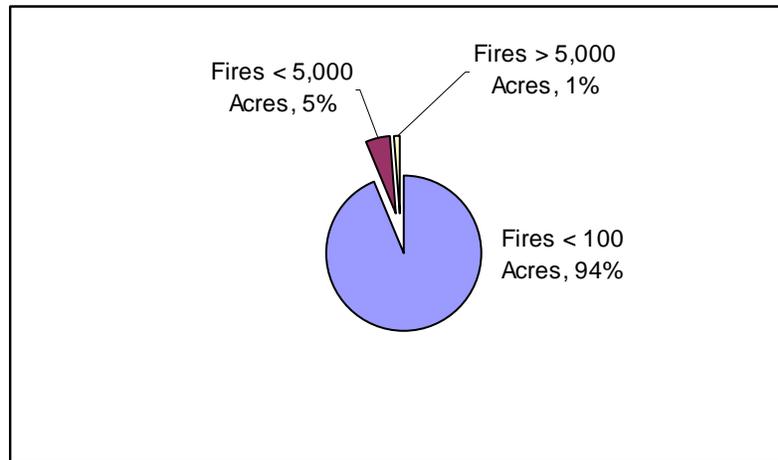


Figure 6 - Federal Wildland Fire Size - Average (2000-2005)

## Major Functions

Within wildland fire there are six major functions or business activities:

- Prevention
- Preparedness/Readiness
- Operations
- Policy Direction and Oversight
- Mobilization, Coordination & Support
- Situation Reporting

### PREVENTION

Prevention activities encompass public education activities (e.g. Smokey Bear) that increase awareness about fire danger and measures to reduce or prevent unwanted fire. Prevention also includes activities to reduce the amount of hazardous fuels through the use of prescribed fire and mechanical removal.

### PREPAREDNESS/READINESS

Preparedness and readiness activities encompass those actions taken in advance of fires in order to respond quickly and efficiently. The major activities of preparedness and readiness are:

*Planning* – analysis of fire history, fuel types, and other factors in combination with production rates of engines, crews, and aviation assets to determine the appropriate amount of firefighting resources, their locations, and the time of the year to deploy.

*Resource Management* - identification and typing based on capability and capacity (equipment, personnel, teams, supplies); stocking of supply caches at the local, regional, national levels; system for ordering, tracking, and status of resources; acquisition and procurement, contracts for equipment, personnel, and services.

*Qualifications and Certification* - standards for qualifications and certification for fire positions using classroom training and experience; system for maintaining currency and tracking status; development and delivery of training courses nationally, regionally, and locally.

*Policy, Plans, and Procedures* - mobilization guides, operations manuals, business manuals, preparedness levels, rotation and call-up schedules, and so on at the national, regional, and local levels.

*Outlook/Predictive Services* - short term and long-term analyses of conditions (weather, snowpack, fuel conditions) that affect the likelihood and severity of fires at various locations.

## OPERATIONS

Wildland firefighting operations use the Incident Command System (ICS) and the Multi-Agency Coordination System (MACS) of the National Incident Management System (NIMS). Included within the ICS are the use of Unified Command (when multiple jurisdictions are involved) and Area Command (to coordinate multiple related incidents). The MACS provides a system for integration of incident command, resource support, and line authority.

Wildland fire operations generally consist of three major incident phases:

- Local initial attack/Mutual aid using locally available first response resources and an ad hoc incident management organization
- Extended attack using additional resources and often a more formal incident management organization
- Large fires using resources drawn nationally and formal incident management teams

## MOBILIZATION, COORDINATION AND SUPPORT

Resource support for wildland fire operations is based on three key principles:

- Total resource mobility – all resources from all agencies and locations can be utilized
- Closest available forces – those resources closest to the fire are used first, regardless of “ownership”
- Bottom up ordering – the incident requests resources based on their needs; resources are not “pushed” to the incident from the top

The resource ordering process uses a “concentric circle” approach whereby dispatch offices look for resources within their area first, and then move the request to a center with broader scope if necessary. In most of the country a three-tier system is used, starting with local dispatch, then a geographic area dispatch, and finally national level dispatch. This system is shown graphically in Figure 7. The location of the 11 GACCs is shown in Figure 5 on page 8.

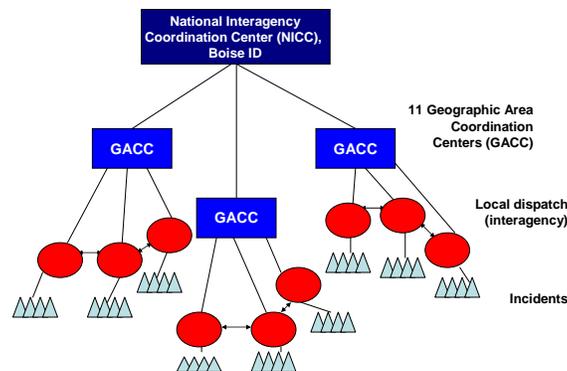


Figure 7 - Resource Ordering

## MANAGEMENT DIRECTION/OVERSIGHT

Under the concepts of ICS and MACS, management direction and oversight is provided in two primary ways:

- Multi-agency Coordinating (MAC) Groups consisting of representatives of the leadership of agencies with a local, geographic, or national area approve operational plans and direction in advance of specific incidents. During incidents the MAC groups provide broad operational direction and priorities, such as allocation of scarce resources, as necessary.
- On individual fires the local line officer(s) provides management objectives and delegated authority to the Incident Commander for the fire.

## SITUATION REPORTING

Situation reporting takes place through two means:

- Situation reports on individual fires are prepared daily and forwarded upward through the coordination system shown in Figure 3. At each level of the system a summary report is prepared and distributed.  
Chapter 3 contains a more detailed description of this process.
- Forecasts and outlooks, short-term and long-term, of weather and fire conditions are prepared regularly at the geographic and national levels and are widely distributed to fire operations personnel and fire management staffs, as well as to the public, through a variety of web sites.

Figure 8 provides a graphical display of the interrelationships among the functions described above.

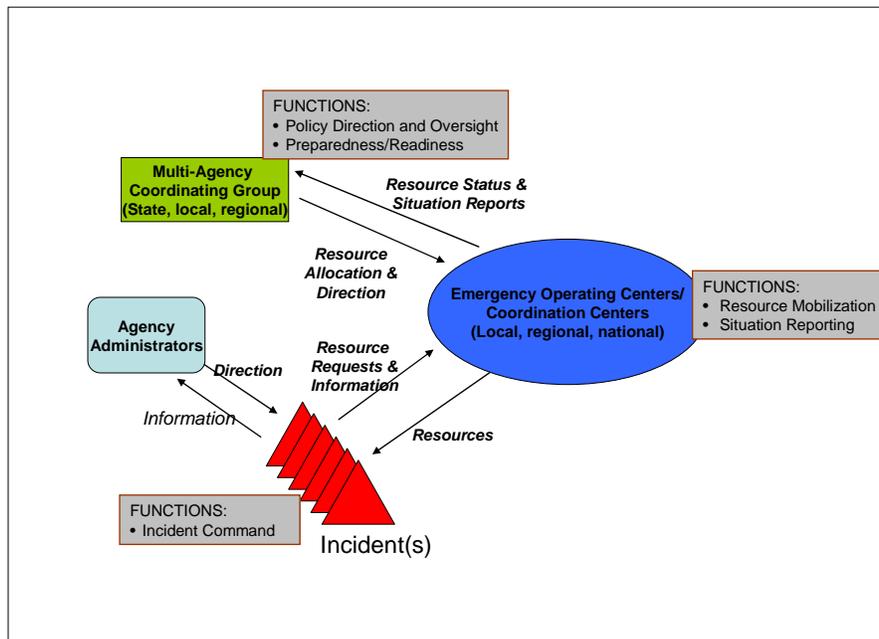


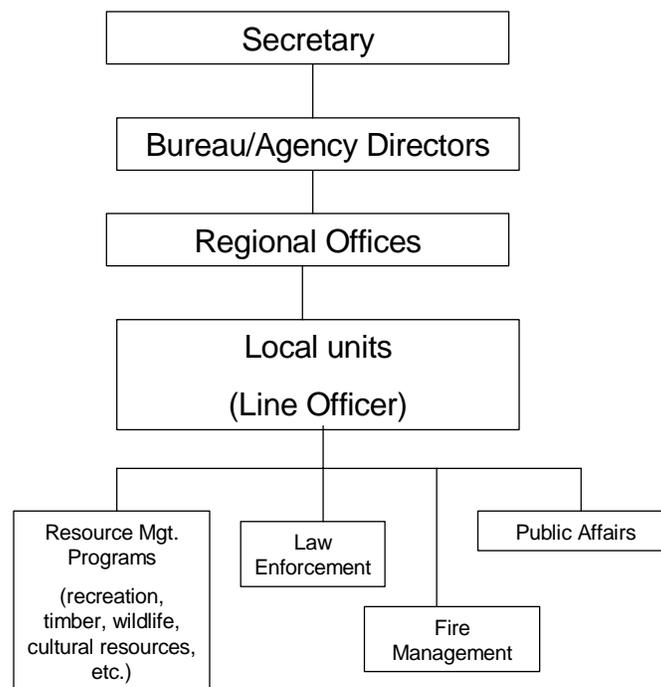
Figure 8 - Interrelationships of Wildland Fire Major Functions

## ORGANIZATIONAL CONTEXT

Within federal agencies, wildland fire organizations are a part of the larger agency management structure, as shown in Figure 9.

