



Management Efficiency Assessment of the Interagency Wildland Fire Dispatch and Related Services

Prepared for:

**USDA Forest Service and Department of the Interior
Washington, DC**

Prepared by:

**Management Analysis, Incorporated
2070 Chain Bridge Road, Suite 550
Vienna, VA 22182**

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Management Efficiency Assessment of Dispatch and Related Services

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Executive Summary

The purpose of this management efficiency assessment is to review the Wildland Fire Dispatch function conducted jointly by the US Forest Service (USFS) and Department of the Interior (DOI) and identify whether efficiencies and cost savings are attainable through changes to areas such as staffing, organization, communication, technology application, and business processes.

The assessment team determined that it would not be prudent to divide the Interagency Wildland Fire Dispatch function into multiple business areas for this review. Dispatching and resource requisitioning workflow begins at the local Dispatch Center with the initial attack on the fire, and flows upward through the Geographic Area Coordination Center (GACC) and the National Interagency Coordination Center (NICC). Analyzing the work performed at the different levels of the dispatch organization by business area could potentially lead to missing opportunities to gain efficiency through realigning tasks and workflow between organizational levels.

This report presents an objective assessment of the current organization and discusses potential follow-on actions that generally address efficiency, effectiveness and cost issues identified by the assessment team. The assessment provides an overview of the Interagency Wildland Fire Dispatch function, identifies where there are issues common to all levels of the dispatching chain, and gives combined recommendations for improvement.

The fact that the Wildland Fire Dispatch function is not a single, monolithic entity greatly complicates this assessment. Dispatch is comprised of distinct skill sets and business needs that span multiple market niches in the private sector. While the various organizational levels have a distinct mission and direct resources to support the firefighting mission, the work is sequential at times, across vertical levels, and parallel at times, between Tier 3 or Tier 4 local Dispatch Centers, Tier 2 Geographic Area Coordination Centers, and the Tier 1 NICC. Subsequent sections of this report describe the organizational levels and their staffing, duties and funding processes. The following are the four primary components of the Interagency Wildland Fire Dispatch function:

- **Initial Attack Dispatching** – Initial Attack is a planned response to a wildfire, given the wildfire’s potential behavior and values at risk. An authorized person (e.g., the duty officer, the Fire Management Officer (FMO) from the field, etc.) makes the command decision to move suppression resources by placing requests for types of equipment aircraft or personnel to a local initial attack Dispatch Center.
- **Resource Coordination** – Resource coordination is the facilitative process of planning and communication to mobilize resources in an efficient and cost effective manner. The agency’s fire management objectives, values at risk, and appropriate management response to wildland fires dictate the implementation of this process. Resource coordination occurs at multiple levels of the dispatch and fire management function: local, geographic, national.
- **Expanded Dispatch Services for Large Incidents** – Expanded dispatch is a temporary organization established when a high volume of activity requires increased dispatch and coordination capability.
- **Predictive Services / Intelligence Gathering** – The Predictive Services activity supports the wildland fire community and others with information and decision support products. Wildland fire management emphasizes safety, cost containment, efficiency, and ecosystem health through the proactive use of Predictive Services decision support products.

This Interagency Management Efficiency Assessment analyzes the resource coordination responsibilities at the national level (Tier 1) and the 11 GACC level (Tier 2) as separate from the dispatch responsibilities at the local level (Tier 3) and some sub-local level dispatch centers (Tier 4). Cost data for this assessment is from FY 2006 or, where possible, FY 2007 costs for the Wildland Fire Dispatch function.

This assessment focuses on the Wildland Fire Agencies' ability to bring together personnel, expertise, organizational and communications infrastructure in locations across the country to support the Wildland Fire organization and evaluates the policy and procedural direction necessary to support the dispatching processes and Agency missions and policy. Personnel may be federal, state, seasonal, contract, or Administratively Determined (AD).

The review team defined a dispatching program that fulfills the wide ranging missions of the Agencies involved, as well as specific local and geographical area needs and priorities. The team identified, analyzed and evaluated many facets of the Wildland Fire Dispatch function. The final report reflects only those recommendations which the team believes are supported and proven by an objective analytical process.

A number of factors the assessment and influenced the recommendations and report. These factors included fire season severity, funds availability, the impact of transferring funds from other programs to pay for suppression efforts, the capability of dispatchers to support the mission, personnel availability and safety.

The assessment identifies numerous assumptions for the components of the Wildland Fire Dispatch function collectively and individually, as appropriate. The following assumptions are part of the foundation for the recommendations:

- Each geographic area varies in vegetation/fuels, topography, weather, and climatology and fire potential conditions.
- Various types of disasters require unique responses.
- Agencies will continue to dispatch resources for wildland fire suppression.
- Dispatch must maintain interoperability across geographical areas.
- Standardization of dispatch personnel, equipment and operating procedures will be necessary to meet requirements.
- Dispatch and telecommunications technology is dynamic and continually evolving.

To ensure that review recommendations are executable, the following key constraints are noted:

- Each wildland fire requires an appropriate management response.
- The dispatching of fire suppression assets requires coordinating priorities with interagency partners.
- Wildland fire response often meets additional funding needs by transferring funds from other agency or partner programs.
- The high number of dispatch personnel approaching retirement age has decreased the size of the government's pool of qualified staff.
- There is an increasing requirement for the Interagency Dispatch group to respond to requests for non-fire workload, all hazard incidents, and declared emergencies.

Through review of previous studies, interviews, feedback from subject matter experts and analysis of dispatch operations activity costs, this assessment identified areas for operational improvement and opportunities for the function to become more efficient and cost effective. The team recommends the Fire Executive Council further examine these areas.

Interagency Wildland Fire Dispatch Services Management Efficiency Assessment

Summary of Recommendations

Category and Description of Recommendations

**Priorities are from a dispatch perspective as identified by the team, 1=first, 5=last.*

General Recommendations	*Priority
Appoint a team to evaluate and recommend changes in missions, appropriate workload levels, areas of responsibility and identify logical conceptual consolidations where appropriate. In coordination with State and Agency administrators, the findings will be reported back. The team composition should include agency Leadership, staffing subject matter experts, and external consultants. Having one or two individuals with a cohesive perspective of these studies and Exhibit 300 studies will benefit the senior leadership of all cooperating agencies.	1
FEC will request their respective fire directors to uniformly develop and implement Performance Metrics and Measures for dispatch and predictive services, and to develop both Quality Assurance Programs and Quality Control Programs.	5

Organizational Structure, Staffing and Workload	*Priority
Define the Dispatch / Coordination Center Workload/Staffing Mixes and implement findings and recommendations as is feasible.	1
Review the need for Forest Service Tier 4 Centers (14) and identify alternatives.	1
Tier 2 GACC's - Review criteria, such as fire regimes and state social and political relationships, resource order workload associated with each state, the average of the current workload determined a representative value per state within each geographic area.	
Tier 2 and MAC Activities - Task a study team to visualize the concept center optimization of Tier 2 operations and develop a standardized decision making process.	
Fire-Funded On-Site IT Desktop/Database Application Support Personnel at Tier 2 and Some Tier 3 Centers - Provide Desktop / Database Support personnel at GACCs (12 months/year) and some Tier 3 centers (seasonally).	1
Predictive Services Staffing at Optimized Concept Tier 1 and Tier 2 Coordination Centers - The National Coordinators Group will optimize Predictive Services to consolidate staffing at the optimized concept GACCs. <ul style="list-style-type: none"> • Analyze workload and staffing, and review the products and services being provided. Provide recommendation of the appropriate staffing level and infrastructure support, commensurate with program requirements. 	2
Consolidated (Zone) Expanded Dispatch Unit Services at Specific Tier 3 Centers - Through appropriate requisition offices, facilitate an RFP for Staffing Zone Expanded Dispatch Units with Private Sector contract personnel to augment the federal labor force during periods of resource shortages.	2
Cross Training of Airspace Coordinators / Dispatchers at Optimized Concept Tier 2 Coordination Centers - BLM / USFS National Airspace Program Manager to Cross-train one dispatcher in each GACC to perform Airspace Coordination.	3
Centralized Coordination and Dispatch of Contract Equipment and Crews - Respective fire acquisition offices to facilitate a 5 Year Contract for a National Contract Dispatch Center with contract staff (this is a business process change and not in disagreement with FY08 appropriations).	4
Cooperative Agreements - Through appropriate requisition offices, provide additional grants and agreements personnel to support fire management at the geographic and state levels.	5

Business Practices - General	*Priority
COOP Documentation and Backup Generators - The National Coordinators Group will oversee the completion of COOP documents for all Tier 3 Dispatch Centers.	1
Request an external agency to review backup systems capabilities for dispatch centers during national threats / disasters to make recommendations for backup power generation.	2

Business Practices – AD Management	*Priority
Centralized Support for AD Personnel – Review the concept of a new centralized Interagency AD Management Center to be created and attached to ASC at Albuquerque or NBC in Denver. The AD Management Center would centralize the workload currently performed at Tier 2, 3 and 4 centers associated with hiring of AD personnel (qualification and training record maintenance, payment processing, etc.). The AD Management Center’s mission would be the recruitment and screening of seasonal and/or intermittent personnel prior to and during periods of fire emergency to perform firefighting and related on site services, as described above. The mission is to include coordination with and to provide administrative support during the acquisition of incident staffing support requested through GACCs and local Dispatch Centers.	4
Interagency Consistency in Use and Hiring of AD Personnel – Respective acquisition offices to work together to provide structural and policy changes to eliminate interagency inconsistencies regarding AD personnel between DOI and the Forest Service.	5

Business Practices – Buying Teams & Procurement	
Improved Support to Non-Self Sufficient Crews through AQM - The Incident Business Practices Working Team to make recommendations for changes in policies on travel, lodging, subsistence, and materials/supply purchases for non-self sufficient crews to ensure that each crew is provided access to a local buying team to support its procurement requirements.	3
Improved Buying Team Support through AQM <ul style="list-style-type: none"> Federal Wildland Fire Budget & Planning Team and the Incident Business Practices Working Team to assist their respective AQM offices to make changes in policies on Buying Teams to ensure that each Incident Management Team is staffed with a Buying Team liaison and provided access to a local buying team to support its procurement requirements. AQM conduct a detailed study to ensure an adequate number of Buying Teams are available to support incident management needs. This will moderate the impact on the Dispatch Center/hosting unit employees with micro-purchase cards which quickly reach maximum limits during emergency response. 	5
Centralized Coordination and Dispatch of Contract Equipment and Crews - Task the Federal Wildland Fire Budget & Planning Team to investigate best practices and the potential effectiveness of a centralized National Contractor Dispatch Center utilizing a contract evaluation process, and report by back.	5

Information Technology - ROSS	*Priority
Remaining ROSS Enhancements Completed - Respective Fire Budget coordinators task the Federal Wildland Fire Budget & Planning Team to review the business funding process and recommend allocation of adequate funding for the ROSS Schedule of Changes, Updates, & Upgrades.	1
The National Coordinators Group will develop & reorganize the ROSS List and Schedules of Changes/ Updates/ Upgrades to advance Dispatch-Championed Items to the front of the list.	1
Respective fire acquisition offices to facilitate an Exhibit 300 for ROSS-type System and Develop the RFP for its Development or a COTS purchase.	5
Next Generation of a Resource Ordering and Statusing Application - Develop the next generation resource ordering and status system.	5
Web-Based AD Personal Data Update Portal - Request modification of ROSS to implement a web-based AD personnel data interface to facilitate updating contact and availability data.	5

Information Technology – CAD	*Priority
Standardized CAD System Purchased/Developed for All Tier 1-3 Centers – Agency Administrators to jointly task their portfolio managers to develop a new CAD application.	1
Respective fire acquisition offices to facilitate an Exhibit 300 for CAD System and Develop the RFP for CAD Development or COTS purchase.	1

Information Technology – All Other	*Priority
Centralized Data Warehouse Implemented to Support New Fire Applications - Respective fire acquisition offices to facilitate an Exhibit 300 study and then Develop or Purchase a Central Data Warehouse database for all Fire Data.	1
Reengineered Wildland Fire Reporting Process – Implementation of an End-to-End Reporting Application - Agency portfolio managers to develop new End-to-End Reports (defining all data required to produce required and ad-hoc Fire reports with one-time data entry into Centralized Data Warehouse, CAD, or ROSS) and to define the needs of a unified report generator to support them.	1
Elimination of IT System Access Barriers and the Ban on Dual Networked PC's - Respective agency (USDA / DOI) Chief Information Officers will request a waiver of system security policy to Tier 1 through 3 coordination/ dispatch center computers to access both networks.	2
Replacement of Incompatible Hardware/Software - Respective fire acquisition offices to facilitate an Exhibit 300 analysis of existing hardware (PCs/ Laptops) in Tier 1 through Tier 3 Offices (i.e., will PCs be able to operate all the new Fire applications - New ROSS, New CAD, New CDW, New End-to-End Reports Generator, etc.). The analysis will consider potential security risks.	2
Respective fire acquisition offices to facilitate a Requirements Document for a New On-line AD Database.	3
Changed Policies for Help Desk Escalation for Priority 1 and 2 Trouble Tickets in the US Forest Service	
Improved IT Support, Products and Equipment on an Interagency Basis	
Center of Expertise for Wildland Fire Dispatch IT Applications and Improvements - Initiate a five year pilot program for a 3-person IT Applications and Improvements Think Tank for the Wildland Fire Dispatch program and in support of NIMO, NICC and Training.	5

Radios and Other Technology	*Priority
Radio Compatibility and Inventory and Analysis - Task Radio Communications Task Group with review of business processes and conduct an Inventory Analysis of all Radio Systems at Tier 3 Centers - Determine Compliance with Needs.	1
Respective fire acquisition offices to facilitate an Exhibit 300 Analysis of Replacement / Redistribution of Radios Not Compliant with New Boundary Radio Coverage Requirements.	2
GPS Tracking Units for Agency Owned Assets - Fire Equipment Working Team to be tasked with the development of a plan to purchase and to implement applying GPS Tags on items such as all federal-owned and designated Initial Attack rolling stock, vehicles and trailers, heavy equipment, generators, catering units, and shower units.	4
Improved Access and Cost Controls Through Smartcard Technology - FEC will task the Fire Equipment Working Team plan to purchase and to implement a National Wildland Fire Support SMARTCARD system for ADs, Contractors, non-federal employees, etc. who work on fires or at Dispatch/Coordination Centers, and to develop a plan to add Incident Qualifications information to a SmartCard or to the SmartChip on federal Employee Identification Cards now being issued.	5

Governance	*Priority
Review geographic inconsistencies in Governance policies and make recommendations to FEC.	2
Interagency Consistency in the Mobilization of Incident Management Teams - Review national and geographic inconsistencies in Governance policies and make recommendations to FEC for the standardization of Mobilization of IMTs.	5

1 Introduction and General Description of the Wildland Fire Dispatch Function

1.1 Background

The Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy¹ addresses how to shape agency operational differences to produce common objectives, definitions, and policy outcomes. The direction of these policy changes was further strengthened with the passage of the Healthy Forests Restoration Act of 2003 (P.L. 108-148) or HFRA. While the purpose of HFRA is to accelerate fuel reduction treatments and other restoration efforts in forests and rangelands in order to reduce wildfire risks in local communities, the legislation also codified other important objectives for fire management.

The five federal public lands agencies with wildland fire responsibilities include the Bureau of Land Management (BLM), the National Park Service (NPS), the Fish and Wildlife Service (FWS), and the Bureau of Indian Affairs (BIA) within the Department of Interior and the U. S. Forest Service (USFS) within the Department of Agriculture. These agencies have worked for years to strengthen interagency coordination for the efficient use of fire fighting resources.

Wildland fire suppression costs are high, particularly for large fires and are likely to remain high given the fuel levels and long-term drought scenarios forecasted for the future. The public, when faced with an emergency, expects firefighting be performed immediately, safely, and successfully. Costs are considered afterwards. Another manifestation of expectations in this arena is the increased use of more expensive firefighting assets such as aviation resources, which the public increasingly equates with “normal” successful firefighting operations.

The wildland fire community has a long history of effectively using wildland fire resources to manage other emergency response incidents. This capability contributes to the overall complexity facing them today. This reputation has created a demand for services from wildland fire agencies not explicitly related to wildland fire but to a broader category of non-fire incident management. Examples include hurricane response and recovery, dealing with outbreaks of Newcastle disease in the domestic poultry population, assisting in the recovery efforts following the terrorist attacks on the World Trade Center and Pentagon, and the Columbia Shuttle Disaster Recovery. Requests come from within the agency, within the departments, and within the Executive Branch. These demands are increasing and, given the unknowns associated with Homeland Security and terrorism, will remain uncertain. What is certain is that any increase in demand comes at a time when the fire agencies are already having difficulty maintaining staffing levels for firefighting incident management teams.

The Interagency Dispatch Community holds the key to successful and efficient use of firefighting resources. Its primary mission is to provide initial response/action and support to wildland fire, non-fire incidents, all hazard incidents, and declared emergencies through the coordination of requests for a variety of resources. Dispatch offices provide tactical, logistical and decision support to the federal wildland fire agencies. Integrated with the dispatch services are the supporting functions of predictive services at the regional level, on-the-ground intelligence and related analysis units at the local levels. The Wildland Fire Dispatch function is comprised of a complex network of federal, state and local government dispatch and coordination centers. For the purposes of this assessment, the centers included in the federal wildland fire dispatch organization refer to any stand-alone (one agency) or interagency (more than one agency) centers that are funded and supported by any of the federal Wildland Fire Agencies.

¹ *Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy.* Wildland Fire Leadership Council, 2003

1.2 Purpose of the Assessment

The purpose of this management efficiency assessment is to review the Wildland Fire Dispatch function conducted jointly by the US Forest Service (USFS) and Department of the Interior (DOI). The assessment analyzed whether efficiencies and cost savings are attainable through changes to areas such as staffing, organization, communication, technology application, and business processes. The initial review and recommendation process conforms to the current US Forest Service guidance, provided by the Strategic Planning and Performance Accountability/Management Analysis Studies staff.

The following team members performed the assessment, supported by the consulting firm of Management Analysis, Inc.

Interagency Charter Committee Members			
Lead	Robert Gordon (DOI)	Member	Kathy Winship (FWS)
Member	Barbara Loving (BLM)	Member	Kevin Kahn (FWS)
Member	Mark Beighley (DOI OWFC)	Member	Jim Glenn (BLM)
Member	Kathy Libby (BLM)	Member	Denny Truesdale (USFS)
Member	Sue Richardson (BLM)	Member	Tom Nichol (NPS)
Member	Jacqueline Myers (USFS)	Member	Mark Boche (USFS)

USFS Steering Committee Members	
Lead	Hank Kashdan - Deputy Chief, Business Operations
Member	Jacqueline Myers - Associate Deputy Chief, Business Operations
Member	Tom Harbour - Director F&AM
Member	Denny Truesdale - Assistant to the Deputy Chief, S&PF

USFS Oversight Committee Members	
Lead SPPA Business Operations	Robert Rinaldi - WO Strategic Planning & Performance Accountability/Management Analysis Studies Staff
Lead FAM	Robert Kuhn - Program Lead for Efficiency Studies–WO FAM Planning & Budget

Interagency Management Efficiency Assessment Team		
Title	Name	Office
Center Manager, NICC	Kim Christensen	Boise, ID
Center Manager, NWCC	Gerry Day	Portland, OR
Emergency Operations Coordinator, ONCC	Susie Stingley-Russell	Redding, CA
Emergency Operations Coordinator, NICC (Former Center Manager, MT-HDC)	Judy Dunnam	Boise, ID
Center Manager, VICC	Jason Steinmetz	Charlottesville, VA
Director - Fire, Aviation, Air Management Region 4	Mike Dudley	Regional Office Ogden, UT
Center Manager, EBCC	Dave Hart	Salt Lake City, UT
Representative of NFFE Forest Service Council	Mark W. Davis	Wisconsin

Consultant Support	
Kevin Wiggs	Management Analysis, Inc., Vienna, VA
Michelle LeGrande	Management Analysis, Inc., Vienna, VA
Pamela Hein	Management Analysis, Inc., Vienna, VA

2 Missions of the Wildland Fire Dispatch Community

The primary mission of the Interagency Wildland Fire Dispatch function is to provide initial response/action and support to wildland fire, non-fire incidents, all-hazard incidents, and declared emergencies through the coordination of requests for a variety of resources. Dispatch offices provide tactical, logistical and decision support to the federal wildland fire agencies and when requested by FEMA through the NRF or Presidential and Secretarial direction, provide this support for all-hazard incidents. Integrated with the dispatch services are the supporting functions of Predictive Services at the regional level, on-the-ground intelligence and related analysis units at the local levels. For the purposes of this assessment, the centers included in the federal Wildland Fire Dispatch Organization refer to any stand alone (one agency) or interagency (more than one agency) centers that are funded and supported by at least one federal agency within the Wildland Fire community (i.e., the federal and state cooperating agencies).

Lead local, state, federal government or tribal nations have fire suppression and natural resource protection responsibilities. Wildland fires know no jurisdictional boundaries and as a result, a response frequently requires an interagency-based cooperative environment. This review takes into account the interagency and cooperator environment of the Interagency Wildland Fire Dispatch function. Therefore, the team recognizes that report recommendations may have unanticipated impacts on state and local governments.

Full-time federal employees, federal employees who have been cross-trained to perform dispatch as a collateral duty (the “militia”), Administratively Determined (AD) employees, and contract dispatchers provide the majority of dispatch services needed to support interagency fire programs. The use of contractors for supplementary dispatch staff is relatively new, as is the use of fully contracted Dispatch Centers (such as the Grants Pass Interagency Fire Center in the Northwest Geographic Area). Former dispatch employees who serve as ADs provide a necessary pool of individuals with dispatch expertise that ensure integrity and continuity of wildland fire dispatch operations.

2.1 Master Assessment Scope

The assessment team determined that it would not be prudent to divide the Interagency Wildland Fire Dispatch function into multiple business areas for this assessment. Dispatching and resource requisitioning workflow begins at the local Dispatch Center with the initial attack on the fire, and flows upward through the Geographic Area Coordination Center (GACC) and the National Interagency Coordination Center (NICC). Analyzing the work performed at the different levels of the dispatch organization by business area could potentially lead to missing opportunities to gain efficiency through realigning tasks and workflow between organizational levels.

This assessment provides an overview of the Interagency Wildland Fire Dispatch function identify where there are issues common to all levels of the dispatching chain and gives combined recommendations for improvement.

3 Business Needs Assessment and Justification

3.1 Department of the Interior and Forest Service Strategic Goals and Objectives

The Wildland Fire Dispatch function directly contributes to DOI and USFS strategic goals and objectives.

The Department of the Interior has established five Departmental goals that encompass the major responsibilities of the Department. These goals provide a framework for the strategic plans of Interior's bureaus. The DOI mission and Departmental goals are located at the following website: <http://www.doi.gov/secretary/mission.html>. The Departmental goals are as follows:

- Resource Protection - Protect the Nation's Natural, Cultural, and Heritage Resources.
- Resource Use - Manage Resources to Promote Responsible Use and Sustain a Dynamic Economy.
- Recreation - Provide recreation opportunities for America.
- Serving Communities - Safeguard lives, property and assets, advance scientific knowledge, and improve the quality of life for communities we serve.
- Management Excellence - Manage the Department to be highly skilled, accountable, modern, functionally integrated, citizen-centered and result-oriented.

The Forest Service Strategic Plan for Fiscal Years 2007 through 2012 is located at <http://www.fs.fed.us/publications/strategic/fs-sp-fy07-12.pdf>. The goals of the Forest Service are:

- Restore, Sustain, and Enhance the Nation's Forests and Grasslands
- Provide and Sustain Benefits to the American People
- Conserve Open Space
- Sustain and Enhance Outdoor Recreation Opportunities
- Maintain Basic Management Capabilities of the Forest Service
- Engage Urban America With Forest Service Programs
- Provide Science-Based Applications and Tools for Sustainable Natural Resources Management

3.2 Wildland Fire Dispatch Business Function

A single business area defines the Interagency Wildland Fire Dispatch function and related activities. While the various organizational levels have a distinct mission and direct resources to support the firefighting mission, the work is sequential at times, across vertical levels; and parallel at times, between Tier 3 or Tier 4 local Dispatch Centers; Tier 2 GACCs, and the Tier 1 NICC. Subsequent sections describe the organizational levels and their staffing, duties and funding processes. The following are the four primary components of the Interagency Wildland Fire Dispatch function:

- **Initial Attack Dispatching** – Initial Attack is a planned response to a wildfire, given the wildfire's potential behavior and values at risk. An authorized person (e.g., the duty officer, the FMO from the field, etc.) makes the command decision to move suppression resources by placing requests for types of equipment aircraft or personnel to a local initial attack Dispatch Center.
- **Resource Coordination** – Resource coordination is the facilitative process of planning and communication to mobilize resources in an efficient and cost effective manner. The agency's fire management objectives, values at risk, and appropriate management response to wildland fires dictate the implementation of this process. Resource coordination occurs at multiple levels of the dispatch and fire management function: local, geographic, national.

- **Expanded Dispatch Services for Large Incidents** – Expanded dispatch is a temporary organization established when a high volume of activity requires increased dispatch and coordination capability.
- **Predictive Services / Intelligence Gathering** – The Predictive Services Program supports the wildland fire community and others with information and decision support products. Wildland fire management emphasizes safety, cost containment, efficiency, and ecosystem health through the proactive use of Predictive Services decision support products.

3.3 Justification

Dispatch activities support Forest Service and DOI goals that include wildland fire or other resource management components. Dispatch-related activities are a major element in the success of wildland fire management, responsible for:

- Dispatching resources to new and emerging fires nationally.
- Statusing national firefighting emergency response resources.
- Facilitating the timely and efficient movement of resources to support large fire events.
- Gathering and reporting intelligence.
- Monitoring and support of field resources.
- Predicting and anticipating wildland fires and positioning resources for quick response.
- Providing support to National Response Plan taskings.
- First response organization for field emergencies for all non-fire events.

4 Assumptions and Constraints

4.1 General Assumptions

The following general assumptions are applicable to the Interagency Wildland Fire Dispatch function described in this report.

4.1.1 Dispatch Specific Assumptions

- The various interagency requirements and agreements necessitate the standardization of dispatch personnel, equipment and operating procedures in order to maintain interoperability across Geographic Areas.
- Agency resources will be pre-positioned geographically to respond to areas with predicted high fire risk. Where the predicted need for crews or equipment exceeds normal agency inventories, the agencies will begin detailing staff, hiring AD staff, or contracting with the private sector on a prudent basis.
- The potential for agency realignments and the pending retirements of many Forest Service and DOI employees, will influence the ability of the dispatch services workforce to perform a key role in future resource delivery during peak fire periods as an additional and collateral duty.
- Technology in the areas of radio and web-based communications, fire detection, and fire suppression is dynamic and continually evolving. The continued growth and constant improvement provides operational efficiencies, safety, and benefits with real-time data.
- Wildland fire suppression activities will continue to require dispatch services. Personnel costs for these resources are high due to periods of “on-call” time between fires and overtime during incident response periods.
- Department of Homeland Security mandates result in new security requirements for federal dispatch facilities and employees, as well as for both the AD and contractor workforces. This greatly increases the lead-time for hiring and contracting for backup support at Dispatch Centers nationwide.

4.1.2 Natural Resource and Climatic Assumptions

- Vegetative fuels, geographic, climatic, and fire potential conditions vary among the Geographic Areas.
- Fire occurrences vary from year to year across Geographic Areas, and the increasing variation will continue.
- The biomass build up within forest ecosystems has increased the availability of vegetation and other fuels with fire potential.
- The acres of hazardous fuels treated by mechanical methods and prescribed fire have increased for the agencies over the last several years.

4.1.3 Public and Political Assumptions

- The public expects protection from wildland fire and smoke with minimal resource loss and negligible environmental impact.
- Increased wildland fire prevention and suppression activities in formerly remote areas will increase demand for resource support of wildland firefighting, and will require a balance between protection of developed areas and the availability of supplemental or backfill personnel.
- The interagency Dispatch Centers will continue to receive formal Federal Emergency Management Agency (FEMA) tasking for operational support during declared national emergencies, which places increased demands on dispatchers when allocating scarce resources.
- Future budgets will continue to fluctuate. Changes in funding combined with habitation pattern shifts and increasing large fire suppression costs (as noted by Congress and OMB) will require

that the Interagency Wildland Fire Dispatch function proactively seek ways to maintain high levels of readiness.

- Changes to the current federal Wildland Fire Dispatch function will need to involve non-Federal cooperators during implementation.

4.1.4 Protection Offset Agreements

Numerous protection exchanges and agreements exist in all Geographic Areas. Recommendations to change dispatch boundaries could affect agreements that involve exchanged services (e.g., protection of federal lands by states if federal Dispatch Centers include state lands under their dispatching services boundaries).

4.1.5 Resource Boundaries

Changes in land management agency resource boundaries will have a long-term effect on dispatch boundaries and effect statewide agreements. Changes due to the expansion or reassignment of protection areas for specific federal property (e.g., National Forest, National Grassland, or National Wildlife Refuge) require updates to local agreements with cooperators. These changes also require the reevaluation of Dispatch Center coverage.

4.1.6 Reimbursement to / from Customers

The emergency response and fire services provided by the Forest Service and DOI to some customers are reimbursable and negotiated under various agreements. The primary customers providing reimbursement are DOD, states, tribal governments, research, and academia.

4.1.7 Training and Expertise to Others

The Forest Service and DOI provide dispatch and dispatch related applications training to other agencies, states, local fire departments, and foreign countries through national and Geographic Area training programs.

4.2 General Constraints

The following constraints are general in nature and applicable for all of the components of Wildland Fire Dispatch function. Some of these constraints are addressed further in Section 5 - The As-Is Organization.

- Wildland fire requires an immediate and appropriate response. Often, suppression of wildland fires includes a containment objective within the first burning period. Prior to the assignment of an Incident Commander, local dispatchers are responsible for defining and implementing pre-planned dispatch, coordinating with Fire Management to determine the appropriate management response (AMR), and addressing the necessary resource requests to implement the selected strategy to manage an initial attack on a wildland fire incident.
- Due to retirements, the Forest Service and DOI are losing dispatch expertise to accomplish and manage firefighting resource management operations. Federally funded and/or operated Dispatch and Coordination Centers have a difficult time filling vacant positions. Sixty-eight (68%) percent of vacant positions remained vacant for more than 120 days in FY 2007, as reported in the data call.
- Non-standardized and aging dispatch equipment is in use. This situation is contrary to generally accepted best practices such as using volume discounts for equipment, interoperability of equipment and/or equipment parts, consistent equipment operations training, and consistent operational capabilities.
- The information technology (IT) infrastructure utilized by the dispatch function varies widely and is incompatible due to differences in the implementation of agency policies (e.g., duplication, stand-alone applications, poor integration of software, maintenance, agency COOP plans that do not address mission critical operations). In addition, under current agency protocols, units receive IT support from the agency that owns the equipment, which limits coordinated operations in an interagency environment.
- There is an increasing and continuing requirement for Dispatch Centers to respond to non-fire incidents, all-hazard incidents, and declared emergencies in support of other agencies (FEMA, etc) that, at times can limit the capability to respond to fire missions. This requirement is costly to the Forest Service and DOI as the agencies' budgets frequently absorb non-reimbursed costs.
- There are significant interagency coordination and interface actions between the Forest Service, DOI bureaus, states, and local governments for activities performed at the national, Geographic Area, and local administrative levels.
- The use of single-agency owned physical assets by interagency Dispatch Center personnel (where there is diversity of agencies represented) requires coordinating priorities with interagency partners.
- Interagency percentage shares of operations funding have not been adjusted over the years to keep pace with more recent fire workloads (i.e., where fires are actually occurring over a rolling five year average should have driven more frequently revised cost sharing percentages).

5 The As-Is Organization

The following sections describe the “As Is” scope of current operations.

5.1 Wildland Fire Management Organization

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

Some of the following sections were developed previously for the Report of the eGov Disaster Management Task Group to the National Fire and Aviation Executive Board (March 31, 2006), by the eGov Disaster Management Task Group (EDMTG), chartered by the National Fire and Aviation Executive Board (NFAEB).

5.1.1 Overview of Fire Management Operations

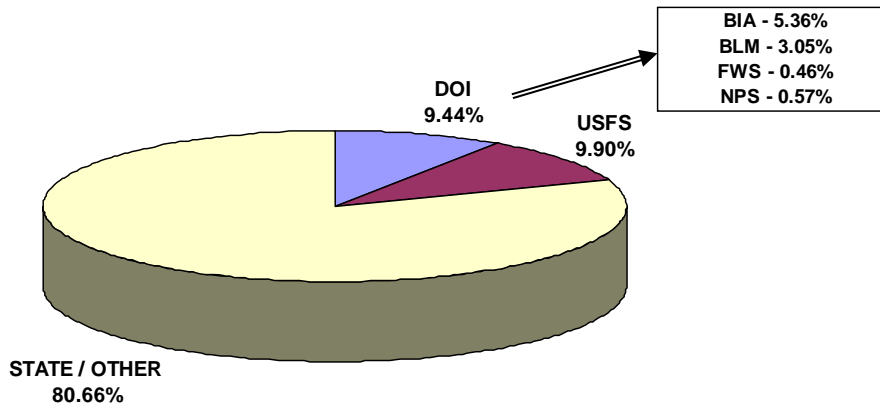
The wildland fire community operates in a wide variety of situations, ranging from very small responses to mega fires involving thousands of personnel and equipment. The structure for the flow of information, regardless of incident size and amount, is generally the same. Between the Forest Service and DOI, the cost of the Federal wildfire preparedness and suppression activities was approximately \$1.931 billion in 2007. The amount and kind of resources used are location and seasonally dependent and made available via multiple interagency agreements.

Nationwide, the number of acres owned or protected by state and local entities account for approximately 81% of all fires and about 61% of all acreage burned. The Department of the Interior and the Forest Service protected lands account for the remainder, as shown in Table 1 - Fires and Acres Burned by Ownership in 2007. These lands are located in and around some of the nation’s largest population centers, such the Los Angeles Basin in Southern California, or remote areas such as the Selway-Bitterroot Wilderness in Idaho and Montana. Wildland fires occur throughout the entire calendar year, depending on the location in the United States. Table 1 - Fires and Acres Burned by Ownership in 2007 and Figure 2 -Total Fires by Agency (2007) below summarize the number of fires and acres burned in 2007.

Table 1 - Fires and Acres Burned by Ownership in 2007

Owner	Number of Fires (Wild Fires, Rx Burns, & WFUs)	Percent of Fires	Number of Acres Burned	Percent of Acres Burned
Federal	16,577	19%	5,726,676	61%
Other (State, Local, Private, etc.)	69,128	81%	3,601,369	39%
Total	85,705	100%	9,328,045	100%

Figure 2 -Total Fires by Agency (2007)



Fire management planning, preparedness, prevention, suppression, fire use, restoration, rehabilitation, monitoring, research, and education are all conducted on an interagency basis and involve a number of cooperators and partners. Non-fire incidents in the United States and international wildland fires and non-fire incidents require, when appropriate and authorized, the same capabilities used in wildland fire management.

In addition to wildland fire suppression activities, fire management staff at local units, state/regional offices, Geographic Areas, and the national office are responsible for pre-event planning and preparedness, providing local response resources and direction for initial attack, and supporting extended attack and large fires.

Non-fire incidents, all-hazard incidents, and declared emergencies such as floods and hurricanes often require the use of wildland fire resources (e.g., incident management teams, personnel and crews, equipment, and services). While much of this support takes place locally, the 2005 Gulf Coast Hurricanes, 2004 hurricanes, 2003 space shuttle Columbia recovery, 2003 response to Exotic New Castle Disease, and response to the September 11, 2001 attacks required a significant national level support. In these cases, the resource dispatching and incident information processes used were the same as those used for response to wildland fire incidents.

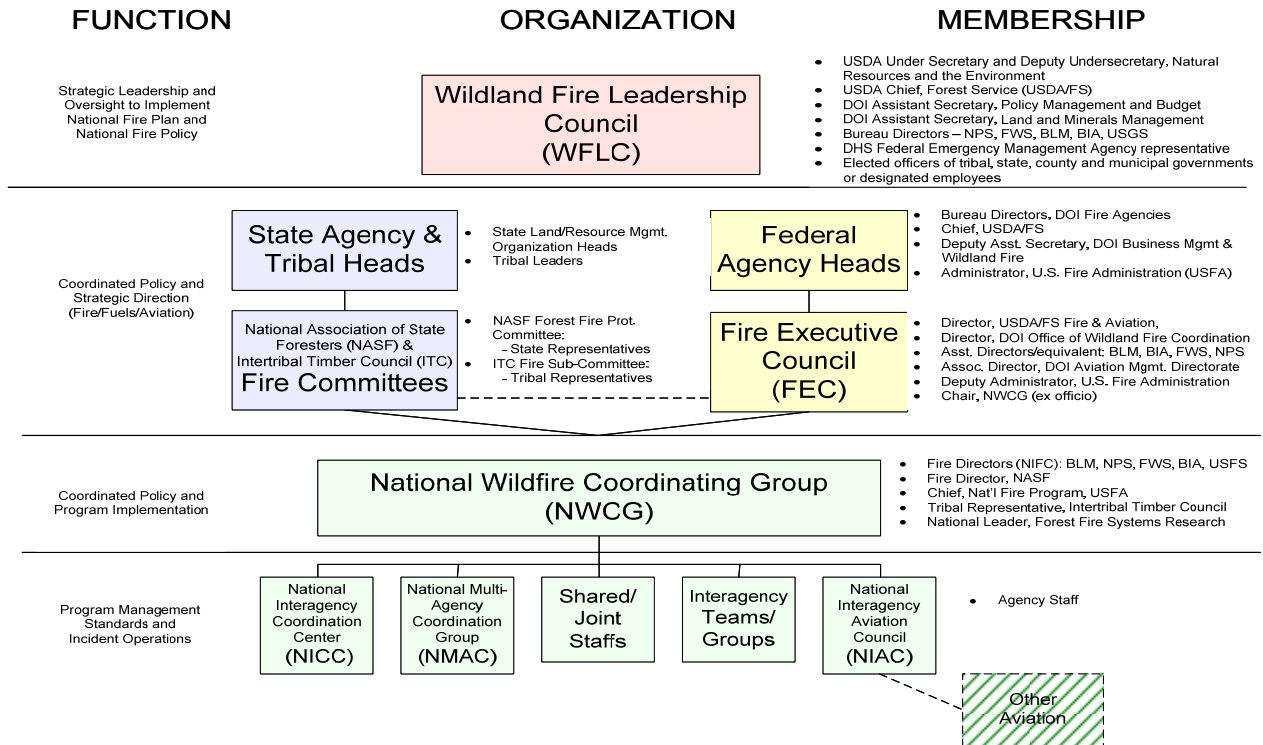
5.1.2 Fire Management Organizational Structure

Five principal organizations promote common policies, procedures, and programs within the federal and non-federal wildland fire community: Wildland Fire Leadership Council (WFLC), Fire Executive Council (FEC), National Fire and Aviation Executive Board (NFAEB), Office of Wildland Fire Coordination (OWFC), and the National Wildfire Coordinating Group (NWCG). These organizations provide coordinated strategic leadership and direction for the wildland fire community.

There are three principal levels of wildland fire program management and incident operations: National Multi-Agency Coordinating Group (NMAC), Geographic Area Coordinating Group (GACG), and Sub-Geographic/Local Area Multi-Agency Coordinating Groups. These levels range from local to national interagency coordination responsibilities.

Figure 3 - Governance Structure of Wildland Fire Operations displays the governance structure and major organizational responsibilities of coordinated wildland fire operations.

Figure 3 - Governance Structure of Wildland Fire Operations



5.1.3 Governance and Funding of the Dispatch Function

The coordination and dispatching system of the Fire Management organization is comprised of an interwoven network of state government, federal agencies, and local government organizations. The Wildland Fire Dispatch function depends on resources provided by state and local governments. Federal wildland fire agencies leverage these partnerships to support their missions. These relationships are not limited to State Forestry, but include Emergency Management Services and State Fire Chief's Associations. Any changes made to the current Wildland Fire Dispatch function will have a direct impact on response capability in all of these organizations. If a change in the function results in state and local governments losing effective touch with the coordination system, the overall wildland fire dispatching system will falter. Regardless of the number of Centers, or the number of Tiers remaining after implementation of options resulting from this assessment, government oversight will continue to ensure continuity of coordination with state, local, and other cooperators. It is important that the federal wildland fire agencies stress the importance of seamless cooperation between partners while conducting any consolidation initiatives. State, local, and other cooperators will always remain partners in wildland fire management initiatives.

The majority of local Dispatch Centers and most GACCs have Boards of Directors, or Steering Committees, comprised of Agency representatives of the protected lands in their area. A local center may not have a Board of Directors if their area of responsibility is over only one agency land area. The boards provide direction and operational oversight and can make separate Agency-centric assignments to staff at the center. Tier 3 level, local coordinating groups provide policy implementation and interpretation. Tier 4 Centers can, but do not always have a MAC if they are a single-agency entity. Each GACC Board of Directors has a different configuration due to the number of agencies represented with each entity having a vote.

Funds for initial attack Dispatch Center operations are obligated at the beginning of each year, historically on a set percentage basis by each agency. The workload distribution for the local area among the interagency partners, not the support provided for geographic and national needs, dictates local center funding. The local forest/unit controls budget and staffing at local centers.

Dispatch is "other support" in the wildland fire agencies budget process (i.e., in current models such as NFMAS, FirePro and FireBase) and not as a stand-alone module for staffing and budget. Dispatch Centers use fire/job codes (e.g., P codes) as the funding mechanism to pay supplemental staffing during peak activity periods.

The current Fire Program Analysis (FPA) under development in cooperation with the interagency partners will establish a common fire planning and budgeting tool for the future. Dispatch is not a separate budget line in this model.

5.1.4 Governance Interactions with the Dispatch Organization

Tier 1 (NICC) operates under the direction of the NMAC which consists of one agency representative from each of the federal wildland fire agencies, as well as one representative each from the NASF and US Fire Administration.

Tier 2 and 3 centers operate under a Board of Directors or a Steering Committee with representatives from the respective agencies. Each member of the board or committee has delegated authority to make decisions affecting resource distribution and commitment of funds. There are differences in geographical boundaries and board sizes vary, especially at the Tier 2 level. For example, Northern California (North Ops or ONC) has three members while Eastern Great Basin Geographic Area has thirteen members, each member having a full vote. At the GACC level (Tier 2), the interactions of sponsoring agency personnel are more of a collocation of activities, rather than programmatic integration with a policy negotiation and development mission.

Tier 3 centers, with smaller geographic coverage areas, have an operations and implementation focus. This variation in voting members can have an effect on timely decision-making. A higher degree of integration between federal and state/local government sponsors exists at the Tier 3 level.

While there are generally fewer organizations involved in oversight of a local Dispatch Center, the complexity of the relationships between local sponsors can present greater management challenges.

Only one federally funded Tier 4 Dispatch Center in the Northern Rockies Geographic Area reported receiving state funding. Approximately 20% of their funding comes from the state and 80% from USFS. Two federally funded Tier 4 centers did not report their funding information in the data call (one in the Eastern Great Basin Geographic Area and one in the Southern Geographic Area). Both of these centers, however, reported a Single Agency-sponsor (NPS), so the Team assumed that they are not receiving funding from a state. Additional discussion regarding center funding is located in Funding Section.

5.1.5 Geographic Boundaries

Agency needs, community infrastructure, terrain, and other political factors dictate the location of geographic boundaries. Historical organizations defined these boundaries in the past. Specifically, the Forest Service Regions defined the Tier 2 level boundaries.

These historic limitations and capabilities of the equipment in use at the time (radio and phone systems) defined the Tier 3 level boundaries. Advancements in communication technology have eliminated these limitations. Business practices and resource capabilities have changed with advancements of computer systems such as ROSS and the implementation of Voice/Radio over Internet Protocol (VOIP/ROIP).

Fire seasons within the last twenty years have increased in severity and scale. The most critical change has been the increasing workload in the wildland urban interface (WUI) and closer coordination with local fire departments. Current boundaries limit the timeliness and efficiency of action. Various studies conducted over the past 10 years to evaluate the efficiency of the dispatch function have resulted in consolidation of some local centers and one Geographic Area. To date, there has been no study on a national interagency scale.

5.1.6 Incident Workload

Since the establishment of the current dispatch system in the mid-1970s the operating roles of Tier 1 and 2 (coordination) Centers have become so similar as to be one system, as opposed to the different roles of Tier 3 (coordination, dispatching/initial attack) Centers. Current workloads vary to a small degree in both level and type among the Tier 2 levels. For example, many of the western Tier 2 GACCs support long-term fire events, while the Southern GACC provides support to FEMA incidents. Table 4 - Three-Year Average of Incident and Event-Related Workload Incurred by Tier 1 NICC and Tier 2 GACC Centers summarizes the incident and event related workload incurred by each of the Tier 1 and Tier 2 centers. The Southern Area Coordination Center (SAC) reports the highest number of FEMA incidents.

Table 4 - Three-Year Average of Incident and Event-Related Workload Incurred by Tier 1 NICC and Tier 2 GACC Centers

	Fire Incidents				Non-Fire Incidents				
	Fires	A-C Class Fires	D+ Fires	Rx Fires	Law Enforcement	HazMat	Search & Rescue	FEMA	Other
NICC	76200	81544	3049	13675	10	5	1	27	9
AKC	542	443	95	25	1	0	2	1	
EAC	13320	13226	94	2185	0	1	3	4	0
EBC	2550	2499	110	264	0	0	0	2	0
NRC	3263	3158	105	725	0	0	0	0	79
NWC	3860	3774	86	1228	9	0	44	2	1135
ONC	3789	948*	36*	561	21	10	29	0	385
OSC	3934	915**	30**	Unknown	8	1	4	4	Unknown
RMC	3533	2271	71	495	2	0	2	3	102
SAC	35549	33771	1778	1879	2	0	0	89	68
SWC	5505	5271	234	611	0	0	0	0	0
WBC	1000	900	100	25				3	
Grand Total	153,045	148,720	5,788	21,673	53	17	85	993	1778

Note: CALFIRE does not classify fires by size. * ONC A-C and D+ Fires are federal only. **OSC A-C and D+ Fires are Forest Service Only.

Table 5 - Three-Year Average of Tier 1 and Tier 2 Workload Associated with Incidents Requiring Special Teams shows the variation in the number of incidents that require special teams for each Tier 1 and Tier 2 center.

Table 5 - Three-Year Average of Tier 1 and Tier 2 Workload Associated with Incidents Requiring Special Teams

	Planned Events	Number of Incidents Requiring				
		Type 1 or 2 Response Teams	Type 3 Response Teams	Buying Teams	Area Command	FUMT
NICC	13	3	0	0	1	0
AKC	0	5	8	1	0	1
EAC	0	0	0	0	0	0
EBC	0	42	0	26	1	8
NRC	0	36	16	6	1	5
NWC	1	43	9	9	0	1
ONC	0	38	2	9	2	4
OSC	3	49	-	7	1	1
RMC	16	13	0	20	3	3
SAC	1	7	1	10	2	0
SWC	1	25	0	11	1	3
WBC	1	18	26	14	4	0
Grand Total	36	279	62	113	16	26

The workload among the Tier 3 centers has the greatest amount of variation, as shown in Table 6 - Three-Year Average of Incident and Event-Related Workload Incurred by Tier 3 and Tier 4 Centers and Table 7 – Three-Year Average of Tier 3 and Tier 4 Center Workload Associated with Incidents Requiring Special Teams. Some Tier 3 centers are well versed in large fire events requiring almost yearly Type 1 (T1) Incident Management Team (IMT) support while others focus on multi-agency initial attack where light, flashy fuels are more dependent on Type 2 (T2) and Type 3 (T3) IMTs. Other Tier 3 centers have a very low initial attack workload but spend the majority of their time supporting national resource requests. Two critical differences define the presence of a Tier 3 center: the radio system that connects them directly with resources in the field and focus on initial/extended attack versus large fire support.

Table 6 - Three-Year Average of Incident and Event-Related Workload Incurred by Tier 3 and Tier 4 Centers

	Fire Incidents				Non-Fire Incidents				
	Fires	A-C class fires	D+ Fires	Rx Fires	Law Enfcmnt.	HazMat	Search & Rescue	FEMA	Other
Alaska Area	175	71	51	9	0	0	2	0	0
Eastern Area	5391	5319	75	729	31	3	20	7	11
E. Basin Area	2734	2240	197	265	3021	16	122	2	168
N. Rockies Area	2177	2023	119	697	70	15	42	6	449
Northwest Area	2853	2676	124	1086	470	52	115	4	1068
N. Cal. Area	7740	4661	61	1086	5934	1038	14770	2	31343
S. Cal. Area	1789	1248	39	313	36124	406	860	40	17593
Rocky Mtn. Area	4506	3987	282	512	83	12	57	2	1160
Southern Area	3224	2768	324	1025	10034	11	68	63	15
Southwest Area	2860	2865	76	405	606	9	69	3	1142
W. Basin Area	1455	1139	89	27	70	46	46	5	1576
Grand Total	34,904	28,997	1,437	6,154	56443	1608	16171	134	54525

Table 7 – Three-Year Average of Tier 3 and Tier 4 Center Workload Associated with Incidents Requiring Special Teams

	Planned Events	Number of Incidents Requiring				
		Type 1 or 2 Response Teams	Type 3 Response Teams	Buying Teams	Area Command	FUMT
Alaska Area	1	5	12	0	0	1
Eastern Area	10	6	14	3	1	1
E. Basin Area	9	26	65	21	2	11
N. Rockies Area	14	39	45	21	2	12
Northwest Area	21	42	90	26	1	3
N. Cal. Area	233	50	46	11	0	3
S. Cal. Area	58	36	645	19	1	1
Rocky Mtn. Area	12	13	44	10	0	4
Southern Area	37	35	75	15	5	3
Southwest Area	18	25	59	16	1	6
W. Basin Area	24	23	63	13	1	3
Grand Total	437	300	1158	155	14	48

This variation in workload and type of incidents in different regions of the United States has resulted in a disparity of operating structures between geographical areas. For example, areas in the western United States generally operate on a multi-tier system in which local centers report and place orders directly to the GACC. The East Coast generally operates on a four-tier system due to the sheer size of the geographic region covered. As a result, the east uses federally run Coordination Centers for each state at the Tier 3 level while local centers at the Tier 4 level are responsible for initial attack.

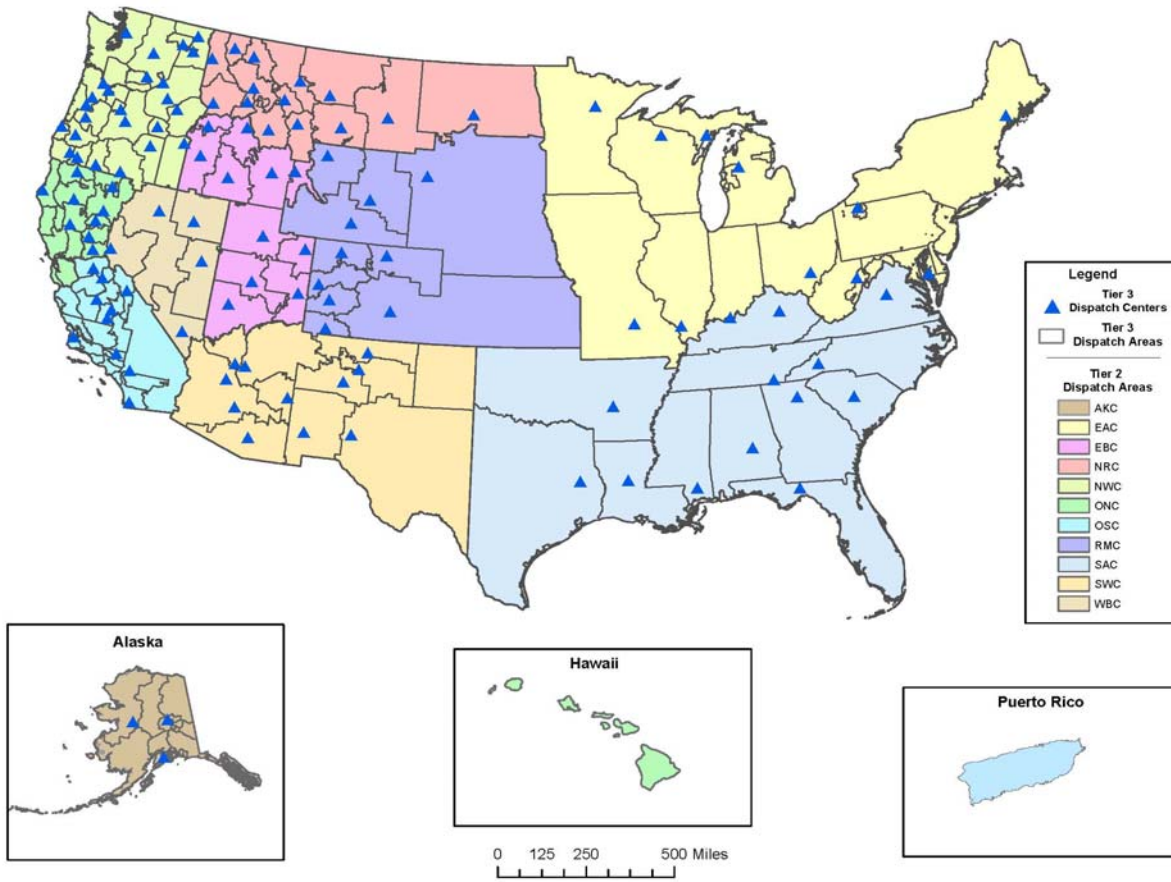
Table 8 - Distribution of Tier 3 and Tier 4 Dispatch Centers across the Geographical Areas shows the distribution of Tier 3 and Tier 4 Federal Dispatch Centers that report to each GACC location. This table includes all centers within the geographical region, as identified in ROSS. Table 8 - Distribution of Tier 3 and Tier 4 Dispatch Centers across the Geographical Areas identifies the Tier 3 and Tier 4 Federal centers that were included in the Center Manager data call and their geographic locations.

Table 8 - Distribution of Tier 3 and Tier 4 Dispatch Centers across the Geographical Areas

Tier 1 NICC and Tier 2 GACCs	# of Tier 2 GACCs Serviced by the NICC	# of Tier 3 Centers Serviced by the GACC	# of Tier 4 Centers Serviced by the GACC	Grand total of Tier 3 and Tier 4 Centers
NICC	11			
AKC		12	8	20
EAC		19	8	27
EBC		11	2	13
NRC		15	10	25
NWC		29	12	41
ONC		18	8	26
OSC		23	0	23
RMC		12	0	12
SAC		13	52	65
SWC		12	11	13
WBC		6	2	8
Grand Total	11	170	113	283

**Note: This table represents centers currently identified in ROSS.*

Figure 9 - Distribution of Federal Tier 3 & Tier 4 Centers by Geographic Area



5.1.7 Critical Indicators of Tier 1 NICC and Tier 2 GACC Complexity

Step one in analyzing the tier system was identification of which factors differentiate the complexity levels experienced by the Centers. Factors such as workload volume, number of sponsors, geographic area size, topography, common fire weather characteristics, and number and types of resources available within the area define the complexity of a Tier 2 center.

The following tables provide an overview of some of the different complexity indicators across the Tier 1 and Tier 2 communities. Tier 1 and Tier 2 Dispatch Centers are unique due to their interagency operational environment. Table 10 - Relationships, Interactions, and Interdependencies with External Organizations below shows the variation in agencies represented at each location in terms of staffing and funding.

Table 10 - Relationships, Interactions, and Interdependencies with External Organizations

GACC	Three-year Avg Number of Days the GACC hosted a MAC or MAC Support Group	Employee Demographics <i>(As reported in data call)</i>			Number of Sponsoring Agencies Contributing Funds and/or Personnel
		Number of Federal Agencies (USFS, NPS, BIA FWS, BLM)	Number of Federal Departments (USDA, DOI, etc.)	Number of State / Local Agencies (VA, OR, etc.)	
AKC	7	3	2	0	3
EAC	12	4	2	0	5
EBC	120	4	2	0	6
NICC	44	2	2	0	2
NRC	14	5	2	1	6
NWC	40	5	2	1	6
ONC	45	3	2	1	4
OSC	56	3	2	1	4
RMC	12	4	2	0	6
SAC	0	4	2	0	4
SWC	15	5	2	0	5
WBC	35	2	1	0	4
Totals	400				

The workload variation has also led to a disparity in staffing levels among centers. During periods of high fire activity, many centers depend on outside staffing from non-fire personnel in a militia capacity or AD employees.

5.1.8 Mission Issues

The mission of local Tier 3 and Tier 4 Dispatch Centers has been expanding with additional duties and increased geographic and national support needs. As noted in Section 5.1.9 the basis of funding is not workload, which results in a disparity when supporting wildland and all-risk incidents, locally, geographically, and nationally.

Additional discussions regarding the centers missions within each tier of the dispatch organization are in the Wildland Fire Dispatch function Structure section.

5.1.9 Funding Issues

The Tier 1 NICC and Tier 2 GACCs are not funded based on a consistent workload formula and are staffed and funded based on the supporting agencies or through Board of Directors. Organizational structures are not consistent, and budget and staffing are at the discretion of the supporting agencies.

Table 11 - Summary of Center Operating Cost Apportionment Percentage by Agency

GACC	Summary of Center Operating Cost Apportionment Percentage by Agency (From Approved Operating Plan)											
	USFS		BLM		BIA		FWS		NPS		State	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
NICC	50%	50%	50%	50%	0%	0%	0%	0%	0%	0%	0%	0%
AKC	0%	0%	66%	66%	0%	0%	0%	0%	12%	12%	22%	22%
EAC	49%	48%	0%	0%	10%	10%	3%	3%	15%	15%	23%	23%
EBC	63%	63%	26%	26%	5%	2%	2%	1%	2%	1%	6%	6%
NRC	60%	52%	14%	19%	6%	3%	4%	9%	5%	7%	11%	11%
NWC	36%	33%	30%	28%	20%	16%	10%	10%	3%	11%	1%	2%
ONC	85%	84%	14%	14%	0%	0%	0%	0%	0%	1%	1%	1%
OSC	85%	85%	10%	10%	0%	0%	0%	0%	1%	1%	Calfire	Calfire
RMC	55%	52%	18%	23%	11%	11%	1%	1%	5%	13%	10%	0%
SAC	50%	50%	0%	0%	0%	0%	25%	25%	25%	25%	0%	0%
SWC	46%	46%	20%	20%	7%	7%	10%	10%	17%	17%	0%	0%
WBC	30%	0%	50%	80%	1%	15%	2%	0%	3%	5%	14%	0%

There is not currently a method of measuring performance for a service/quality improvement process on a national scale. The GACCs and NICC are staffed to support the recent workload, not the trending workload or the future for all-risk needs.

Table 12 - Summary of Center Operating Cost Apportionment by Agency

(From Approved Operating Plan - rounded to the nearest thousand)

Tier 1 and Tier 2 Center Identifier	Planned Payments by Sponsoring Agencies & State (\$,000)	Actual Payments by Sponsoring Agencies & State (\$,000)
NICC	\$2,006	\$2,006
AKC	\$822	\$817
EAC	\$1,376	\$1,376
EBC	\$1,565	\$1,565
NRC	\$899	\$926
NWC	\$1,175	\$1,213
ONC	\$1,523	\$1,500
OSC	\$1,522	\$1,522
RMC	\$1,144	\$939
SAC	\$750	\$750
SWC	\$800	\$800
WBC	\$1,203	\$1,252
GRAND TOTALS	\$14,785	\$14,666

5.1.10 Staffing Issues

In 2000, the National Coordinators recognized the following issues within the Wildland Fire Dispatch function:

- Line Officer/Management lack understanding of dispatch/coordination system
- Dispatch Center Staffing/Supervision had 15-20% vacancies and anticipated retirements in leadership
- Dispatchers experience burnout and have expectations of more overtime hours and unpaid on-call status
- Recruitment, career development, training, and retention
- National Fire Plan (NFP) increased resource capability except in dispatch
- Collateral Duties

The National Coordinators recognized that these issues could be reflective of an increasing trend of inadequate staffing in dispatch offices. As a result, the National Coordinators formed the Dispatch Office Staffing Work Group to:

- Identify and document dispatch staffing issues
- Articulate the skills and capabilities needed in the dispatch job/offices
- Identify a common template for the dispatch community in evaluating staffing requirements
- Recommend a strategy to deal with staffing shortfalls

The Dispatch Office Staffing Work Group conducted its FY 2000 Dispatch Workload Analysis, which led to the development of "FireOrg". This program is an initial attempt to model staffing based on workload and to display "Fair-Share" percentages for supporting agencies. The program uses a set of Core Criteria for staffing including, but not limited to:

- Incident activity
- Resource activity
- Resource availability
- Administrative duties
- 7-day a week coverage and adequate staffing to allow for time off, leave, training, opportunity for developmental assignments, minimize substantial overtime, fatigue (work/rest), stress, job burnout, and vacancies.
 - The Association of Public Safety Communications Officials (APCO) 2001 report studied staffing and skills issues for Dispatch Centers and developed the Relief Factor of 1.7 personnel needed per position per 8 hr/shift. The Relief Factor for a 7/24 hour shop needs 5.1 personnel per position 8/hr shifts. <http://www.911dispatch.com/shiftwork/staffing>.
 - Note: the above is in contrast with the OMB guidance on the staffing of federal employees, which is 1.6 FTE per year to staff one position for 8 hours for 7 days over 52 weeks. For a 24-hour operation, the OMB guidance would be a staffing of 4.9 FTE per year for a similar 3-shift, 7-day a week center.
- "A typical communications center experiences *"normal" departures* each year: retirements, those moving on to school, those making a profession change, those with medical problems, those transferring to another department ..."
- There is also competition from other industries and local municipal centers offering excellent working conditions with ergonomic workstations, latest equipment, and well-designed lighting.
- FireOrg was presented to NFAEB in 2002, but was not implemented. Recruitment and retention issues continue to undermine the effectiveness of the dispatch system.
- Recruitment and retention issues continue to influence the effectiveness of the dispatch system.

5.1.11 Business Practices

Dispatch business practices share common themes across the country but vary significantly from Geographic Area to Geographic Area. Examples include: mobilization and rostering of IMTs; processing name requests; issuing temporary flight restrictions (TFR); tactical resource reporting; neighborhood ordering; decision to move national shared resources; establishing preparedness levels; hiring of ADs; night mobilizations; and reporting resource availability. The considerable number of variations and exceptions to business rules have had a significant impact on the design and complexity of ROSS.

The development of the neighborhood policy is an example of an operational efficiency focused policy change. This policy allows a local unit to order directly from a neighboring unit after it has exhausted its capability of the resource without involving the GACC. Most of the Tier 2 GACCs have some type of a neighborhood policy between their Center and Centers in their bordering Geographic Areas. The exact nature of this policy varies from GACC to GACC. The official and informal neighborhood policies have not been evaluated for efficiencies and effectiveness. California uses a command and control method for initial attack aviation assets that provides an effective method for prioritization and allocation. Delegated authorities vary and documentation of the authorities is inconsistent.

While there has been general agreement over the years to adopt similar dispatching philosophies between the Geographic Areas, implementation of these uniform processes has not been enforced. As noted previously, the GACCs do not have command and control authority over the Tier 3 centers that process orders through the GACC.

There are not direct Tier-to-Tier supervisory controls that run from NICC to the GACCs or from the GACCs to the local dispatch offices. Each office works for agency supervisors or Board of Directors. The dispatch/coordination system works on an interagency basis due to the adherence of agreed upon standards and guidelines and signed agreements. Federal agencies are compliant, where as state and local government often have different processes by law or by agreement.

Annually, Dispatch Centers and GACCs receive Geographic Preparedness Reviews as part of an agency-directed overall Fire Program Readiness Review. This process does not review operational effectiveness. The reviews focus on facility preparedness, operating plans, agreements, delegations of authority, automated systems, contracts, EERAs, agency resources, and Standard Operating Procedures (SOPs). These pre-season reviews do not evaluate prior season performance. (See link below for more information.)

http://www.blm.gov/nifc/st/en/prog/fire/fireops/preparedness/preparedness_review.html.

5.2 Wildland Fire Dispatch Function Structure

5.2.1 Overview of Dispatch Organization Structure

The federal interagency dispatch coordination system is a multi-tiered organization linking national, geographic or regional, and local hubs, overlapping with similar state organizations. The National Interagency Coordination Center (NICC), located in Boise, Idaho is responsible for managing movement of firefighting resources between the eleven Geographic Areas and is the focal point for overseeing all interagency coordination activities throughout the United States. The principal mission of the National Interagency Coordination Center (NICC) at the National Interagency Fire Center (NIFC) is to provide cost effective and timely land management agency emergency response coordination. The NICC has the delegated authority to manage the movement and allocation of federal/national shared resources. The NICC establishes priorities among Geographic Areas and allocates resources accordingly, to meet anticipated and existing incident, preparedness, severity, and wildland and prescribed fire needs regardless of geographic location or agency affiliation. NICC develops and issues procedural guidance and policy related to resource mobilization and support.

The National Predictive Service Unit is co-located with the NICC along with the National Multi-Agency Coordination (NMAC) group. NMAC is composed of representatives from USFS, DOI Bureaus: BLM, NPS, BIA, and FWS, DHS-USFA, and NASF. NMAC is responsible for establishing national priorities for the allocation of firefighting resources and determining the National Preparedness Level. The center manager at the GACCs and the NICC function as the initial MAC group, making resource allocation/reallocation decisions and setting priorities with respect to the safety and welfare of firefighters and public. Once formed, the MAC group takes over these responsibilities.

The second tier of the coordination system is the Geographic Area Coordination Center (GACC). The eleven GACCs include Alaska, Pacific Northwest, Northern California, Southern California, Southwest, Western Great Basin, Eastern Great Basin, Northern Rockies, Rocky Mountain, Southern, and the Northeast. They are composed of the five federal wildland fire agencies and state representatives. Each of the GACCs is responsible for managing resource movement to incidents within their area and for coordinating resource ordering from outside of the GACC through the NICC. Each GACC maintains a Predictive Services unit. During periods of high fire danger, Geographic Areas may form a Geographic Area Multi-agency Coordination group to establish incident priorities for the area.

Local dispatch offices located throughout the United States comprise the third tier of the system. They are generally interagency in structure and frequently include state fire representatives. Their primary mission is to dispatch resources to incidents within their given area, order additional resources through the GACC or neighborhood, determine local fire danger, and serve as a communication center for field operations.

The Predictive Services function, through the 1990s, were ad hoc attempts to blend fire weather forecasting, fuels, and resource information into effective fire management planning. Increasing hazardous fuel treatment targets, fluctuating budgets, more complex and restrictive policies, and a restructuring of the National Weather Service (NWS) Fire Weather Program complicated these efforts. The need for integrated planning and decision tools for fire management increased further as all-hazard response incidents increased in number and began to compete for the available resources. The complicating factors multiplied and the consequences of under informed decisions became more far reaching. In recognition of this need, the concept of Predictive Services emerged in the late 1990s from the Tier 2 Geographic Area Coordination Centers (GACCs). Initially, the Intelligence Coordinators at the GACCs produced monthly and seasonal outlooks that blended long-term weather outlooks with fuels and fire danger information. In the California GACCs, U.S. Forest Service and NWS fire meteorologists worked collaboratively and interfaced with the Intelligence Coordinators and the remainder of the GACC staff. In 1999, the Northwest Coordination Center hired a fire meteorologist to bring interdisciplinary expertise to their emerging Predictive Services program. This

approach of teaming fire meteorologists with the Intelligence Coordinators at the GACCs would later become the primary model for the National Predictive Services Program, implemented as part of the National Fire Plan.

The Wildland Fire Dispatch system in the United States has under normal circumstances and official protocols the three levels (Tiers) described above. Under special circumstances, there are a number of fourth Tier Dispatch Centers operating across the United States to protect especially remote locations or to supplement third Tier Dispatch Centers covering very large areas. The majority of Centers subscribe to the following classic coding schema:

Tier 1 - National Center

Tier 2 - Geographic Area Coordination Centers

Tier 3 - Local Centers

Logistical dispatch operations occur at all Tiers, while initial attack dispatch operations occur primarily at the local Tier 3 level. (See the Interagency Standards for Fire and Aviation Operations.) Any Geographic Area or local Dispatch Center using a dispatch system outside the approved three-Tier federal system is required to justify the need for a non-standard system. The current protocols are:

- **Bureau of Land Management** - Any Geographic Area or local Dispatch Center using a dispatch structure outside the approved three-Tier federal system is required to annually request written authorization from the Director, Office of Fire and Aviation.
- **Forest Service** - Any Geographic Area or local Dispatch Center using a dispatch structure outside the approved three-Tier federal system is required to annually request written authorization from the Forest Service Regional Director of Fire and Aviation.

Table 13 - Summary Results of Staffing Data Call presents the results of a data call sent to 149 Tier 1 through Tier 4 centers within the Interagency Wildland Fire Dispatch community. This particular data call requested information about the center's staffing as of July 1, 2007, vacancies, agency sponsors, and the series and grades of the staff.

Table 13 - Summary Results of Staffing Data Call

Dispatch Level	Permanent and Permanent Seasonal			Temporary		
	Number of Positions	Number of FTE	Number of Locations Responding	Number of Positions	Number of FTE	Number of Locations Responding
NICC Total	24	21.46	1	-	-	-
Alaska Area Total	31	19.62	4	3	2.40	3
Eastern Area Total	30	29.50	12	3	1.50	3
Eastern Great Basin Area Total	86	71.88	12	18	7.76	6
Northern Rockies Area Total	82	69.91	17	9	4.01	8
Northwest Area Total	115	95.45	24	15	8.15	6
Northern California Area Total	84	81.00	10	1	0.50	1
Southern California Area Total	116	112.69	11	-	-	-
Rocky Mountain Area Total	62	54.04	11	3	1.50	1
Southern Area Total*	61	56.76	22	-	-	-
Southwest Area Total*	69	63.62	12	-	-	-
Western Great Basin Area Total	42	33.65	6	6	3.17	2
TOTAL	802	709.58	142	58	28.99	30

**Note: Two centers did not respond to the data call, one center from SAC and one from SWC.*

Experience, training, and qualifications of local dispatch positions are laid out in interagency standard position descriptions, the Interagency Fire Program Management (IFPM) Qualifications Standards and Guide, the 310-1 Interagency Wildland Fire Qualifications, the 5109.17 the USFS Fire and Aviation Management Qualification and Certification Handbook, and the IAT Interagency Aviation Training Guide. Currently, firefighting experience is a position description (PD) requirement for all PDs classified as a secondary firefighting position. Firefighting is a selective factor in the application process. Experience, training, and qualifications of dispatch positions at the NICC and GACCs are similarly non-standard. Due to the limited number of personnel in this position, the request for standard position descriptions was declined by Human Resources Management (HRM). Interagency Fire Program Management implemented standard interagency PDs for Center Managers, Assistant Center Managers, and initial attack dispatcher at the local unit level.

5.2.2 Tier 1 – National Interagency Coordination Center

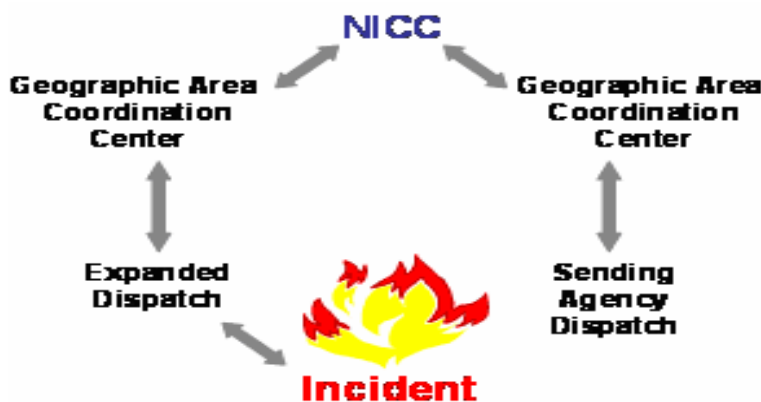
5.2.2.1 Mission and Responsibilities of Tier 1 NICC

The National Interagency Coordination Center (NICC) is located at the National Interagency Fire Center (NIFC) in Boise, Idaho. Established in 1975, it serves as the focal point to provide logistical support and intelligence relative to current and anticipated wildland fire activity for all federal and cooperating state wildland fire management agencies across the nation.

The principal mission of the NICC is the cost-effective and timely coordination of land management agency emergency response for wildland fire. As a partner in the National Response Framework (NRF) and as interagency cooperators, NICC will also meet the requirements of all-hazard incidents as directed by the NRF or Presidential and Secretarial direction. This mission is accomplished through planning, situation monitoring, and expediting resources orders between the Bureau of Indian Affairs (BIA) Areas, Bureau of Land Management (BLM) States, National Association of State Foresters (NASF), Fish and Wildlife Service (FWS) Regions, Forest Service (FS) Regions, National Park Service (NPS) Regions, National Weather Service (NWS) Regions, Federal Emergency Management Agency (FEMA) Regions through the United States Fire Administration (USFA) and other cooperating agencies. The NICC also responds to requests for support to foreign countries through established agreements or as directed by the US Department of State.