The major responsibilities of organizations within land management units include:

- Line officer (head of unit) – provides leadership and management oversight to fire and other programs, responsible for external liaison and coordination (e.g. local public officials), takes land management actions such as closures of recreation facilities or areas
- Fire organization – responsible for preparing for, and responding to, fires that occur within the unit
- Non-fire programs (e.g. recreation, wildlife, timber, cultural resources): - provide advice and expertise for fire management planning and assist with fire operations, as needed; takes appropriate steps to respond to consequences of fires
- Public affairs - provides information about unit activities (including fire activity and status) to the press and the public
- Law enforcement - ensures public safety, including the consequences of fires



**Figure 9 - Typical Wildland Fire Organization**

Outside of individual land management units there are a number of organizations with responsibility for wildland fire management:

- National and regional agency wildland fire planning staffs – provide policy direction, coordination, and funding for fire planning and preparedness; assist local unit fire staffs during specific incidents as appropriate
- Dispatch offices and coordination centers – coordinate the mobilization of firefighting resources on behalf of multiple land management units
- Geographic Area Coordination Centers (GACCs) – provide regional level resource mobilization
- National Interagency Coordination Center (NICC) – provides national level resource mobilization

## MAJOR FUNCTIONS OF THE FIRE ORGANIZATION

### Local Dispatch

Local dispatch offices are typically staffed and funded on an interagency basis (including state and local governments in many areas and cover multiple federal land management units as well as lands under state or local fire protection. In some areas wildland fire dispatch offices are integrated with federal law enforcement and with local 911 emergency services. Local dispatch offices typically cover large portions of a state. Throughout the United States there are 403 local dispatch offices. An example of the scope of a typical dispatch office is shown in Figure 10.

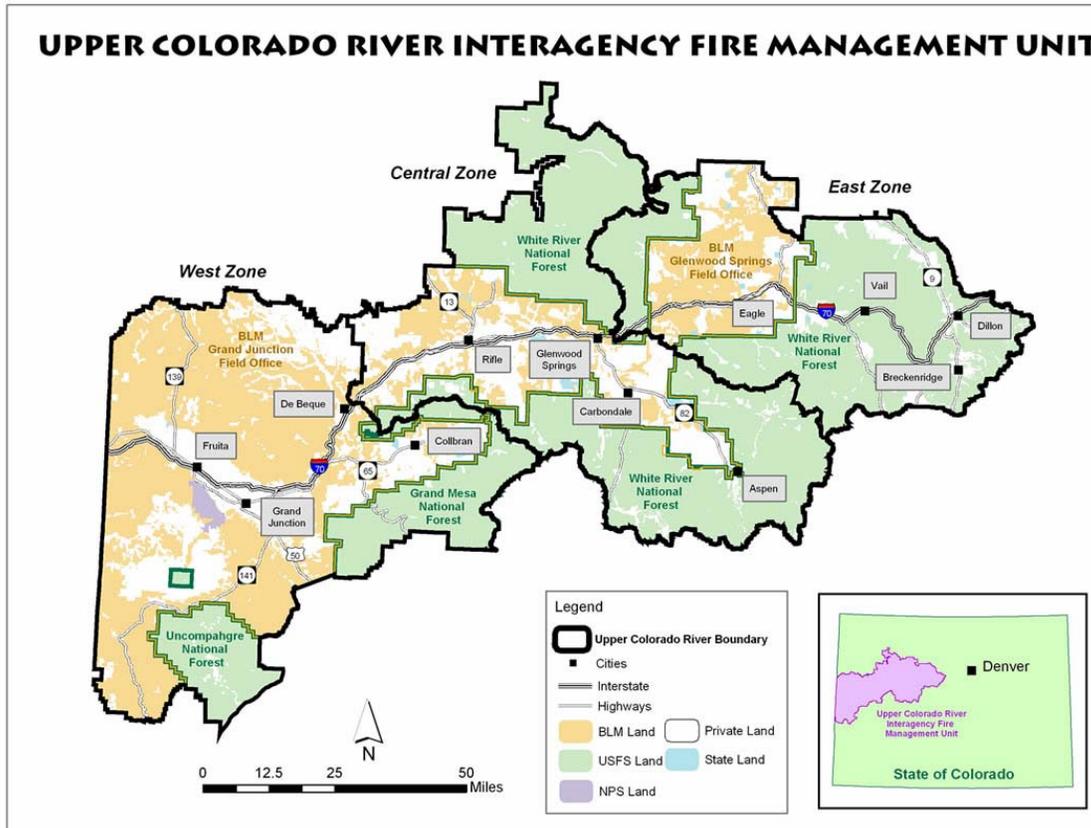


Figure 10 - Map of a Typical Local Dispatch Area

Local dispatch offices serve three principal functions. First, they mobilize local initial response of wildland fire resources to reports of fires. Second, they facilitate the ordering of additional resources internally and from out of the area if needed. And third, they collect and submit fire situation information for those fires within their jurisdiction.

The fundamental business process for mobilizing local initial response resources is:

- Receive reports of fires from variety of sources including 911 operators, observation flights, land management personnel, private citizens.
- Using pre-determined plans (often called “run cards”) appropriate resources (engines, personnel, aircraft) are called via radio, telephone, or intercom and dispatched to the reported location of the fire; appropriate resources are determined in the pre-determined plans by such factors as location such as proximity to vulnerable or high value assets), fuel types, conditions (weather, fuel conditions), and so on.

- Communicate, based on the pre-determined plans, with stakeholders such as utilities, local law enforcement, highway departments, and adjacent landowners. Communication takes place via telephone or radio in order to obtain a positive voice confirmation and to discuss response actions that stakeholders may take or to answer questions.
- Communicate with agency management to inform them of the fire.
- Maintain communications with the responders to the fire
- Order additional response resources that are requested from the on-scene responders

Local dispatchers conducting initial dispatch use a variety of tools to perform their functions, including radio, telephone, automated systems, wall mounted visual displays (white boards, magnetic boards, etc.), and reference materials in binders and books. The use and distribution of automated systems varies widely. Standard protocols are followed using a variety of applications.

Two primary computer aided dispatch (CAD) systems are in use in many locations: WildCAD and Alturus CAD. Both are commercial products. WildCAD is used principally in Bureau of Land Management managed dispatch offices and in some Forest Service offices; Alturus CAD is used by the California Department of Forestry. Both essentially automate the “run cards” and associated reference information by providing the dispatcher with information about appropriate resources to dispatch, the status of resources already committed, and contact information. These systems have basic mapping capabilities so that the dispatcher can determine fire locations and see the location of nearby roads and other features. Basic fire information such as location, time, fire number, and so on are recorded along with a running log of communication with the responders on the fire or other parties. These systems are not linked to other information systems, so any of the information entered into the CAD must be re-entered later into other systems (such as for submitting situation reports).

Both WildCAD and Alturus CAD have been acquired and used on a local basis without going through the standard process for wildland fire interagency application development and adoption.

Many dispatch locations rely on “homegrown” systems that are not fully automated, but which use databases or spreadsheets that are built locally to track the location and status of resources. In some cases there may be mapping capabilities associated with these systems. Use of these systems occurs predominantly in the east where the wildland fire workload is generally smaller than in the west. However, use of these systems is scattered throughout the country.

When additional resources are needed at the fire and those resources are not locally available, local dispatch places a request for those resources to neighboring dispatch centers and then to the geographic level as described below. Those requests are placed through the Resource Ordering and Status System (ROSS). CAD and other systems are not linked to ROSS, so core data such as fire location, date, number, size, etc. have to be manually re-entered into ROSS in order to place the resource orders.



**Figure 11 – Typical Dispatch Office**

### Regional and National Dispatch - GACC/NICC

Regional and national dispatch functions take place at the 11 Geographic Area Coordination Centers and at the National Interagency Coordination Center (in Boise, Idaho). These centers support local dispatch offices by coordinating the delivery of firefighting resources from outside of the immediate jurisdiction of the local dispatch offices. Typically outside resources are requested when fires cannot be suppressed with local initial attack resources or when those local resources are insufficient to meet the initial attack workload. In addition, at the geographic and national levels fire situation information is collected from local dispatch locations and large fires, consolidated, and integrated with weather and other outlook information to provide a geographic or national level situation report.

The fundamental business process for mobilizing supporting resources is to:

- Receive resource requests from local dispatch offices
- Fill those requests using the principle of closest forces
- Forward the resource requests to the national level if, at the geographic level, the requests cannot be filled
- Communicate with agency management to inform them of fire locations and status
- Set priorities for allocation of resources through multi-agency coordinating groups and implement through the coordination centers

Some resources may only be dispatched at the geographic or national level, including specialized teams and crews, specialized aviation assets (such as large transport aircraft), and limited support services such as caterers.

The principal tool or system used by geographic area and national level dispatchers is ROSS. ROSS allows dispatchers to see the status (availability) and location of resources and to place orders for those resources.

Figure 7 on page 10 shows the relationships among local dispatch, geographic areas, and the national coordination center.

### Fire Management

Fire management staffs at local units, regional offices, and national offices are responsible for pre-event planning and preparedness, for providing local response resources and direction for initial attack, and for supporting extended attack and large fires.

### Program Coordination and Management Organizations

Three principal organizations promote common policies, procedures, and programs within the federal and non-federal wildland fire community,

*Wildland Fire Leadership Council (WFLC)* - The WFLC is an interagency and intergovernmental organization that provides leadership and oversight at the policy level to ensure policy coordination, accountability and effective implementation of the National Fire Plan and the Federal Wildland Fire Management Policy. Members of the WFLC represent the Department of Agriculture, USDA Forest Service, Department of the Interior, Bureau of Indian Affairs, Bureau of Land Management, Fish and Wildlife Service, National Park Service, U.S. Geological Survey, U.S. Fire Administration, National Association of Counties, Intertribal Timber Council, National Governors Association, Federal Emergency Management Agency, and National Association of State Foresters.

*National Fire and Aviation Executive Board (NFAEB)* – The NFAEB is the principal mechanism for the national program managers (fire directors), in conjunction with state partners, to address common implementation of wildland fire programs. Membership consists of the fire directors of

the Fish and Wildlife Service, Bureau of Indian Affairs, National Park Service, Bureau of Land Management, USDA Forest Service, and representatives of the National Association of State Foresters and U.S. Fire Administration.