The NICC currently has 7 federal employees (4.5 FTE) identified as dispatchers and another 17 full-time employees (17 FTE) who assist in areas such as support units specializing in aircraft, logistics, equipment, crews, and Predictive Services/Intel.

Figure 14 - Filling Requests between Geographic Areas



The NWCG publication, Allocation of Resources document provides guidance for incident and project support requests to fill on a first-come, first served basis. When multiple incidents necessitate setting priorities for scarce resources, the Center Manager will establish a National Multi-Agency Coordination (MAC) Group in accordance with direction in the National MAC Group Operating Plan.

The National Interagency Coordination Center (NICC) Coordinator monitors the national wildland fire activity and Geographic Area Preparedness Levels and recommends to the NMAC a National Preparedness Level. Response and support to non-fire incidents requiring a significant commitment of resources will also affect National Preparedness Levels. National Preparedness Levels are responsive to the Homeland Security Advisory System.

National Preparedness Levels are determined from the ground up, and can influence resource allocations within Geographic Areas not experiencing significant activity to ensure sufficient resources are available for the national situation. MAC operations are contingent on national, geographic, and local preparedness levels.

Burning conditions, fire activity, and resource availability dictate preparedness levels. Resource availability is the area of most concern. Situations and activities described within the Preparedness

Levels consider wildland fires and prescribed fires. At any preparedness level, NMAC may request that proposed new Wildland Fire Use (WFU) or prescribed fire (Rx) applications be curtailed to meet national resource needs for emergency operations. The purpose of established Preparedness Levels is:

- To identify the level of wildland fire activity, severity, and resource commitment nationally.
- To identify actions to be taken by NIFC and Geographic Areas to ensure an appropriate level of preparedness/readiness for the existing and potential situation.
- To guide and direct Geographic Area Fire Management activities when essential to ensure national preparedness or in response to the National situation.

The NICC collects and consolidates information from the GACCs and disseminates the National Incident Management Situation Report through the NICC website at <http://www.nifc.gov/nicc/sitreprt.pdf>

5.2.2.2 Authorities

The NICC has delegated authority from the National Multi Agency Coordinating Group to set priorities and allocate resources on a national scope commensurate with values at risk.

5.2.2.3 Staffing and Duties

Day-to-day operation and management of the NICC is the responsibility of the Center Manager or in the manager's absence, an Assistant Center Manager or designated Acting. The NICC staff is composed of representatives from the Bureau of Land Management and the Forest Service. The Weighted Average Grade of NICC personnel is currently (as of July 2007) is slightly over a GS-10.

The Center Manager - The Center Manager is responsible for NICC management, leadership and administration, and for maintaining contact with the NIFC Board of Governors (BOG). The Center Manager, in consultation with the NIFC BOG, reviews the annual program of work that will guide the Center's operation for the federal fiscal year. The National Interagency Mobilization Guide specifies on-going services the Center provides to Geographic Areas. The Center Manager is responsible for the overall management of the Coordination Center and providing Multi-Agency direction to NICC activities. The Center Manager is often heavily involved in interaction with Multi-Agency Managers and Directors, Military and Political officials, Incident Commanders, Area Commanders, National Multi-Agency Coordinators, external affairs and others outside of the Center, in addition to providing direction and advice to the Assistant Center Managers and Coordinators on Duty (CODs).

The Assistant Center Managers - The Assistant Center Managers are responsible for the day-to-day operations of the NICC, which includes establishing work schedules, assigning work and conducting personnel evaluations. There are two Assistant Center Managers assigned to the NICC, one is a Bureau of Land Management employee and the other is a Forest Service employee. Each Assistant Center Manager regardless of agency affiliation is well versed in all wildland fire agencies protocol and procedures. Their primary communication focus is on the GACC Center Managers, vendors and contractors, as well as property management, task book management, general supervision and training. The Assistant Center manager performs as Acting Center Manager during the Center Manager's absence and acts as a COD during Preparedness Levels (PL) 4 and 5.

Operations Coordinator (OC) - During incident activity, there is at least one OC on duty per shift. The OCs are responsible for assisting the COD with coordination between the sections (i.e., shift planning, staffing, management, supervision of assigned sections, conflict resolution, and keeping the COD informed of all actions taken). During incident activity, they primarily assist the COD with:

- Monitoring resource orders. Review active resource orders to ensure periods will be met and documentation is complete; monitors the progress of sending agency to ensure timely response.

- Monitor national and critical resource availability. Identifies shortages or potential problems and informs the COD.
- Monitors the national team call-out rotations and maintains the shift logs.

Coordinator on Duty (COD) - The COD is a function of the Emergency Operations Coordinator during PL levels 1, 2, and 3, and is a stand-alone position during PLs 4 and 5. The COD is responsible for operations of the Coordination Center in providing efficient, cost-effective service to the field. The COD makes shift assignments, sets shift schedules, reviews desk dispatcher's work for accuracy and timeliness, provides input on where to place orders for resources, completes performance evaluations, is responsible for the welfare of the assigned personnel and resolves problems that are beyond resolution at the desk dispatcher level. The COD is typically extremely busy troubleshooting problems, talking to Coordinators in other GACCs, participating in conference calls and meetings, etc.

Each shift's assigned COD is responsible for overall coordination between the six sections, shift planning and staffing, supervision, monitoring office workload, and conflict resolution. They also make National Preparedness Level recommendations, review Incident Management Situation Reports and Resource Summary Reports. The COD reviews resource orders, maintains Charge Code logs, monitors availability of national and critical resources, informs the NICC Center Manager of shortages or potential problems, and reviews all NICC unable-to-fill decisions before they are implemented. The COD is responsible for notifying the NICC Center Manager and NIFC Public Affairs as appropriate when any of the following situations occur:

- Potential serious fire situation
- Type 1 team request
- Potential resource shortage
- MAFFS commitment (state agreement)
- Aircraft accident
- Serious accident or shelter deployment
- International request for assistance
- FEMA tasking

Dispatchers - The dispatchers are responsible for processing resource orders according to the appropriate guide, communicating with field units and advising Coordinators of current and anticipated resource shortages. Dispatchers receive status information from the field on all national resources via telephone, situation reports, electronic mail, facsimile, verbal updates, and briefings. The dispatchers document resource status updates and resource orders in appropriate logs and electronic databases. Dispatchers verbally brief the COD of anticipated national resources shortages, expected drawdowns, and resources that are in critically short supply. They also provide the field with information concerning the use, capability, and availability of resources, as well as information regarding experimental and developmental equipment.

Predictive Services - Predictive Services staff or Intelligence staff collect, consolidate, and disseminate information to cooperating agencies, Fire Managers and the public, respond to special requests for information, prepare daily, weekly, monthly and annual reports/assessments and assist with briefings during periods of high activity. The Predictive Services section is responsible for gathering, compiling and distributing daily situation and incident information, operations and staffing of the intelligence organization during high activity periods, including responses to Washington Office requests and completion of annual statistical reports.

5.2.2.4 **NICC Assignment Areas**

The NICC dispatch floor contains four functional desk assignment areas:

- Equipment/Supplies - coordinates mobilization of telecommunications equipment, caterers, shower units and commissaries, engines, ground or air transportation for equipment and supplies, portable weather stations, RAWs and miscellaneous supplies.
- Crew/Overhead - coordinates mobilization of specialty teams including; Area Command Teams, Type 1 and 2 Incident Management Teams, Fire Use Teams, Burned Area Rehabilitation Teams, 20 person fire crews, smokejumpers and single resource overhead positions.
- Intelligence – collects, consolidates, and disseminates information to cooperating agencies, Fire Managers, and the public, responds to special requests for information, prepares daily, weekly, monthly, and annual reports/assessments, and assists with briefings during periods of high activity.
- Aircraft Section - coordinates the transport of crews, personnel, supplies and equipment; airtankers, lead planes, aerial supervision modules, retardant aircraft, medium and heavy helicopters, FAA portable control towers and the military Modular Airborne Fire Fighting System (MAFFs).

Logistics dispatchers are Coordination Center staff members assigned to specific desks during the season. Each staff member is capable of functioning on most desks, but has a specific area of expertise in which they are most knowledgeable. Typically, at least one regular staff member staffs each of the following desks: aircraft, intelligence, overhead/crews, and equipment/supplies.

Incident activity needs define NICC staffing. General coverage is 0730-1600 Mountain Time Monday thru Friday. Adjusted work schedules, as determined by the Assistant Center Manager, to provide adequate coverage for extended office hours. The NICC has a Duty Officer assigned and available 24 hours a day 7 days a week.

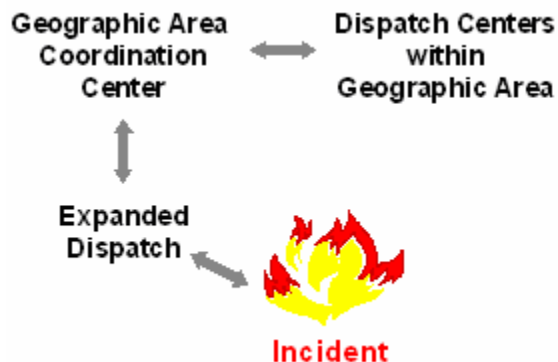
5.2.2.5 **Funding and Budgeting**

Individual agencies are responsible for salary costs for their employees assigned to the Center. Participating agencies share non-salary operational expenses on a cost-share basis. The Forest Service contributes 50% and the Bureau of Land Management contributes 50% of the funding for NICC operations.

5.2.3 Tier 2 – Geographic Area Coordination Center

The following discussion provides an overview of the Tier 2 (GACC) organizational level, mission, staffing, and duties.

Figure 15 - Filling Orders within a Geographic Area



5.2.3.1 Mission and Function of a Tier 2 GACC

The mission of a Tier 2 Geographic Area Coordination Center (GACC) is to provide full service, centralized dispatch/coordination of aircraft, overhead, crews, engines and miscellaneous equipment and supplies/services. The GACC also provides Predictive Services, products that combine forecasted weather, fuels conditions and resource availability) to the participating agencies within its Geographic Area. There are eleven GACCs in the federal dispatch/coordination system. A GACC conducts all operations in accordance with participating agencies' legal authorities and specific policies. The current configuration of GACCs is a result of reorganization studies performed in 1986. A consolidation of several smaller GACCs formed the most recent GACC in 2002. The goal of a Tier 2 GACC is to provide for cost-effective utilization of federal wildland agencies' fire management resources in response to incidents.

The Tier 2 Centers are the focal point for logistical support, Predictive Services and Multi-Agency Coordination (MAC) support relative to anticipated and ongoing wildland fire activity for all federal and cooperating state wildland fire agencies within their GACC. The Centers facilitate movement of resources between agencies' units and, concurrently, ensures fire suppression capabilities to support large fire potential by monitoring weather and prescribed burning activity within the area. The Centers also respond to requests for support to other Geographic Areas from the NICC.

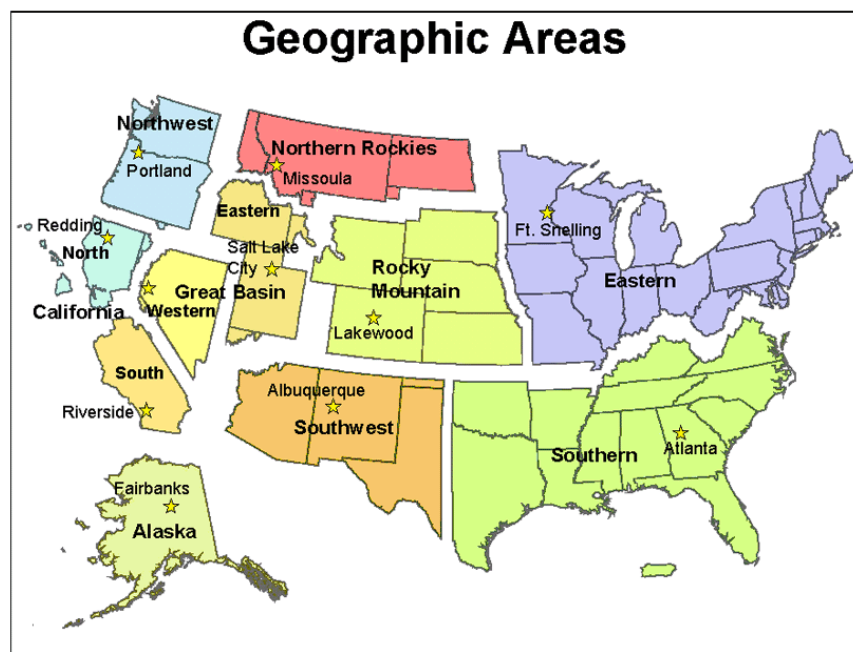
Though the Tier 2 GACCs primarily support wildland fire suppression efforts, they also play a significant role in providing logistical support to the needs of other natural disasters such as earthquakes, floods, volcano eruptions, etc. The Centers serve as the focal point for area level support to emergencies covered under the National Response Plan. In addition, the Centers support the general fire community through training, workshops, and response to projects or tasks assigned by their Geographic Area Coordination Groups (GACG) or other leadership organizations.

5.2.3.2 GACC Locations and Area of Influences

The locations of the eleven Geographic Area Coordination Centers and their area of influence are described below and shown below in Figure 16 - Map of Geographic Area Coordination Centers.

- EASTERN – St. Paul, Minnesota: Connecticut, Delaware, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia, and Wisconsin.
- SOUTHERN – Atlanta, Georgia: Alabama, Arkansas, District of Columbia, East Texas (plus Texas State Forest Service in West Texas), Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Virginia, Puerto Rico, and the Virgin Islands.
- SOUTHWEST – Albuquerque, New Mexico: Arizona, New Mexico, and West Texas (west of the 100th Meridian).
- ROCKY MOUNTAIN – Lakewood, Colorado: Colorado, Kansas, Eastern Wyoming, Nebraska, and South Dakota.
- NORTHERN ROCKIES – Missoula, Montana: Montana, North Dakota, Northern Idaho, and Yellowstone National Park, Wyoming.
- ALASKA – Fort Wainwright, Alaska: Alaska.
- NORTHWEST – Portland, Oregon: Oregon and Washington.
- NORTHERN CALIFORNIA OPERATIONS – Redding, California: Northern California and Hawaii.
- SOUTHERN CALIFORNIA OPERATIONS – Riverside, California: Southern California and USA Pacific Islands.
- EASTERN GREAT BASIN – Salt Lake City, Utah: Southern Idaho, Western Wyoming, Utah, and a portion of Arizona north of the Colorado River.
- WESTERN GREAT BASIN – Reno, Nevada: Nevada and a portion of California just south of Lake Tahoe.

Figure 16 - Map of Geographic Area Coordination Centers



5.2.3.3 Staffing and Duties

Table 17 - Tier 1- NICC and Tier 2 - GACC Federal Staffing as of 1 July 2007 and Table 18 - Non-USFS/Non-DOI Staff within Tier 2 GACCs as of 1 July 2007 show a summary of the current staffing of the eleven GACCs. The figures to left of the gray bar represent positions (which could be full-time, part-time, seasonals, job-share, etc). The figures to the right of the gray bar represent Full-Time Equivalents (FTE), which are comprised of units of 1,776 productive hours of time per year accomplished by one or more positions:

Table 17 - Tier 1- NICC and Tier 2 - GACC Federal Staffing as of 1 July 2007

Tier 1 NICC	Number of Positions (Not FTE)							Number of FTE Represented (not positions)
	Management	Dispatch	Predictive Services	Admin Support	Other Support	Vacant Positions	Total Positions	
NICC	7	10	4	1	1	1	24	21
Tier 1 NICC	Management	Dispatch	Predictive Services	Admin Support	Other Support	Vacant Positions	Total Positions	Number of FTE Represented (not positions)
AKC	1	12	3	-	-	1	17	12
EAC	3	2	2	-	-	-	7	7
EBC	2	5	2	1	-	1	11	11
NRC	2	5	3	1	-	1	12	10
NWC*	2	3	6	2	1	1	15	11
ONC	1	8	6	2	2	-	19	18
OSC	1	8	3	-	2	1	15	15
RMC	1	5	3	-	1	-	10	10
SAC	-	4	1	1	-	1	7	7
SWC	1	6	3	-	-	-	10	10
WBC	2	3	1	-	-	4	10	10
Total	16	61	33	7	6	10	133	121

Note: The positions and FTE numbers represent federal USFS & DOI employees or positions funded by USFS or DOI.

*One of the Predictive Service positions is a contract position funded by DOI.

The Weighted Average Grade of federal personnel in the eleven Tier 2 GACCs is (as of July 2007) just under a GS-10 (~9.97).

Table 18 - Non-USFS/Non-DOI Staff within Tier 2 GACCs as of 1 July 2007

Tier 2 GACC	Number of Filled Positions (not FTE)					Vacant Positions	Total Positions	Number of FTE Represented (not positions)
	Management	Dispatch	Predictive Services	Admin Support	Other Support			
NRC	-	2	-	-	-	-	2	2
NWC	-	-	2	-	1	1	4	3
ONC	4	4	-	-	-	-	8	8
Total	4	6	2	0	1	1	14	13

Note: These numbers represent non-USFS & DOI employees (i.e., state employees or other federal employees)

In response to a recent data call and shown below in Table 19 - Positions Reported to be Vacant of Over 120 Days, federally-funded and/or operated Dispatch and Coordination Centers reported a number of vacant dispatch positions. Of these vacant positions, 11 had been vacant for more the 120 days in the last year.

Table 19 - Positions Reported to be Vacant of Over 120 Days

Tier 1 – NICC and Tier 2 GACC Centers	Vacant Positions	Average Amt of Time Vacant (Weeks)	Percentage of Positions Vacant for >120 Days
National Interagency Coordination Center	1	36	100%
Alaska Interagency Coordination Center	1	104	100%
Eastern Area Coordination Center			
Eastern Great Basin Coordination Center	1	39.5	100%
Northern Rockies Coordination Center	1	58	100%
Northwest Interagency Coordination Center	1	99	100%
Northern California Geographic Coordination Center	1	94	100%
Southern California Geographic Coordination Center	1	20	100%
Rocky Mountain Area Coordination Center			
Southern Area Coordination Center	1	17	0%
Southwest Area Coordination Center			
Western Great Basin Coordination Center	3	105	67%

As shown in Table 20 - Average Floor Space per Position BY GACC, the current calculated average floor space in square feet (sq ft) for the eleven Tier 2 GACCs is 386 sq ft per position (not FTE).

Table 20 - Average Floor Space per Position BY GACC

GACC	Positions (Fed + Non-Fed)	FTE (Fed + Non-Fed)	Current GACC Dispatch Sq Ft	Sq Ft per Position
AKC	17	12	3,000	176
EAC	7	7	3,321	474
EBC	11	11	7,210	655
NRC	12+2=14	10+2=12	2,752	197
NWC	15+4=19	11+3=14	7,882	415
ONC	19+8=27	18+8=26	8,796	326
OSC	15	15	5,690	379
RMC	10	10	3,998	400
SAC	7	7	6,756	965
SWC	10	10	2,820	282
WBC	10	10	700	70
Total	147	134	52,924	386 (avg.)

5.2.3.4 Tier 2 GACC Incident Response Process

When Tier 3 and 4 dispatch offices exceed their internal capability to fill requests locally, the office places a request with their Tier 2 Geographic Area Coordination Center (GACC). 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, an office requests outside resources 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, the geographic and national levels collect fire situation information 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 Tier 2 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.

Table 21 - Tier 2 GACC Workload Related Specifically to Resources Managed displays the three-year average of the number of resource orders processed by each GACC and NICC. The number of resources available at each GACC can be found in Table 32 - Summary of Resources Available by Geographical Area.

Table 21 - Tier 2 GACC Workload Related Specifically to Resources Managed

Three Year Average of Number of Resource Orders Processed

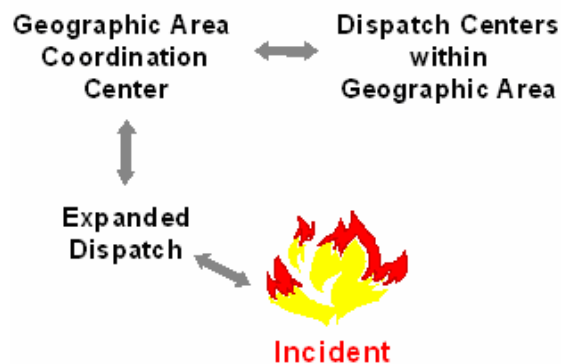
Resource Orders	NICC	AKC	EAC	EBC	NRC	NWC	ONC	OSC	RMC	SAC	SWC	WBC	Total
Agency Crews	1,957	165	1,134	634	1,063	702	4,028	3,850	538	328	832	2,430	17,661
Contract Crews	0	0	0	72	49	622	0	0	0	0	0	4,002	4,745
Exclusive Use Helicopters	400	620	0	275	386	40	2,178	2,732	69	132	151	175	7,158
CWN Helicopters	654	166	49	464	160	190	0	0	32	0	137	216	2,068
Agency Engines	1,431	29	994	614	535	1,449	7,538	19,708	1,888	329	1,187	478	36,180
Contract Engines		0	70	412	416	1,222	0	0	85	0	0	630	2,835
Agency Watertenders	73	0	0	79	20	46	743	1,447	174	45	9	23	2,659
Contract Watertenders	0	0	0	299	73	396	0	0	12	0	135	80	995
Agency Overhead	18,906	2,258	10,430	9,122	16,866	15,028	13,983	18,573	9,837	11,140	11,297	8,432	145,872
Contract/AD Overhead	0	287	0	1,139	3,373	1,272	0	0	1,290	0	1,483	432	9,276
Smoke Jumpers	624	675	0	222	600	139	77	12	5	0	50	980	3,384
Rapellers	60	0	0	0	35	246	1	4	0	0	4	16	366
Exclusive Use Aircraft	20	607	0	249	349	219	119	66	12	0	5	911	2,557
Lead Planes	152	55	0	117	228	81	108	190	45	24	176	168	1,344
Airtankers	426	110	21	338	362	6	2,533	3,249	90	49	366	497	8,047
Air Attack	208	65	70	84	149	75	1,576	1,605	42	36	152	177	4,239
SEATS	164	0	49	104	100	62	36	63	28	25	142	133	906
Total	25,075	5,037	12,817	14,224	24,764	21,795	32,920	51,499	14,147	12,108	16,126	19,780	250,292

5.2.4 Tier 3 – Local Dispatch Centers

5.2.4.1 Mission and Functions of a Tier 3 Local Dispatch Center

The principal mission of Tier 3 (State, Zone, and Interagency) Dispatch Centers is to provide safe, cost effective mobilization of emergency incident resources, and to promote efficient operations through interagency cooperation and standardized procedures. This is accomplished through planning, communications, situation monitoring, need projection, and expediting resource orders between federal land management agencies, state agencies and local government, neighboring dispatch centers and cooperators. State-level federal Coordination Centers coordinate resources within their state boundaries for various federal and state agencies. These state-level Coordination Centers also coordinate the movement of resources across state boundaries in support of geographic and national needs for all-hazard and wildland fire incidents.

Figure 22 - Filling Orders within a Geographic Area



Zone Centers may or may not perform initial attack dispatch duties. Wildland Fire Dispatch Centers that perform initial attack are responsible for dispatching initial attack resources to respond to wildland fires and other incidents. Initial attack response is a planned response to a wildland fire based on potential fire behavior and values at risk.

Complexity of Dispatch Centers varies nation wide and depends on specific factors for each center. Some of the complexity factors include: incident activity, resources managed, number of agency and cooperator agreements, prescribed (RX) fire activity, wildland urban interface (WUI), contract resources, duration of fire season, number of weather stations managed, teams, law enforcement officers (LEO), cache, staging areas, radio consoles, shared resources (national, regional), aircraft, number of multi-agency databases administered, presence of software such as IQCS and IQS in the same office, and the number of reports such as FS 122, OAS 23, and other USFS, DOI and state Fire Reports that must be completed.

Interagency centers also address complexities of supervision according to multiple agency personnel guidelines, multi-agency time keeping, and IT and network issues. A national complexity analyses program does not exist at this time. Various areas of the nation tested the FireOrg workload analysis program in 2004. However, FireOrg is not fully implemented as a national standard application within the wildland fire community.

Local Dispatch Centers are also responsible for supplying intelligence information relating to wildland fires and resource status to their GACC and to their agency managers and cooperators. Local Dispatch Centers often work for or with numerous agencies, and in nearly all cases report to only one GACC. Some local Dispatch Centers are responsible for law enforcement and agency administrative workloads for non-fire operations. Each local center may have multiple local agreements to facilitate wildland fire and all-hazard operations. The local center mobilization guides include these agreements, Annual Operation Plans, or other agency specific agreements.

Local Dispatch Centers are located throughout the country as dictated by the needs of the local fire management agencies. Throughout the United States, there are approximately 560 local, state, and federal dispatch offices. Of these, 368 local Dispatch Centers are at the Tier 3 level, spread across the United States and performing Initial attack (IA) dispatch duties for their local forest, park, refuge, and/or state unit. The majority of the federal Tier 3 centers (81 in 2007) are interagency, where they share the cost of personnel and facilities between different federal and often state wildland fire agencies.

Table 23 - Breakout of Center Funding Sources by Tier

Tiers	Federal		Center Funded by Others (Local/State)	Total
	Single Agency Funded Centers	Interagency Funded Federal Centers		
Tier 1 NICC	-	1	N/A	1
Tier 2 GACCs	-	11	N/A	11
Tier 3 Dispatch Centers	31	94	243	368
Tier 4 Dispatch Centers	12	2	178	192
Grand Total	43	108	421	572

** Data Source – Combination of data call submissions and ROSS Center Listing*

According to the data call, 65% of federal Dispatch Centers are multi-function centers. Multi-function centers perform functions in addition to supporting wildland fire incidents such as law enforcement and all-hazard response as shown in Table 24 - Breakout of Centers (Single vs Multiple Function).

Table 24 - Breakout of Centers (Single vs Multiple Function)

Tiers	Single-Function Center (Fire)	Multi-Function Center (Fire, Law Enforcement, All-Hazard, etc.)
Tier 1 NICC	N/A	1
Tier 2 GACCs	0	11
Tier 3 Dispatch Centers	44	81
Tier 4 Dispatch Centers	6	8

**Based on recent data call.*

One hundred forty-three Tier 3 and Tier 4 centers reported performing initial attack services for all of their represented agencies. Most of these Tier 3 Dispatch Centers perform administrative tracking for non-fire resources. Most National Park Service (NPS) Dispatch Centers perform law enforcement dispatching, as well. Law enforcement dispatching is not included within the scope of this review for a variety of reasons. Because there are those specific centers that only dispatch law enforcement resources, it was determined that these sites represented a stand-alone function separate from that of dispatching federal resources to support wildland fire and all-hazard incidents. Dispatch offices that perform both law enforcement and wildland fire dispatching are included in this assessment.

5.2.4.2 Staffing and Duties

Tier 3 Dispatch Centers are staffed with as few as one employee to as many as 30 employees due to varying complexity and workload. In most cases, a unit (e.g. National Forest, National Park, etc.) has only one Dispatch Center. In some cases, two or more Dispatch Centers serve a single unit.

The Weighted Average Grade of federal personnel in the Tier 3 Dispatch Centers (as of July 2007) is slightly over a GS-07 (~7.27). The Weighted Average Grade of the federal dispatchers in the Tier 3 Dispatch Centers (as of July 2007) is slightly over a GS-06 (~6.19).

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.

Table 25 - Vacancy Rates at Tier 3 and Federally Funded Tier 4 Centers

Tier	# of Centers	# of Positions	# of FTE
Tier 3	125	677*	576*
Tier 4	14	27*	23*
Grand Total	139	704	599

**includes vacancies*

In response to a recent data call, federally funded and/or operated Dispatch and Coordination Centers reported 125 vacant dispatch positions, of which the average vacancy was 47 weeks old. This means that 68% of vacant positions had been vacant for more the 120 days in the last year.

Table 26 - Vacancy Rates at Tier 3 and Federally Funded Tier 4 Centers by GACC

Geographic Area	Vacant Positions	Average Amt of Time Vacant (Weeks)	Percentage of Positions Vacant for >120 Days
Alaska Area	4	12	0%
Eastern Area	3	61	100%
Eastern Great Basin Area	16	34	75%
Northern Rockies Area	17	46	47%
Northwest Area	10	61	70%
Northern California Area	14	52	79%
Southern California Area	22	31	64%
Rocky Mountain Area	8	47	63%
Southern Area	6	90	83%
Southwest Area	11	46	91%
Western Great Basin	14	47	71%

*As reported in a recent data call.

Tier 3 local Dispatch Centers have a primary responsibility for the safety of field personnel, one of the highest priorities of wildland fire agencies. U.S. Department of Labor Occupational Safety and Health Administration (OSHA) regulations mandate that personnel deployed to remote locations have emergency communication capabilities at all times. Similarly, the Forest Service Handbook 6709, section 11.21(g), states that personal protective equipment for backcountry travel shall include a "two-way radio, cellular phone, or similar personal communication device." Field personnel working in remote locations need to be able to call for help in an emergency. All federal agencies fall under the OSHA regulations.

5.2.4.3 Tier 3 Local Dispatch Center Responsibilities

- Initial attack responsibilities for the interagency partners that they represent by agreement and support to geographic and national needs. This includes statusing of resources, maintaining situational awareness of incident activity, assess values at risk associated with multiple fire ignitions, determine priorities, allocate resources accordingly, and documenting resource allocation through the resource ordering process either on a resource order form, a CAD, or in ROSS. An authorized person (e.g., the duty officer, the FMO from the field, etc.) makes the command decision to move suppression resources by placing requests for types of equipment aircraft or personnel to a local initial attack Dispatch Center.
- Airspace and aviation activities coordination on the units they represent.
- Dispatch centers may have law enforcement responsibilities, which complicate setting priorities of law enforcement requests versus initial attack of wildland fire incidents.
- All-risk support as directed by the USFS All-Risk Doctrine in support of FEMA.
- Dissemination of weather information twice daily for situational awareness to firefighters in the field.
- Reporting of incident activity, fire reports, resource availability, and the quality assurance of the weather data into the WIMS/NIFMID system.
- Coordination with all interagency partners, their neighboring local Dispatch Centers and their GACCs for situational awareness of available resources for incident activity and prescribed fire needs.
- Managing FireCode and properly assigning codes for potential reimbursement, claims for fire suppression, and reviewing billings for the Forest Service and DOI finance offices (e.g., in Albuquerque, Denver, or elsewhere).
- Data management for a multitude of interagency systems lies within the local Dispatch Centers workload.
- Other duties as assigned to meet the needs of the local interagency partners, reallocated duties from agency-centralized processes, and various other duties identified in the workload percentages.

Performance and task completion are dependent on the exigency and the priority of the items accomplished based on emergency mission support, time constrained products, regulations, and service to be provided. Performance and task completion are also dependent on staffing, leadership, knowledge, skills and abilities of employees, equipment and facilities.

5.2.4.4 Tier 3 Incident Response Process

Local dispatch offices serve three principal functions.

- Mobilization of local initial response of wildland fire resources to reports of fires.
- Facilitate the ordering of additional resources internally and from out of the area if needed.
- 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, lookout towers, land management personnel, private citizens.
- Single Fire Incidents: Using pre-determined plans (often called “run cards”) the 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 (proximity to vulnerable or high value assets), fuel types, and conditions (weather, fuel conditions).

- Multiple Fire Incidents: Pre-determined plans or a CAD system determine the appropriate closest available resources (engines, personnel, and aircraft) to call via radio, telephone, or intercom and dispatched to the reported location of the fire. Appropriate resources are determined in the pre-determined plans by factors such as location, proximity to vulnerable or high value assets, fuel types, and conditions (weather, fuel conditions). During multiple fire ignitions/incidents when resources are committed and/or limited in availability, dispatch establishes priorities commensurate with values at risk using seasoned judgment and experience. Priorities are determined in accordance with guidelines set forth in the National Mobilization Guide.
- Communicate, based on the pre-determined plans, with agency managers and 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.
- Maintain communications with responders.
- Order additional response resources that are requested from the on-scene responders

Table 27 - Tier 3 Workload Related Specifically to Resources Managed displays the three-year average of the number of resource orders processed by the federal Tier 3 centers in each Geographical Area. Section 5.3.3 Resources within GACCs Requiring Intensive Management and Administration provides the total number of resources available in each Geographic Area.

Table 27 - Tier 3 Workload Related Specifically to Resources Managed
Three Year Average of Number of Resource Orders Processed

Resource Orders	AKC	EAC	EBC	NRC	NWC	ONC	OSC	RMC	SAC	SWC	WBC	Total
Agency Crews	32	125	1,201	501	380	4,340	2,771	673	164	942	551	11,680
Contract Crews	2	0	124	17	582	90	103	10	5	1	33	967
Exclusive Use Helicopters	77	265	915	798	611	909	2,241	494	122	341	354	7,127
CWN Helicopters	6	56	192	731	309	236	602	221	95	187	90	2,725
Agency Engines	13	434	5,125	1,641	2,429	142,277	12,482	4,324	290	2,459	2,606	174,080
Contract Engines	8	39	1,005	1,843	1,555	161	0	341	63	296	438	5,749
Agency Watertenders	0	2	403	90	37	15,395	1,308	205	2	128	165	17,735
Contract Watertenders	3	17	168	630	1,007	454	234	102	24	275	135	3,049
Agency Overhead	301	2,476	9,619	9,771	9,187	40,214	24,847	8,818	7,246	6,219	3,375	122,073
Contract/AD Overhead	81	475	2,925	3,084	2,945	410	727	506	1,353	908	625	14,039
Smoke Jumpers	218	0	440	514	142	53	33	218	51	33	257	1,959
Rapellers	0	0	212	109	401	64	163	19	0	109	33	1,110
Exclusive Use Aircraft	193	380	622	1,532	470	139	120	112	58	441	104	4,171
Lead Planes	0	6	194	240	203	114	644	134	104	149	94	1,882
Airtankers	34	16	603	427	427	2,095	1,799	219	143	429	179	6,371
Air Attack	26	62	595	787	375	1,031	977	306	127	458	317	5,061
SEATS	0	22	1,476	826	275	34	1,064	441	158	292	451	5,039
Total	994	4,375	25,819	23,541	21,335	208,016	50,115	17,143	10,005	13,667	9,807	384,817

5.2.4.5 Geographic and Agency Differences in Center Size and Mission

The Dispatch Centers in the western United States generally operate on a three-Tier model, where Tier 3 Dispatch Centers report and place orders directly through the Tier 2 GACC. The National Park Service (NPS) Dispatch Centers that also perform law enforcement dispatching are generally at a Tier 4 level. A Tier 4 Dispatch Center places orders through the Tier 3 Dispatch Center, which in turn places orders to the Tier 2 GACC. An example of this is the Shenandoah National Park in Virginia. The Tier 4 Dispatch Center at the Shenandoah National Park performs both fire and law enforcement dispatching. The center places orders through the Tier 3 center (Virginia interagency Coordination Center) which in turn places orders through Tier 2 (Southern Area Coordination Center).

5.2.5 Tier 4 Dispatch Center

5.2.5.1 Mission and Functions

As noted above, the Wildland Fire Dispatch system in the United States has under normal circumstances and official protocols three levels (Tiers); national, geographic, and local. Under specific circumstances, there are a number of Dispatch Centers operating across the United States outside of the established three levels, which provide local initial attack services and other support for single agencies.

The principal mission of a Tier 4 (local) Dispatch Center is to manage the unit resources responding to emerging wildland fire incidents within its unit boundary and is comprised of one agency or unit within the localized area of responsibility. The local center's function is to provide safe and effective initial attack dispatching for the unit.

As noted previously, the 2007 *Interagency Standards for Fire & Aviation Operations* requires that any Geographic Area or local Dispatch Center using a dispatch structure outside the approved three-Tier federal system obtain an annual written authorization. The authorization is obtained from the Forest Service Regional Director of Fire and Aviation or from the Director of the Office of Fire and Aviation for the Bureau of Land Management.

One employee to as many as five employees may staff a Tier 4 Dispatch Center. In most cases, a Tier 4 Dispatch Center represents a single unit (e.g. National Forest, National Park, etc.). Tier 4 Dispatch Centers are located throughout the country as dictated by the needs of the fire management agency or agencies it represents.

Tier 4 Dispatch Centers are also responsible for supplying intelligence information relating to wildland fires and resource status to their Tier 3 Dispatch Center and to their agency managers and cooperators. Tier 4 Dispatch Centers may work for or with numerous agencies, and in nearly all cases, they report to only one Tier 3 Dispatch Center. Some Tier 4 Dispatch Centers are responsible for law enforcement and agency administrative workloads for non-fire operations.