*National Wildfire Coordinating Group (NWCG)* – The NWCG is an interagency and intergovernmental group that provides a formalized system to establish standards for interoperability among wildland fire organizations, including training, equipment, qualifications, and other operational functions. Agreed upon policies, standards, and procedures are implemented directly through regular agency channels. Membership consists of the USDA Forest Service, Bureau of Land Management, National Park Service, Bureau of Indian Affairs, Fish and Wildlife Service, U.S. Fire Administration, and National Association of State Foresters.

#### ALL-HAZARD/NON-FIRE EMERGENCIES

Wildland fire resources (incident management teams, personnel and crews, equipment, and services) are often used in support of non-fire events such as floods and hurricanes. While much of this support takes place locally, significant national level support has been provided in recent years for the 2005 Gulf Coast Hurricanes, the 2004 hurricanes, the 2003 recovery of the space shuttle Columbia, the 2003 response to Exotic New Castle Disease, and response to the September 11, 2001 attacks at the Pentagon and World Trade Center in New York. In these cases the resource dispatching and incident information processes used are the same way as those used for response to wildland fires.

#### ***NATIONAL WILDLAND FIRE ENTERPRISE ARCHITECTURE***

The National Wildland Fire Enterprise Architecture (NWFEA) is a joint effort of the Department of Agriculture, the Department of the Interior, the Department of Homeland Security, and the National Association of State Foresters to provide a holistic, strategic, and integrated approach to managing the wildland fire enterprise as a single business function.

In 2004 the WFLC chartered a National Wildland Fire Enterprise Architecture Steering Group (NWFEASG) to coordinate wildland fire management enterprise architecture efforts of the participating agencies. The NWFEASG is made up of enterprise architects from: NWCG, DOI, BLM, USDA, USFS, DHS, FEMA, NPS, BIA, FWS, and USGS and includes wildland fire business representatives from DOI, BLM, USFS, NPS, BIA, and FWS.

In October 2005 the NWFEA Project was chartered to produce a number of products, including:

- The National Wildland Fire Enterprise Architecture Program and Governance Models
- The National Wildland Fire Enterprise Architecture Repository
- The National Wildland Fire As-Is and To-Be architecture
- A High Level National Wildland Fire Enterprise Transition Strategy

The NWFEA Project is to finish delivery of its products by March 2007 and begin transition to an operations and maintenance mode.

The NFAEB, through the charter for the EDMTG, set alignment with the NWFEA as an objective for implementation of Disaster Management.

### 3. WILDLAND FIRE AND DISASTER MANAGEMENT – “As Is”

As described in the previous chapter, wildland fire has a number of business functions. There are three principal wildland fire information related functions that are directly related to the purpose, goals, and objectives of Disaster Management: notification, situation information, and historical information.

#### ***DEFINITIONS***

For the purposes of this report and analysis:

- *Notifications*: information provided outside of the regular daily reporting cycle; these may be alerts requiring action or immediate awareness or they may be situational updates that are not time sensitive. Notifications requiring action are also known as “alerts”
- *Situation Reports*: formal reports submitted on a regular cycle (usually daily) using pre-determined data fields
- *Historical Information*: post-fire reports that provide the official, authoritative information about each fire using pre-determined data fields
- *Resource requests*: requests from incidents or dispatch offices for firefighting resources; the status of resources (both available and committed) is captured in Situation Reports

#### ***NOTIFICATION – THE BUSINESS PROCESS***

Notifications take two basic forms:

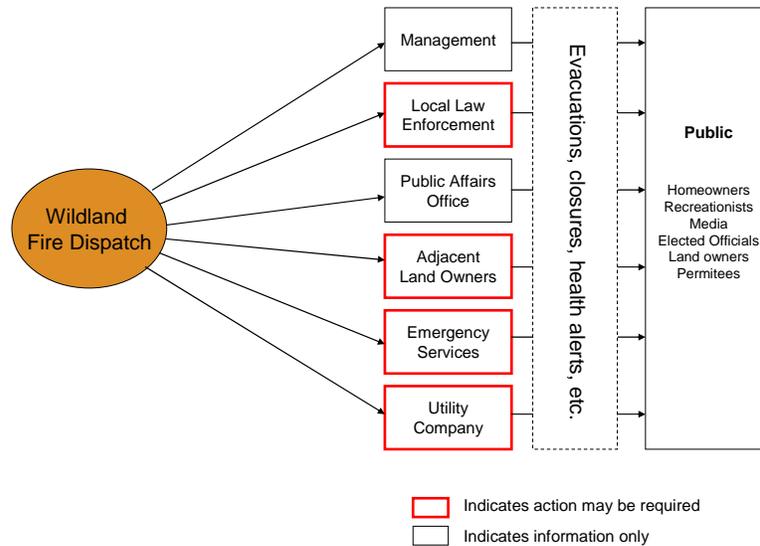
Notifications for Action: these notifications are made to organizations and individuals that may need to take action as a result of the fire, such as utility companies, local law enforcement, highway departments, and adjacent landowners. These notifications require confirmation and coordination. [Note: Notifications for action are often called “alerts.”]

Notifications for Awareness: these notifications are made to agency officials and other parts of the agency (e.g. public affairs) to make them aware of new fires, significant developments on fires, and accidents (especially those with injuries or fatalities). The recipients do not necessarily need to take action, nor is confirmation or coordination required.

As shown in Figure 12, notifications to the public are not the responsibility or function of the wildland fire community. Other entities, such as land management line officers, public affairs offices, or local law enforcement and emergency managers use information about the fire to close roads, evacuate residences, issue health alerts, close recreation facilities and so on. Those entities are then responsible for transmitting that information to the public.

Purpose of Notification	Who is Notified	Who Makes the Notification	Timing of the Notification	Nature of the Notification	Information Provided	Confirmation/Coordination Required
Action ("Alert")	Those needing to take appropriate action, such as utilities, local law enforcement, highway departments, adjacent landowners	Local Dispatch Office	At time resources are dispatched for initial attack	Telephone, radio	Location, approx. size, nature of response	Yes
Awareness ("Notification")	Agency officials, public affairs, Geographic Area/ National Coordination Centers	Local Dispatch Office	Minutes to hours after event, depending on criticality	Telephone, Radio, e-mail,	Location and nature of response of fires; information about accidents, injuries, fatalities	No

**Table 2 - Notifications for Action and/or Awareness**



**Figure 12 – Notifications made by local wildland fire dispatch**

Ongoing communication with partners after onset of an incident occurs through the incident management organization, with liaisons to those partners; communication with partners does not occur typically through the dispatchers and coordination centers.

## **SITUATION REPORTS**

The purpose of situation reports is to support strategic planning at local, regional, and national operational levels; to provide status information to management; to provide information for the media and the public; and to serve as a single, authoritative source of information during incidents. However, the accuracy of specific facts and details in situation reports varies since reports are prepared during incidents when verification and validation of details is not possible and not a priority for the purposes of the reporting.

### **Types of Situational Reporting**

Fire situation information is collected with the aid of the Situation Report application on a daily basis during the local dispatch office's "Wildfire Season". For the rest of the season the information is reported once a week. The information collected includes:

- Number of new fires by cause or type (Human, Lightning, Prescribed)
- Wildland Fire for Resource Benefit
- Number of new acres burned by cause or type
- Number of uncontrolled small fires
- Fire danger level
- Unit preparedness level
- Number and type of resources available and committed for initial/extended attack
- Planned Prescribed fires
- Dispatch office level preparedness level and remarks information
- Year to date number of fires and acres burned by cause or type

Information on large fires (100 acres of timber fuels or 300 acres of grass fuels) is collected on an ICS-209 Incident Status Summary form in conformance with the appropriate the Geographic Area Mobilization Guide. The information collected on the ICS-209 includes over 40 discrete data elements, including:

- Date and Time
- Incident Number and Name
- Type of Incident
- Cause
- State-Unit identifier of the protection Unit
- Location
- Size of Area involved
- Expected Containment Date and Time
- Injuries and Fatalities
- Type and Number of Structures Threatened, Damaged and Destroyed
- Critical Resource Needs
- Current general weather conditions
- Resources used by agency

Although the data elements on the ICS-209 are common to all agencies, there are differences in interpretation and emphasis from agency to agency and from location to location.

Information from the database of situation reports, including individual large fire reports, is retrieved at each GACC, as well as at the NICC, and used to generate reports and set geographic and national incident priorities. Each GACC prepares a daily GACC Situation Report and the NICC prepares a daily national level Incident Management Situation Report. These situation reports summarize the overall situation (number and location of fires, fire weather outlook), provide brief synopses of each large fire, provide a table showing large fire status and key resources committed to each fire, a discussion of fire weather conditions and outlook, and summary tables of all fires and resource commitments.

The information contained in the GACC and NICC daily situation reports is posted on a variety of websites. This information also provides the basis of a number of derivative documents such as press releases and internal management briefings. Local, GACC, and NICC websites also contain detailed information on resource status, weather, fuel conditions, and outlooks, These sites also contain extensive references to such information as status of teams and crews, contracts for equipment and services, and references materials such as guides, handbooks, forms, and procedures.

***HISTORICAL (OFFICIAL FIRE REPORTS)***

The purpose of these reports is to provide information for long term fire management planning and for program evaluation, oversight, and policy analysis.

Official fire report information is collected separately by each of the five federal land managing agencies using similar, but different, systems and business rules. In some cases the definitions of similar data elements vary significantly from agency to agency. In general, final, official fire incident data are to be submitted within 5-10 days of the fire being declared out. In practice the data are often submitted at the conclusion of the season or end of the calendar year. Responsibility for preparing and submitting these data lies with the unit fire management office, rather than with dispatch offices in the case of daily fire incident reports. Although many of the data elements are the same as the daily incident reports (location, size, fire code, etc.) all of the data for these official fire reports are re-entered separately. There can be significant differences between the data in the daily reports and the official reports.

There is no central repository for reconciled federal wildland fire official fire report data.

***PRINCIPAL USERS***

Users of wildland fire information range from immediate local responders to national level officials. The principal users and their need for the information are summarized in Table 3.

<b>Major Category</b>	<b>Sub-categories</b>	<b>Need</b>
Fire	<ul style="list-style-type: none"> <li>• Fire management - federal, state, local, or tribal level</li> <li>• Dispatch and coordination</li> <li>• Cooperators and operational partners</li> </ul>	Appropriate response actions
Partners and Stakeholders	<ul style="list-style-type: none"> <li>• Utilities</li> <li>• Adjacent landowners</li> <li>• Local law enforcement</li> <li>• Local emergency managers</li> <li>• FEMA</li> </ul>	Information and Awareness Potential response actions
Agency Managers and Officials	<ul style="list-style-type: none"> <li>• Federal, state, local</li> <li>• Line Officers</li> <li>• Non-fire programs</li> </ul>	Information and Awareness Program oversight and direction
Public/Press		Information and Awareness
Elected Officials	<ul style="list-style-type: none"> <li>• National, state, local</li> </ul>	Information and awareness

**Table 3 - Users of Wildland Fire Information**

**PRINCIPAL SYSTEMS**

Over 30 different “systems” or applications have a role in producing wildland fire related information – either directly or as a utility or tool. However, many of these play a minor role. The principal systems for collecting and disseminating notification, situation report, or historical information are shown in Tables 4 and 5.

<b>Systems</b>	<b>Uses for the Information</b>
Computer Aided Dispatch	<ul style="list-style-type: none"> <li>• Notification</li> <li>• Situation</li> <li>• Historical record</li> </ul>
Resource Ordering and Status System	<ul style="list-style-type: none"> <li>• Notification</li> <li>• Situation</li> <li>• Historical record</li> </ul>
Large Fire Report (209)	<ul style="list-style-type: none"> <li>• Situation</li> <li>• Historical record</li> </ul>
Situation Reports	<ul style="list-style-type: none"> <li>• Situation</li> <li>• Historical record</li> </ul>
FireStat, 1202, 5100	<ul style="list-style-type: none"> <li>• Historical record</li> </ul>
Weather	<ul style="list-style-type: none"> <li>• Notification</li> <li>• Situation</li> <li>• Historical record</li> </ul>
Incident (I-Suite, InciNet)	<ul style="list-style-type: none"> <li>• Situation</li> <li>• Historical record</li> </ul>

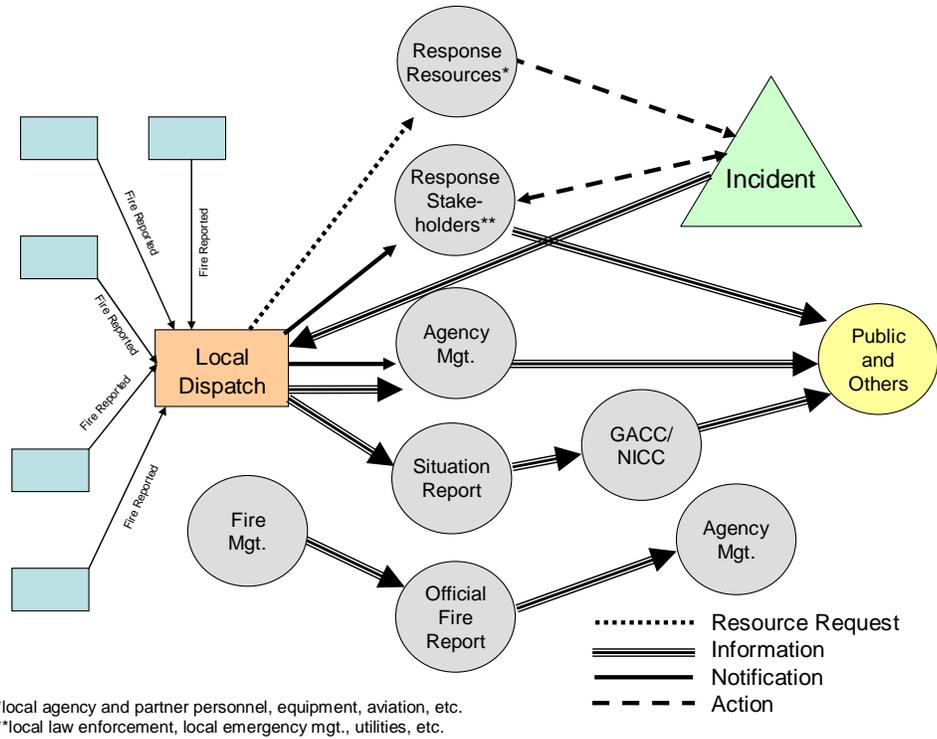
**Table 4 - Principal Systems for Generating Wildland Fire Information**

<b>Systems</b>	<b>Uses of the System</b>
Web Sites	<ul style="list-style-type: none"> <li>• Situation</li> <li>• Historical record</li> </ul>
Voice (telephone, radio)	<ul style="list-style-type: none"> <li>• Notification</li> <li>• Situation</li> </ul>
Written	<ul style="list-style-type: none"> <li>• Situation</li> <li>• Historical record</li> </ul>
E-Mail, Electronic messaging	<ul style="list-style-type: none"> <li>• Notification</li> <li>• Situation</li> </ul>

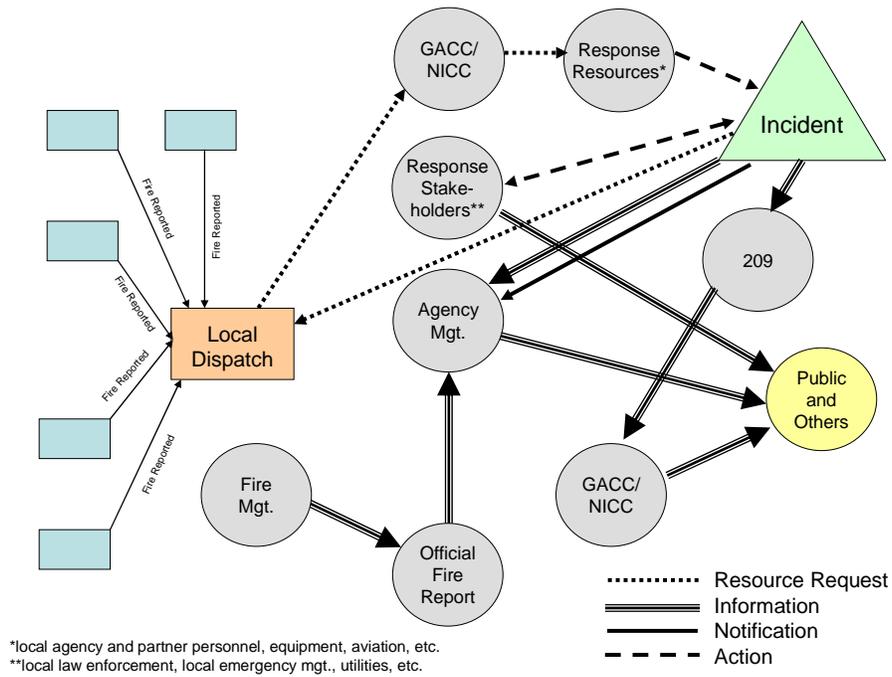
**Table 5 - Principal Systems for Disseminating Wildland Fire Information**

**INFORMATION FLOW SUMMARY**

Figures 13 and 14 summarize the flow of information to various users. During the initial attack phase of a fire (which is the only phase for the vast majority of fires) information flows primarily from the local dispatch office to users. Once a fire escapes initial attack much of the information flow process becomes more formal with additional information requirements.



**Figure 13 - Initial Attack Information Flow**



**Figure 14 - Large Fire Information Flow**

## 4. FINDINGS AND ANALYSIS

Findings, and analysis of the findings, are organized in the following major categories:

### **NOTIFICATIONS**

**1. Finding: The current system of notifications meets wildland fire and all-hazard (non-fire) business requirements**

The vast preponderance of wildland fires are local events involving only a few acres, requiring fast action, minimal data entry, and lasting a short period of time. Local wildland fire dispatch offices have effective communications mechanisms that appropriate stakeholders (e.g. local law enforcement, utility companies, highway departments, adjacent landowners) receive rapid information about new fires in order to take actions of their own. That communication takes place through phone and radio calls to assure receipt of message and to allow further communication and coordination on the response actions. Following the initial dispatch of resources, communication with stakeholders about fire activity takes place with the incident commander and the incident management team, often on the scene of the fire. The group found no dissatisfaction with these practices by either stakeholders (receivers of notifications) or practitioners (dispatchers).

**2. Finding: Use of electronic messaging using the Common Alerting Protocol is not feasible or practical at this time**

Implementation of capability to electronically transmit notifications using the Common Alerting Protocol (CAP) would require installation of new software (either the DMIS toolset or some other application) on the desktops of 403 dispatch offices around the country. Use of the CAP application would require local dispatchers to manually re-enter relevant data (time, location, size, and so on) that has already been entered into multiple systems. In addition to the extra workload this would impose on dispatchers, significant investments in dispatcher training would be required.

Sending electronic CAP messages would not eliminate the need for dispatchers to continue to make notifications using radios or telephones since notifications for action require a voice acknowledgement (confirmation) and the ability of the dispatchers to engage in dialogue on coordination and response actions.

Requiring dispatchers to enter duplicate incident information for the sole purpose of sending redundant notifications reduces their ability to perform their dispatch functions, increasing risks to life and safety of firefighters and the public.

The installation of CAP messaging software would require the intended recipients of those messages to have the necessary equipment to receive and read electronic notifications. In most areas with wildland fire activity those recipients are not in fixed locations such as emergency operations centers equipped with computers with Internet access.

Unlike other applications of CAP messaging in natural disaster areas (e.g. earthquakes and volcanoes) the implementation of CAP messaging is not a simple supplement to existing business practices. Unlike those disciplines, in wildland fire there is no existing network of sensors that feed a central repository of *immediate* information about individual wildland fire occurrences. Such a centralized system has not been developed, nor is there a need for such a centralized system, since the volume of incidents nationally is very large and the decentralized response system to frequent, small wildland fire incidents does not require a centralized focal point. All fires are captured in national historical record systems for planning and program analysis.