5.2.5.2 Duties and Operations

The dispatch operations in the Eastern Area (EAC) and Southern Area (SAC) both operate on a four-tier model utilizing a federally funded state Tier 3 center as a contact for all of the Tier 4 units located within that state. For example, the Southern Geographic Area is comprised of 13 states and Puerto Rico. The state coordination centers at the Tier 3 level allow the Southern Area GACC to coordinate efforts over a large area. Most of the Tier 4 Dispatch Centers in the Southern Area are not interagency. These Tier 4 Dispatch Centers perform initial attack for their individual agencies. Forest Service centers perform initial attack for the national forest, but a different center performs initial attack for the NPS and BIA.

An example of the state center concept is in Virginia. All orders for Virginia go through the Virginia Interagency Coordination Center (VICC). VICC has responsibility to fill all out of area order for the USFS and BLM Washington Office employees, the state of Virginia, and the US Fish and Wildlife resources orders. VICC has no initial attack responsibilities, but adjudicates orders to fill by the appropriate Tier 4 Dispatch Center. The George Washington National Forest (GWJ) sends orders to

the Roanoke Coordination Center. The Roanoke Coordination Center has initial attack responsibility (with the help from the local districts) for the Forest Service protected lands in Virginia and averages about 25 fires per year. The Emergency Incident Coordination Center is the Dispatch Center for the Shenandoah National Park that averages about 10 fires per year and performs initial attack and law enforcement dispatching for the park. The National Capital Dispatch Center also averages 10 fires per year and fills overhead orders for their local park units, in addition to law enforcement for all the Capital Region parks in the DC area.

5.3 Wildland Fire Dispatch functional Activities

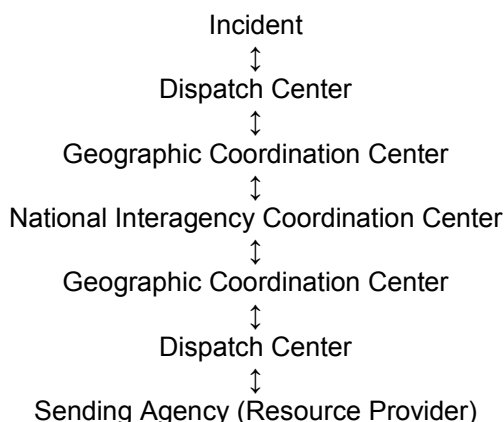
5.3.1 Mobilization, Coordination, and Support of Resources

Support for wildland fire operations is based on three key principles:

- Total resource mobility – Positioning and utilizing resources to meet existing and anticipated incident, preparedness, severity, and wildland and prescribed fire needs regardless of geographic location or agency affiliation.
- Closest available forces – those resources closest to the fire are used first, regardless of “agency 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. As discussed earlier, most of the country uses a multi-Tiered system, starting with Tier 3 local dispatch, then Tier 2 Geographic Area dispatch, and finally the Tier 1 national level dispatch. Orders made as the result of an incident, preparedness, severity, wildland and prescribed fire will follow the established ordering channel displayed below. Once a component fills an order at any point in the flow, the process reverses to insure proper notification back to the incident or requesting office. Local agency dispatch offices use mutual aid agreements with cooperators whenever possible.

Figure 28 - Resource Ordering Process



The National Interagency Mobilization Guide (NFES 2092) identifies standard procedures that guide the operations of multi-agency logistical support activity throughout the coordination system. The guide facilitates interagency dispatch coordination and ensures timely and cost effective incident support. Local and Geographic Area Mobilization Guides are used to supplement the National Interagency Mobilization Guide.

5.3.1.1 Summary of Response Communication and Information Flow

Figure 29 - Initial Attack Information Flow and Figure 30 - Large Fire Information Flow 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 29 - Initial Attack Information Flow

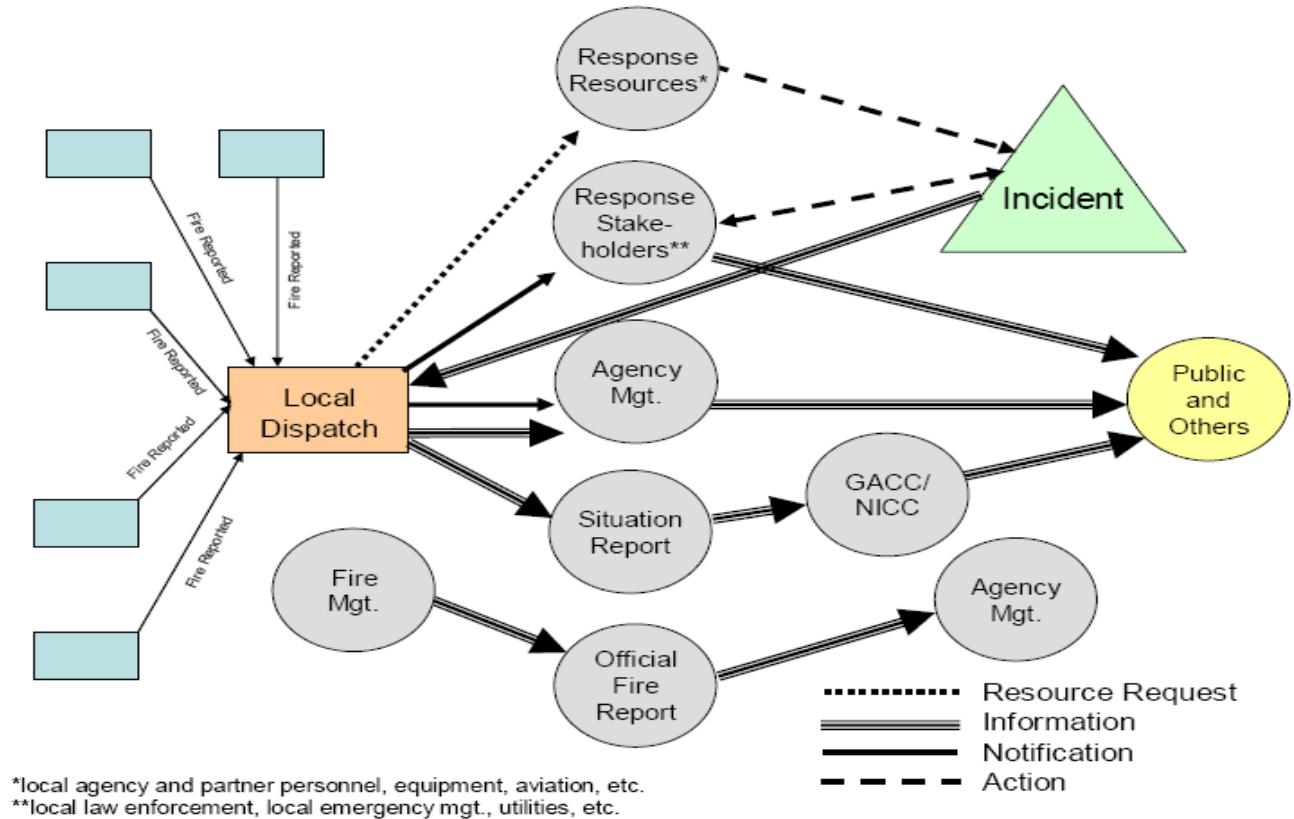
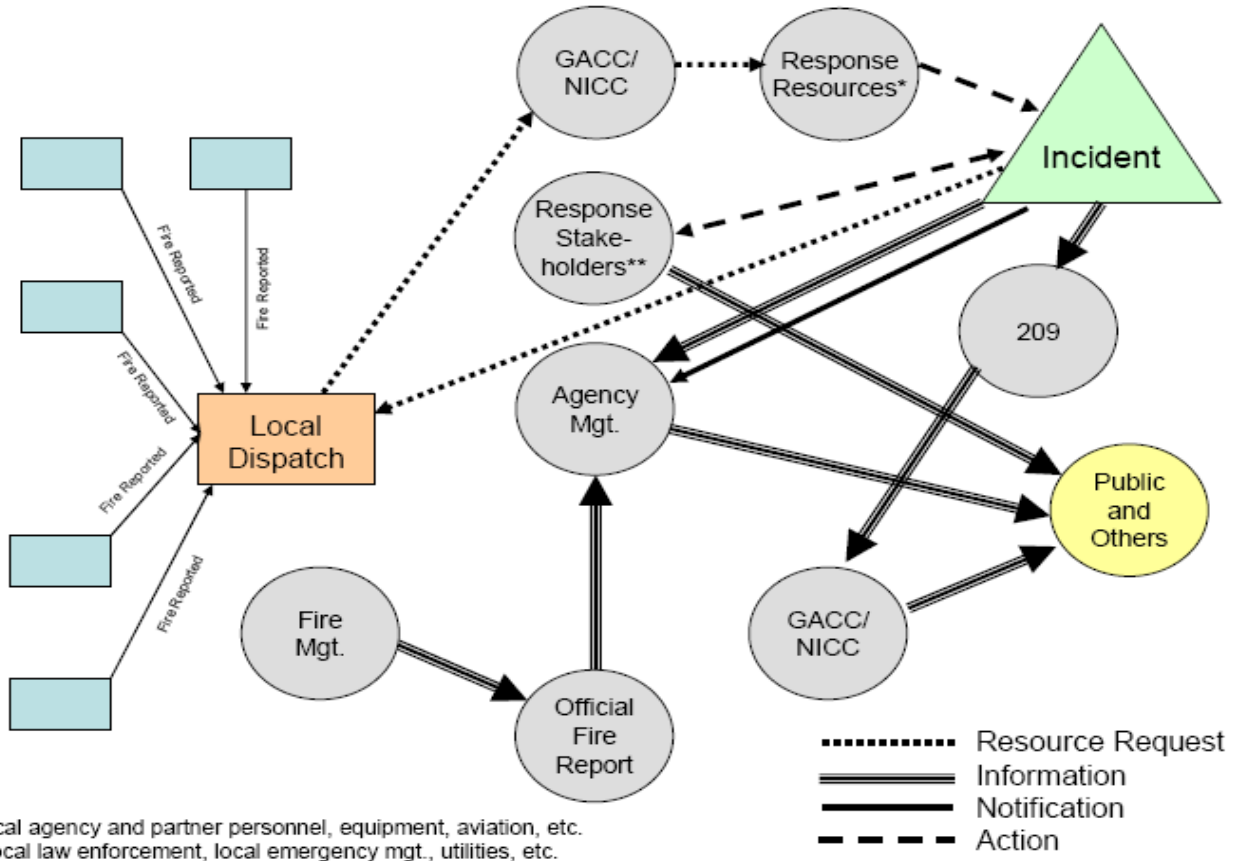


Figure 30 - Large Fire Information Flow



The wildland fire mission of the Tier 3 and 4 local Dispatch Centers, the Tier 2 GACCs, and the Tier 1 NICC differ by the function, customers, and relative proximity to the firefighter in the field and direct incident support.

5.3.2 National Shared Resources

National shared resources are those resources that have national utilization, high demand, limited availability, and unique status reporting requirements identified by NICC. The Tier 2 and Tier 3 level manages national shared resources the majority of the time. During certain levels of activity, NICC manages the assignment and utilization of these resources. NICC exclusively manages and mobilizes certain national shared resources; specifically, Call When Needed (CWN) Type 1 and Type 2 Helicopters, Mobile Catering and Shower Units, National Incident Management Organization Teams, and Area Command Teams.

Though Tier 2 GACCs and Tier 3 local centers manage national shared resources, the ultimate national authority for allocating people, aircraft, equipment and other assets reside with Tier 1 NICC according to delegated authority and direction from the National Multi Agency Coordinating Group (NMAC).

When situations warrant, the NMAC requires rationale and information for commitment of a National Type 1 Incident Management Team (IMT) or a Fire Use Management Team (FUMT). The rationale includes an identification of the immediate threat to firefighter or public safety along with a short and long-term assessment of the risk to communities. Additionally, GMACs provide the same rationale to request or commit a Type 2 IMT. Table 31 - National Shared Resources lists the national shared resources.

Table 31 - National Shared Resources

National Shared Resources	
Type 1 Interagency Management Teams	Type 1 Interagency Hotshot Crews
Smokejumpers	National Area Command Teams
National Buying Teams	National Incident Management Organization Teams
National Interagency Fire Use Management Teams	National Aerial Supervision Modules
Modular Airborne Firefighting Systems	National Contract Type 1 and Type 2 Helicopters
National Contract Airtankers	National Lead Planes
Smokejumper Aircraft	National Infrared Aircraft
Large Transport Aircraft	National Incident Radio Support Cache Communication
National Contract Mobile Food Services Units	Atmospheric Theodolite Meteorological Units
National Contract Mobile Commissary Services	National Interagency Support Caches
Critical Cache Supply Items	Fire Remote Automatic Weather Stations
National Contract Mobile Shower Facilities	

5.3.3 Resources within GACCs Requiring Intensive Management and Administration

The following chart shows the number and types of major shared resources owned on a national basis, but managed by Tier 2 GACCs on a day-to-day basis. Currently, the management of these resources has not been included in the traditional staffing calculations used to determine funding by agency sponsors supporting the Tier 2 component in a specific Geographic Area. While the resource unit / equipment item itself might be located at or near a Tier 3 Dispatch Center within the Geographic Area, the Tier 2 GACC level processes all orders for these items, including prioritization and deconfliction, during heightened activity. Table 32 - Summary of Resources Available by Geographical Area does not provide a complete picture of the efforts required to manage these resources as management, administrative work, and mobilization of these resources occur at the local Tier 3 level as well as the Tier 2 GACC level.

Table 32 - Summary of Resources Available by Geographical Area

	Exclusive Use Helicopters	Contract /AD Overhead	Exclusive Use Aircraft	Agency Crews	Contract Crews	CWN Helicopters	Agency Engines	Contract Engines	Agency Water Tenders	Contract Water Tenders	* Agency Overhead	Smoke Jumpers	Rappellers
NICC Total	263	0	41	0	0	182	0	0	0	0	50	0	0
Alaska Total	6	115	12	59	0	7	11	0	0	0	857	68	0
Eastern Total	19	1,826	15	35	0	13	78	12	0	3	4,546	0	0
Eastern Great Basin Total	55	504	33	36	3	13	302	64	48	202	6,052	70	177
N. Rockies Total	22	890	36	50	2	32	391	243	27	148	8,437	130	23
Northwest Total	24	746	21	50	154	47	370	567	37	233	9,680	55	92
N. California Total	31	340	43	114	15	16	242	97	25	480	5,568	40	58
S. California Total	45	895	24	87	15	53	240	0	33	69	6,757	0	104
Rocky Mountain Total	21	225	6	53	0	6	884	27	176	62	6,835	0	8
Southern Total	20	1,117	21	48	2	22	207	40	4	14	9,057	0	0
Southwest Total	15	293	11	39	0	15	199	245	16	249	3,740	3	58
Western Great Basin Total	11	358	29	40	0	9	262	45	69	84	1,982	83	12
Grand Total	532	7,309	292	611	191	415	3,186	1,340	435	1,544	63,561	449	532

Note: Data contains the best information "available" for how many of these resources were available at the peak of the 2007 season, as reported by GACC managers. Overhead - The total number identified in ROSS for that geographical area regardless of their actual availability.

Table 33 - Mobilization Responsibility for Tier 1 NICC and Tier 2 GACCs

Area	Number of Teams that Centers are Mobilizing Offices For						# of EERAs
	Type 1 or	Type 3	Buying	NIMO	Area	FUMT	
NICC	0	0	0	0	0	0	83
AKC	3	4	1	0	1	0	0
EAC	0	0	0	0	0	0	0
EBC	4	0	2	0	1	1	0
NRC	2	0	2	0	0	2	0
NWC	0	0		0	0	0	0
ONC	8	0	1	0	0	1	3
OSC	9	0	1	1	0	1	0
RMC	4	0	2	0	1	1	152
SAC	3	0	1	0	0		0
SWC	2	0	2	0	0	2	0
WBC	4	4	1	0	0	0	0
Grand Total	39	8	13	1	3	8	238

Table 34 - Mobilization Responsibility for Tier 3 and Tier 4 Federal Centers

Area	Number of Teams that Centers are Mobilizing Offices For						# of EERAs
	Type 1 or 2 Teams	Type 3 Teams	Buying Teams	NIMO Teams	Area Command Teams	FUMT Teams	
NICC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AK Area	0	3	0	0	0	0	25
EA Area	11	12	2	0	0	3	28
EB Area	11	12	3	0	1	2	1740
NR Area	10	14	1	0	0	1	1199
NW Area	9	23	4	0	0	1	3863
ON Area	19	14	1	0	0	4	4063
OS Area	5	5	0	1	0	0	2407
RM Area	9	16	3	0	1	3	229
SA Area	12	7	1	2	1	1	54
SW Area	7	8	1	0	0	1	966
WB Area	18	9	0	0	0	0	365
Grand Total	111	123	16	3	3	16	14939

5.3.4 Reports Generated by Interagency Dispatch Centers

The following section was developed previously for the Report of the eGov Disaster Management Task Group to the National Fire and Aviation Executive Board (March 31, 2006), by the eGov Disaster Management Task Group (EDMTG), chartered by the National Fire and Aviation Executive Board (NFAEB). For this discussion, the following definitions are in use:

- **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 (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

5.3.5 Notification – The Business Process

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. Notifications take two basic forms:

- **Notifications for Action:** notifications made to organizations and individuals that may need to take action because of the fire, such as utility companies, local law enforcement, highway departments, and adjacent landowners. These notifications require confirmation and coordination.
- **Notifications for Awareness:** notifications 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.

Notifications to the general public are not the responsibility or function of the local dispatch center. 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.

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

Table 35 - Summary of Notification Responsibilities

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, and adjacent landowners	Local Dispatch Office	At time resources are dispatched for initial attack	Telephone, Radio	Location, approximate size of incident, nature of response	Yes
Awareness ("Notification")	Agency Officials, Public Affairs, GACC and NICC liaisons	Local Dispatch Office	Minutes to Hours After Event, depending on criticality	Telephone, Radio, and Email	Location and Nature of Response of Fires, Information about accidents, injuries, fatalities, etc.	No

5.3.6 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. The accuracy of 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.

Local dispatch offices collect fire situation information with the aid of the Situation Report application on a daily basis during the local dispatch office's "Wildland Fire Season". The center reports this information once per week for the remainder of the year. 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. The database of situation reports retrieves information, including individual large fire reports, at each Tier 2 GACC, as well as at the NICC. The centers use this information 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.

A variety of websites post the information contained in the Tier 2 GACC and Tier 1 NICC daily situation reports. 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.

5.3.7 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. Each of the five federal land management agencies collects fire report information separately, using similar but different systems and business rules. In some cases, the definitions of similar data elements vary significantly from agency to agency. Agency policy directs a specific time frame for the completion of the individual fire reports, which is often not adhered to, and policy varies between the agencies. Agency policy for the responsibility of completion and submission of this data also varies among the federal land management agencies. Many dispatch offices are directed to input the individual fire report into the various agency reporting systems, and in some cases require entering the incident information into multiple fire reporting systems to meet requirements of each land management agency. 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 into multiple systems.

There can be significant difference between the data in the daily reports and the official agency fire reports. There is no central repository for reconciled federal wildland fire official fire report data.

5.3.7.1 Principal Users

Users of wildland fire information range from immediate local responders to national level officials. Table 36 - Users of Wildland Fire Information summarizes the principal users and their need for the information.

Table 36 - Users of Wildland Fire Information

Major Category	Sub-Categories	Need
Fire	<ul style="list-style-type: none"> • Fire Management • Dispatch and Coordination • Cooperators and Operators 	<ul style="list-style-type: none"> • Appropriate response actions
Partners and Stakeholders	<ul style="list-style-type: none"> • Utilities • Adjacent Landowners • Local Law Enforcement • Local Emergency Management • FEMA 	<ul style="list-style-type: none"> • Information and Awareness • Potential Response actions
Agency Managers and Officials	<ul style="list-style-type: none"> • Federal, State, and Local • Line Officers • Non-Fire Programs 	<ul style="list-style-type: none"> • Information and Awareness • Program Oversight and Direction
Public/Press		<ul style="list-style-type: none"> • Information and Awareness
Elected Officials	<ul style="list-style-type: none"> • National, State, and Local 	<ul style="list-style-type: none"> • Information and Awareness

5.3.8 Tier 1 NICC and Tier 2 GACC Employee Workload Summary by Functional Area

Members of the Interagency Wildland Fire Dispatch and Predictive Services community divided their annual work year into specific categories based on the nature of their assignments in 2006 for the data call.

Figure 37 - Functional Distribution of Employee Workload at Tier 1 and Tier 2 Centers displays the percentage of time that employees staffed at Tier 1 and Tier 2 facilities reported that they spend on each of the functional categories. The figure shows that on average, center employees spend the largest percentage of time performing Dispatch Management Functions (39%) and Predictive Services/Intelligence Functions (22%).

Figure 37 - Functional Distribution of Employee Workload at Tier 1 and Tier 2 Centers

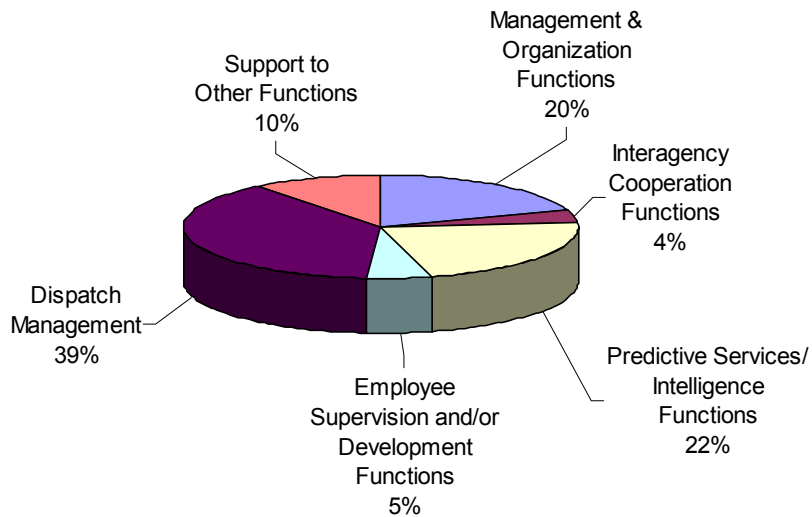
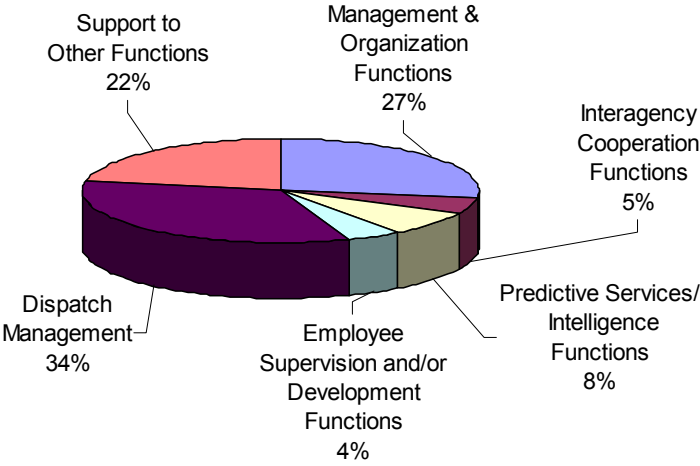


Figure 38 - Functional Distribution of Militia Employee Workload at Tier 1 and Tier 2 Centers displays the workload distribution reported by Militia employees at Tier 1 and Tier 2 centers. The figure shows that employees spend the majority of time (34%) performing Dispatch Management functions.

Figure 38 - Functional Distribution of Militia Employee Workload at Tier 1 and Tier 2 Centers



5.3.9 Tier 3 and Federal Tier 4 Local Dispatch Center Employee Workload Summary by Functional Area

Figure 39 - Functional Distribution of Employee Workload at Tier 3 and Tier 4 Centers displays the percentage of time that employees staffed at federally funded Tier 3 and Tier 4 facilities reported that they spend on each of the functional categories. These major categories have further sub-categories.

Notice the percent of time spent on Predictive Services/Intelligence Functions at Tier 3 and Tier 4 centers is significantly lower than that of employees at Tier 1 and Tier 2 centers, consistent with the fact that the Tier 2 level performs the majority of this function. The percentage of time spent on Dispatch Management by Tier 3 and Tier 4 center employees is 11% higher than that reported at Tier 1 and Tier 2 centers, which is reflective of the primary focus of Tier 3 and Tier 4 centers on initial attack and resource dispatching.

Figure 39 - Functional Distribution of Employee Workload at Tier 3 and Tier 4 Centers

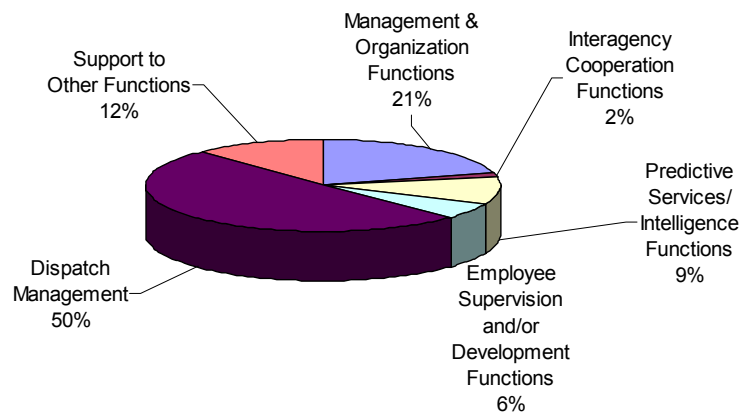
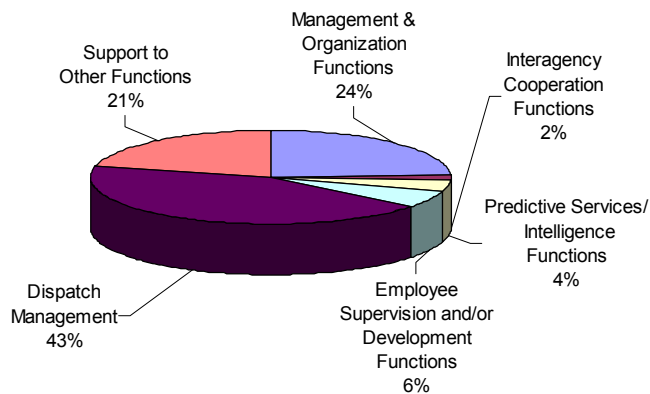


Figure 40 - Functional Distribution of Militia Employee Workload at Tier 3 and Tier 4 Centers displays the workload distribution reported by Militia employees at Tier 3 and Tier 4 centers. The figure shows that on average, the employees spend the majority of time (43%) performing Dispatch Management functions.

Figure 40 - Functional Distribution of Militia Employee Workload at Tier 3 and Tier 4 Centers



5.4 Administrative Activities Performed in Addition to Standard Dispatch Duties

The Wildland Fire Dispatch function incurs an additional workload associated with the administration of dispatch activities. The dispatch function is responsible for the coordination of all wildland fire resources, whether federally owned, state owned, or contracted. Data indicates that approximately 6.97 FTE are spent on the administrative requirements associated with the development and updating of various types of agreements between Tier 1, 2, and 3 centers have with sponsors, cooperators, or resources. This is outside of the line officer and AQM workload, and represents typical non-dispatch workload for the centers at each Tier.

5.4.1 Cooperative Agreements

The budgets for federal wildland fire agencies have become static. This has resulted in an increased need to establish and maintain agreements with state, county and local government agencies for personnel, equipment, and services to support wildland fire incidents. These agreements require an administrative workload associated with initiating and facilitating meetings, setting up and managing Memorandums of Understanding (MOUs), cooperative agreements, interagency operating plans, and reimbursable agreements.

Relationships between the federal wildland fire agencies and state governments are more solidified as compared to relationships with local governments. Local agreements are more complex due to the variation in local agency hiring capabilities and the negotiation of reimbursable agreements. For example, some State Department of Natural Resources agencies do not want to finance local government personnel, prior to reimbursement by the federal wildland fire agencies. Reimbursement from federal wildland fire agencies for state resources frequently takes months to complete, which has had a negative impact on state budgets. Federal wildland fire agencies have absorbed the administrative workload associated with hiring and managing local resources to support incident management teams and national mobilization efforts not otherwise hired by state governments.

Grants and Agreements are the responsibility of local management, primarily at the Tier 3 level. AQM are the responsible officials to approve grants and agreements. At the Tier 2 level, GACC staff work with their partners to draft the statewide agreement, processed by AQM, and signed by the Regional Forester. The Tier 2 and Tier 3 Dispatch Centers implement the agreements with technical questions dealt with by the agency administrator. .

5.4.1.1 Types of Agreements

National Interagency Agreements - The national agreement, serves as an umbrella for interagency assistance among federal agencies is the Interagency Agreement between the BLM, BIA, NPS, FWS of the United States DOI, and the USFS of the USDA. This and other national agreements give substantial latitude while providing a framework for the development of state and local agreements and operating plans.

Regional/State Interagency Agreements - Regional and state cooperative agreements provide essential mutual aid assistance. These agreements address concerns for area-wide scope.

Local Interagency Agreements - Local units are responsible for developing agreements or contracts with local agencies and fire departments to meet mutual needs for suppression and/or prescribed fire services.

Emergency Assistance - Approved, established interagency emergency assistance agreements are the appropriate and recommended way to provide emergency assistance. If no agreements are established, the Agency Administrator determines the authorities delegated to provide emergency assistance.

5.4.2 Contracts

Contracts are used where they are the most cost-effective means of providing for protection commensurate with established standards. A contract does not absolve an Agency Administrator of the responsibility for managing a fire program. The office's approved fire management plan defines the role of the contractor in the overall program.

Contracts are developed and administered in accordance with federal acquisition regulations.

5.4.3 Domestic Wildland Fire Coordination and Cooperative Agreements

Cooperative agreements are comprised of two components: the actual agreement and an operations plan. The agreement outlines the authority and general responsibilities of each party and the operations plan defines the specific operating procedures. The appropriate warranted contracting officer signs any agreement that obligates federal funds or commits anything of value.

Specifications for funding responsibilities included in the billing procedures and payment schedules. Agreements that extend beyond a fiscal year are subject to the availability of funds. Transfer of federal property is in accordance with federal property management regulations.

The servicing Dispatch Center possesses a copy of agreements and operating plans.

- BLM - BLM Manual 9200, Departmental Manual 620 DM, the Reciprocal Fire Protection Act, 42 U.S.C. 1856, and the Federal Wildland Fire Management Policy and Program Review
- FWS - Service Manual, Departmental Manual 620 DM, and Reciprocal Fire Protection Act, 42 U.S.C. 1856
- NPS - Chapter 2, Federal Assistance and Interagency Agreements Guideline (DO-20), and the Departmental Manual 620 (DM-620). NPS-RM-18, Interagency Agreements, Release Number 1, 02/22/99
- FS - FSM 1580, 5106.2 and FSH 1509.11

5.4.4 US DOI and USDA Interagency Agreement for Fire Management

The objectives of the Interagency Agreement for Fire Management between the Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), National Park Service (NPS), Fish and Wildlife Service (FWS) of the United States Department of the Interior (DOI) and the Forest Service (USFS) of the United States Department of Agriculture are:

- To provide a basis for cooperation among the agencies on all aspects of wildland fire management and as authorized in non-fire emergencies.
- To facilitate the exchange of personnel, equipment (including aircraft), supplies, services, and funds among the agencies.

5.4.5 DOI, USDA, and DOD Interagency Agreement

The Interagency Agreement for the Provision of Temporary Support during Wildland Firefighting Operations among the DOI, the USDA, and the DOD establishes the general guidelines, terms and conditions under which NIFC will request and DOD will provide temporary support in wildland fire emergencies. These emergencies may occur within all 50 States, the District of Columbia, and all U.S. Territories and Possessions, including fires on states and private lands. The agreement provides the basis for reimbursement of DOD under the Economy Act. The National Interagency Mobilization Guide (NFES #2092) contains these and other agreements pertinent to interagency wildland fire management at:

<http://www.nifc.gov/nicc/mobguide/Chapter40.pdf>.

5.4.6 Domestic Non-Wildland Fire Coordination and Cooperative Agreements

Homeland Security Act - The Homeland Security Act of 2002 (Public Law 107-296) established the Department of Homeland Security with the mandate and legal authority to protect the American people from the continuing threat of terrorism. In the act, Congress also assigned DHS as the primary focal point regarding natural, manmade crises and emergency planning.

Stafford Act Disaster Relief and Emergency Assistance - The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended) establishes the programs and processes for the Federal Government to provide disaster and emergency assistance to states, local governments, tribal nations, individuals, and qualified private non-profit organizations. The provisions of the Stafford Act cover all-hazards including natural disasters and terrorist events. In a major disaster or emergency as defined by the act, the President “may direct any federal agency, with or without reimbursement, to utilize its authorities and the resources granted to it under federal law (including personnel, equipment, supplies, facilities, and managerial, technical, and advisory services) in support of state and local assistance efforts.”

Homeland Security Presidential Directive-5 - HSPD-5, Management of Domestic Incidents dated February 28, 2003 - Intended to enhance the ability of the United States to manage domestic incidents by establishing a single, comprehensive national incident management system. HSPD-5 designates the Secretary of Homeland Security and the Principal Federal Official (PFO) for domestic incident management and empowers the Secretary to coordinate federal resources used in response to or recovery from terrorist attacks, major disasters, or other emergencies in specific cases.

National Incident Management System (NIMS) - HSPD-5 directed that the DHS Secretary develop and administer a National Incident Management System (NIMS) to provide a consistent, nationwide approach for federal, state, and local governments to work effectively and efficiently together to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity. To provide for interoperability and compatibility among federal, state, and local capabilities, the NIMS will include a core set of concept, principles, terminology, and technologies. These cover the incident command system: multi-agency coordination systems; unified command; training; identification and management of resources (including systems for classifying types of resources); qualifications and certification; and the collection, tracking, and reporting of incident information and incident resources.

National Response Plan - Federal disaster relief and emergency assistance are managed under the Department of Homeland Security/Emergency Preparedness and Response/Federal Emergency Management Agency (DHS/EPR/FEMA) using the National Response Plan (NRP). The NRP, using the NIMS, is an all-hazards plan that establishes a single, comprehensive framework for management of domestic incidents. The NRP provides the structure and mechanisms for the coordination of federal support to state, local, and tribal incident managers and for exercising direct federal authorities and responsibilities.

Emergency Support Function (ESF) Annexes - The NRP includes 15 Emergency Support Function (ESF) Annexes, which are a component of the NRP that detail the mission, policies, structures, and responsibilities of federal agencies for coordinating resource and programmatic support to the States, tribes, and other federal agencies or other jurisdictions and entities during Incidents of National Significance. Each ESF Annex identifies the ESF Coordinator and the primary and support agencies pertinent to the ESF. The primary agency serves as a federal executive agent under the Federal Coordinating Officer to accomplish the ESF mission. Support agencies, when requested by the DHS or the designated ESF primary agency, are responsible for conducting operations using their own authorities, subject-matter experts, capabilities, or resources. USFS is the Coordinator and primary agency for ESF #4 – Firefighting. Other USFS and DOI responsibilities are:

Table 41 - Summary of ESF Support Roles

ESF Support Annex	USFS Role	DOI Role
# 1 Transportation	Support	Support
# 2 Communications	Support	Support
# 3 Public Works and Engineering	Support	Support
# 4 Firefighting	Coord. & Primary	Support
# 5 Emergency Management	Support	Support
# 6 Mass Care, Housing, and Human Services	Support	Support
# 7 Resource Support	Support	
# 8 Public Health and Medical Services	Support	
# 9 Urban Search and Rescue	Support	
# 10 Oil and HazMat Response	Support	Support
# 11 Agriculture and Natural Resources	Primary	
# 12 Energy		Support
# 13 Public Safety and Security	Support	Support
# 14 Long-term Community Recovery and Mitigation		Support
#15 External Affairs		Support

Non-Stafford Act Non-Wildland Fire Coordination and Cooperation - In an actual or potential Incident of National Significance not encompassed by the Stafford Act, the President may instruct a federal department or agency, subject to any statutory limitations on the department or agency, to utilize the authorities and resources granted to it by Congress. In accordance with Homeland Security Presidential Directive-5, federal departments and agencies are expected to provide their full and prompt cooperation, available resources, and support, and appropriate and consistent with their own responsibilities for protecting national security.

5.4.7 International Wildland Fire Coordination and Cooperative Agreements

In addition to national agreements below, some of the participating agencies along the international borders may have specific agreements with individual provinces or states for cooperative initial attack operations and on-going large fire situations that cross borders.