**3. Finding: Electronic notification messaging capability should be an organic part of computer aided dispatching in the future**

In the future, electronic transmission of wildland fire notification messages could provide an important redundant means for dispatchers to provide timely information to stakeholders. In some cases it could reduce dispatcher workload, although in most cases the importance of receiving a verbal confirmation and the need to interact with the message recipient would continue to require use of radios and telephones as the primary means of notifying stakeholders that may need to take response actions based on the notification. Use of electronic notification messaging for those messages that do not require confirmation, acknowledgment, or interaction could reduce the workload of dispatchers. Examples of such notifications would be informing other agency personnel (such as line officers, resource managers, public affairs) of new fire activity for their information and awareness.

**4. Finding: Notifications and alerts to the public, the news media, and local public officials are the responsibility of agency management and non-fire program areas – not wildland fire management**

The core responsibility of the dispatchers and others in the wildland fire community is fire suppression in concert and coordination with other entities with a direct stake, including local law enforcement, nearby utilities, and highway departments. Providing general information about fire activity for the public and news media, or about actions taken as a result of the fire (such as road or campground closures, evacuation of residences) is the responsibility of public affairs offices and those entities making decisions. Electronic notification and alert messages would be a useful means for agency management to notify the public, news media, local elected officials, and others of significant wildland fire information.

### ***FIRE SITUATION INFORMATION***

**5. Finding: Fire status information is available to fire and agency managers, to partners, to the media, and to the general public and other users through a variety of websites and written situation reports**

The wildland fire community has developed and uses standardized interagency reporting formats and procedures. Standard situation report formats and data elements are used by all wildland fire agencies to easily create, consolidate, and distribute situation reports. Fire situation information is collected and reported on a daily basis using the fire situation and ICS-209 reporting mechanisms. This information is published and widely made available through national, geographic area, and local/unit websites, as well as used in creating press statements, internal agency briefing papers, and other documents. Information about large fires is linked to Geo-Spatial One Stop and is posted on websites such as [geodata.gov](http://geodata.gov) and [geomac.gov](http://geomac.gov) to provide the public with current locations and data about wildland fires. Wildland fire information is included in the Disaster Management portal site [DisasterHelp.gov](http://DisasterHelp.gov).

**6. Finding: Information published on the wide variety and number of government sponsored wildland fire websites is often different and could be confusing to users**

A wide variety of websites, from national (NIFC/NICC) to geographic areas, to local units, to individual incident management teams publish fire situation information at different times of the day. Although the only “official” fire status information available is that created and published through the daily situation report process, many entities publish interim information through the day in order to keep the public and other users informed. Information published on individual websites is often preliminary and for the purposes of strategic planning and preparedness. However, this information is often the most up-to-date information available. Without clear descriptions of the source, timeframe, and

quality of the information users of multiple sources of wildland fire information may not be able to determine what is authentic, or official, information and what is the most recent or reliable information.

**7. Finding: The data fields for wildland fire situation reporting do not adequately capture the types of information needed to report on non-fire incidents (such as hurricanes)**

The ICS-209 was developed for wildland fire purposes and provides a common framework for wildland fire daily situation reports. The values at risk, operational cost estimates, resources committed, and projections of operational success are key elements of the report for use in wildland fire incident management. However, for non-fire events like hurricane response and recovery other data elements, such as the amount of commodities (food, water and meals delivered) and the amount/kind/type of logistical support provided, are key data elements but are not captured in the current ICS-209. Furthermore, definitions of data fields in the ICS-209 are geared towards wildland fire operations only. Although items such as “resources committed” can be reported in the same portion of the ICS-209 for both wildland fire and hurricanes, the format is geared to describe engines, crews, helicopter and dozers, not Red Cross kitchen units, medical teams and other kinds/type of resources that support other natural resources response/recovery efforts. This type of information is currently recorded daily in the “comments” section of the ICS-209 and is manually reentered into other systems for dissemination.

### ***HISTORICAL FIRE INFORMATION***

**8. Finding: Accurate, timely historical fire information is critical for fire management planning and program review and analysis**

As noted earlier, daily information about fires (location, size, etc.) is often inaccurate in the details, though adequate for the purposes of strategic planning and management. Authoritative, *final*, information is important for wildland fire management planning, budgeting, program review/analysis, and similar activities. Reliance on the cumulative daily situation report information is not adequate for these purposes.

**9. Finding: There is no universal, consistent method of collecting official fire information among the five federal wildland fire management agencies, or with state and local partners**

Within the federal government, each of the five agencies collects somewhat different information from its management units. Within the Department of the Interior three agencies combine the information into one common database. The fourth Interior agency uses its own system. The USDA Forest Service uses its own system. States collect fire occurrence information in a variety of ways. Data definitions and other business rules for collecting the information vary from agency to agency.

**10. Finding: Historical fire information is not reported and available in a timely manner**

Official fire information is to be submitted within 5-10 days of the end of the incident, yet as a practical matter most reports are not submitted until the end of the year. Even then, many reports are incomplete. The fragmented approach to collecting, validating, storing, and disseminating the final historical information does not currently provide a timely and consistent approach.

**11. Finding: Historical fire information is not readily available in a location and format convenient to all users**

Federal data are stored in three different databases. Approved users within agencies may query the data from the system for which they have access, either looking at canned reports or exporting raw data for importing into applications (such as a spreadsheet) for

inspection and analysis. There is no means to look at the data for all five federal agencies. Some information is routinely exported to websites in canned reports. External customers (such as researchers) may submit requests for data to the agency staffs with responsibility for maintaining the historical fire records.

## ***INCIDENT COORDINATION***

### **12. Finding: The Disaster Management DMIS toolset does not meet wildland fire business needs**

The DMIS toolset does not provide value added for wildland fire. The DMIS toolset is designed to provide “the emergency response community with basic incident management tools and the supporting infrastructure to share incident information.” The data fields and business processes inherent in the DMIS toolset are designed for urban incidents and have strong bias towards terrorist incidents.

Wildland fire already has incident management tools that, for over thirty years, have been designed, built, and refined to provide interagency and intergovernmental response. Central to this capability is the Multi-Agency Coordination System components of the National Incident Management System – providing a management structure for managing incident command, coordination of resource requests, collaboration with partners, and management of incident logistics. Toolsets to implement this capability include CAD systems, ROSS, and a wide variety of fire business management systems and tools.

### **13. Finding: Use of the DMIS toolset solely to provide electronic alert (notification) messages is impractical and costly at this time**

Significant barriers exist to using the DMIS toolset to provide electronic notification messages. These barriers include:

- **Costs:** although the software itself is provided by the Department of Homeland Security at no charge, significant indirect costs include installation of the software at 403 dispatch locations around the country and the training of 1,100 – 1,200 dispatchers on the use of the software. Experience from installation of the DMIS software at the national emergency operating center level indicates that significant technical conflicts arise between the software and agency hardware, networks, security firewalls, and the like. These issues take hours of time by local system administrators as well as the DMIS technical support staff. Once operational, substantial costs would have to be invested in training permanent and seasonal dispatch personnel as well as the user community (recipients) for the notifications.
- **Duplication of effort:** in order to use the DMIS software to send notification messages pertinent data would have to be re-entered, taking additional time and effort by the dispatchers.

As a practical matter, even if considerable investments are made in installation and training given the lack of business need and the time required to re-enter incident information there would likely be little if any use of the DMIS software by local dispatchers.

### **14. Finding: Use of Computer Aided Dispatch (CAD) within wildland fire is inconsistent and inefficient**

CAD systems provide the local initial attack dispatchers with the opportunity to improve efficiency through automation of pre-incident planning, resource tracking and mobilization, mapping, communication with stakeholders, and other business requirements. Two principal CAD systems are in use in local dispatch offices, supplemented by a variety of “homegrown” data bases that track status and location of firefighting resources.

However, the potential value to local dispatch offices is far from realized by the informal and ad hoc approach to CAD systems throughout the wildland fire community. The CAD systems in use have not been developed using the NWCG application development process, which would have required development of data standards or compliance with existing data standards. Integrating the current CAD systems with other standard applications will require continual mapping and conversion among between the applications. Current CAD systems are not based on an analysis of dispatch business requirements, nor by common agency direction or policy. Current systems are not being managed on an interagency basis. Technical support for the CAD system most often used, WildCAD, is limited.

Furthermore, current CAD systems are not linked to other systems such as ROSS or situation reporting, requiring multiple data entry of the same core data elements (such as agency, location, date, size, fire code, etc.) needed by each system. Current CAD systems are not capable of generating or sending electronic alert or notification messages.

A comprehensive, integrated approach to the use of CAD systems would improve the efficiency and effectiveness of local dispatch operations. Such an approach should be based on detailed analysis of business requirements (including capability to generate and send CAP messages) and be compatible and interactive with other systems. A single local dispatch CAD application would make acquisition, installation, maintenance, and training more cost effective on a national basis. One system would allow dispatchers to work easily in any dispatch office using the same equipment, applications, and business rules.

## ***INTEGRATION OF FIRE INFORMATION SYSTEMS AND PROCESSES***

### **15. Finding: Core wildland fire data elements are entered multiple times in multiple systems**

The development and implementation of existing wildland fire information technology applications were driven by various levels and functional areas within the wildland fire organization. Some applications (such as the FireCode System) were top-down driven based on needs for finance information at the Congressional and departmental levels. Other applications, such as the CAD systems, ROSS, and IQCS were bottom-up driven based on needs from the dispatch and training communities. Either way, the resulting environment is a multitude of single-function, stand-alone applications that require the field user to manually enter the same data (such as fire number and name, location, and size) multiple times in multiple systems. Local dispatchers do most of the multiple data entry, but other personnel using other systems may also need to re-enter data as well.