U.S. - Mexico Cross Border Cooperation on Wildland Fires - In June of 1999, the Department of Interior and the Department of Agriculture signed a Wildfire Protection Agreement with Mexico. The agreement has two purposes:

- To enable wildland fire protection resources originating in the territory of one country to cross the United States-Mexico border in order to suppress wildland fires on the other side of the border within the zone of mutual assistance (10 miles/16 kilometers) in appropriate circumstances.
- To give authority for Mexican and U.S. Fire Management Organizations to cooperate on other fire management activities outside the zone of mutual assistance.

National Operational Guidelines for this agreement are located in Chapter 40 of the National Interagency Mobilization Guide. These guidelines cover issues at the national level and provide a template for those issues that need addressed in local operating plans. The local operating plans identify how the GACCs (and Zone Coordination Centers) that have dispatching responsibility on the border will implement the agreement. The local operating plans provide the standard operational procedures for wildland fire suppression resources that could potentially cross the U.S. border into Mexico.

U.S. - Canada, Reciprocal Forest Firefighting Arrangement - Information about United States - Canada cross border support is located in Chapter 40 of the National Interagency Mobilization Guide. This chapter provides policy guidance, which determined by an exchange of diplomatic notes between the U.S. and Canada in 1982. This chapter also provides operational guidelines for the Canada – U.S. Reciprocal Forest Fire Fighting Arrangement.

U.S. - Australia/New Zealand Wildland Fire Arrangement - Information about United States - Australia/New Zealand support is located in Chapter 40 of the National Interagency Mobilization Guide. This chapter provides a copy of the arrangements signed between the U.S. and the states of Australia and the country of New Zealand for support to one another during severe fire seasons. It also contains the Annual Operating Plan that provides more detail on the procedures, responsibilities, and requirements used during activation.

5.4.8 International Non-Wildland Fire Coordination and Cooperative Agreements

International Disaster Support - Federal wildland fire employees may be requested through the Forest Service, to support the U.S. Government's response to international disasters by serving on Disaster Assistance Response Teams (DARTs). A DART is the operational equivalent of an ICS team used by the U.S. Agency for International Development's Office of Foreign Disaster Assistance (OFDA). DARTs provide an on-the-ground operational capability at the site of an international disaster. Prior to being requested for a DART assignment, employees will have completed a weeklong DART training course covering information about:

- Government agencies charged with the responsibility to coordinate United States Government responses to international disaster.
- The purpose, organizational structure, and operational procedures of a DART.
- How the DART relates to other international organizations and countries during an assignment. Requests for these assignments are coordinated through the USFS International Programs, Disaster Assistance Support Program (DASP).
- DART assignments should not be confused with technical exchange activities, which do not require DART training. The USFS International Program's website contains additional information about DARTS: <http://www.fs.fed.us/global/aboutus/dasp/welcome.htm>.

5.4.9 Hiring of Administratively Determined (AD) Emergency Workers

The Administratively Determined Pay Plan for Emergency Workers authorized for the Forest Service by Congress in 1951 is specific to wildland fire. Congress granted the same authority to the Department of Interior in 1975, but the authority also included all-hazard emergency work. In 1998, Congress authorized the Forest Service to use the authority for all-hazard emergencies. The intent of the AD authority is to hire local help on a short-term basis to supplement the federal workforce in responding to an emergency that is threatening life and property. The law allows the Agency to pay a casual/emergency hire under the authority at a regular rate without premium payments such as overtime or holiday pay. Today, the pay plan applies wherever and whenever it becomes necessary hire persons to:

- 1) To cope with a sudden and unexpected emergency caused by a fire, or extreme fire potential, flood, storm or any other emergency that threatens damage to federally protected property unless brought under immediate control.

- 2) To provide emergency assistance to states under formalized agreements.
- 3) To meet mission assignments issued by FEMA.
- 4) To attend or conduct training.

The need for emergency workers (AD) to support wildland fire activities is increasing annually from attrition and retirements. Table 79 - Summary of AD Personnel Participating in Dispatch-Related Activities identifies the number of AD employees by Geographic Area in 2007.

The hiring process, training, qualification management and dispatching of AD resources has become a significant workload for many Dispatch Centers throughout the country because of the increased use of AD employees. While the actual cost per hour is lower for AD personnel than it is for regular federal staff (due to the cost of fringe benefits not accrued by the ADs), there is an administrative effort "cost" to process AD personnel onto and off the federal rolls multiple times per year. An Agency hires ADs for short periods and then re-releases the resource. The calculation of average AD assignment duration for Expanded Dispatch Unit duty is approximately 10 days, several times per year. A review of AD payroll records from both USFS and DOI shows that the USFS and DOI hire a large percentage of ADs on a very short one or two day basis. Each short-term assignment requires duplicate forms to return them to the federal payroll systems causing an administrative burden. This increased use of AD employees throughout the country has increased the cost associated with supporting Dispatch Centers and expanded dispatch operations.

As noted above, the original intent of AD authorization is to hire and use AD employees for local incidents for the duration of the event. In addition to utilizing ADs more often for internal operations such as an expanded dispatch, ADs are being "dispatched" to incident teams in lieu of regular federal personnel. This change results in additional costs associated with AD travel, AD training, and AD administrative workload, not envisioned at the implementation of the program. Due the reduced availability of agency personnel, there is a growing reliance on ADs to fill resource requests beyond the local center area. The policy that agency employee support to wildland fire is voluntary also affects the growing reliance on ADs.

As discussed in section 5.4.1.1 , agreements with local governments could often provide adequate supplemental resources to a local incident. A decrease in local agreements would result in an increase in workload associated with hiring casual AD emergency workers. In example, a local Dispatch Center has an agreement with the county government to provide emergency support in the event of an incident. An incident happens and the county government's emergency workers mobilize to supplement the local Dispatch Center. Conversely, a local center does not have an agreement with the county government. In the event of an incident, the local Dispatch Center hires a number of county emergency workers as individual AD employees. The local Dispatch Center has traded the workload associated with coordinating a local agreement for the workload associated with administering the hiring of a number of individual AD employees.

There is inconsistency nationally in individuals that are hired as AD employees. The east coast hires state employees as federal ADs, which results in a significant workload due to the sheer number of individuals hired. Many east coast state employees will take leave from their regular job to be a dispatch AD for one incident, and then go out as a state employee for the next incident. This situation results in unnecessary confusion during an incident. In contrast, some western centers hire state employees as federal ADs and others do not. In those areas, if a state employee mobilizes to support a federal incident, they are considered a state employee, not a federal AD. There is no consistency in the AD hiring practices from local unit to local unit and GACC to GACC.

The workload associated with administering the AD program for the Wildland Fire Dispatch function compounds based on the number of times an AD is mobilized per year. The same forms are required each time an individual AD mobilizes. The current set of business processes and policies associated with hiring of AD emergency workers are not uniformly implemented across the country.

Because AD resources are often not self-sufficient (i.e., pay their own bills during their assignment), the Government is responsible for the logistical arrangements for AD resources. AD personnel have the option of being self-sufficient and reimbursed at a government per diem rate. However, many of these AD employees are not willing to take on this financial burden, shifting workload to the sponsoring center.

The Interagency Business Management Working Team is currently developing a proposal for streamlining the hiring of AD employees. The team is evaluating the possible use of a process similar to the Equipment and Training Inventory System (EaTIS) where an employee is responsible for providing basic personal information, and will complete all required paperwork. The hiring official would then select the individual employees they would like to mobilize. The new system would upload into the ROSS program to post the individual's qualifications.

A data call conducted in support of this assessment indicates that approximately 9.22 FTE of time is spent on the administrative requirements of hiring ADs. The estimated cost for these administrative functions is \$477,180 per year, based on 2006 workload and 2007 cost factors. The average grade employee performing these tasks is GS-05.

Table 42 - AD Utilization and Processing Workload in 2007

2007 Data	USFS ADs Hired*	USFS AD Travel Auth (Annual)	USFS AD Travel Voucher	Add USFS AD to Time-keeping	DOI ADs Hired*	DOI Travel Authorization (each incident they served on)	DOI AD Travel	Add DOI AD to Time-keeping	TOTALS
Quantity	7663	7663	7663	7663	9564	9564	9564	9564	68,908
Mins Per Transaction	15	20	20	12	15	2	20	12	
Total Minutes	114,945	153,260	153,260	91,956	143,460	19,128	191,280	114,768	982,057 Minutes
Total Hours	1916	2554	2554	1533	2391	319	3188	1913	16,368 Hours
Avg Dispatcher Hourly Rate	\$29.15	\$29.15	\$29.15	\$29.15	\$29.15	\$29.15	\$29.15	\$29.15	
Avg Cost to Have Paperwork Processed in Dispatch Offices	\$55,852	\$74,469	\$74,469	\$44,681	\$69,707	\$9,294	\$92,943	\$55,766	\$477,180

**some ADs are "hired" multiple times throughout the year by different offices and agencies.*

5.4.10 Buying Teams

Buying Teams support incident procurement through the local administrative staff, procuring services, supplies, and equipment and short-term property leases. National Interagency Buying Teams established under a rotation schedule managed by the National Interagency Coordination Center (NICC). Each National (Type 1) Interagency Buying Team is a six-member team; leader, four members, and one trainee position (as needed). One of the four members may be an assistant or deputy leader. Personnel from the incident agency or alternate buying team, members may be added as needed, to supplement the primary team. Geographic areas can have additional (Type 2) buying teams for use within the area. Geographic area (Type 2) teams can differ in team composition without the contracting authorities of a Type 1 buying team. There are eleven (11) Type 1 National Interagency Buying Teams. The teams are located in Northern Rockies (1), Rocky Basin (1), Eastern (1), Southwest (2), California (2), Northwest (2), Southern (1), and Alaska (1).

A Buying Team is responsible for:

- Support to incident procurement through coordination with the incident agency administrative staff.
- Coordinating with dispatch to establish a procurement process for filling and documenting resource orders for services, supplies, and equipment from the open market and established sources.
- Providing the incident agency with acquisition documentation established during the incident assignment.
- Coordinating with the incident agency and IMT to ensure that incident agency procurement regulations and property accountability requirements are met.
- Transition with the incident hosting agency upon arrival. This includes obtaining status of all resource orders completed and outstanding to date and initiating procedures for the handling of new orders by the Buying Team.
- Fill resource orders for services, supplies, and equipment from established sources (NFES Caches, GSA) and the open market.
- Reviews resource orders for completeness.
- Check on estimated times of departure and estimated times of arrival for pending resource orders.
- Obtaining approval from the administrative staff or the Incident Business Advisor (IBA) before purchasing any sensitive or questionable property.
- Providing the incident base (Finance Section Chief, Procurement Unit Leader, Logistics Section Chief, and Ground Support Unit Leader) with an updated equipment log.
- Establishing and maintaining good working relationships and lines of communication.
- Updating the incident service and supply plan with new sources and other information.

Buying teams work for the Agency Administrator. Buying teams are not responsible for documenting resource orders in ROSS, but are responsible for communicating order status to the dispatch system. Dispatchers must document this information in ROSS and communicate the information with the incident base in order to track the status of resources provided by the Buying Team.

Current dispatch business rules do not (generally) allow non-tactical equipment or services to be dispatched across geographic boundaries. The following problems are typical of the current buying team situation in the dispatch community:

- NICC estimates that national buying teams are fully deployed at a high PL3 resulting in a critical resource shortage.

- Lack of procurement/contracting personnel available on the local units/incident management teams is increasing the dependence on buying teams.
- Incident activity across the nation has buying teams supporting multiple incidents and multiple agencies at the same time. Expectations are increasing for buying teams to support multiple local units and incident management teams on more frequent and longer duration incidents.
- All-risk commitments are increasing the need for buying teams (e.g., Hurricane Katrina).
- Buying teams normally consist of procurement/contract personnel from the wildland fire agencies.
- An active fire season in September conflicts with end of the fiscal year close out processes, decreasing availability buying team personnel.

5.4.11 Tracking Qualifications, Access and Meal Authorizations, and Time-Keeping for Field Personnel Issues

The Wildland Fire Dispatch community is not studying the effectiveness and potential efficiencies achieved through the implementation of SmartCard technology. Time keeping at work sites (e.g., camps and offices) are completed manually (paper and pencil) to document the arrival and departure of crews, teams, and individual ADs and contractors.

Various official databases maintain qualifications which are presented in the field in written format on the familiar “redcard”, rather than looked up electronically or scanned by a barcode reader. Most colleges today provide a “SmartCard” used by authorized holders to access buildings or rooms, carry critical medical or student status information, and to show authorization for meals and other services. In doing so they have reduced losses, added security, and reduced paperwork. Many wildland fire functions such as managing fire camps, hosting crews, and utilizing ADs at centers are similar and would benefit from this type of technology. Educational institutions are one example that the wildland fire dispatch community should explore for managing camps, hosting crews, and utilizing Ads at centers.

5.4.12 Self-Sufficiency of Resources (Teams, Crews, and Individual Personnel)

When a local Dispatch Center mobilizes an incident management team that is not self-sufficient the entire system is impacted as the team does not have the ability to self sustain logistical arrangements basics; travel, meals, rental cars, and lodging. Self-sufficient teams do not negatively affect the workload of the closest local dispatch offices as their sponsoring units handle their logistical arrangements. If a crew or resource is not self sufficient, the ordering dispatch office must make additional logistical arrangements to sustain that resource during their mobilization. Dispatch Centers that are in the travel route of the non-self sufficient resources end up providing the necessary logistical support for these resources.

These situations occur throughout the United States during peak activity periods when the dispatcher’s time is the most critical. Unless making logistical arrangements for resources is a staffed and normal duty in the office, dispatch staffs devote time from normal duties to cover these support functions. As local procurement functions have become less available, the workload burden has fallen to micro-purchasers (warrants under \$2500) in local Dispatch Center. AD resources may be self-sufficient, but AD employees that are self-sufficient may add an administrative workload to the sponsoring unit.

This issue has been a concern for many years within the dispatch/coordination and Fire Business Management communities and was discussed at the 2006 National Multiagency Coordination Group meeting. The change in business practices by the AQM staff has resulted in additional procurement oversight by local Dispatch Centers. The Incident Business community is aware of the issues associated with non self-sufficient resources, and is continuing to work toward a solution.

5.4.13 Dispatching of Contract Equipment

Contract equipment use over the past decade has increased throughout the country, especially in the west. Local and regional dispatch boundaries and policies are defined in a manner that does not effectively support mobilization or acquisition according to “best value” for the government. When incidents occur close to Geographic Area boundaries, the closest, best value resource may not be the one mobilized due to existing dispatch boundaries. In addition, the mobilization procedures and guidelines in effect today differ between the Geographic Areas. These scenarios occur throughout the country, primarily in the western United States where most of the contractors operate.

The differences in procedures and guidelines have caused concern within the wildland fire contractor community. Contractors bid on work using the best value concept, and become distraught when higher priced equipment is dispatched to an incident because they are located within the Geographic Area where the incident is located. It is common practice for a dispatch office to use all available resources in their area before requesting resources from another unit or GACC.

The process of ordering contracted resources has grown in complexity and become increasingly more time consuming due to increased usage and an increase in the number and types of acquisition methods used to hire and manage contract resources. The business practices of dispatching contracted resources (i.e., local and regional contract crews and equipment) can vary from area to area. The following differences are typical within the community:

- Mandatory response times (by Contractor) differ between Geographic Areas.
- Implementation of “best value” concept differs across Geographic Areas.
- The Dispatch Center authorized to mobilize a private vendor is required to manage different hiring practices based upon the vendor contract (e.g. a rotation list National dictates the calling of Type 2 initial attack crews whereas the best value ranking of a Type 2 Crew hired under the NW Crew Agreement dictates the crew called. Resources on the National Contract rank higher than those on the NW Crew Agreement).

Inconsistent business practices with regard to ordering contract resources further complicate investigation into incorrect decisions made during the mobilization process. The current policies regarding contracted resource ordering has created grievances against the United States Government and most recently resulted in the review of solicitation methods by the Office of General Counsel (OGC). In a letter issued by Assistant General Counsel L. Benjamin Young, Jr., the OGC recommended the revision of the dispatch rules to remove restrictive practices that preclude the mobilization of a private vendor resource across geographical boundaries.

5.4.14 Administrative Activities Summary

Concurrent with increasing dispatching workloads previously identified, the Wildland Fire Dispatch community is experiencing an increase in the amount of indirectly related “administrative support services” workload previously done by other USFS and DOI entities in the past. More recently, these tasks now fall to the dispatch employees located at the local Tier 3 Dispatch Centers. In the past, non-dispatchers in the Human Resource and Budget & Finance sections performed this work. However, the centralization of these functions and various other reorganizations has resulted in a reallocation of workload. Work previously performed by local-based administrative staff has been left to the Fire Management Organization, and has thus the Dispatch Centers to administer.

Many of these administrative services are time-sensitive (e.g., credit card reconciliation) during periods when the local center is still actively engaged in initial attack and large fire support (LFS) activities. In addition, there is a growing amount of mandatory training directly related to the performance of these administrative support services (e.g., training for procurement, security, records management, and safety).

Table 43 - Administrative Activities provides specific examples of the type of administrative workload incurred by the Wildland Fire Dispatch function.

Table 43 - Administrative Activities

Acquisition Duties	<ul style="list-style-type: none"> • Assisting in the development of Pre-season Emergency Equipment Rental Agreements (EERA), Blanket Purchase Agreements (BPA), and multi-year land use agreements. This also includes support expectations outlined in the agreements with cooperators and partners. • Reconciliation of the corporate travel credit cards/corporate business accounts (CBA) • Support for Type 3 & 4 incidents to include lodging, meals, local supply purchases • Establishment of BPAs in remote areas and/or for merchants who do accept credit cards
Human Resource Duties	<ul style="list-style-type: none"> • Processing Agency Provided Medical Care (APMC) compensation for injury support • Coordinating health screening questionnaires (HSQ) and physicals • Documenting exemptions maintaining the center's data in the HR database • Coordinating the hiring of full time, seasonal, and temporary employees including developing recruitment plans, monitoring progress, and completing paperwork • Coordinating Administratively Determined (AD) employees for the center including hiring, training, and timekeeping
Budget and Financial Duties	<ul style="list-style-type: none"> • Preparing EERA payment package to include invoices and documentation • Assisting with Cost Share Agreements • Processing claims • Processing travel authorizations and vouchers for seasonal and AD employees • Reconciling federal corporate travel accounts

5.5 Expanded Dispatch

5.5.1 Mission and Function

During periods of emergency operations or large fire support, work shifts and staffing are expanded to provide up to 24 hour a day operations as the situation may dictate and as determined by the Emergency Operations Center Manager. Expanded dispatch is the local level organization needed to support one or more incidents that expand along with the Incident Command System (ICS). The establishment of an Expanded Dispatch Unit (EDU) moves the workload of a large fire out of the local Tier 3 or Tier 4 initial attack center, so they can put their focus back on dispatching for initial attack fires. Two or more centers may share an EDU. The Tier 1 or Tier 2 levels does not form expanded dispatch units as these levels of the dispatch organization do not perform initial attack functions. Table 44 - Three-Year Average of Expanded Dispatch Operations Days identifies, on average, how many days that an expanded dispatch unit was in operation.

Table 44 - Three-Year Average of Expanded Dispatch Operations Days

Geographic Area Name	3-Year Average for the Annual Number of Days the EDUs were in Operation at Tier 3 and Tier 4 Centers within the Geographic Area
Alaska Area	114
Eastern Area	429
Eastern Great Basin Area	402
Northern Rockies Area	507
Northwest Area	560
Northern California Operations Area	662
Southern California Operations Area	642
Rocky Mountain Area	241
Southern Area	932
Southwest Area	342
Western Great Basin Area	579
# of days requiring at least two personnel to staff the EDU operations for 12 – 20 hours. =	5,410 Days overall in 2006

*As reported on data call conducted during this Assessment.

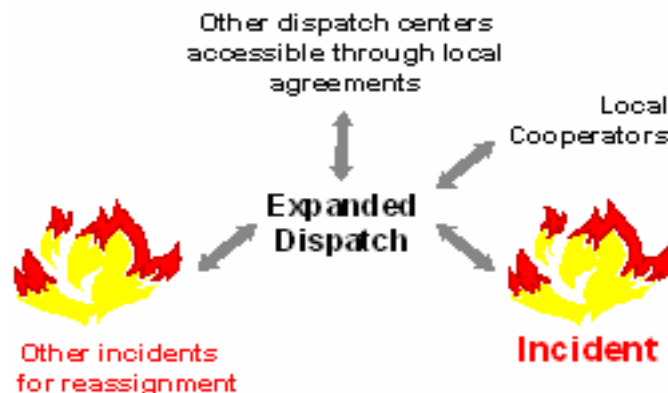
5.5.2 Staffing and Duties

The assigned Supervisory Dispatcher/Coordinator facilitates accomplishment of goals and direction of the Agency Administrator and when activated the Multi-Agency Coordinating Group. A person normally managing the day-to-day operations of the center or an equally qualified individual may fill this position. The Supervisory Dispatcher/Coordinator is responsible for:

- Filling and supervising positions, if they are necessary, in accordance with coordination complexity.
- Implementing decisions made by the Multi-Agency Coordination (MAC) group or local Agency Administrator.

The Supervisory Dispatcher/Coordinator is a facilitator accomplishing the direction provided by the Center Manager or Fire Management Officer who has delegated authority from the Agency Administrator. Facilitation is accomplished by adequately staffing and supervising the operations of the EDU, maintaining positive and effective liaison with the host agency IMT(s), and assist in clarifying the roles and responsibilities for the Incident Support Organization (ISO) and the host agency dispatch unit as needed. The individual filling this position is a qualified expanded dispatch supervisory dispatcher and capable of performing all functions within the EDU.

Figure 45 - Expanded Dispatch Resource Ordering Procedures



An Expanded Dispatch Coordinator is assigned in the most complex situations; ones where there are considerable external influences affecting the ISO, a local MAC Group is in place, or where span of control within the ISO and/or expanded dispatch becomes an issue.

Local Dispatch Centers have continually had to increase their reliance on ADs to staff EDUs over the last few years. Historically, personnel from other dispatch offices who were not experiencing a high level of activity at the time of the incident or were in their off-season would staff an EDU. The trend of fluctuating budgets and reduction of resource staffs has resulted in significantly less agency personnel available to provide support to expanded dispatch operations.

Table 46 - Use of AD Personnel for Expanded Dispatch and for Initial Attack Supplementary Staffing

Position Title	Total Annual Hours	Approximate FTE
CORD	10,184.39	5.73
EDRC	15,044.05	8.47
EDSD	43,692.63	24.60
EDSP	17,258.50	9.72
GISS	355.50	0.20
IADP	1,607.50	0.91
Grand Total	88,142.57	49.63

Table 47 - AD Travel Specifically for Expanded Dispatch

	Total Number of Trips Reported	Average Number of Trips Per AD	Total Number of Per Diem Days Reported	Average Number of Per Diem Days
Air Travel	74	1.14	1029	15.83
Personal Vehicle	152	1.85	1093	13.33
Rented Vehicle	29	1.12	381.5	14.67
Grand Total	255	1.47	2503.5	14.47

**As reported in data call.*

Table 48 - Cost of Expanded Dispatch Operations at Federal Tier 3 and Tier 4 Centers presents an estimate of the cost of Expanded Dispatch Unit staff used in expanded dispatch operations in 2006.

Table 48 - Cost of Expanded Dispatch Operations at Federal Tier 3 and Tier 4 Centers

	Avg. Annual Number of Days**	Average AD Cost	Average Grade (GS)**	Weighted Cost per Day*	Total Estimated Annual Cost per Employee
Federal Center Employee	26.05		GS-08	\$395.19	\$10,294.76
Militia Employee	9.28		GS-09	\$436.47	\$4,050.43
AD/Contractor	18.5	\$21.59		\$259.08	\$4,792.98

**Assumes 12 hour day at a step 5 and is weighted for a 36.45% fringe factor and 12% overhead*

***As reported in data call.*

Based on the above two tables, the Interagency Wildland Fire Dispatch community is paying an average of 14.47 per diem days and travel expenses for every AD employee they activate for Expanded Dispatch operations. In addition, the average AD per diem travel is spread over an

average of 1.47 trips per year, which means that they are being brought in from around the country for periods of time averaging approximately 10 days ($14.47 / 1.47 = 9.84$ days per trip).

AD personnel use was thought to be an ideal fit for the expanded dispatch function, enabling Fire Management to hire on an as-needed basis. The Wildland Fire Dispatch community has faced challenges in obtaining AD personnel when needed and incurs an administrative workload increase when attempting to obtain these individuals.

Dispatcher trainings, available each year, train the AD workforce. The one-week course is held in nine locations with an average of 25 students. The issue is not the lack of trained personnel, rather the availability of the personnel once trained. The administrative workload associated with obtaining AD support is discussed in Section 5.4.9 Hiring of Administratively Determined (AD) Emergency Workers.

Currently, many local Tier 3 and Tier 4 Dispatch Centers maintain on-site (as well as some off-site) space for Expanded Dispatch Units all year, for the times that they might need to activate a unit during the peak response season. The table below presents the average fires per Tier 3 and 4 Center in each Geographic Area, the number of centers in that area, and the average number of EDU operational days per year, based on three-year averages.

Table 49 - Number of Centers and Three-Year Averages of Fires and EDU Days of Operations

Geographic Area	Number of Federal Tier 3 & Tier 4 Dispatch Centers in the Geo. Area	3-yr Avg of Fires Per Tier 3/4 Center	3-yr Avg # of Days ED Was Operated Per Tier 3/4 Center
AK Area	3	58	38
EA Area	12	449	15
EB Area	12	249	40
NR Area	16	136	34
NW Area	27	106	21
ON Area	9	860	63
OS Area	10	179	42
RM Area	10	451	24
SA Area	23	154	49
SW Area	12	260	31
WB Area	5	291	116
Total	139	3193	473

The average number of EDU operational days increases from 38 days per center to 52 days per center at Tier 3 and Tier 4 centers that operated an EDU for eight or more average days per year. This indicates that it is possible to consolidate the EDU workload (i.e., eliminate the need for EDUs operated for fewer than eight days per year) by having the larger Tier 3 centers which already operate EDUs for more days absorb the ED requirements into their existing operations. This consolidation would require minimal increases in staffing requirements.

The number of resources (space and computers) assigned to EDU facilities reflect a substantial investment by the Interagency sponsors. According to the data call conducted during the assessment, these centers have the following number of computers assigned to Expanded Dispatch Unit areas, historically activated for a couple of days a year.

Table 50 - Computers Maintained for Expanded Dispatch Unit (EDU) Facilities for Tier 3 and Some Larger Tier 4 Dispatch Centers

Geographic Areas	3-Year Average Annual Number of Days that an EDU was In Operation Across All Centers in the Geographic Area	Total # of EDU Computers	# of EDU Computers Leased or Rented	If Networked, to how many Agencies?
AK Area	114	12	0	2
EA Area	179	26	8	9
EB Area	402	85	0	14
NR Area	479	112	40	12
NW Area	560	172	25	25
ON Area	542	69	0	15
OS Area	422	69	0	13
RM Area	241	58	4	10
SA Area	932	97	38	15
SW Area	342	87	28	9
WB Area	579	44	30	5
Total	4792	831	173	129

5.6 Predictive Services

5.6.1 Mission and Functions

Each GACC prepares an intelligence report that consolidates fire and resource status information received from each of the local Dispatch Centers in its area. This report is forwarded to NICC and to the local Dispatch Centers, caches, and agency managers in the Geographic Area. Predictive Service units prepare and distribute briefings, products, tools, instructional memorandums, and information bulletins in order to meet the Predictive Service mission.

5.6.2 Staffing and Duties

The number of federally funded full-time, AD, and contract staff positions assigned to perform Predictive Services functions is 39 positions. The federal and AD staff reported approximately 119.44 FTE were contributing directly to the PS functions in the data call. The higher figure includes the Intel Specialists, Rangers, and Dispatchers that collect data provided to the PS staff at the GACCs for analysis. The NPSG's 2005 survey of products, time per product, and frequency of products indicate a need for 50.25 FTE nationwide at the Tier 2 GACCs as seen in Table 51 - Number of 7-day Weeks of Predictive Services Coverage per Year and Table 52 - Predictive Services Workload If Fully Staffed*. The current vacancy count for 2007 for funded, but unfilled, PS positions is 3 within the Tier 2 GACCs.

Table 51 - Number of 7-day Weeks of Predictive Services Coverage per Year

GACC	Avg Wks/Yr with 7 Day PS Coverage*	Total # of Days of Coverage	# of hours of Coverage	FTE Required
AKC	24	168	1,512	0.85
EAC	29	203	1,827	1.03
EBC	25	175	1,575	0.89
NICC	41	287	2,583	1.45
NRC	20	140	1,260	0.71
NWC	25	175	1,575	0.89
ONC	26	182	1,638	0.92
OSC	52	364	3,276	1.84
RMC	30	210	1,890	1.06
SAC	52	364	3,276	1.84
SWC	40	280	2,520	1.42
WBC	46	322	2,898	1.63
TOTAL	410	2,870	25,830	14.54

* Except for Tier 2 GACCs who reported 52 wks/yr of 7-day dispatch coverage in Data Call A, an additional 4 wks/yr of 7-day coverage for Predictive Services was added.

Table 52 - Predictive Services Workload If Fully Staffed*

GACC	Responsible PS Party		Total FTE (1 FTE = 1776 hours/yr)
	Intel Hours	Mets Hours	
AK	841.97	1,057.25	1.07
EA	3,542.00	7,767.00	6.37
EGB	3,204.00	1,472.68	2.63
NOPS	3,087.87	13,341.16	9.25
NR	5,132.60	2,186.00	4.12
NW	7,136.95	808.58	4.47
RMA	5,314.90	6,081.27	6.42
SA	3,978.50	5,108.50	5.12
SOPS	**	8,066.00	4.54
SW	2,418.85	5,006.50	4.18
WGB	634.00	3,049.00	2.07
TOTAL ANNUAL HOURS	35,291.64	53,943.94	
TOTAL ANNUAL FTES	19.87	30.37	50.25

*Based on a 2005 data call regarding hours per PS product, frequency of PS products, and PS job title assigned to each PS product. ** Reported only a few hours for Intel, and products were done with METs in all cases.

5.7 Air Space Coordination

5.7.1 Mission and Functions

In conjunction with coordinating fire management resources, the Wildland Fire Dispatch function also includes communicating wildland fire aviation activities to the Federal Aviation Administration (FAA), Department of Defense, other agencies, surrounding airports, state and local governments in support of Agency aviation responses to incidents and training missions. Historically, the Forest or Aviation Unit Officer performed these duties.

Currently, day-to-day and large fire support airspace issues are coordinated at either the local center or GACC level, as the complexities have outpaced the ability of the local forest Aviation Unit Officer to coordinate large fire airspace issues.

To fill this need a group of technical specialists coordinated by an Interagency Airspace Program Manager. Most specialists are ADs and provide this service at various Tier 2 GACCs and Tier 3 local centers. Impacts of airspace coordination revolves around the need for a single point of contact to the FAA for airspace coordination, the advanced skills of providing larger complicated TFRs to meet management objectives and not hindering the commercial, military, and civilian use of airspace. These technical experts also interface with the local centers, provide training, and meet the local general aviation operators and pilots, to discuss airspace coordination issues, impacts, and concerns.

Airspace coordination can occur anytime there is a normal initial attack for a wildland fire, large fire support, or special events. The Tier 1 and Tier 3 level primarily is engaged with this coordination. All aviation activities occur in the National Airspace System (NAS) and many of them will occur within or adjacent to a variety of Special Use Airspace (SUA) and other airspace for special use (i.e., Military Training Routes, Low Altitude Tactical Navigation Areas (LATN), etc.). The Interagency Airspace Coordination guide outlines the requirements for conducting Airspace coordination activities at:

<http://www.fs.fed.us/r6/fire/aviation/airspace/web/guide/index.html>

5.7.2 Staffing Within Tier 2 and Tier 3

In FY 2007:

- There were 47 airspace coordination assignments for 594 days (including 94 days of travel)
- Average length of assignment (including travel) is 12.5 days
- Average length of assignment (excluding travel) is 10.5 days

Table 54 - Current Airspace Coordinator Utilization at Tier 3 Centers identifies the amount of time reported in the data call spent by employees, militia, and ADs performing air space coordination duties.

Table 53 - National Airspace Coordinators (full-time)

Location	Number of Positions	Number of FTE	Agency Affiliation
Portland, OR	1	1	BLM State Office
Boise, ID	1	1	BLM National Office

Table 54 - Current Airspace Coordinator Utilization at Tier 3 Centers

Geographic Area	FTE
Alaska	0.19
Eastern Area	0.20
Eastern Great Basin	1.19
Northern Rockies	0.69
Northwest	1.81
Northern Operations	0.49
Southern Operations	0.27
Rocky Mountains	0.51
Southern Area	0.20
Southwest	0.53
Western Great Basin	0.33
Grand Total	6.41

**as reported in data call*

Historical costs associated with performing air space coordination are not well documented. However, based on the assessment data call, the estimated annual personnel cost associated with performing this function is \$396,925. This estimate is based on an average grade of GS-07 or equivalent AD level performing this work within the Tier 3 local Dispatch Centers as a collateral duty.

AD personnel perform airspace coordination when needed at the Tier 2 GACC level. These Centers do not have defined Airspace Coordinators in their organizations. They rely on the availability of trained ADs from around the country that have been through an informal training program operated on an on-the-job basis. Many of the ADs who seek this qualification are current or former pilots, smoke jumpers, or air traffic services personnel. The Tier 2 GACCs lack a formal process or protocol requiring them to staff and maintain Airspace Coordinator-qualified personnel within their GACC staff, even on a collateral duty basis. The sponsoring Agencies' human capital / employee development departments do not have an official training program for airspace coordination. As a result, using ADs for all of these critical services at the Tier 2 level becomes a greater risk each year as the number of qualified AD staff reduces due to attrition.

5.8 Information Systems

Information systems are critical to the functionality of the Interagency Wildland Fire Dispatch function. Advancements in technology have allowed the dispatch community to integrate sophisticated software and hardware systems into their business practices, as well as increase the speed and efficiency of dispatching resources to an incident.

5.8.1 Hardware/Software Compatibility Issues

Personnel at interagency centers have multiple computers on their desks to access different files on DOI and USFS agency networks. (This is a common problem at the Tier 3 centers in meeting multiple agency reporting requirements for personnel data, fire statistics, and financial reporting.) Different agency policies in the current interagency operating environment mandate this redundancy.

The barriers presented by the lack of interagency networking have an intangible impact on operational dynamics at the Dispatch Centers. The inability to share documents on a server requires emailing to other dispatchers in the same office when they belong to a different agency. The sharing of documents in this manner results in version control issues, and leads to the sharing of inconsistent or outdated information. Communications barriers can potentially affect the speed that an interagency office can process and communicate accurate information to the rest of the wildland fire dispatch community.

Sixty percent of the Interagency Wildland Fire Dispatch function computers are the on Forest Service network. Computers in the west and in Alaska are primarily on the BLM network.

Table 55 - Summary of the Number of Personal Computers

Tier Identifier	Number of Personal Computers			
	Total	USFS	DOI	# of State
Tier 1 & 2 Totals	397	238	145	14
Tier 3 Totals	1,336	820	321	195
Tier 4 Totals	41	12	27	2
Overall Total	1,774	1070	493	211

**As reported in recent data call.*

During times of expanded dispatch, computers are provided for the augmented staff. These computers are obtained via contract or prior to fire season in anticipation of the need for computers to support expanded dispatch operations. Sometimes these computers are cached in dispatch offices. Unfortunately, this poses a potential security risk when reconnected to the network. Contracted computers are supported and serviced by the vendor, and generally have a better service record than agency computer systems at the Dispatch Centers, but do not have access to FS and BLM networks due to security concerns. See also Section 5.5.2 for a discussion of computers for Expanded Dispatch Units.

5.8.2 Network Issues

The national interagency dispatch system is dependent upon a network infrastructure that is both reliable and adequate in terms of system load capability and overall performance. The network infrastructure that provides the backbone of the dispatch system varies across the nation.

Performance or reliability issues with the network are frequent in some locations and impact single or multiple offices during active operational periods. Since 2002, the ROSS Help Desk recorded approximately 1,800 reports of poor network performance or loss of a connection.

Network outages (planned and unplanned) are a national recurrent issue. The unavailability of systems and applications during outages have caused delays in the issuance of routine products, delays in the processing of requests for resources, and added work to re-enter lost data. While agencies have shown some improvement in prior notification of planned outages for maintenance or

upgrades, the dispatch community has been adversely affected when pre-notification is not communicated.

Some centers have set up “snap” servers to allow their location to operate on one system and as a backup system in the event of a system outage. Within Tier 2 centers, 50% have a stand-alone network server. Of the 125 Tier 3 Dispatch Centers who responded to the data call, only 43% have stand-alone servers in place. These servers are of particular use for expanded dispatch operations.