For example, upon receiving the initial report of a fire, the dispatcher enters the incident information into the FireCode System and then a computer aided dispatch application or similar application. If the fire is not caught during initial attack and further resources are required, the dispatcher enters the same information into the Resource Ordering and Status System (ROSS) to place orders for outside resources. The same information is re-entered into other systems such as the Situation Reporting System and Fire Occurrence System(s). This core information is entered yet again into the Incident Qualification and Certification System when experience information obtained on an incident is added to the system.

In addition to the time required to re-enter data, re-entry of the same data into several systems increases the probability of data entry errors which ultimately results in inaccurate reporting. The dispatch function itself is especially time critical. At times, because of heavy workloads, this results in delaying data entry until the activity level

decreases, again resulting in increasing the likelihood of inaccurate data entry and reporting.

Throughout the duration of any incident, much of the fire information is based on estimates and is extremely dynamic by nature. As better estimates are made available through the use of geospatial products, observation, etc., the information is updated. The initial update is made at the incident and reflected on the incident or team website. At that point in time, the information from the incident or team website does not match the information from the situation report or the National Interagency Coordination Center website because that the information from the incidents has not yet been rolled up into the “higher” level reporting process. Again, because core information is entered into multiple systems and it is not clear to the user where the information is coming from, there is the perception of inaccurate data. The need for re-entry of the same data elements by dispatchers is portrayed in the following figure.

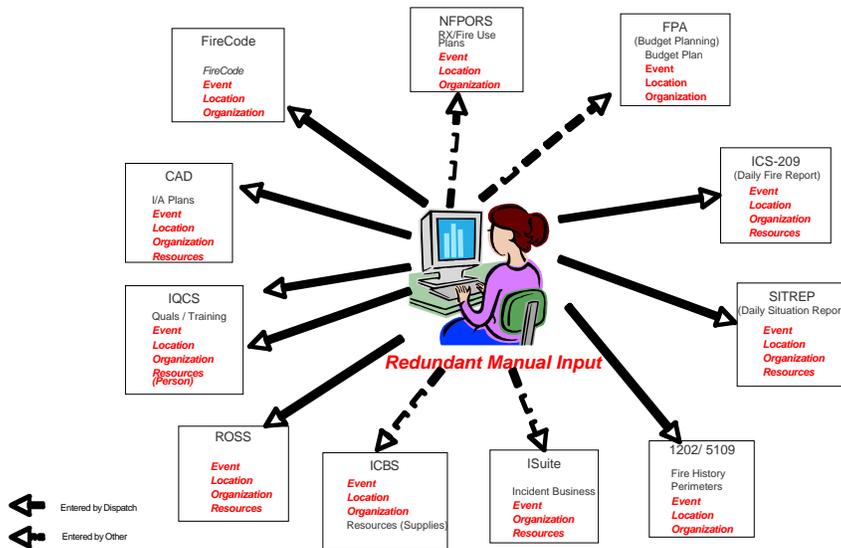


Figure 15 - Manual Duplicative Data Entry

[NB: Figure 15 includes wildland fire systems not discussed in this report, such as FPA and NFPORS]

## 5. CONCLUSIONS

Based on the above Findings, the EDMTG reached the following conclusions:

### 1) **Implementation of Common Alert Protocol messaging within the wildland fire community is not feasible or appropriate at this time**

Although there is some value for using or implementing the Common Alerting Protocol (CAP) within the wildland fire community as a secondary notification capability, there was no immediate need identified to implement CAP as the primary notification method. Current wildland fire applications do not have a logical data field that could be extracted for CAP messaging. A change in business processes and rules would be required to integrate CAP into existing applications. The cost to install, maintain and operate an additional software application in addition to the existing applications in use does not justify the potential and limited value of generating a CAP alert. Implementing CAP at this time would add unnecessary duplicative data entry during the time critical period of initial attack dispatch. Since notifications to responding firefighting resources or to potential responders such as local law enforcement or utility companies requires positive voice acknowledgment and confirmation, sending CAP messages would provide no value added.

In the future, CAP messages could provide a redundant means of providing information, especially when confirmation or coordination is not required. In the current wildland fire operating environment, few potential recipients of such messages have the capability to receive electronic messages. A potential use of such messages in the future would be notification of the public, the media, or others of actions taken as a result of fires (such as closure of recreation areas or highways). However, the responsibility for generating messages for those purposes lies more appropriately with those making the decisions (land managers, local law enforcement, etc.) – NOT with wildland fire dispatchers.

### 2) **Wildland fire should adopt EDXL standards**

The goal of the Emergency Data Exchange Language (EDXL) is to bridge the information sharing gap between diverse software products, devices and proprietary systems during an incident or emergency. Although most of wildland fire's activity takes place within the wildland fire community, there must be the capability to be interoperable with other emergency management activities. Adoption of the EDXL standards will ensure that wildland fire can exchange messages and information – such as situation status or resource requests – across all levels of local, state, tribal and federal agencies and private sector organizations.

### 3) **Eliminating multiple entry of common wildland fire data in multiple systems would reduce errors and inconsistency and would increase efficiency**

The continued deployment of stand-alone applications has created a logjam in one of wildland fire's most critical functions – dispatch. Multiple entry of the same core data by dispatchers and others in the wildland fire community is enormously inefficient and leads to errors and inconsistencies. As shown in Figure 10 above, many systems and applications require that the same core data be entered. This often requires the same person to be switching from one application to another and re-entering the information. Not only does this waste valuable time, it can lead to errors through transposition and other mistakes. When the data are updated in one system they must be updated in the other systems as well to avoid inconsistencies and discrepancies in reporting and analysis. Establishing an enterprise-wide strategy for application development would eliminate duplicative data entry, improve the quality of information, and ensure interoperability of wildland fire applications.

**4) A common approach to computer aided dispatch would increase efficiency and effectiveness**

A common, interagency approach to computer aided dispatch would ensure that dispatcher business requirements are addressed, reduce costs of acquisition, maintenance, and training, and minimize data re-entry by directly supporting resource requests in ROSS and preparation of fire situation reports. A common approach to computer aided dispatch would further ensure commonality of data elements and would improve the ability to move dispatchers among different locations.

**5) There is no need to adjust the content of wildland fire situation reports to meet external user requirements**

The situation reporting requirements of the Departments of Homeland Security, Interior, and Agriculture are met by current wildland fire situation reports.

**6) Guidelines for posting fire information on websites would reduce confusion about the accuracy of information posted at various times**

Fire situation information is posted on a wide variety of web sites as well used in various internal briefing papers, press releases, and so on. The wildland fire community respects the daily National Incident Management Report and the underlying situation reports and large fire reports as the definitive and authoritative source of fire status information. However, many times that information is significantly out of date as fires, particularly large fires, consume additional acres, threaten structures, and require more resources before that information is reported and captured through the formal situation reporting process. As a result, updated information often appears on various agency run or sponsored web sites at the incident, unit, or geographic area level. Although this information may be more current, it may be unverified or at least inconsistent with the authoritative daily situation report information. Appropriate qualifications regarding source, timing, and quality, and so on for information posted outside of the daily National Incident Management Report would reduce confusion about potential inconsistencies.

## 6. RECOMMENDATIONS

### 1. **Conduct a demonstration or pilot application of CAP messaging in wildland fire**

In order to better determine the benefits and appropriate use of CAP messaging in the wildland fire business environment, a demonstration or pilot should be conducted. This demonstration would be designed to obtain information on:

- Types of notification information to be sent
- Recipients of notification information
- Capability of recipients to receive notifications
- Technical requirements to send notifications
- Total costs of installation and operation (software, hardware, training, and so on)

The results of the demonstration would be used (1) to provide insights into the notification capabilities for a next generation universal computer aided dispatch system and (2) to evaluate the value of the use of CAP messaging in advance of such a system.

### 2. **Create one national wildland fire (incident) computer aided dispatch (CAD) application based on a thorough analysis of the business needs of the dispatch and fire management communities.**

Components of this application would be:

- Interoperable with other incident management and incident support systems such as ROSS and InciWeb
- Incorporate the functions of the stand-alone FireCode System
- Interoperable with state, local, and other cooperators
- Interoperable with a consolidated (“end-to-end”) fire reporting system
- Establishment and utilization of interagency data standards
- Capable of sending EDXL-compliant messages (including CAP)
- Capable for use in non-fire (all-hazard) incidents
- Interoperable among dispatchers in multiple locations
- Robust enough to meet the high complexity, high volume requirements of some dispatch locations, yet simple enough to be used in low complexity, low volume locations
- Aligned with NWFEA transition strategy

The development of this CAD application should include the full participation and engagement of current practitioners and subject matter experts. Implementation of a national CAD application should include sufficient redundancy and alternative access to ensure continuity of dispatch business functions in the event of a disruption.

### 3. **Create an “end-to-end” fire reporting system that would provide an integrated and coordinated process for collecting incident/event data**

The existing environment of wildland fire reporting was created by various wildland fire business functions with differing objectives and requirements. Each system, on its own, meets the needs of its target audience; however, when the data is consolidated for upward reporting, there is a mismatch of data. The wildland fire community needs to take a strategic, end-to-end approach to reconciling the disparity in fire reporting. Rather than independent databases, core incident information should be stored in a single database that is used as the 'system of record' by other applications. As the incident progresses, different processes or applications (e.g. situation reporting, 209, fire history, etc.) add data to the incident record. When the incident is closed-out, a report of all activities and

resources can be generated. By creating this incident database and utilizing the "write once, read many" concept, the amount of redundant data entry would be reduced, and all fire applications could be linked to a single incident record, from which data calls could be referenced.

By evaluating the end-to-end needs of the wildland fire community as a whole, a strategy to migrate to a consolidated and integrated information technology model can be implemented. Single authoritative sources for core data can be defined and future systems designed for interoperability. Figure 16 shows the concept for an integrated and coordinated end-to-end reporting system.

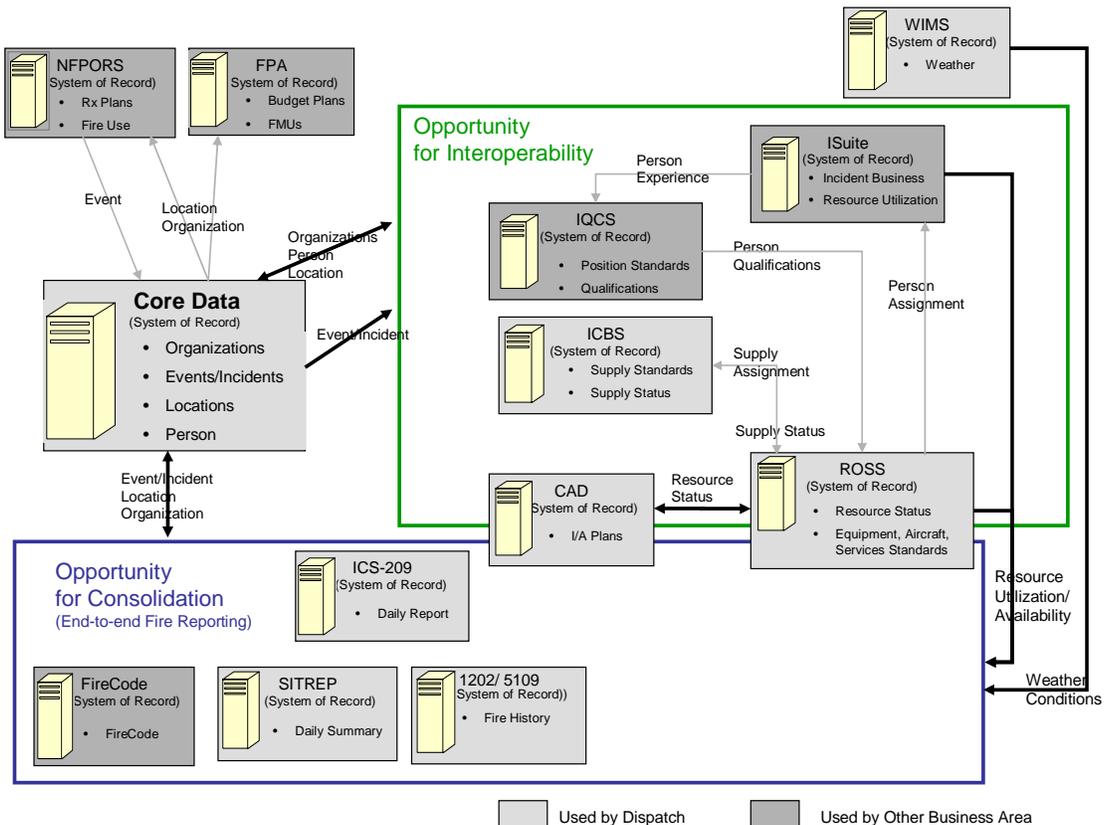
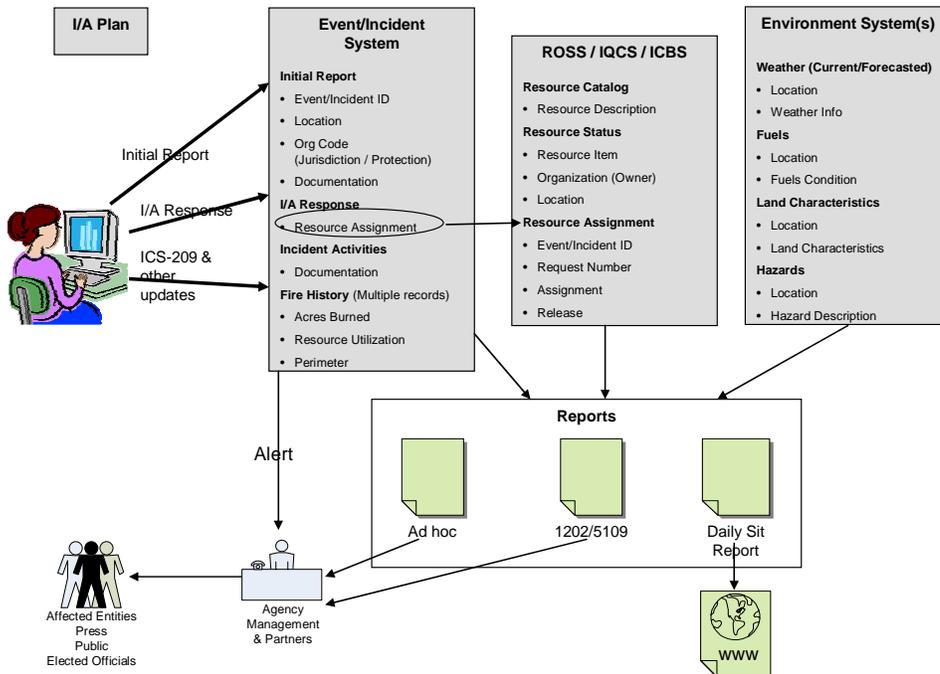


Figure 16 - Single Authoritative Source for Core Data

Under this approach a new system of record for standardized core **incident** data common to all information collection systems would be created and used by such applications as ROSS and IQCS. ROSS would serve as the system of record for core Resource data used by the fire reporting, CAD, and incident business applications. The CAD application described in recommendation 2 would be used to initiate an event record for all incidents.

Data from the system would be used to produce situation reports, analysis, notifications, and official (historical) fire reports, as shown in Figure 17. In contrast to the current approach, each of those uses of data would be based on consistent data.



**Figure 17 - Future Fire Reporting Capability**

**4. Adopt appropriate EDXL standards and incorporate those standards into existing and new applications**

The EDXL standards, as part of the Disaster Management Standards Initiative, facilitate the development of public data exchange standards for incident management so that data are able to be seamlessly and easily shared across disparate information systems. As these standards are developed and approved wildland fire should adopt them and incorporate them into appropriate applications to ensure interoperability within wildland fire and with other emergency management communities and systems.

As part of the standards development and approval process, practitioners from the wildland fire community should actively participate to ensure that the knowledge and experience of the wildland fire community is reflected in the standards and that the standards meet the needs and requirements of the wildland fire community. A formal process should be established for identifying and designating wildland fire subject matter experts to participate in the standards development process.

**5. Update or revise the ICS-209 to better capture non-fire incident information requirements.**

As noted above the data elements and reporting formats for wildland fire are sometimes inadequate for capturing information about non-fire events (such as hurricanes) to which wildland fire resources often respond. As an interim measure, a number of simple

changes that can be implemented at low cost have been identified and should be incorporated as quickly as possible to improve incident reporting from non-fire events.

In the longer term, the consolidated end-to-end reporting system discussed in Recommendation 3 should be robust and flexible enough to capture non-fire incident information to support creation of daily or other periodic incident situation reports.

Table 6 provides examples of changes that could be made to the ICS-209 to make it more useful in non-fire incidents.

ICS 209 Data Element	Current definition	Expansion Needed
Threat to life and safety	Defined in terms of wildfire	Could be anything from lack of power, fuel; drinking water; flu, etc
Evacuations	Based on fire spread projections	May be in effect already due to nature of disaster
Structure threatened damaged, destroyed	Based on fire damage or projected spread	May be already damaged or threatened with new event (for example already damaged in Katrina, threatened by Rita)
Community infrastructure	Based on fire damage or projected spread	May be already damaged; has an effect on local government capabilities to respond
Resources Threatened	Land management resource definitions	Could be human health; watershed; sanitation, levees, etc
Estimates of Control	All fire related	Not applicable
Projected Spread	All wildfire definitions	Could be flu; sanitation issues; flood waters; etc.
Measures of progress	Defined as wildfire measures such as amount of line built	May need to be amount of water, ice, food, baby food, tarps, etc. delivered (FEMA required data)
		Also need to track where commodities (see above list) are delivered to; points of distribution (FEMA required data)
Committed resources	Engines, crews, helicopter dozers	Red cross/faith-based kitchens, DMAT, medical teams, USAR, Veterinarians, etc.

**Table 6 – Potential Revisions to ICS-209 for Improved All-Hazard Reporting**

**6. Develop business rules for web sites that display fire situation information to reduce confusion over the source and accuracy of the information.**

The multitude of web sites, from national to incident level, that contain fire situation information provides agency personnel and the public with a wealth of information. However, if the information contained on these sites is updated more frequently than the daily national situation report confusion may arise about what is the most recent or accurate information. To reduce the potential for such confusion a set of standard business rules or guidelines for display of incident information should be developed.

These guidelines would address such issues as the source, the reliability, and the date/time of the information, as well as a standardized format for the presentation of the information. Since the wildland fire community does not maintain many of the websites that contain fire data, development of these guidelines should take place in concert with public affairs and other programs to ensure the same consistency of information for the public and other users.

**7. Develop an integrated implementation plan for addressing wildland fire information system improvements.**

The recommended improvements to wildland fire information systems will support of goals of Disaster Management as well as improving the effectiveness and efficiency of business activities within the wildland fire community. However, with few exceptions the improvements will require significant long term investments in restructuring and integrating current systems, developing new capabilities, and changing business practices. The set of necessary actions will require a coordinated and holistic approach. Much of the foundation work for making these changes is under development in the NWFEA. In anticipation of the NWFEA and in the interests of implementing integrated and consolidated wildland fire information systems as quickly as possible, a comprehensive implementation plan should be developed. This plan should include the following elements:

- Refocus and redirect existing projects and activities to promote accomplishment of an integrated, end-to-end fire reporting system
- Clarify the responsibilities for sponsorship, oversight, and project management among the NWCG, the NFAEB, their working teams and groups, and the Chief Information Officers of the two departments and the agencies
- Identify the funding and subject matter expert requirements to support the future investments
- Create a communications and outreach plan to involve the practitioners in the development and design of new or realigned wildland fire information systems

**8. Utilize the NWFEA Program for future wildland fire system improvements.**

The ongoing NWFEA Project is establishing the processes, tools, and reporting mechanisms to better manage the wildland fire enterprise. Once the project is complete (March 2007), the NWCG Program Management Office will be able to assist managers in prioritizing and scheduling business and technology improvements across the interagency wildland fire community. The NWFEA Methodology for Business Transformation (MBT) should be used as the guide for the modernization of the various business focus areas. The NWFEA Program will enable the wildland fire community to transition to a more cohesive, architected business and IT operating environment. The success of this program will depend on the support of all levels of the wildland fire community. Senior managers must endorse the NWFEA program and promote the use of its products and services. Mid-level managers must contribute to the operation of the NWFEA program by participating in strategy meetings, and ensuring all projects, products, tools, and activities are tracked in the NWFEA repository. Field managers must participate in the maintenance of the information stored in the NWFEA repository.