Processing speeds and type of internet access varies from location to location. This variation results in different response time and data entry capability at each location. Internet access varies based on the development of an area (i.e., cities vs. towns vs. forests, etc.), and therefore a one-size fits all approach regarding the connectivity requirements at each location is not appropriate. Currently, the IT infrastructure is not optimized to address the network performance and reliability expectations of each office.

The ROSS team has spent a considerable amount of time researching network issues since 2005. The following are typical symptoms found by the team:

- Local band width saturation point has been reached
- There are network routing issues
- Local wiring is often an issue
- Incorrect Client Machine Network Card Configuration
- Network Asynchronous Routing Issue
- Network port changes
- Unplanned network outage (Agency or Department)

The ROSS team reports spending large amounts of time responding to and/or researching network-related issues that come to the ROSS Help Desk. While the team is not responsible for repair or maintenance of the networks that ROSS operates on, it must respond to user problems until the issue is resolved. The ROSS project has instituted a number of actions aimed at addressing 'connectivity' issues. The actions begin with steps a user can initiate to either resolve a connectivity problem or escalate it to the appropriate help desk (agency or ROSS). The ROSS Help Desk also has established procedures to act on reports from users to report and/or coordinate a response directly with the appropriate help desk (e.g. FS ISO, DOI/BLM or NITC Support Desk at the System Network Control Center, or Telcom companies, etc.). They will also initiate or participate in conference calls with the network engineers from the appropriate entities to assist in resolution of the issues.

5.8.3 IT Systems Access Issues

The implementation of increased IT security protocols by both agencies has created challenges for the interagency Dispatch Centers and the National Predictive Services program. The Center Managers report the difference in system access between the agencies and the new standard IT security protocols in the interagency multi-system environment has led to sneaker-net workarounds (i.e., walking down the hall and logging into the other agency's network) to access a program banned on their network but allowed on the other agency's network.

Table 56 - Locations Maintaining Two or More Discrete Agency Networks Requiring Separate Hardware

Tiers	Number of Separate Agency Networks Providing Services to the Centers	Number of USFS Connected Computers	Number of DOI Connected Computers	Number of State Connected Computers
Tier 1 NICC	2	10	36	
All Tier 2 GACCs	3	199	104	27
All Tier 3 and Federal Tier 4 Centers*	5	812	303	230
Total		1,021	443	257

- As reported in recent data call

Table 57 - Summary of Center Network Connectivity

Tiers	Connected One Network in the Primary Dispatch Area	Connected to Two or More Networks in the Primary Dispatch Area	No Network Connection in the Primary Dispatch Area	Connected to At Least One Network in Expanded Dispatch Unit
Tier 1 NICC	0	1	0	n/a
Tier 2 GACCs	3	8	0	4 = 1 network 2 = 2 networks
Tier 3 Dispatch Centers	62	58	4	87 = 1 network 17 = 2 networks
Federal Tier 4 Dispatch Centers	10	1	2	6 = 1 network

- As reported in recent data call

5.8.4 Help Desk Support Issues

Dispatch offices are frequently located away from agency offices. This challenges the IT support organizations regardless of agency affiliation. Desktop level support is not on site. When a USFS employee experiences a problem, the employee is required to contact the contracted desktop support provider to generate a “ticket,” which may be resolved immediately or over the course of four hours to four days, depending on the complexity and priority classification of the problem.

One of the most serious problems facing the Tier 1 through Tier Centers is the delay in getting IT help desk support for out-of-service emergency equipment and systems. In data calls for this assessment, respondents were asked to describe their recommendations for improving the dispatch process.

Center employees that were primarily full-time dispatchers cited IT support issues in 61 of 483 comments. The Center managers cited IT support issues in 16 of 202 comments, while ROSS issues were cited in 33 of 202 comments.

Currently, there is a Priority Coding system for IT trouble tickets, which permits the user to identify mission-critical outages for expedited servicing by the appropriate help desk teams. The help desk support function has had difficulties in resolving Priority 1 and 2 trouble calls on Dispatch and Coordination Center emergency equipment and systems within the timeframes specified in their performance metrics.

The FS EUSC Helpdesk is instructed to “code” incident support tickets as “Severity 1”. Several times this past fire season, an unusually high number of Severity 1 tickets were incorrectly coded to lower priority levels. All but the Severity 1 tickets allow up to four working days for resolution. It is essential that the CIO’s office manage the desktop support contract to ensure that Knowledge Management (KM) documentation emphasize the necessity of properly coding all incident support tickets as Severity 1 unless otherwise requested by the customer or determined by a Level 2 support person.

The desktop support contract is currently being re-competed and the CIO anticipates the new contract will resolve some of the desktop support issues. In addition, one Tier 2 GACC Manager has negotiated a local protocol with the management of the USFS on the information technology function, to identify a specific management level representative in the Washington Office to act as their representative when the help desk response system fails. This is not a universal agreement, and has not been replicated by the other GACCs.

5.8.5 On-Site Support Issues

Computers, telecommunications, and radios are essential to the Wildland Fire Dispatch function. Solutions for IT problems need to be immediate during fire emergencies. The current Forest Service requirement to call a centralized contracted Help Desk for IT problems presents challenges when there is an immediate, mission critical need.

The centralized Help Desk works well for other functions in the agency, however, the lack of on-site IT support personnel at dispatch centers proves insufficient when issues arise during critical operational periods. During FY 2007, the Forest Service Help Desk logged 90 "Severity 1 Fire" requests. Of these 21% were resolved within 4 hours, while 24% took between 24 and 72 hours and an additional 17% required more than 72 hours to resolve. Of the 90 tickets, 57 had some form of "wait" time involved, which indicates either waiting on vendors, facilities, or a customer to resolve.

Table 58 - P1 / P2 ISO Help Ticket Resolution Data – Trouble Calls by Dispatch Community

Forest Service ISO Help Desk Tickets for FY 2007 (Oct. 2006-Sept. 2007) Related to Dispatch Issues with Severity Code P1 or P2 (Emergency Operations)							
Avg. Hours to Resolution (hrs) =	Wait Time	Network	Radio Comm	Repeater	Server	Desktop	Phone
37.92	57	27	20	16	13	3	11

Table 59 - Breakout of Response History to P1 and P2 Help Ticket for Emergency Operations

Resolution Analysis			
# resolved in less than 4 hours =	19	tickets	= 19/90 total tickets = 21%
# resolved in 4-8 hours =	7	tickets	= 7/90 total tickets = 8%
# resolved in 8-24 hours =	27	tickets	= 27/90 total tickets = 30%
# resolved in 24-72 hours =	22	tickets	= 22/90 total tickets = 24%
# resolved in more than 72 hours =	15	tickets	= 15/90 total tickets = 17%

**Table 60 - Weighted Average Repair Time for a P1 / P2 Help Ticket in FY 2007
Where the Repair Exceeded the Performance Metric of 4 Hours**

Avg Hours to Resolve		# of P1 / P2 Incidents	=	Product		Sum of Products	/	Sum of Incidents	=	Weighted Avg Hours to Resolution
6	x	7	=	42		2718	/	71	=	38
20	x	27	=	540						
48	x	22	=	1056						
72	x	15	=	1080						
Totals	=	71		2718						

5.8.6 Long-Range IT Applications and Improvements Visioning Issues

The Wildland Fire community has several working committees focused on the big picture-level information technology investment opportunities and constraints. Examples include the IQCS Board, the NWCG Program Management Office (PMO), and the NWCG IRM Working Team. Within these strategic units of the fire program, there are IT managers that work with and within the agency structure (policies, procedures, organization, etc.) to define and deliver solutions at that level. These groups also provide strategic direction, oversight, and change management to the IQCS and other omnibus systems.

Additional IT professional support is warranted closer to the frontline of the Wildland Fire Dispatch community. At the levels of this organization that do not have a specific representative on the strategic level committees, there is need for a small “dispatch-focused” technical research support team. The typical Tier 2 and Tier 3 manager, dispatcher, or coordinator with a specific, though not fleshed out, idea for cost saving IT system, application or hardware improvement does not have access “technology helpers “ within the confines of the current FS system. This would be a small team of IT technologists assigned specifically to review proposed improvements, evaluate the need for and cost/benefits of the improvements, and write requirements documents for justifiable improvements of dispatch/fire response related IT applications, databases, automated reports, and hardware for the dispatchers for approval through the existing Boards and Committees cited previously.

5.8.7 Principal Systems in Use by Dispatch Offices (ROSS and CAD)

5.8.7.1 Computer Aided Dispatch (CAD) Systems

Computer Aided Dispatch (also called CAD) is a method of dispatching emergency services assisted by computer. CAD consists of a suite of software packages used to initiate public safety calls for service, dispatch, and maintain the status of responding resources in the field. CAD is generally used by emergency communications dispatchers, call-takers, and 911 operators in centralized, public-safety call centers, as well as by field personnel utilizing mobile data terminals (MDTs) or mobile data computers (MDCs).

Messaging by the CAD is sent to the emergency responder via a mobile data terminal (MDT) and/or used to store and retrieve data (i.e. radio logs, field interviews, client information, schedules, etc.). The CAD dispatcher may also announce the call details to field units over a two-way radio. Some systems communicate using a two-way radio, or via the system's two-way selective calling. CAD systems capabilities include text messages with call-for-service details to alphanumeric pagers and/or wireless telephony text services like SMS. CAD additionally displays a pictorial view that reflects the unit's status during an incident.

Two primary computer aided dispatch (CAD) systems are in use in many locations: WildCAD and Altaris CAD. WildCAD is used principally in Bureau of Land Management managed dispatch offices and in some Forest Service offices; the California Department of Forestry uses Altaris CAD. As of 2007, the ROSS Project Team has developed an Altaris CAD/ROSS interfaces: see <http://ross.nwcg.gov/Newsletter/Newsletter20.html>. The Altaris CAD/ROSS interface will allow initial attack dispatchers to share information between CAD and ROSS. Resource status changes in CAD will be sent to ROSS, providing the CAD and ROSS systems with real-time resource status. (WildCAD has programming problems that currently do not allow this function.)

5.8.7.2 Resource Ordering and Status System (ROSS)

The Resource Ordering and Status System (ROSS) was implemented nationally in 2003, changing the Dispatch business practice model.

- The design and implementation of ROSS was based upon the business rules of the past century when processes were executed on paper and via the telephone and fax. Dispatching resources has become much more automated with advancements in technology. These advancements are not used in the current ROSS system.
- Changes to the application side of ROSS are generally slow to arrive and are the result of a process intensive change methodology. This method can take several years from suggestion to deployment. The delay often results in the change being outdated from the function's need upon arrival. The budgetary process associated with IT drives this issue.
- The application is poorly suited to adapt to changes made to improve efficiency in dispatch operations or to conform to changes in agency policy.
- The amount of data stored in the system is staggering, however usable information for dispatchers and Fire Managers remain close but out of reach. The system is designed to provide standard reports rather than have users design queries.
- The dispatch community has not always followed or embraced the necessary standards that are needed for an enterprise-wide application to be effective.
- The flexibility provided by the system has benefited the dispatch community but has presented some degree of disarray especially with reporting outputs.
- The dispatch community recognizes the longer-term negative impacts of the lack of strict ROSS data structure rules, e.g., the ability to list the same resource type under different categories in ROSS.
- Data quality remains a challenge for the dispatch community. The coding and procedures for using the system are not standard throughout the dispatch community. In order to use data from

the system to evaluate the dispatch function on a national level, data clean up requires considerable effort each year.

- The biggest benefit of the system was in the area of resource status however, this remains one of the biggest challenges from a data integrity and usefulness standpoint. The maintenance and sharing of resource status information through other mechanisms requires considerable time and effort.

5.8.8 Outstanding ROSS Improvement Issues

The ROSS development business model is based on previous model of pen, paper, fax and radio. These original business processes are not an efficient method of ordering today's modern mobile resources: resource orders currently move from the Tier 3 or 4 Center placing the order up the hierarchy through the Tier 2 GACC and the Tier 1 NICC. Once the order reaches Tier 1, NICC assesses and processes the order through the hierarchy to the center that will fill the order. This process creates a blockage at the Tier 1 level, particularly for overhead requests.

Overhead resources are statused in ROSS by name rather than by qualification. This practice results in the inability of the system to have accurate resource counts, as one center enters a resource catalogued differently than another center. This issue manifests as a double counting of resources, and creates confusion regarding a resource's availability.

In ROSS the resource (personnel) are available for all of their qualifications, not just those critical to the system. There is also no requirement that the individual accept the assignment with the most critical skill needed by the incident. This creates an added challenge in obtaining overhead resources with critical qualifications during high activity periods, as current practices allow overhead resources to select the assignment or qualification for which they would like to mobilize. This is commonly referred to as "cherry picking" the assignment to maximize income and is a logistical challenge for individual dispatch centers when an overhead resource in closest proximity refuses or declines an order to mobilize.

The ROSS system provides real-time availability of resources in four categories: local, GACC, national, or not available. These categories create ambiguity due to the lack of consistent business practices in resource statusing.

ROSS servers are currently located at one site. At this time, there is no designated alternative "hot-site" location for the ROSS server farm. A major catastrophe at the current server site would result in delay or permanent loss of mission critical information. An established alternative "hot-site" location would ensure the effective continuity of operations with a necessary backup system. Budget constraint has impeded this necessary and critical need.

The Wildland Fire Dispatch community has presented these issues to the ROSS change board, NMAC, National Coordinators, and to the NWCG without success.

5.8.9 Need for Long-Range ROSS Replacement Process

The lack of CAD to ROSS interface increases the workload in the initial attack Dispatch Center. For a quickly escalating incident, this requires that the same information be entered into CAD and into ROSS simultaneously. This doubles the staffing needs in initial attack Dispatch Centers during periods of heightened activity. This also doubles the amount of data entry and data management. (Note: ROSS Version 2.7 implementation will have a CAD to ROSS interface that works with Altaris. Two CALFIRE centers are testing this interface on a pilot implementation basis.) Historically, the development of national systems that are priority for funding are based on national and geographic needs. To the initial attack dispatcher, 80-85% of their primary duties reside in the use of their CAD program, where as the initial attack workload associated with the ROSS is only 15-20%. A common approach to computer-aided dispatch would increase efficiency and effectiveness in training and capacity of the workforce to respond to local and non-local emergencies.

5.8.10 Need for CAD System Standardization and/or Development

Both CAD systems 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 to depict the fire location and local features to the dispatcher. The systems record fire information including location, time, and fire number, along with a running log of communication with the responders on the fire or other parties. These systems do not link to other information systems and information entered into the CAD is then re-entered into other systems (e.g. submitting situation reports).

Centers responding to incidents without CAD systems determine closest available resources, access to incidents, appropriate management response, incident priorities, and allocate resources utilizing manual methods such as magnetic boards, resource tracking and status boards and multiple maps.

Table 61 Use of CAD Systems in Federal Wildland Fire Centers

	Using CAD	No CAD
Tier 1 NICC	1	0
Tier 2 GACCs	3*	8
Tier 3 and Federal Tier 4 Centers	54*	83
Total	58	91

Table 62 - Distribution of Current CAD Systems in Federal Wildland Fire Centers outlines what CAD systems are currently in use by Wildland Fire Dispatch Centers across the country as reported in the data call.

Table 62 - Distribution of Current CAD Systems in Federal Wildland Fire Centers

	WildCAD	AltarisCAD	Other CAD	No CAD
Tier 1 NICC	1	-	-	-
Tier 2 GACCs	3	1		8
Tier 3 Centers	51	7	3	70*
Federal Tier 4 Centers	None	None	None	13*

**from recent data call.*

* Seven Tier 3 centers and one Tier 2 center use multiple types of CAD systems

Local areas acquire WildCAD and Altaris CAD without approval of the federal standard process for wildland fire interagency application development and adoption.

Issues with the current CAD systems reported by interviewed users:

- Altaris does currently interface with ROSS
- Altaris CAD is not seen as user friendly:
 - Not intuitive
 - Requires significant amount of training
 - Uses commands instead of menu driven functions
 - Is unable to accept wildland federal agencies maps and overlays
- WildCad does not or cannot interface with ROSS.
 - WildCad has not completed either agency’s standard Certification and Accreditation (C&A) IT security review.

- WildCad and Altaris CAD do not currently communicate with each other directly or via ROSS.
- WildCad has the ability to display their data on the internet via WildWeb for incident information.
- WildCad can be used on the internet via a VPN connection from a PC or laptop while Altaris CAD is not available to remote locations
- No consistent standard across the nation for CAD system certified and approved for the federal agencies that interfaces with ROSS.

Table 63 - Average Amount of Time Required to Set Up an Incident provides an example of the differences in the amount of time it takes to set-up both an initial attack and an extended attack with and without a CAD system. This information was collected from a sample of Tier 3 dispatch units and based on an average (not the most experienced / fastest) dispatcher:

Table 63 - Average Amount of Time Required to Set Up an Incident

	Tasks	Avg Mins without CAD	Avg Mins with CAD	Delta in Mins
IA	Taking/Documenting Initial Smoke Report	3.50	2.75	0.75
IA	Plotting Incident on Map	3.00	1.25	1.75
IA	Converting Coordinates (Legal to Lat/Long) using program or manually on map	2.25	1.00	1.25
IA	Entering Incident into CAD (if applicable)		3.25	-3.25
IA	Determining Appropriate Management Response	3.67	2.50	1.17
IA	Determining Closest Resources	4.00	1.25	2.75
IA	Identifying Hazards: Military Training Routes, Powerlines, etc	4.25	2.00	2.25
IA	Entering Incident Information into FireCode	4.00	3.33	0.67
IA	Identifying Duty Officers, Cooperators, Stakeholders, utility companies	2.00	2.75	-0.75
IA	Entering Incident Information into ICS 209	17.50	15.00	2.50
IA	Entering data (resources committed, etc.) into Incident Management Situation Report (Daily Sit)	8.40	4.67	3.73
	Subtotal Minutes for IA =	52.57	39.75	12.82
EA	Entering Incident Information into ROSS	9.40	5.33	4.07
EA	Entering Incident Information into FireStat (USFS) (if applicable)	18.00	15.00	3.00
EA	Entering Incident Information into DI-1202 (DOI) (if applicable)			
EA	Entering Incident Information into ISUITE (if applicable)			
	Subtotal Minutes for EA =	27.40	20.33	7.07
	Total Minutes for Incident Startup =	79.97	60.08	19.88

- Avg Minutes to set-up an initial attack (IA) incident in various systems and using a CAD application =39.75 minutes.
 - Avg Minutes to set-up an initial attack (IA) incident in various systems and not using a CAD application = 52.57 minutes.
- Avg additional Minutes to set-up an Extended Attack (EA) incident in various systems and using a CAD application = 20.33 minutes.
 - Avg additional Minutes to set-up an Extended incident in various systems and not using a CAD application = 27.40 minutes.
- Estimated savings per incident = 12.82 minutes per IA and 7.07 minutes for EA

A standardized, nationally implemented CAD system would save the above-cited minutes per type of incident. Reduced minutes required to enter data translates to reduced overall Labor Hour Costs to the USFS and DOI fire programs. The following is a finding of the **eGov Disaster Management Task Group (EDMTG)** in its Final Report:

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” databases 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 Interagency 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.

5.8.11 Need for Application to Facilitate AD-Managed Updates of Contact Information and Availability Statusing

Currently, a recurring comment heard by the members of the dispatch community is the difficulties that AD personnel have in making updates to their own records in ROSS and other databases that dispatchers, crew chiefs, and IMT leaders need. The process to get into ROSS and other systems to change contact information, update qualifications, and to change availability statuses is cumbersome and slow, often necessitating assistance through their “host” center’s dispatch staff. Ideally, a process would be created that would facilitate the updating of AD personal information in an easy, but secure, manner. This would improve the quality of the ROSS information, as well as other systems that use the ROSS statusing and contact information.

5.8.12 Redundant Data Entry – Sources of Error and Miscommunication

Thirty applications have a role in producing wildland fire related information – either directly or as a utility or tool. The principal systems for collecting and disseminating notifications, producing situation reports, or providing historical information are: Computer Aided Dispatch (CAD), Resource Ordering and Status System (ROSS), Large Fire Report (209), Situation Reports, Fire Reports (FireStat, 1202, etc.), Inci-Web, Incident based programs (I-Suite and InciNet).

Table 64 - Principal Systems for Generating Wildland Fire Information and Table 65 - Principal Systems for Disseminating Wildland Fire Information list the principal systems for collecting and disseminating notification, situation report, or historical information.

Table 64 - Principal Systems for Generating Wildland Fire Information

Systems	Uses for the Information
Computer Aided Dispatch (CAD)	Notifications, Situation Statusing, Historical Record
Resource Ordering and Status System (ROSS)	Notifications, Situation Statusing, Historical Record
Large Fire Report (209)	Situation Statusing, Historical Record
Situation Reports	Situation Statusing, Historical Record
FireStat, 1202, 5100	Historical Record
Weather	Notifications, Situation Statusing, Historical Record
Incident (I-Suite, InciNet)	Situation Statusing, Historical Record

Table 65 - Principal Systems for Disseminating Wildland Fire Information

Systems	Uses of the System
Web Sites	Situation Statusing, Historical Record
Voice (Telephone/Radio)	Notifications, Situation Statusing
Written	Situation Statusing, Historical Record
Email and Electronic Messaging	Notifications, Situation Statusing

Local Dispatch Centers are responsible for data entry for the wildland fire agencies to meet upper Tier reporting requirements. The systems require redundant data entry, including Resource Ordering & Status System (ROSS), Computer Aided Dispatch (CAD), WIMS, Incident Qualification Certification System (IQCS), FAMWEB, Fire Reporting systems (FireStat and BLM 1202s), FireCode, ICS Form 209, and ISuite.

Data systems that require multiple data entry of the redundant information include:

ROSS – Automated wildland fire resource ordering system (Set up incident in approximately 5 minutes time (assuming all information needed is available on hand) average time 20 minutes to get all data needed – regular order 1 minute once incident information is pre-loaded. This system requires data entry of name of incident, incident type, incident project order number, latitude and longitude, dispatch office, host agency unit identification, etc.

WildCAD & Altaris CAD – Used as an initial attack tool in various offices. CAD systems require data entry of name of incident, incident type, incident project order number, latitude & longitude, dispatch office, host agency unit identification, resources responding for initial attack, etc. to initiate a new response or incident.

FireStat & BLM 1202s – Forest Service & Bureau of Land Management’s fire reporting systems; depending on the interagency dispatch office, one incident can result in three different fire reports having to be completed (example: BLM, USFS, and state fire reports). These two federal systems require name of incident, incident type, incident project order number, latitude & longitude, dispatch office, host agency unit identification as well as specific information about the incident, fuel type, cause, weather, resources used for initial attack, etc.

FireCode – Fiscal fire code program (i.e. Budget tracking system) requires that all resource order information is entered into system before it allows you to generate a FireCode for an incident. Information required is name of incident, the incident project order number, latitude & longitude, host agency unit identification, Dispatch Center information, reimbursable & jurisdictional information, etc.

Incident Management Situation Report/ICS Form 209 – Application to produce daily Incident Management Situation Report and ICS Form 209. Requires name of incident, incident type, incident project order number, latitude & longitude, dispatch office, host agency unit identification, resources available and committed, number of incidents and cause of fires, etc.

ISuite – An incident application that consists of resources, cost, time, Incident Action Plan (IAP) & supply units for tracking incidents. Currently there is a project to link ISuite to ROSS.

Consistency and quality of data is often incomplete and inaccurate due to the multiple applications/systems that incident information needs to be entered into and/or the reporting period requirements due to current systems. There is a higher margin for human error in data entry (wrong name, wrong charge codes, wrong latitude and longitude, wrong frequency, etc.).

Lack of real-time accurate data continues to be an issue for the agencies and Dispatch Centers at all levels. During high activity periods, local centers potentially enter incomplete and inaccurate data into the daily Incident Management Situation Report (IMSR) and the ICS Form 209 (Incident Status Report) during assigned window, just to meet reporting requirement timeframes set by agencies and upper dispatch levels. The local centers know that complete data will not be available until later in the day. Typical data problems are with entries on current situations, status of resources, current staffing, and incident intelligence.

Various automated reporting sites (e.g., InciWeb) have been created by state and federal agencies to communicate real-time information. Unfortunately, there is little consistency in the data-reporting format. Reports taken at different times of day cannot be used to confirm data in other reports created much later and there is no synchronization of reporting.

5.8.13 Reporting Requirements and Performance Standards/Quality Assurance

National interagency systems used by dispatch include ROSS, the Large Fire Report (209), the Situation Report, WIMS, FireCode, and others. Many of these programs have business standards and practices, NWCG courses, and/or user guides. The *National Interagency Mobilization Guide* (NFES 2092) identifies standard procedures that guide the operations of multi-agency logistical support activity throughout the coordination system. Local and Geographic Area Mobilization Guides should be used to supplement the *National Interagency Mobilization Guide*. Other documents that set standards for national programs are:

- **ROSS** standards are found in the Interagency Standards for the ROSS Operations Guide (ISROG) the standard business practices for using ROSS within the interagency business community authored by the National Dispatch Efficiency Working Group (March 22, 2007).
<http://www.nifc.gov/nicc/predictive/ISROG.pdf>
- **Large Fire Report (209)** standards are in the 209 User Guide authored by the SIT 209 Task Group of the Intelligence Working Group of NPSG.
http://www.fs.fed.us/fire/planning/nist/209_UserGuide.pdf
- **Situation Report** standards are in the SIT User Guide authored by the SIT 209 Task Group of the Intelligence Working Group of NPSG.
<http://www.fs.fed.us/fire/planning/nist/sit.htm>
- **WIMS** standards are in the WIMS User Guide authored by the Fire Weather Working Team of NWCG.
http://www.fs.fed.us/fire/planning/nist/wims_web_userguide.htm
- **FireCode** standards are in the FireCode System User Guide, which includes federal agency specific direction within the guide.
<http://training.firecode.gov/>

There is programmatic guidance for the national dispatching system where interagency systems are in use. However there is not a reportable process of evaluation with set parameters, monitoring, feedback, and improvement of the system on a local, geographic, and national level.

National performance standards for fire reporting in programs, such as FireStat and 1202, cannot be developed for stand alone legacy programs. In August 2006, the NFAEB chartered and signed the Fire Occurrence Reporting System (FORS) Study. The purpose was to study five existing legacy systems and identify common data elements and business requirements. The scope of the project encompasses the data requirements as well as the business needs across the Interagency Wildland Fire community. Until these national standards are in place, dispatchers have to learn multiple different systems for fire reporting with an increased opportunity for error with different data standards.

The implementation of national performance standards for initial attack dispatching is not possible as there are multiple computer aided dispatch systems in use across the nation, and some areas where the process is not automated. As discussed earlier, there are two primary computer aided dispatch (CAD) systems are in use in many locations: WildCAD and Altaris CAD. WildCAD is used principally in Bureau of Land Management managed dispatch offices and in some Forest Service offices; CalFire uses Altaris CAD. The initial attack dispatcher is less versatile to other centers during fire emergencies if they are unfamiliar with the CAD system. Multiple CAD systems create training issues when there is no national standard.

In many instances, the dispatcher is responsible for providing the human quality assurance for data in a fire management system. In a Dispatch Center that processes WIMS/RAWS data for uploading, the dispatcher performs quality assurance as they manually enter new weather observations, edit wet/dry fuels and state of the weather, change or edit existing observations (EOBS) into WIMS, as well as

extracting and reviewing the outputs from WIMS on a daily basis. Having human quality assurance prior to archiving weather observations into NIFMID was a conscious decision by the Fire Weather Working Team and approved by NWCG as documented in the National Fire Danger Rating System Weather Station Standards (PMS 426-3 - revised May 2005). A visual checking of outputs from the station on a regular daily basis assures that the data is reflective of actual conditions.

The key to weather data quality is comprehensive annual maintenance of the weather station by a qualified technician and documented in the Automated Sorting, Conversion and Distribution System (ASCADS) (NFDRS Weather Station Standards, PMS 426-3).

The Predictive Services units at the GACCs and NICC have quality assurance responsibilities to provide oversight to the RAWWS/WIMS system and data as outlined in the newest Final Predictive Services Handbook:

http://www.nifc.gov/nicc/predictive/NPSG/npsg_pdf/PSHandbook_Web.pdf

Other levels of data quality assurance for weather data include an automated oversight system, such as watchdog, which monitors data for errors relating to out of range observations and performance problems from non-functional sensors and a periodic review of data by an Agency/Regional Fire Weather Coordinator. The weather observation data is critical, foundational data that feeds into weather models for fire weather forecasts, Fire Weather Watches, Red Flag Warnings, fire behavior modeling tools, production of pocket cards, NFDRS, and staffing levels that are all fundamental to firefighter safety. The NWCC has implemented a "report card" system for their daily weather observations. The inception of the monitoring report card allows for the tracking of overall performance, which has improved.

Similarly, the Intelligence units at the GACCs and NICC have quality assurance responsibilities over the Situation Report and the Large Fire Report (209) which is foundational information for decision support at all levels of fire management.

The GACCs and NICC also have quality assurance responsibilities in the data integrity and use of ROSS and FireCode as Administrators in the program. Each agencies fiscal management provides oversight.

5.8.14 Other Working Group and Committee Evaluation Findings

The National Fire and Aviation Executive Board (NFAEB) in September 2005 chartered the **eGov Disaster Management Task Group (EDMTG)** to provide recommendations for implementation of Disaster Management within the Interagency 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 required 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.

The March 2006 Report of the eGov Disaster Management Task Group identified findings in the four areas described below:

- **Fire Situation Information** - 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. 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.
- **Historical Fire Information** - 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.

- **Incident Coordination** - The use of Computer Aided Dispatch (CAD) within wildland fire is inconsistent, which could result in decreased efficiency of local dispatch operations. A common approach to computer-aided dispatch would increase efficiency and effectiveness. According to the *Report of the eGov Disaster Management Task Group to the National Fire and Aviation Executive Board*, dated MARCH 31, 2006:

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.

- **Fire Information Systems and Processes** - Core wildland fire data elements are entered multiple times in multiple systems. Eliminating multiple entries of common wildland fire data in multiple systems would reduce errors and inconsistencies and would increase efficiency.

In March 2004, the National Wildland Fire Leadership Council (WFLC) chartered the National Wildland Fire Enterprise Architecture (NWFEA) Steering Group to facilitate the development of the NWFEA program, and to coordinate wildland fire management enterprise architecture efforts of the participating agencies. The NWFEA Steering group's efforts are intended to provide a means for increasing efficiency and eliminating redundancy. The NWFEA program is the protocols that govern the access, use, and maintenance of the architecture. This governance encompasses the processes, policies, structure, roles, responsibilities, investment management, and operations. The objectives of the NWFEA project are to establish a wildland fire enterprise architecture program that:

- Improves effectiveness of business strategic planning, decision making, and prioritization.
- Resolves governance issues in the inter-department/agency environment for management of the Interagency Wildland Fire community.
- Enables the national Interagency Wildland Fire community to deploy and manage its operations as a single line of business of the government.
- Offers a dynamic toolset that identifies the relationships and dependencies of the various wildland fire components including, but not limited to: strategic plans, activities, products, data, services, organizations, and systems. Tools must support industry standard modeling techniques such as UML and IDEF0.
- Provides a methodology for the coordinated improvement of all national wildland fire operations, products, and services.
- Provides a NWFEA repository that serves as the authoritative source for the consolidated national wildland fire EA artifacts used for interagency decision-making.
- Provides a framework to enable interoperability between wildland fire department and agency enterprise architecture programs and repositories.
- Aligns with the federal Enterprise Architecture (FEA) and is clearly linked to the FEA Reference Models.
- Supports the capital planning and investment processes.
- Provides the framework and infrastructure to achieve the highest EA maturity model rating in 5-10 years (Reference OMB's EA Maturity Framework).

The NWFEA has finished their blueprint, and has completed and identified an inventory of all fire systems between the agencies. The NWFEA's next step will be to identify a group to look at the current systems for consolidation.

National Wildland Fire Enterprise Architecture (NWFEA) Project - The National Wildland Fire Enterprise Architecture (NWFEA) project 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. The NWFEA Project will 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 comprised 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 will produce a number of products, including:

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

5.9 Continuity of Dispatch Operations

Continuity of Operations Plan or COOP, defined by the National Security Presidential Directive NSPD 51, is an effort within individual executive departments and agencies to ensure that Primary Mission-Essential Functions continue during a wide range of emergencies, including localized acts of nature, accidents, and technological or attack-related emergencies.

The following mandate continued operations and preparedness:

Federal Preparedness Circular FPC 65 – June 15, 2004 – The purpose of this circular was to provide guidance to Federal Executive Branch departments and agencies for use in developing contingency plans and programs for continuity of operations (COOP). COOP planning facilitates the performance of department/agency essential functions during any emergency or situation that may disrupt normal operations. This circular identifies objectives and planning requirements for viable COOP capability, as well as minimum elements that should be included in a COOP.

National Security Presidential Directive NSPD 51, – May 9, 2007 – Established a comprehensive national policy on the continuity of Government structures and operations. The directive mandated incorporation of continuity requirements into daily operations of all executive departments and agencies. This directive states that “the continuation of the performance of Primary Mission-Essential Functions (PMEFs) during any emergency must be for a period up to 30 days or until normal operations can be resumed, and the capability to be fully operational at alternate sites as soon as possible after the occurrence of an emergency, but not later than 12 hours after COOP activation”.

Both the Forest Service and the Department of Interior perform Emergency Support Functions (ESFs) under the National Response Plan. The NICC, GACCs, and local level Dispatch Centers are responsible for providing safe and cost effective mobilization of resources to all emergencies for their respective agencies. Continued operation of the Dispatch Centers is vital to facilitate the mobilization of resources in the event of any incident or catastrophic emergency that occurs locally, in the Geographic Area, or nationally.

COOPs are part of the evaluation criteria checklists for the BLM, USFS, and BIA preparedness reviews for GACCs and local Dispatch Centers. The centers answer the evaluation criteria with an entry of not reviewed, needs improvement, meets standards, or exceeds standards and a section to offer remarks. Preparedness review teams have the opportunity to examine the COOP, however due to lack of protocol and requirements from agencies in the development of a COOP for dispatch there is no standard guide to follow nor is it a requirement of the preparedness review to perform a drill to test the plan. A preparedness review checklist can be found at:

http://www.blm.gov/nifc/st/en/prog/fire/fireops/preparedness/preparedness_review/policy.html

FPC 65 outlines the need for delegations of authority and orders of succession to federal agencies to ensure rapid response to any emergency requiring the implementation of the COOP. Federal wildland fire agencies play a vital role in the mobilization of emergency resources (personnel and equipment) through their support of the Emergency Support Functions. Dispatch Centers are the agencies primary contact and established identified ordering process of mobilizing these emergency resources. If a Dispatch Center suffers a catastrophic loss, an identified alternate center location should be identified in the COOP so that operations may resume as quickly as possible (short term and long-term/on site & off site) to support the field, incidents, & national mobilization efforts.

A vital piece of any center's operation is electric power. Currently, there is no agency requirement that Dispatch Centers have a back up source of power to maintain operations should their main source of electrical power fail. (There is no directive to have a generator in place). Military surplus generators are available in some areas through private companies who specialize in military surplus equipment or through the military surplus system for the federal government. Leasing/rental is limited depending on size/output needed for radios and building. Wiring and capability of the buildings are an additional cost.

Of 148 Dispatch Centers that responded to the data call, 45.9% (68 centers) of the Tier 2-4 centers do not have an emergency backup generator for the Dispatch Communications Systems in the event of a loss of power. Fifty-four point-one percent (80 centers) do have a backup emergency generator, and 36% have a COOP in place.

Table 66 - Centers with a Backup Generator

Total Number of Centers (NICC, GACCs, and Tier 3 and Large Tier 4 Centers)	Tier 1 and Tier 2 Centers with Generators	Tier 1 and Tier 2 Centers without Generators	Tier 3 and Federal Tier 4 Centers with Generators	Tier 3 and Federal Tier 4 Centers without Generators
2007 Data	5	7	75	61

Impacts can be temporary or long-term depending on the nature of the emergency or catastrophic event with loss of communications to the field and incidents, as well as support to cooperators. Continued operations with radio communications to the field are critical to the safety of field personnel. Significant costs can occur for additional facility, equipment rental, and technical support services.

5.10 Equipment

Equipment, like crews and vehicles, are resources requested and dispatched to incident teams through the Resource Ordering and Statusing System (ROSS), which allows dispatchers to see the status (availability) and location of resources and to place orders for those resources. Tier 1 specializes in processing orders for centralized or national level resources (see partial list below). National Resources are resources that have national utilization, high demand, limited availability, and unique status reporting requirements identified by Tier 1. A listing of all National Shared Resources is available in section 5.3.2 .

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. Varieties of applications use these standard protocols. Fire and dispatch equipment also include communications devices and the aforementioned IT equipment. The following sections discuss the communications assets of the Dispatch Centers and issues about the need for an interagency standard for tracking equipment and vehicle resources dispatched on a “loaner” basis.

5.10.1 Radio and Telephones

The majority of wildland fire communication occurs at the local level between a dispatch office and local response units during initial attack or extended attack operations. Other resources dispatched from an adjoining unit or from a thousand miles away support local response units. Either of these scenarios is common, and requires that communication resources be versatile. Incident team communications are a small fraction of total wildland fire communication traffic and their communications function independently on an infrastructure that is built for their use.

Agency and contractor resources move into and out of a local district, agency, or forest. These resources might access the local infrastructure for an hour (e.g., airtankers, lead planes, smokejumpers, rappel crews) or for multiple days (all manner of resources). The national wildland fire work force moves from locale to locale with little information, typically a resource order listing, a frequency, and a contact name. The ability of the wildland fire agencies to meet their goal of resolving 98% of all USFS incidents and 95% of all BLM incidents in the initial attack phase depends on dispatch teams having unrestricted communications through access to functional communications networks.

Wildland fire communications infrastructure must have the ability to accommodate a wide range of users from disparate Geographic Areas and agencies. The system must have the following functionalities:

- Unrestricted access by all users to local infrastructures. This function is a critical component for dispatch operations such as resource coordination, flight following and logistics management across the country.
- Adequate radio coverage area. Due to topographic conditions, a realistic minimum coverage area is 85% of federal lands in United States. In most areas, current coverage areas are closer to 99%.
- The ability to accommodate the lowest common denominator in terms of the technology used by our cooperators.
- High reliability. The critical nature of wildland fire communications dictates that any system meets failsafe requirements.

Table 67 - Types of Dispatch Center Radios in Use below identifies the different types of radios currently used in the Wildland Fire Dispatch function, and the localities in which they are used. As shown below, there are a number of different types of radio and telephone systems interacting within the Wildland Fire Dispatch system.

Table 67 - Types of Dispatch Center Radios in Use

Make of Primary Radio	Tier 2	Tier 3	Tier 4	Grand Total
AVTEC	-	3	-	3
AVTEC touch Screen	-	2	-	2
Bendix King	-	8	3	11
Catalyst	-	-	3	3
Catylist Radio Over IP	-	1	-	1
Centracom	-	1	-	1
CPI deskset	-	-	1	1
Daniels	-	39	-	39
Datron	-	-	1	1
EF Johnson	-	2	-	2
IDA	-	2	-	2
Kenwood	-	2	-	2
Midland	-	9	-	9
Moducom	13	150	-	163
Motorola	-	54	9	63
Motorola 5500	-	5	-	5
Motorola Centracom	-	9	-	9
Motorola Gold Elite	-	5	-	5
Motorola Quantar	-	12	-	12
Orbacom	-	61	2	63
Ravin	-	6	-	6
RELM	-	4	-	4
Vega	-	8	-	8
Vega C-1610	-	1	-	1
Vega C-6200	-	4	-	4
Vega C-soft	-	4	-	4
Zetron	2	60	2	64
Zetron 4010	-	4	-	4
Zetron 7600	-	3	-	3
Grand Total	15	459	21	495

Radio communication systems for the fire agencies have historically been a stand-alone system. The legacy system has served well in meeting the business requirements demanded by the Interagency Wildland Fire community. Attempts to consolidate with other communication systems have documented failures and resulted in unacceptable risk for providing reliable communication capability for wildland fire. As new technology has emerged, the community has seen a movement to “modernize” office communications to economical Internet Protocol methodology. This methodology combines voice, internet, and phones, but creates the single point of failure.

If the communications system goes down for server, power, or other reasons, access to the legacy radio system is unavailable. These situations result in the Dispatch Center having no communications for flight following, initial attack, issuance of weather and/or red flag updates or dealing with personal or other emergencies.

The wildland fire radio system has moved toward a trunked system. With this kind of system, all users share a pool of frequencies. Users receive a “group id” and field radios are able to receive transmissions for that group’s trunked system. A computer automatically assigns a frequency for users belonging to the same group to communicate with each other.

While this system is a technological advancement, the access restrictions render it unsuited for the wildland fire environment. Trunked systems make no allowances for the mobile nature of the wildland fire workforce, and the need for that workforce to have clear communications across geographic and agency boundaries.

As federal systems continue to become more unique in design, problems arise regarding maintenance, training, operational inefficiencies, and communication with state and local cooperators.

Historically, radio system purchases are based on available center funding. This is not a business rule that is necessarily appropriate for emergency communications center operations. A new approach to systematic radio replacement is required. This approach addresses the issues of the functionality for the emergency services environment, interoperability with field radios, ease and efficiency of repairs and maintenance across a common platform, and simplified training requirements.

According to the OIG report on the DOI Radio Communications Program published in January 2007 (Shown at <http://www.doioig.gov/upload/2007-G-00042.pdf>):

“The U.S. Department of the Interior (DOI) has an unsafe and unreliable radio communications environment that jeopardizes the health and safety of DOI employees and the public. The results of this audit demonstrate that radio communications in DOI are unsafe and unreliable because:

- *The poorly maintained infrastructure poses physical safety hazards, and does not support reliable communications.*
- *The new radio technology adopted by DOI does not effectively meet users’ needs.*
- *DOI has a fragmented radio communications program that fails to connect the two critical components – infrastructure and equipment.”*

In response, according to the DOI FY 2007 Outcome Goals presented in the September 2006 version of the *INFORMATION TECHNOLOGY STRATEGIC PLAN FY 2007 – FY 2012* from CIO Hoard Tipton’s office, the Department planned to complete the following Radio program improvements:

- Complete MOUs with Wyoming and Montana. Initiate MOUs with at least 4 additional states.
- Complete MOU with NIST to perform P.25 compliance testing for the Federal Government.
- Establish initial operating capability of the Radio Technical Services Center.
- Expand radio capital planning to include operations and maintenance, life cycle planning, and project planning.
- Establish initial Architecture for Radio and wireless including Radio over IP.

The Department has also published FY 08 – FY 12 Outcome Goals to achieve the following Radio program improvements. The team recommends accelerating these objectives for an earlier timeframe and in conjunction with the optimization of the Tier 3 and Tier 4 Dispatch Centers:

- Complete the Full Operational Capability for the Radio Technical Services Center.
- Complete the MOUs with states that provide compatible interoperable architectures.
- Complete the Radio and wireless Architecture.
- Complete the blueprints for Fire, Law Enforcement and administrative radio use.
- Complete the migration of bureau radio networks to enterprise services.

The optimization of Tiers and center business processes, locations and staffing will enable Agencies to develop and expedite the implementation of a common platform for radio and telephone communication infrastructures for the optimized organization.

5.10.2 Paging Devices and Cellular Telephones

Typically, a Duty Officer has a cellular telephone for official business. The Center Manger, Assistant Managers, and Emergency Operations Coordinators also have cellular telephones and/or pagers. Table 68 - Pagers and Cell Phones In Dispatch Centers below identifies the number of paging devices and cellular telephones estimated to be available within the Wildland Fire Dispatch system.

Table 68 - Pagers and Cell Phones In Dispatch Centers

Dispatch Equipment Items	# Centers with Pagers	Avg. # of Pagers	# of Centers with Cell Phones	Avg. # of Cell Phones	# of Centers with Satellite Phones	Avg. # of Satellite Phones	# of Centers with DSL or Cable Broadband
Tier 1 NICC & Tier 2 GACCs	-	-	11	9	3	1	8
Tier 3 Centers	42	10	121	6	27	2	30
Federal Tier 4 Centers	1	4	10	2	2	3	4

5.10.3 Equipment Accountability / Tracking

Advancements in technology have created new equipment tracking capabilities not currently utilized by the Wildland Fire Dispatch function. Increased accountability of equipment has potential safety and cost savings. Specifically, placing GPS tags on resources would enable real-time tracking capabilities.

The agencies use GPS tracking technology to track many aircraft. It is a real-time, web-based system. This system changed the methodology of tracking aviation resources and increased safety.

There is an inconsistency in current business practices. The use of GPS for flight following is not currently mandatory for agency or contract aircraft nor for agency dispatchers. Where aircraft do not use this GPS tracking system, the dispatchers conduct radio checks every 15 minutes (or other agreed upon timeframe) for tactical missions.

Other countries are using GPS technology to track all wildland fire resources from aviation, overhead, and equipment in real-time. For example, Canada uses a system called "Dispatch". Other countries such as Spain use GPS technology tracking devices housed in each firefighter's hard helmets for real-time tracking or their location. Other examples:

- Automated Flight Following is on line and well established within the fire and aviation communities.
- Canada uses a GPS tracking system on staff and equipment for fire fighting with positive results.
- The Transportation Safety Administration (TSA) is evaluating several options for the real-time tracking of HAZMAT carrier vehicles. A detailed analysis of these options is available at <http://www.sys.virginia.edu/accelerated/accelerated.pdf>. This is a report by the University of Virginia Systems Engineering Department for the United States Department of Homeland Security entitled *National Hazardous Material Commercial Vehicle Tracking System Study*, dated May 2006. While some of the recommendations are in excess of the needs of the Interagency Wildland Fire community, the analysis is relevant.
- MES - Virginia Company has a GPD MIC that can adapt to Bendix King that can be used to track radios via the web of a price of approx. \$400.
- Bitterroot National Forest in Montana did a two-month test in 2004. They used the existing Forest Service AFF program to track their forest's wildland fire resources.

5.11 Staffing Analysis of As-Is Organization

5.11.1 Types of Positions

The tables in the following sections display the types of personnel involved with dispatching and Predictive Services activities by national and Geographic Area.

5.11.1.1 Government Personnel – Permanent Positions

Permanent positions for which there is work required all year are full-time. Permanent personnel at the field level of the Dispatch Centers are those that manage and maintain the various Centers' facilities and equipment during the year. Employees are available for assignments that may require them to work overtime (see Table 69 - Average Hours of Overtime Reported by Center Employees for 2006 below) beyond the normal schedule of work and beyond regularly scheduled workdays.

For purposes of this assessment, the staffing of Federal employee positions is expressed in terms of annual productive work hours (1,776) rather than annual available hours that include non-productive hours (2,080) hours. The annual productive hours exclude annual leave, sick leave, administrative leave, training and other non-productive hours.

Table 69 - Average Hours of Overtime Reported by Center Employees for 2006

	Tier 2 - GACC Locations Only	Tier 3 and Tier 4 - Local Federal Dispatch Centers	All Tier 2-4 Centers in the Geographic Area
Total Average	270.99	252.27	249.62

5.11.1.2 Government Personnel – Career Seasonal

Career seasonal positions that are full-time for the periods worked are continually on the Forest Service or DOI rolls, maintain career status, and receive regular benefits. These employees are required to work the minimum number of pay periods specified for their position, but may work additional pay periods based upon the needs of the Forest Service or DOI. There are a significant number of career seasonal employees working during the fire season both as firefighters and as dispatch support personnel to firefighting. This group includes a majority of the first line and Tier 2 level dispatchers and the Tier 2 level Predictive Services professionals that have completed the extensive training and receive refresher training each year. The USFS and DOI may extend the number of pay periods these employees work so they can assist with other Forest Service or DOI missions outside of dispatch, but that time is outside the scope of this review.

5.11.1.3 Government Personnel – Temporary and Administratively Determined

A temporary employee works between 16 and 40 hours each week on a prearranged schedule but does not have career status. Temporary employee appointments do not exceed 1039 hours in one fiscal year. Hiring of these employees occurs during each fire season to meet the needs of the dispatch mission.

5.11.1.4 Government Personnel – Permanent (Dispatch Activities as Collateral Duties)

A large number of full-time employees with the Forest Service and DOI have assigned positions for the majority of the year but also perform duties related to this review during the fire season. Many of these personnel devote a small percentage of their total time to dispatch activities and are an integral part of the mission fulfillment. The staffing data call captured this dispatch activity workload.

5.11.1.5 Contract Personnel - Contractors

An individual who works for a private sector company that is hired on a temporary or permanent basis to perform dispatch activities is a contractor.

5.11.2 Results of Staffing Data Call

The interagency Dispatch Centers at all levels of the Forest Service and DOI Bureaus completed an initial data call that identified 4,545 individuals that had some degree of work responsibility and effort associated with interagency dispatch. Of these individuals, 3,706 were identified as federal employees (this includes AD personnel) and 839 were identified as other (i.e., state, local, and county employees). A total of 1,688 individuals responded to the initial data call. This total included 841 permanent or temporary personnel and 506 designated Militia personnel.

The team evaluated all of the individual responses and determined that 141 of the permanent and temporary employees were actually militia employees due to the small percentage of time they devoted to dispatch activities and position titles not relevant to dispatch. It was determined that the appointment type of an individual's position did not warrant consideration. The workload reported by the individuals associated with performing dispatch activities was captured.

Table 70 - Summary of Permanent Staff within the Assessment reflects the revised total number (860 Permanent and Temporary) of non-militia positions considered within this review, as reported by the Center Managers surveyed, and their breakdown by type of appointment and location. As shown in the table, the number of FTEs is less than the number of positions as many personnel (Seasonal and Temporary) work a part of the year rather than the full 1,776 hours used to calculate the FTE. For example, expanded dispatch personnel may only work during the fire seasons. Additional information is available in Section 5.5

Table 70 - Summary of Permanent Staff within the Assessment

Dispatch Level	Permanent and Permanent Seasonal			Temporary		Number of Locations
	Number of Positions	Number of FTE	Number of Locations	Number of Positions	Number of FTE	
NICC Total	24	21.46	1	-	-	-
Alaska Area Total	31	19.62	4	3	2.40	3
Eastern Area Total	30	29.50	12	3	1.50	3
Eastern Great Basin Area Total	86	71.88	12	18	7.76	6
Northern Rockies Area Total	82	69.91	17	9	4.01	8
Northwest Area Total	115	95.45	24	15	8.15	6
Northern California Area Total	84	81.00	10	1	0.50	1
Southern California Area Total	116	112.69	11	-	-	-
Rocky Mountain Area Total	62	54.04	11	3	1.50	1
Southern Area Total	61	56.76	22	-	-	-
Southwest Area Total	69	63.62	12	-	-	-
Western Great Basin Area Total	42	33.65	6	6	3.17	2
TOTAL	802	709.58	142	58	28.99	30

The number of positions and full-time equivalents for each of the component of the single Business Area is identified in the As-Is discussion of the respective sub-area.

The responding dispatchers allocated a percentage of time for each of the various dispatch-related functions based upon what work the individual in the position is performing. If a position was a seasonal full-time, then the percentages were applied for the fractional FTE that the seasonal employee worked. A large percentage of the individuals perform in dispatch-related functions. For example, an individual's time may be divided 45 percent to dispatching resources, 25 percent to

predictive services, and 30 percent to wildland fire intelligence gathering or training of others. Since many individuals are assigned to dispatch related duties, and have additional duties within the Forest Service or DOI that are not related to dispatch or Predictive Services activities, their time is identified as “out-of-scope” and therefore not included in the review. (Out-of-scope activities would include such duties as biology or zoology activities, timber sales or harvesting activities, finance or accounting activities, visitor center operations, etc.) Figure 71 – Breakout of Functional FTE as Reported by Employees at Federal Dispatch Centers and Figure 72 - Functional Breakout of All Reported Functions show a summation of the FTEs by the dispatch-related components and the amount of non-dispatch “out-of-scope” FTEs.

Figure 71 – Breakout of Functional FTE as Reported by Employees at Federal Dispatch Centers

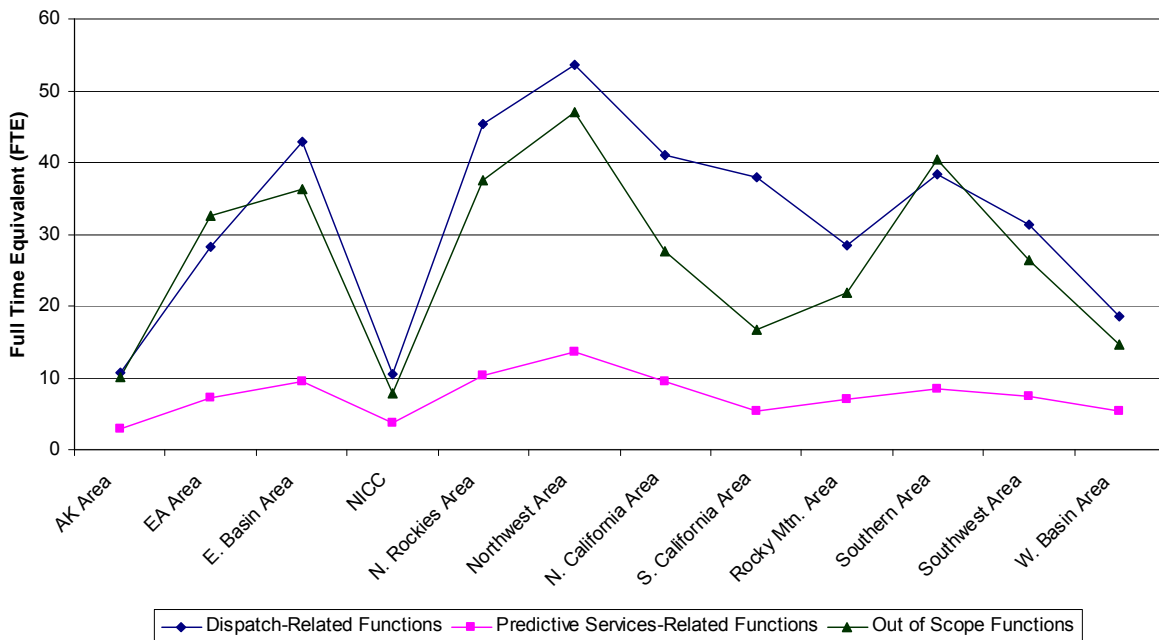
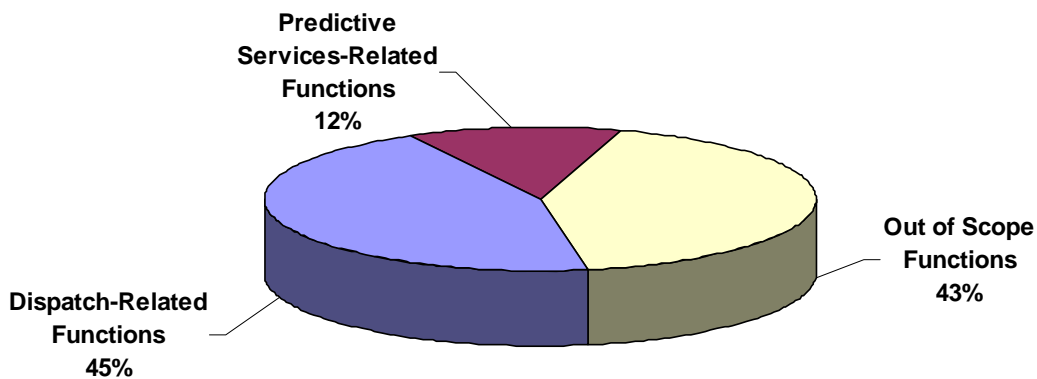


Figure 72 - Functional Breakout of All Reported Functions



The following tables display the total FTE of Full Time, Part-Time, Militia, AD and Contractor personnel by national and Geographic Area, including both permanent and temporary personnel. Table 73 - Total FTE at Tier 1 and Tier 2 (Includes Vacancies) includes the full-time and part-time positions as reported by the Center Manager, whereas the FTE for the militia, AD, and contractor positions represents the figures as reported by the individual data call responses received. Figure 74 - Distribution of FTE by Appointment Type for Tier 1 and Tier 2 Centers below shows that 70% of the FTE at Tier 1 and Tier 2 centers are full-time federal employees, compared to the 40% at federal Tier 3 and Tier 4 centers. Figure 76 - Distribution of FTE by Appointment Type for Tier 3 and Tier 4 Centers shows that the 51% of the federal Tier 3 and Tier 4 center FTE are supplemental AD, contract, or militia employees and 9% of the FTE are part-time.

Table 73 - Total FTE at Tier 1 and Tier 2 (Includes Vacancies)

FTE by NICC/GACC	Full-Time*	Part-Time*	Militia	AD
NICC Total	17.00	4.46	9.19	0.00
Alaska Area Total	5.00	7.15	1.00	0.00
Eastern Area Total	7.00	0.00	3.00	0.00
Eastern Great Basin Area Total	10.00	0.50	5.00	0.00
Northern Rockies Area Total	7.00	2.61	0.00	0.66
Northwest Area Total	9.00	1.50	0.00	0.39
Northern California Area Total	16.00	1.50	2.00	0.00
Southern California Area Total	15.00	0.00	0.13	0.92
Rocky Mountain Area Total	9.00	0.50	6.09	0.00
Southern Area Total	7.00	0.00	1.14	0.00
Southwest Area Total	10.00	0.00	4.31	0.00
Western Great Basin Area Total	10.00	0.00	2.00	0.00
Total	122.00	18.23	33.86	1.97

*As reported by Center Manager and does not include state personnel or staff from other federal agencies.

Figure 74 - Distribution of FTE by Appointment Type for Tier 1 and Tier 2 Centers

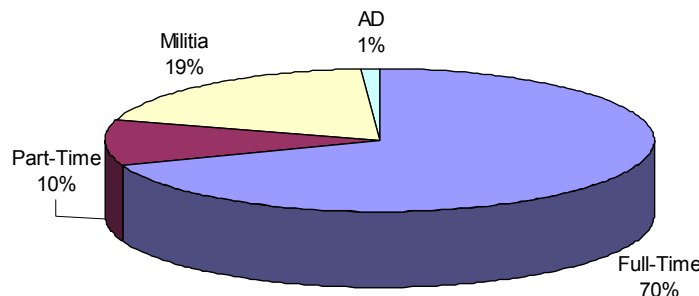
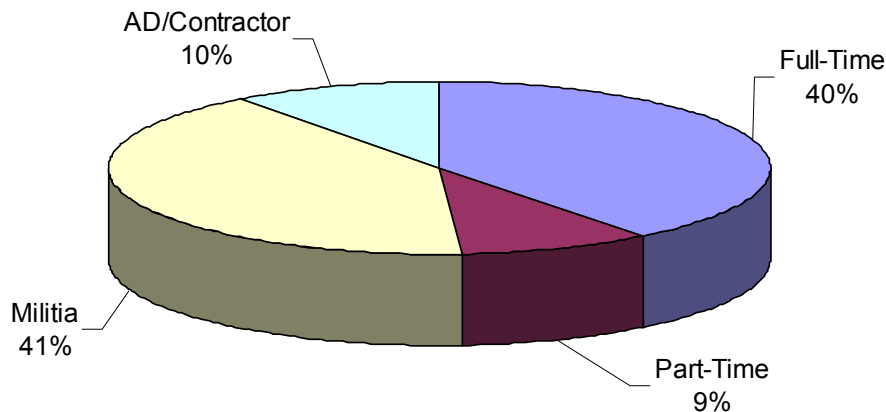


Table 75 - Total FTE at Tier 3 and Tier 4 (includes vacancies)

FTE by Geographic Area	Full-Time	Part-Time	Militia	AD	Contractor
Alaska Area Total	4.00	10.97	2.84	0.00	0.00
Eastern Area Total	51.07	3.00	79.32	14.68	0.15
Eastern Great Basin Area Total	50.26	27.46	56.39	4.79	0.05
Northern Rockies Area Total	52.70	21.99	48.84	4.00	0.00
Northwest Area Total	64.32	28.25	86.07	27.02	0.27
Northern California Area Total	48.28	1.00	38.76	8.00	0.08
Southern California Area Total	52.81	0.00	24.81	10.91	0.00
Rocky Mountain Area Total	36.26	9.00	43.35	9.17	0.09
Southern Area Total	75.94	3.00	74.20	19.46	0.00
Southwest Area Total	48.23	7.00	46.88	22.98	0.00
Western Great Basin Area Total	19.73	7.96	17.11	9.00	0.00
Total	503.60	119.63	518.57	130.01	0.64

Figure 76 - Distribution of FTE by Appointment Type for Tier 3 and Tier 4 Centers



Militia personnel were identified through the course of the review. The Militia is a large number of Forest Service or DOI personnel who have multiple responsibilities and are trained and available to respond to wildland fires. They are available for both firefighting and Dispatch-related support anywhere in the federal protection areas and maintain their qualifications as required. Militia personnel may be permanent or temporary employees. If their primary responsibility was dispatching or Predictive Services (including local intelligence gathering), but still had major “out-of-scope” responsibilities they were retained within scope.

An example of a permanent Militia is a Wildlife Biologist with 35 percent of their time devoted to the Dispatch/Predictive Services Business Area and 65 percent to “out-of-scope” Forest Service or DOI duties. Other permanent Militia includes Aviation Dispatcher, Purchasing Agent, and Helicopter Managers.

An example of temporary Militia is Wildlife Biologist assigned for 10 days with 5 percent of their time devoted to the Expanded Dispatch function and 95 percent devoted to “out-of-scope” Forest Service or DOI duties. Table 77 - Summary of Militia Personnel Participating in Dispatch-Related Activities reflects the total FTE of Militia personnel that are participating in Dispatch-related Activities:

Table 77 - Summary of Militia Personnel Participating in Dispatch-Related Activities

Geographic Area	Permanent - Militia		Temporary - Militia	
	Number of Positions	Number of Work* Locations	Number of Positions	Number of Work* Locations
NICC	12	1	-	-
Alaska Area	4	4	1	1
Eastern Area	97	22	2	2
Eastern Great Basin Area	79	14	2	2
Northern Rockies Area	49	13	1	1
Northwest Area	99	25	4	4
Northern California Area	49	12	-	-
Southern California Area	27	10	-	-
Rocky Mountain Area	54	13	3	3
Southern Area	91	33	1	1
Southwest Area	58	17	-	-
Western Great Basin Area	14	6	-	-
TOTAL	633	170	14	14

*Work locations are the Dispatch/Coordination Centers where militia personnel were assigned in CY 2006.

Table 78 - Number of Personnel Performing Dispatch-Related Activities (Militia/Non-Militia) reflects the number of Militia versus Non-Militia personnel performing dispatch-related activities:

Table 78 - Number of Personnel Performing Dispatch-Related Activities (Militia/Non-Militia)

NICC / GACC	Militia		Non-Militia		Number of Work* Locations
	Number of Positions	Number of work* Locations	Number of Positions	Number of FTE	
NICC	12	1	24	21.46	1
All GACCs	28	9	129	118.77	11
TOTAL	40	10	153	140.23	12

*Work locations are the Dispatch/Coordination Centers where militia personnel were assigned in CY 2006.

Administratively Determined (AD) personnel were identified through the course of the review. This amounted to 49.63 AD FTE identified by the responding dispatchers. The AD staff is a large number of non-federal personnel who are cross-trained and available to respond to wildland fires on a short-term special-hire program basis. They are available for both firefighting and Dispatch-related support anywhere in the federal wildland fire system and maintain their qualifications when required. The workload of these AD personnel is in-scope of this review.

Table 79 - Summary of AD Personnel Participating in Dispatch-Related Activities

NICC / GACC	AD Dispatchers Support Staff		
	Number of Positions	Number of FTE	Number of Locations
NICC Total	-	-	-
Alaska Area Total	1	0.08	1
Eastern Area Total	28	4.75	17
Eastern Great Basin Area Total	19	3.14	9
Northern Rockies Area Total	18	3.79	12
Northwest Area Total	54	12.63	21
Northern California Area Total	13	2.65	6
Southern California Area Total	21	6.60	8
Rocky Mountain Area Total	9	0.77	8
Southern Area Total	35	5.52	11
Southwest Area Total	38	9.44	13
Western Great Basin Area Total	5	0.26	2
TOTAL	241	49.63	108

Table 80 - Number of Personnel Performing Dispatch-Related Activities (Federal/AD) reflects the number of federal (regular) staff versus AD personnel performing dispatch-related activities:

Table 80 - Number of Personnel Performing Dispatch-Related Activities (Federal/AD)

NICC / GACC	Federal			AD		
	Number of Positions	Number of FTE	Number of Locations	Number of Positions	Number of FTE	Number of Locations
NICC	36	21.46	1	-	-	-
All GACCs	157	118.77	11	4	1.97	3
Total	193	140.23	12	4	1.97	3

**The Federal FTE includes only the full-time Federal employees, not the militia employees.*

There are no federally funded Contractor personnel currently working as dispatchers or in Predictive Services functions in the federal dispatch system.

5.12 Contracts for Dispatch Related Services

The wildland fire dispatching community does not have a history of regularly utilizing contractors for dispatching, expanded dispatching, predictive Services, or airspace coordination (exclusive of AD and Militia personnel). At least one state-managed local Dispatch Center (Grants Pass Interagency Dispatch Center) is partially federally funded (facility costs only) and staffed with two Oregon Department of Forestry employees and a number of part-time contract dispatchers. The contract for operations of the former Hanford, WA plutonium manufacturing installation (now rehabilitated) contains a requirement for the installation's caretaker contractor to serve as the Fire Dispatcher and first responder for incidents within the installation boundaries. Fire teams have used contractors and contract crews on the fire line regularly, and make use of contracted catering and lodging services.

5.13 Stakeholders

Decisions resulting from this review will affect Forest Service and DOI employees, other agencies, government entities, and the public. Joint agreements with stakeholders influence interagency dispatch programs. Fires do not conform to geographical, political, or ownership boundaries. Therefore, it is essential that all agencies with firefighting resource management and dispatching capabilities work together.

Fire incidents are controlled by the responsible agencies on the ground and through coordination and direction from the National Interagency Fire Center (NIFC) in Boise, Idaho. Actions or decisions made by the Forest Service and DOI Fire Management Organizations have the potential to affect stakeholders. The following is a list of stakeholders:

- **Cooperator States** - In the mutual interest of wildland fire control, these states work with various stakeholders within their states and interact regionally and nationally with their interagency partners. They use many of the same contracted aviation assets and contractors that are used by the Forest Service. State organizations include:
 - Local Fire Chiefs, Supervisors, Managers
 - National Guard
 - Committees – Northeastern Area State Aviation, Southern Group of State Foresters Aviation Committee, and Western Area State Aviation Committee (all fifty states)
 - Western Governors Association
 - National Association of State Foresters
- **Stakeholders Sharing Responsibilities and Assets Include:**
 - International – Canada, Mexico, Australia, and New Zealand
 - Fire Compacts (shared resources)
 - Fire Mutual Aid Agreements between the Forest Service and other wildland firefighting organizations
- **Other stakeholders that are indirectly impacted by the decisions and future of the Interagency Dispatch activities are:**
 - Local Governments
 - Tribal Governments
 - Fish and Game commissions
 - Aviation Industry including contractors
 - Timber protection associations (private partners)
 - Air quality districts
 - Watersheds

- **Other federal agencies that are stakeholders with the interagency dispatch activities.**
 - DoD – Aircraft support, MAFFS (airtankers), active uniformed military services, National Guard and Reserve components
 - Federal Aviation Administration
 - Department of Homeland Security
 - Federal Emergency Management Agency
 - Transportation Security Agency
- **Educational, research, and organization activities that are stakeholders:**
 - Academia (Fire management instruction and special related degree programs)
 - United States Agency for International Development (USAID)
 - Forest Service Research Stations
 - National Fire Protection Association (NFPA)
- **General Public.** The general public is a major stakeholder with the Forest Service and DOI. They utilize forests and grasslands for recreation and are property owners adjacent to or surrounded by National Forests/Grasslands and the National Parks, National Monuments, National Recreation Areas, and other federal and Tribal properties.

6 Assessment Recommendations and Options

6.1 Optimized Coordination

Wildland fire conditions are becoming increasingly complex requiring a much higher coordination of safe, efficient, and effective use of firefighting resources during wildland fire and all-hazard incidents. Optimization of Centers and identification of redundant coordination Dispatch Centers should be examined in a more consistent approach to staffing, workload, and decision-making. The increased use of technology, with the incorporation of changes to existing computer programs will ensure future coordination of resource support for interagency operations.

Recommendation - The Fire Executive Council (FEC) will appoint a team within 6 months to evaluate and recommend changes in missions, appropriate workload levels, areas of responsibility and identify logical consolidations where appropriate. In coordination with State and Agency administrators, the findings will be reported back to the FEC by MAY FY10. The team composition should include agency Leadership, staffing subject matter experts, and external consultants.

Discussion:

The study team should review:

- Local Tier 3 Dispatch Centers and Tier 2 GACC facilities, equipment, and staffing necessary to support larger coordination and mission opportunities.
- Consider logistical support attributes such as natural features (Grand Canyon, continental divide, and rivers), etc.
- Review the mission, scope, or location for the National Interagency Coordination Center (NICC).
- Reflect changes in technology and business processes. It is paramount that the tier system is tied to critical decision-making layers in each organization that are able to acquire appropriate information and data to support the area of influence with which they are associated.
- Discuss end-to-end reporting to tie the movement of intelligence and data through new recommended systems that eliminate redundancy and have the ability to provide real-time reports and queries.
- Discuss the concept of a national standardized "Neighborhood Policy" between Tier 3 centers. (The Neighboring Dispatch Centers concept allows a request of resources directly from a neighboring center for all incidents including: initial attack, extended attack, on-going large fire support, and for all-risk events.
- Review the potential requirements of a new ROSS-type and Computer Aided Dispatch (CAD) applications and provide resource recommendations based on new business process rules to provide increased visibility of available resources by type, current location, and owner and the closest available resources ranked by cost of resources and visible to other dispatch area offices.

Recommendation - It is recommended that the FEC appoint a study team to define the Dispatch / Coordination Center Workload/Staffing Mixes and implement their findings and recommendations as is feasible.

Discussion - This should include roles and responsibilities to project an initial staffing model based on local and national workload, and technology changes to include review on a cyclical basis.

6.1.1 Tier 2 GACCs

Currently, there are eleven Tier 2 Geographic Areas that essentially follow the Forest Service Regional boundaries, often splitting states between more than one Tier 2 GACC (e.g. the state of Idaho). The current structure of Tiers has been in effect since the early 1970s. The team conducted preliminary analysis for the Tier 2 and Tier 3 levels. For the Tier 2 level, the team analyzed the number of fires and acres, quantity of resource requests processed, the number resources available, and the number of Tier 3 or 4 units within the Tier 2 GACC (taken from the data call) as the primary workload indicators for Tier 2 GACC staffing and areas of coverage.

Recommendation - (FEC) establish a study team to review criteria, such as fire regimes and state social and political relationships, resource order workload associated with each state, the average of the current workload determined a representative value per state within each Geographic Area.

Discussion - Currently, there are 157 GACC positions occupying 143 FTE spaces in the 11 GACCs. Based on the Data Call Figure 81 – Model GACC Organizational Structure represents the concept of a large multi regional GACC.

Figure 81 – Model GACC Organizational Structure

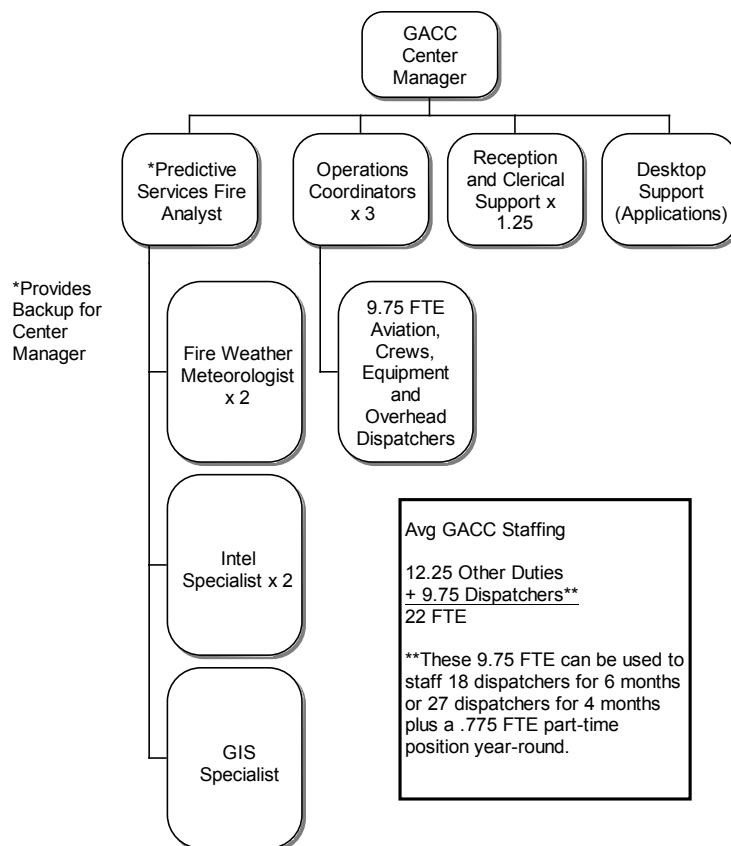


Table 82 - Example Concept of a Tier 2 Center Footprint

Proposed Tier 2 GACCs	Proposed Positions	Proposed GACC Dispatch sq. ft. Per Position	Resulting sq. ft. per GACC
1 – Full-time	18	300	5,400
1 – Surge/Seasonal	22	200	4,400
2 - Full-time	18	300	5,400
2 – Surge/Seasonal	22	200	4,400
3 - Full-time	18	300	5,400
3 – Surge/Seasonal	22	200	4,400
4 - Full-time	18	300	5,400
4 – Surge/Seasonal	22	200	4,400
5 - Full-time	18	300	5,400
5 – Surge/Seasonal	22	200	4,400
Total	200	Total Dispatch SF	49,000

The concept GACC assumes the full-time staff will require larger work areas, teaming areas, break areas, storage and reference areas, etc. vs what is provided for the seasonal staff who come and go during the year.