## 7. IMPLEMENTATION

### ***NEXT STEPS***

Implementation of the recommendations in this report will require both short term and long term efforts. Full implementation will require ongoing commitment to achieve an integrated and coordinated approach to the collection, storage, and dissemination of wildland fire information. Next steps are:

**1. Concurrence with the recommendations in this report.** Although the EDMTG was chartered by the NFAEB, other entities such as the NWCG may need to review and concur as well since current applications, systems, and projects are under the purview of entities other than the NFAEB.

**Date:** As soon as possible

**2. Develop a High Level Implementation Plan (HLIP) for accomplishing the recommendations.** The HLIP should address, in greater specificity than was possible in this report, the following topics:

- Scope and objectives
- Integration and coordination with the NWFEA
- Specific tasks, projects, activities, and deliverables
- Dependencies and interdependencies affecting accomplishment of the tasks, projects, activities, and deliverables. Include external factors such as budget cycles and capital investment planning requirements
- Appropriate sequencing of tasks, projects, activities, and deliverables
- Initial estimates of resource requirements (including funding, project management, and subject matter expertise)
- Governance process for ensuring continued and integrated direction, oversight, and coordination of implementation activities. Include:
  - provisions for integration and coordination with existing projects and activities
  - provisions to ensure that results are driven by business needs and requirements
  - process for chartering specific projects and activities

**Date:** Within 2 months of concurrence with recommendations

**3. Align or redirect current projects and activities to be consistent with an end-to-end approach to fire information reporting.** To the extent practicable and feasible, current projects and activities should be revised to ensure that continued investments support the recommendations of this report.

**Date:** As soon as possible and ongoing

**4. Identify resources.** Within resources available in the current budget and the FY 2007 proposed budget identify amounts to be used to initiate tasks, projects, and activities to accomplish the recommendations in this report. Seek appropriate funding in FY 2008 and future budgets.

**Date:** As soon as possible and ongoing

**5. Establish a formal process for participating in EDXL standards development.** Use the NWCG IRM Working Team (IRMWT) to identify appropriate representation of wildland fire SMEs

in the development of EDXL standards. The IRMWT will be responsible to make recommendations on EDXL standards to OASIS on behalf of wildland fire.

**Date:** Within 2 months of concurrence with recommendations

**6. Participate in the NWFEA Project.** Use the newly formed NWFEA Business Transformation Team (BTT) to ensure that the NWFEA Project delivers a usable and sustainable enterprise architecture program for the wildland fire community. The BTT should be officially sanctioned by the NWCG/NFAEB.

**Date:** May 2006

### ***CRITICAL SUCCESS FACTORS FOR IMPLEMENTATION***

Successful implementation of the recommendations in this report will require the following:

**1. Policy and executive level commitment.** Accomplishing the recommendations will require several years of effort, changing many traditional approaches to fire information management, and ongoing competition for resources (funding, subject matter expertise, and project management expertise). This can only be accomplished by successful implementation of the NWFEA program, which provides the framework needed to strategically manage the enterprise as a single line of business. The NWFEA provides a business-driven approach to managing the interagency wildland fire organization. If the NWFEA methodology is followed, the wildland fire community will identify the need for and establish the inter-departmental/interagency agreements necessary to make things work from an interagency perspective. This is in line with the OMB concept of a federated enterprise architecture. Continued policy and executive level commitment in both departments, the land managing agencies, and central management agencies like the Office of Management and Budget are necessary. Commitment is necessary by the fire management leadership and by the information technology leadership of all of the agencies.

Policy officials and executives in all agencies and organizations must be prepared to support interagency implementation. Policies and procedures must be flexible enough to accommodate the needs and requirements of multiple agencies. Where differences in approach arise, policy officials and executives must be prepared to place the goal of interagency coordination and integration above single agency convenience or preference.

**2. Good project management and oversight.** Accomplishing the recommendations will require skilled and dedicated project management – at a macro level and for specific projects and activities. The goals are ambitious and will require the integration and alignment of a number of well established systems. Project managers must be technically adept and capable of bringing together a variety of perspectives.

Equally important is a robust governance system that provides direction, oversight, and encouragement to the effort. This system should include executives from all of the affected entities to ensure that the overall project stays on track, is accomplished in a cost-effective manner, and is adjusted and revised appropriately as the need arises.

**3. Involvement of Practitioners.** Successful implementation depends upon systems and applications that meet the needs of practitioners and that reflect their requirements.

**4. Education and Marketing.** As new approaches, applications, and systems are developed and implemented, on-the-ground users will need to change the way they conduct their work. Traditionally, “top-down” imposition of new systems and business processes, no matter how well thought through, encounter resistance if users do not understand the rationale and need for those

systems or processes. Continued, active involvement of practitioners in the design and development of new approaches is critical, as is ongoing efforts to explain the need for and value of the new approaches will in advance of actual implementation.

### ***OBSTACLES TO IMPLEMENTATION***

Implementation of both an integrated interagency end to end fire reporting system and a universal CAD capability faces a number of obstacles. Key among these is:

- 1. Lack of interoperability to support interagency users.** The lack of interoperability covers both technology and policy/procedures. Technological problems include incompatible hardware, software, and network connections. From the standpoint of technology hardware and software are incompatible. Technical support for current applications and systems is often lacking. The technological problems are exacerbated by incompatible agency policies and procedures for security and access. Information technology business practices (investment planning, project ownership, project management, project oversight) are stove piped by agency, yet the wildland fire program crosses two federal cabinet departments and five sub-cabinet agencies.
- 2. Limited resources.** Funding priorities within wildland fire are biased toward on the ground, current firefighting capabilities (engines, personnel, aviation support, etc.). Funding for information technology development and equipment is limited. In addition, a critical resource in project development is the subject matter expertise of practitioners and information technology specialists within the wildland fire community. Each of these participates in project development on a time-available basis; however, competing demands on the time of these experts limits their ability to support project work.
- 3. Incomplete NWFEA Program.** While this implementation plan would benefit greatly from the deliverables of the NWFEA Project, the scheduled delivery date of NWFEA products and services is June 2007. While improvements to wildland fire services should not be held up pending completion of the NWFEA project, there is a risk that improvements made today may not be in complete alignment with the NWFEA transition plan.

## 8. TERMS AND ACRONYMS

### Key Terms Used in this Report

Alert - a notice for which some kind of action is usually taken as a result

All-Hazard – non-wildland fire incidents to which wildland fire resources respond; the all-hazard environment encompasses a broad spectrum of threats and hazards, both natural and human-caused, including: floods, oil spills, hazardous material releases, transportation accidents, earthquakes, hurricanes, tornadoes, pandemics, and disruption to the Nation’s energy and information technology infrastructure

Notification – a notice provided for information or awareness; immediate action is not expected

Partners - All agencies and organizations that engage in joint decision making with federal agencies in planning and conducting fire management projects and activities. [NWCG definition]

Stakeholders – in this report, any person or organization that needs information in order to take possible action in response to a fire (e.g. local law enforcement, utilities, highway departments, adjacent landowners, local agency managers)

Users – in this report, any person or organization that needs or requests information about fire status, location, resource commitments, outlook, or related information

### Acronyms Used in this Report

BIA – Bureau of Indian Affairs  
BLM – Bureau of Land Management  
CAD – Computer Aided Dispatch  
CAP – Common Alerting Protocol  
DM – Disaster Management  
DMIS – Disaster Management Interoperability Services toolset  
DOI – Department of the Interior  
EDMTG – eGov Disaster Management Task Group  
EDXL – Emergency Data Exchange Language  
FEMA – Federal Emergency Management Agency  
FWS – Fish and Wildlife Service  
GACC – Geographic Area Coordination Center  
ICS – Incident Command System  
IQCS – Interagency Qualifications and Certification System  
IRM – Information Resources Management  
MAC Groups – Multi-Agency Coordinating Groups  
MACS - Multi-Agency Coordination System  
NFAEB – National Fire and Aviation Executive Board  
NICC – National Interagency Coordination Center  
NIMS – National Incident Management System  
NPS – National Park Service  
NWCG – National Wildfire Coordinating Group  
NWFEA- National Wildland Fire Enterprise Architecture  
NWFEASG- National Wildland Fire Enterprise Architecture Steering Group  
ROSS – Resource Ordering and Status System  
ST/OT – State or Other  
USDA – U.S. Department of Agriculture

USFS- United States Forest Service  
USGS – U.S. Geological Survey  
WFLC-Wildland Fire Leadership Council

## 9. REFERENCES

The following materials and sources provide additional background about wildland fire business processes.

- *Glossary of Wildland Fire Terminology* – published by the National Wildfire Coordinating Group and available at: [www.nwccg.gov/pms/pubs/glossary/PMS205.pdf](http://www.nwccg.gov/pms/pubs/glossary/PMS205.pdf)
- *Interagency Standards for Fire and Aviation Operations 2006* – national standards and procedures for wildland fire operations; available online at [www.nifc.gov](http://www.nifc.gov)
- [www.nifc.gov](http://www.nifc.gov) – comprehensive site containing information about current fire conditions and outlook, reference materials, and wildland fire programs
- [www.nwccg.gov](http://www.nwccg.gov) – links to information about the National Wildfire Coordinating Group, its working teams and activities, and wildland fire standards and reference materials