6.1.2 Methodology for a Tier 3 Concept Center

The team conducted analysis using the information collected from Dispatch Centers in the data call. These centers range from low complexity centers with a light workload to high complexity centers with heavy workload. The team's objective was to determine the baseline range relative to size, staffing, workload, and area of responsibility for an interagency Dispatch Center that performs initial attack and large fire support. The team also took into consideration a number of centers that have consolidated within the past 5-10 years.

The Southern and Eastern Geographic Areas are unique in the organization of Tier 3 centers and the existence of a significant number of centers at the Tier 4 level. Many of the Tier 4 centers in these areas focus primarily on law enforcement activities, with only a small amount of fire workload. At the Tier 3 level, centers primarily provide logistical support with only 50% conducting initial attack operations. In the eastern United States, consideration is given to the significant operational differences between east and west Tier 3 and Tier 4 centers. One key difference is the predominance of state and private jurisdictions and their associated relationships.

6.1.2.1 Sample Results of a Tier 3 Concept Center

The team's analysis resulted in the recommendation that Tier 3 centers be configured based on moderate and high complexity. The team analyzed several examples where two to three low to moderate complexity Dispatch Centers are located within a 100 mile radius of each other. The concept model is to form one center that will then fall within the range of a high complexity center.

Conceptual centers whose workload falls below the established range will be evaluated to determine the validity of remaining a stand-alone center. Such an evaluation would consider certain factors to include area of coverage, geography constraints, radio communication coverage, and proximity to other centers.

The following charts illustrate the complexity criteria used and an example of logical center concepts envisioned by the team.

Table 83 - Concept Center Complexity Criteria

Optimized	FTE Per Site	SF/FTE	SF Bldg	Percent of Total Sites	Number of Sites	Total SF of Sites	Total FTE
Large Center	10	425	4250	20%	17	73,950	174
Medium Center	6	425	2550	40%	35	88,740	208.8
Small Center	3	425	1275	40%	35	44,370	104.4
					87	207,060	487.2

Table 84 - Example only of a Concept Center

Center EXAMPLE ONLY	FTE	Resources Managed	Radio	Exp Dispatch	Type 1&2 Teams	Type 3 Teams	Resources Dispatched	Fires	Sq. Feet Disp Area
Moab	3.5	220	4	0	0	0	1700	226	1972
Grand Jct	4.5	421	3	7	0	7	1153	485	4600
Montrose	4	334	3	14	1	6	457	115	1130
Total	12	975	10	21	1	13	3310	826	7702
Optimized Large Tier 3 Model	10	1000+	7+	100+	5+	15+	3000+	400+	4250
Optimized Mid-range Tier 3 Model	6	750	5	50	3	5	1500	200	2975
Optimized Low-range Tier 3 Model	3	400	3	10	1	3	500	100	2125

Figure 85 - Graphical Display of Consolidation Example Scenario 1

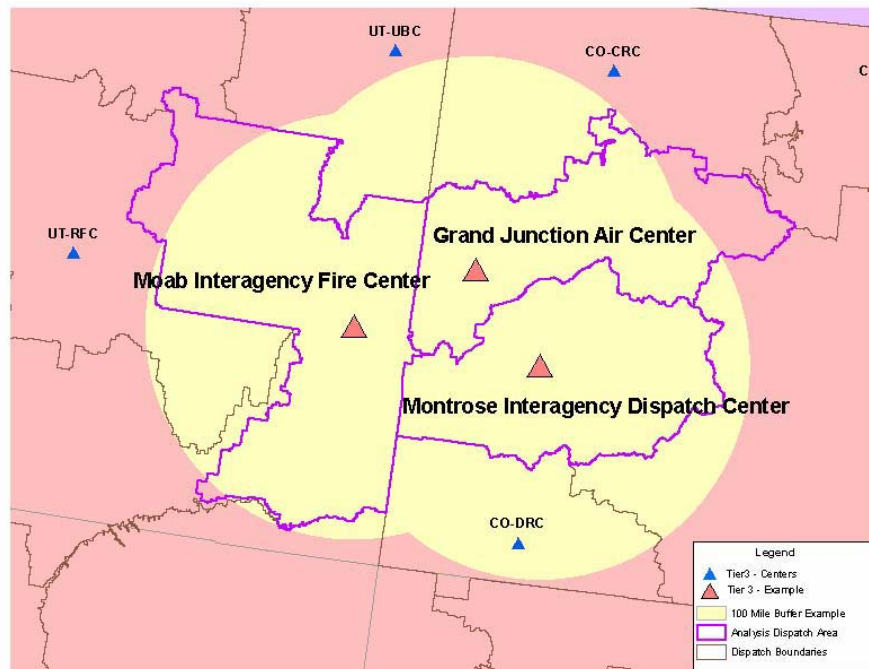
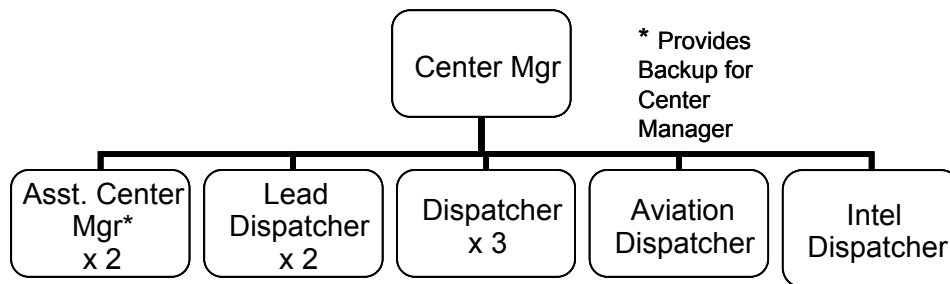


Table 86 - Concept Example Scenario 2

Center	FTE	Resources Managed	Radio	Exp Dispatch	Type 1&2 Teams	Type 3 Teams	Resources Dispatched	Fires	Sq. Feet Disp Area
Optimized Large Tier 3 Model	10	1000+	7+	100+	5+	15+	3000+	400+	4250
Optimized Mid-range Tier 3 Model	6	750	5	50	3	5	1500	200	2975
Optimized Low-range Tier 3 Model	3	400	3	10	1	3	500	100	2125

Figure 87 - Recommended Model Tier 3 Concept Example Organization Chart

Model Large Tier 3 Dispatch Center Organizational Structure**



Model Large Tier 3 Staffing

7 Permanent Staff
+
3 Dispatchers*
10 FTE

These 3 FTE can be used to staff 6 dispatchers for 6 months or 9 dispatchers for 4 months, depending on length of the Center's fire season and resource deployment season.

6.1.3 Performance Standards and Metrics

Any review should include performance standards and metrics that could be implemented across all Tiers of the dispatch coordination system and be in line with the strategic goals of the wildland fire agencies. The incorporation of standard performance measures and metrics into the performance evaluations of individual employees would ensure an understanding by the employee and used for evaluation by the supervisor.

System capability, accuracy, and performance should also be reviewed to monitor products and services provided by the dispatch function. The initial metrics might include conducting and

maintaining weather observations and the Situation Report. The current lack of integrated interagency programs prohibits the establishment of a quality assurance program.

The dispatch/coordination/Predictive Services system is a mixture of time limited reports, performance expectations, and services. A review of the system monitoring, evaluation, and feedback from stakeholders and managers would improve organizational performance. This should include an IT system evaluation by the respective agency's portfolio managers on ease of use, value added inputs, complexity of data entry and data management, availability, and user feedback. Dispatch/Predictive Services reports and products would be evaluated for timeliness, accuracy, confidence factors, and value added through customer user assessments.

The following are examples of a portfolio management review:

- Monitoring the management of RAWS network (including annual maintenance compliance) and the timeliness of processing weather observations. Fire weather forecasts, large fire potential products, and decision support relating to the safety of firefighters and the public, preparedness, and allocation of resources use the information. Performance increases with monitoring, analysis, and identification of opportunity areas for improvement.
- Monitoring of the Situation Reports for timeliness and accuracy is foundational in improvement of decision support for fire management. Monitoring holds units accountable for providing best available information into the process.
- Identify opportunities for additional performance standards, metrics and process in the areas of initial attack response, incident support and associated workloads for management approval and implementation. Other areas of opportunity for performance measures are, but not limited to:
 - Cost of actual operations compared to budget.
 - Maximum utilization of existing staff at the center, keeping overtime within established ranges for normal, moderate, and high workloads.
 - Number of incident responses, number of resource requests processed (including UTFs and cancellations), and accuracy of availability.
 - Average response times to the above.
 - Response times (FTE to Workload ratio).

6.1.4 Quality Assurance – Dispatching Activities – Recommended Option

Integrate performance standards into the national and Geographic Area mobilization guides. Include standards and metrics in the Operating Plans for all centers as well as employee performance evaluations. Implement standard position descriptions for the local Dispatch Centers, the GACCs, and the NICC. Collect new performance data for each Center at the GACC, then compile and distribute to the field units, NICC, and Board of Directors from those locations. The Predictive Services units will monitor the RAWS/weather observations, maintenance, and the situation report.

Center Managers at the local Dispatch Centers, the GACCs and NICC will analyze the Quality Control reports in conjunction with Board of Directors, and fire management. Standard reports will be agreed upon by National Coordinators. Their new QC reports will be evaluated periodically (weekly) and provided to Units for real-time improved performance. Monthly and yearly reports will be provided to all levels of system.

6.1.5 Quality Assurance – Predictive Services Activities – Recommended Option

Weather data and situational reporting has identified performance measures monitored by Predictive Services units with corrective actions by Center Managers. The Center Managers at the Tier 2 GACC will analyze the Quality Control (QC) data for Centers within each GACC area by standard reports developed by QC analyst. The NICC Center Manager and the Predictive Services staff analyze the QC data for Tier 2 GACCs. Analysis and reports will be shared with Center Managers and Board of Directors to address expectations and system performance.

6.2 Appropriate Workload and Staffing for Optimized Concept Centers

An optimized dispatch organization will have offices staffed appropriately with clearly defined geographical coverage area responsibility. Proper staffing avoids fatigue, reduces the need for ADs and militia; reduces supervisory costs; and reduces lease space costs. The reduction in the number of GACCs reduces redundant overhead positions, i.e., a consolidation of centers where opportunities exist would create larger, more cost effective operations.

- In order to meet the current workload, dispatchers averaged 252 to 271 hours of overtime in 2006.

Agencies will benefit from a detailed study of the workload of the:

- local initial attack and extended attack dispatching/resource order process
- administrative support tasks directly related to this process,
- the reallocated duties left at centers from the functional centralization (e.g., finance, IT, HR, etc.) taking place in many agencies.

A study team (appointed by FEC) would analyze and document the most appropriate dispatch/ordering workload and the processes that will be in place to handle the distribution of internal and external administrative workload being assigned to dispatch units.

As noted in Section 5.2.3.3 , center employees reported that they spent an average of 43 percent of their time performing duties other than those specifically related to Dispatching or Predictive Services. Agencies will similarly benefit the workload study's analysis of the accretion of duties that have resulted from changes to agency business practices. In addition to reallocated work described above, the dispatchers now process greater amounts of documentation related to their increased need for supplies and services from cooperators, local government and contractors to ensure efficiency in workload and process.

The results will be an efficient dispatch system with pre-identified workload and streamlined processes for administrative support of fire operation. Other externally driven (non-dispatch related) reallocated workload placed in the now optimized organizations will be properly staffed or moved out of dispatch offices. The Agency sponsors of the non-dispatch related administrative taskings will work together to develop the least impact solutions on the dispatch community that will permit the agencies to be staffed adequately for emerging issues and new complex fiscal and fire management procedures. Implementation of the study team recommendations would ensure an efficient process, and that reduces overtime to an acceptable level.

6.3 Alternative Governance/Funding Structures for Tier 1 and Tier 2 Centers

6.3.1 Policy Change Requirements

In order for the Wildland Fire Leadership Council to coincide with the study team approved recommendations will issue new policy direction that the wildland fire governance structure in place at the national level will be followed at all Tiers. This will be even more critical for optimization of centers where representation of land management agencies will be increased. Each agency will have one representative with one vote in decision-making. Agencies will need to coordinate among themselves for members to represent them.

6.3.2 Funding Process Restructuring

Based on the new Governance procedures promulgated above, and the staffing requirements for all centers developed through the concept optimization process (see 6.1 above) new apportionment of costs of operations will be developed. It is critical that the funding challenges be addressed through implementation of the newly optimized population of Tier 1 through Tier 3 Centers. Equity and parity must be the goals of any new funding schema.

At the completion of a follow-on (i.e., separate) Governance / Funding FEC Study, the cost of performing each dispatch-related activity (task) at each center will be calculated using an accepted costing technique, such as activity based costing (ABC). The funds required to support the direct and indirect labor personnel associated with the dispatch-related activities will be calculated using the projected year-round and seasonal workload at each Tier 1, Tier 2, and Tier 3 Center (e.g., based on a five-year rolling average task count). This funding requirements calculation model will permit dynamic requirements to be estimated annually based on the workload projections for the center (e.g., task-unit cost x estimated task count = estimated funding required).

The funding of the interagency wildland fire Dispatch Centers and Coordination Centers is to be simplified, stabilized and leveled. Funding requirements for the work of the Tier 1 (NICC) and Tier 2 (GACCs) Centers will be determined and allocated nationally from a centralized source of multi-agency funding.

A detailed analysis of the cost per work item, the projected workload, and the minimum funding requirements is to be developed. Each Sponsoring Agency will be required to staff its portion of each office for which it has funding responsibilities. Cooperative Agency Sponsor/Center Management teams will manage staffing levels for the NICC and the remaining Tier 2 GACCs using a centralized interagency cost pool.

Development of a national minimum baseline staffing for Tier 3 Dispatch Centers using industry standards will enable Dispatch Centers to be treated like any other tactical resource with a standard staffing module based on a seven-day per week operation, with adequate leadership, and the ability to expand to 24 hour operations. The recommended FEC study will determine funding requirements for Tier 3 dispatch centers, with resulting agency contribution percentages for preparedness workload presented to each local Board of Directors for inclusion in their annual operating plan and budget.

The Tier 3 Center budgets will be sufficient to support the allocated staffing for a baseline level of workload (i.e., preparedness), internal support activities, and the amount of out-of-center support to their GACC or the NICC based on historical average requests. Each of the newly configured Center budgets will also take into consideration any new work being assigned to the Dispatch or Coordination Center as a result of consolidations, the one-time costs of facilities improvements to become a larger consolidated center, and the costs of some level of off-season operations where appropriate (as shown in the Concept Center tables).

6.3.3 Tier 2 and MAC Activities

Currently Tier 2 Managers are delegated authority to establish incident priorities and allocate scarce firefighting resources between on-going incidents, emerging incidents and initial attack. Generally this authority only applies at the lower Preparedness Levels (1-3) and then is performed by a Geographic Area Multi-Agency Coordinating (or MAC Support) Group at PL's 4 & 5.

Recommendation - FEC would task a study team to visualize the concept center optimization of Tier 2 operations and develop a standardized decision making process.

Discussion - Roles & Authority – The GACC Manager is delegated authority and responsibility to establish incident priorities, allocate and reallocate resources between existing large project fires, emerging incidents, and initial attack. At PLs 4 and 5, a MAC Support Group as well as Decision Support personnel will perform these duties. The Geographic Area Board will retain responsibility for approving and issuing the strategies or any changes in policy.

The following decision infrastructure components should be considered:

- Incident Prioritization tool - the tool will use be linked to the Incident Prioritization criteria as published in the National Mobilization Guide (the MS Access application used in the Pacific Northwest is an example).
- Reallocation Process – the process will describe the decision flow as well as who is involved in the process and their role (includes Incident Commanders, Agency Administrators, Fire Directors, MAC Coordinators, GACC Operations Managers, etc. (the process approved for use in the Pacific Northwest or Northern Rockies are examples)..
- Reallocation Data Infrastructure – this is the criteria and tool that aids in the decision of which resource to pull from one place to send to another (review and revise (if necessary) the Management Action Points (MAP) process that was developed during 2007 in the Northern Rockies.
- Drawdown Levels – develop a uniform drawdown process that will be applied across the nation and establish drawdown levels down to the Sub-Geographic Area Level (review the process used in California and consider for adoption nationally).
- National Preparedness Level Process – incorporate the outputs from the proposed NPL process with assessments and outputs from Predictive Services.

Assumptions

- Nationwide adoption of the “neighborhood” policy for initial attack, extended attack and large incident support operations.
- Adoption of unit to unit and GACC to GACC ordering across Geographic Area boundaries.
- Re-engineered MAC Guidelines and associated training (M-480).

6.4 Centralized Support for AD Personnel

Recommendation - A FEC appointed study team should review the following proposal.

Discussion - Review the concept of a new centralized Interagency AD Management Center to be created and attached to ASC at Albuquerque or NBC in Denver. The AD Management Center would centralize the workload currently performed at Tier 2, 3 and 4 centers associated with hiring of AD personnel (qualification and training record maintenance, payment processing, etc.). The AD Management Center's mission would be the recruitment and screening of seasonal and/or intermittent personnel prior to and during periods of fire emergency to perform firefighting and related on-site services, as described above. The mission is to include coordination with and to provide administrative support during the acquisition of incident staffing support requested through GACCs and local Dispatch Centers.

Upon notification from a requesting dispatch center, the AD Management Center will process all federal paperwork required for the selected pre-qualified AD firefighter personnel dispatched to various incident camp locations that may require tent lodging to supplement incident operations.

Upon notification from a requesting dispatch center, the AD Management Center will process all federal paperwork required for the selected pre-qualified AD dispatcher personnel. These personnel may be dispatched to regional Wildland Fire Dispatch or Coordination Centers as needed for short (7-14 day) to medium (14-21 day) assignments as dispatchers or logistical support personnel to supplement local center operations in expanded dispatch units or in augmentation units within GACC offices.

The AD Management Center will enter AD candidate information in ROSS to include qualifications, location, availability, type, etc. The Center will process all federal paperwork required by the HR/personnel office to qualify personnel, conduct reference checks, communicate the HR-approved hourly rate and travel expense information to the candidate, and receive and process travel documentation. AD personnel will be required to pay for their own lodging and subsistence while assigned. The AD Management Center will reconcile all travel expense reports against Federal Travel Regulations prior to submitting them for reimbursement to the AD.

Upon completion of the AD hiring process by the AD Management Center, the AD Management Center will assist the AD in using a new automated program to complete all required paper work to permit ASC / NFC to pay the AD. Within the AD hiring system, the AD will be able to choose which Dispatch Center will be their administrative home center of record. The AD rate for their hired position will be attached in the resource ordering and statusing system and will print on the resource order.

In the future, the time and travel process will be part of a new AD management system and the AD will have to submit all travel and payment package directly to the new AD Management Center or their home center for approval. Ideally, the ADs will have limited access to the USFS and DOI travel voucher processing system (Lotus Notes – Travel or GovTravel) to expedite the travel reimbursement process. If not, the AD Management Center will reconcile all travel expense reports against Federal Travel Regulations prior to submitting them to the Federal Government for reimbursement to the AD. This will include monthly Government Travelcard invoice reconciliation, where the Travelcard is used for AD transportation or sustainment.

6.5 Improved Buying Team Support through AQM

Recommendation – The review team identified issues with Buying Team Support (having enough teams available) and recommends that AQM conduct a detailed follow-on study to ensure an adequate number of buying teams are available to support incident management needs. This will moderate the impact on the Dispatch Center/hosting unit employees with micro-purchasing capabilities and reduce frequent complexities involving the use of micro-purchase cards which quickly reach maximum limits during emergency response.

Discussion - Based on the study findings, consider streamlining Buying Team business practices to facilitate expeditious filling of incident management needs and tracking. Align business processes between buying teams and the Wildland Fire Dispatch function (e.g., documentation of resource orders in ROSS). Ensure buying teams have direct communications to dispatch offices, clearly document relationships and ordering processes between the dispatch coordination system and buying teams and ensure complete understanding between incident teams, Agency Administrators, IBAs, and the dispatch/coordination system.

Evaluate the feasibility of augmenting capability with “contracted” procurement assistance (i.e., contractors serving as Procurement Specialists/Clerks), Buying Teams will be provided via the public or private sector. Based on lessons learned from private sector support to DoD, it may be possible to have a contractor purchase and pay for IMT-requested supplies and materials directly and then seek reimbursement on a fair cost reimbursable basis. This will expedite the logistics process for incident teams and hold the Buying Team contractor responsible for proving that the purchases were valid and that the lowest possible price was obtained given the level of urgency of the items purchased.

6.6 Improved Access and Cost Controls through SmartCard Technology

Recommendation – FEC will task the Fire Equipment Working Team to purchase and implement a National Wildland Fire Support SMARTCARD system for ADs, Contractors, non-federal employees, etc. who work on fires or at Dispatch/Coordination Centers, and to develop a plan to add Incident Qualifications information to a SmartCard or to the SmartChip on federal Employee Identification Cards now being issued.

Discussion – The FEWT will complete a study of the commercially available SmartCard data storage systems. This has potential to improve business practices for the tracking of qualifications, time-keeping, tracking of supplies and meal services in support of wildland fire operations function.

Based on lessons learned from recent pilot tests, it will be possible to generate SmartCards that track on-site time for invoicing information, authorizations for use of Government-furnished services, access authorizations to data or to physical locations, and storage of qualifications data. This will expedite the logistics process for incident teams and hold the SmartCard holder responsible for maintaining up to date information on the card. The SmartCard will allow the IMT to speed up the demobilization process to release resources faster, to allow for the reassignment to a higher priority incident. Examples of pilot tests conducted by the National Capital Region Coordination Center and Pacific Northwest National Incident Management Team is contained in a separate data report available for implementation teams as requested.

The AQM community may be able to field a SmartCard to contractors, ADs, and appropriate federal staff, preloaded with validated data, as well as reader equipment to IMTs to support incident management needs. Most IMTs have experienced unexplained high meal counts, difficulty in retrieving accountable property, and ensuring that unused supplies are returned. It has been increasingly difficult to control unescorted visitors and reduce the number of unauthorized personnel on incident facilities. IMTs assigned to all-hazard incidents are required to have a means of providing security at the facilities they manage. The SmartCard program may lead to:

- Improved ease and durability of redcard data (i.e., data is integrated into a sturdy SmartCard).
- Increased tracking and statusing accuracy within the dispatch system.
- Maximized overhead utilization by always capturing all qualifications at check-in incidents results in fewer requests in the dispatch system
- Increased efficiency in the use of resources with expedited resource demobilization and reassignment to implement strategic objectives of multiple fires during one 14 day period
- Decreased check-in and checkout time at the incident with actual times transferred to ROSS automatically upon batch updating daily.
- Potential for ability to update qualifications card via web while resource is away from home unit.
- Increased efficiency of accountable property in supply unit where SmartCard is used to check-out/check-in borrowed equipment.
- A reduction of missing accountable property. A single accountable property item not returned can be up to \$2,000 per item.
- Security of personnel on a facility would greatly improve due to authorized personnel being readily recognizable. A reduction in unescorted visitors, media, and individuals within a facility results in a significant savings in the area of time and energy expended on security issues and incidents.

6.7 Improved Support to Non-Self Sufficient Crews through AQM

Recommendation – FEC will request AQM leadership to provide the oversight and methodology to correct the issue. Occasional assistance may need to be provided by the dispatch/coordination system for some resources that are not self sufficient, however the majority of resources will have the ability to be self-sufficient.

Discussion - As discussed in the section 5.4.12 Self-Sufficiency of Resources (Teams, Crews, and Individual Personnel), resources that are unable to support themselves fiscally for their meals, incidentals, and lodging are a fiscal and labor burden on the receiving dispatch unit. The loss of administrative personnel on the local units leaves the balance of this support on dispatch personnel with micro-purchasing authorities. In some instances, Incident Management Teams (IMT) do not have fiscal capabilities placing the burden of support on the unit hosting the incident.

All resources overhead, crews, engines, teams, etc. will have a fiscal mechanism to support themselves when on assignment. This would eliminate the burden both on the sending unit and receiving unit. One approach might be to have estimated expenditures pre-approved daily on a debit card provided by the sending or hosting agency.

Table 88 - Average Hours per Office to Support Each Non-Self Sufficient Crew

Centers	Average Tier 3 and Federal Tier 4 Centers
Booking Travel	1 hour to 4 hours
Booking Lodging	15 min to 2 hours
Paying for Meal or Misc. Supplies	30 min to 3 hours

6.8 Centralized Coordination and Dispatch of Contract Equipment and Crews

Recommendation - FEC will task the Federal Wildland Fire Budget & Planning Team to investigate best practices and the potential effectiveness of a centralized National Contractor Dispatch Center utilizing a contract evaluation process and report back. This option creates a new business practice, centralized location, and new methodology for efficiencies and is not in conflict with the Omnibus Appropriations Act of FY08 as it is a new activity.

Discussion – Contracting of private civilian companies to supply engines, water tenders and crews is increasing for use on wildland and all risk incidents. In 2006, there were 1,340 Contract Engines, 1,544 Contract Water Tenders, and 191 Contract Crews with a total of 10,671 total orders processed for those resources. With the large number of these resources utilized, there is a need to standardize hiring practices and mobilization practices.

This follow-on study would evaluate creating one national contractor Dispatch Center (NCDC), a small set of designated contractor dispatch offices nationwide, a reduced number of host Dispatch Centers, or consolidating contractor dispatching to the GACC level to meet the incidents needs. These are types of consolidations of dispatching to mobilize contract resources create centers of excellence that have consistent methodologies of hiring, documenting and ordering through best value or applicable business rule. The study team would also examine contract management workload and appropriate service provider for issues of:

- Scheduling pre-season inspections and conducting them.
- Scheduling pre-departure inspections and conducting them.
- Validating crew qualifications and equipment capability statements for last minute add-ons or changes.
- Scheduling pre-season contractor personnel for testing (e.g., initial training, fitness certifications, and safety certifications).
- Entering EERA/Contract data into ROSS and update all contact information.
- Holding pre-season orientation / get-on-board meetings with contractors.
- Updating the contractors' availability in ROSS.
- Assisting contractors with payment processing.
- Serving as COTR/COR for contracts.
- Receiving performance reports from IMTs and making alerts where problems are noted.

The study team, as part of its analysis of best practices, would review current studies and investigations on the cost and effectiveness of contracted resources (primary uses and mobilization) to complete the following:

- Evaluate the workload resulting from each option on the units that will be assigned the work in the future.
- Identify least cost alternatives dispatching contract resources.
- Identify the potential gains in cost savings to the agencies due to better consistency of contractor dispatching procedures.
- Identify productivity improvements.
- Identify changes for AQM to make to the contract documents themselves that will improve the quality and timeliness of the delivery of contracted resources.
- Recommend options to address the issue of multiple calls and orders simultaneously to same vendor for different incidents.

6.9 Consolidated (Zone) Expanded Dispatch Unit Services at Specific Tier 3 Centers

Recommendation - FEC will request their respective fire acquisition offices to facilitate an RFI for Staffing Zone Expanded Dispatch Units with Private Sector contract personnel. These would be used to augment agency capability.

Discussion - The unpredictable nature of wildland fire and other all risk incidents will continue to dictate the need for expanded dispatch operations. Currently, expanded dispatch operations are located at local Dispatch Centers and primarily utilize AD staff called in for short-term assignments at an hourly rate. However, this might not be the most cost effective method of conducting these operations.

Within the study, wildland fire agencies will have conducted an analysis to evaluate the workload demands and determine an efficient organization of expanded dispatch operations. The introduction of new business practices will reduce the need for expanded dispatch.

The zoning of operations and new concept centers through joining of offices when opportunities exist has the potential of providing consolidated service to a larger Geographic Area and requiring fewer overall resources (i.e., personnel, phone lines, computers, and supplies). When possible, these centers will be located in areas that have access to most commodities needed for incident support.

The workload and staffing at each of the centers will be identified for the baseline preparedness activities and estimates of expanded dispatch requirements to be established. This review estimated the Baseline Cost for the 2007 season of expanded dispatch ADs. Table 50 - Computers Maintained for Expanded Dispatch Unit (EDU) Facilities for Tier 3 and Some Larger Tier 4 Dispatch Centers presents the number of PCs that centers maintain for Expanded Dispatch. Many of the centers own a large number of computers for a small number of days of operations. Consolidation of the expanded dispatch function to fewer locations will reduce the number of PCs that staff need to maintain, particularly those computers that are leased for expanded dispatch operations.

6.10 Predictive Services Staffing at Optimized Concept Tier 1 and Tier 2 Coordination Centers

Recommendation – FEC should task the study team with analysis of workload and staffing, and review of the products and services being provided. The study team will provide recommendation of the appropriate staffing level and infrastructure support, commensurate with program requirements.

Discussion - Provide adequate staffing and funding to meet mission requirements. Under this option, complete the NPSG framework and strategy within five years.

Currently predictive services units in the Tier 2 GACCs are not standardized nationally.

FEC should task the implementation team with analyzing the workload and staffing, products and services to recommend the correct standard staffing levels and infrastructure support.

- Agency directors are committed to utilizing a Predictive Services organization to capitalize resource allocation and reallocation.
- Predictive Services successfully anticipates critical fire events and is a solution source for wildland fire decision makers. Resource utilization and pre-positioning is more effective based on best science and decision methods resulting in reduced costs.
- Data quality, standards, and supporting infrastructure are improved. Implement product validation and improvement processes. Service Quality program is in place based on users/stakeholder assessments.
- Technology allows access to live Predictive Services briefings for all levels of fire management, firefighters and Dispatch Center personnel.
- Predictive Services collaborated with cooperating agencies, academia, research and other entities to develop new products.

The proposed Predictive Services unit at each Tier 2 GACC will focus on providing:

- Geographic Area and national level fire weather products, services and assessments for incident prioritization and resource allocation.
- Integration of fire weather, climatic sciences, fire situation, and firefighting capability into Geographic Area operations.
- Development of value-added products to enhance short and long-range outlooks and projections.
- Briefings to GACC and NIFC Coordinators and Multi-agency Coordinating Groups about the fire situation and atmospheric and fuels projections and outlooks, based on data from various sources.
- Managing weather, intelligence, and climatology portions of the GACCs web site.
- Improving the knowledge base of the wildland fire environment with GACC and field Fire Managers.

The National Preparedness Level Business Model serves as a reference and initiation point for the development of a future national preparedness level system. This system will be developed for use at the National Interagency Coordination Center (NICC), each of the Tier 2 GACCs and also at Sub-Geographic Area levels. The future preparedness planning process will anticipate future scenarios, providing the opportunity to implement actions targeted at desirable future conditions and outcomes. The process will identify and lessen risks and better position fire management to accomplish more work in a reduced risk environment.

The future system will bring uniformity and consistency to a process engaged on a daily basis across the country. As Dispatch Coordinators across the country use this future system, they will establish the Preparedness Levels using a standardized process resulting in comparable outputs more effectively consolidated into a national mosaic.

The complexity of the task of developing a National Preparedness Level Planning Process led the project sponsors and advisors to structure the project into two distinct phases; a project scoping and

planning phase and a design / development / implementation phase (see JFSP Preparedness Levels Study Final Report 2005 at the following link:

<http://www.nwccweb.us/content/products/Plans/JFSP%20Preparedness%20Levels%20Report%20FINAL.pdf>

6.11 Cross-Training of Airspace Coordinators / Dispatchers at Optimized Concept Tier 2 Coordination Centers

Recommendation – FEC will task BLM / USFS National Airspace Program Manager to Cross-train one dispatcher in each GACC to perform Airspace Coordination. In addition, FEC will task a workgroup to develop a training package with position standards. Note: the current coordinator position is unfunded in the FY10 DOI – BLM budget cycle that supports this option implementation.

Discussion - Airspace Coordination (AC) pertains to the area around a particular incident, and is not required nationally. Airspace Coordinators assigned to GACCs as part of the optimized staffing, will be graded and trained consistently. Utilize the coordinators both internally within a GACC and on loan to other GACCs as fire seasons shift. Consolidate General Airspace Coordination program management to the NICC, where recruiting, training, interagency coordination, and staff-deployment requirements coordination will be performed.

Currently, a core network of AD employees for large/multiple fires, supervised by an Airspace Coordination Manager at the regional level, and some local center personnel for single fire incidents perform this function on an as-needed basis. Essentially, the function is performed for multiple fire incidents as if it was a contracted service. While the position has become critical to incident management, the actual numbers of employees engaged is low. With some modifications, the program can continue to fulfill its mission.

Standardize airspace management into the optimized GACCs responsibilities. The GACCs will also have the ability to produce maps and other visuals for distribution by local general pilots, incident management teams, etc. as is done today. During periods of high fire activity, additional Airspace Coordinators may be ordered through the National Interagency Coordination Center.

The benefits of reorganizing will lead to the following:

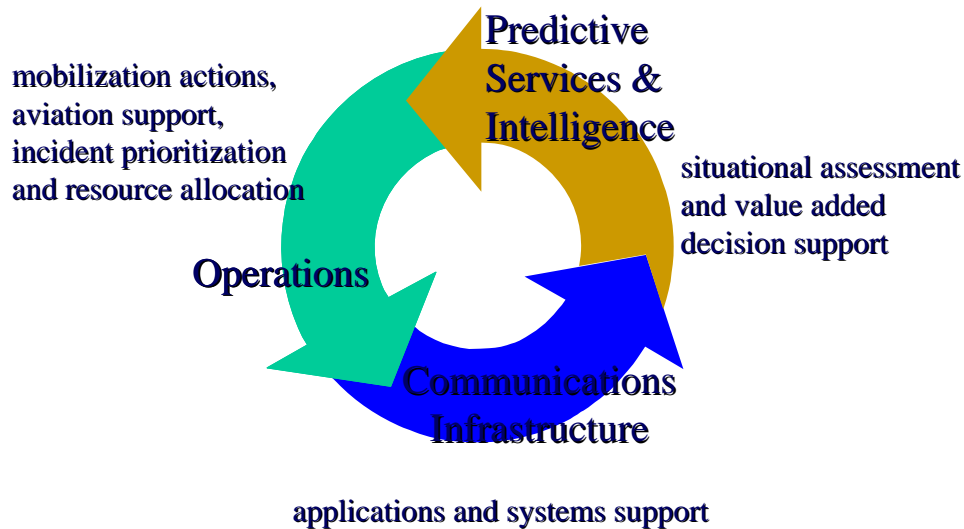
- The function being performed by qualified and trained individuals who are familiar with changes in technology, procedures, and the needs of the dispatch coordination system and fire management and are permanent members at the new GACCs.
- Consistent workload, cost and performance monitoring of the function.
- The cost for performing the function will be fixed and will no longer fluctuate based on availability of AD personnel except during periods of high fire activity (e.g., eliminates travel and per diem costs for AD personnel).
- Formal training and standards for the functional area.
- Standardized business processes for all coordination activities.
- A central point of contact for air space coordination activities provides a greater accountability during large and complex incidents.

6.12 Improved IT Support, Products and Equipment

Failure of IT and communications systems during peak fire activity has the potential to place firefighters and the public at risk. Wildland fire agencies performed analysis to determine the IT infrastructure needs for each level of the Wildland Fire Dispatch function, to include hardware, software, network capability, and support needs.

Figure 89 - Dispatch Function and Effectiveness

Dispatch Function & Effectiveness



6.12.1 Replacement of Incompatible Hardware/Software

Recommendation - FEC will request their respective fire acquisition offices to facilitate an Exhibit 300 study of pursuing a cost analysis and potential implementation of a separate independent network (e.g., a FIRE-net) for NICC, the GACC and Dispatch Centers and Fire Support units in lieu of continuing operations on the two USDA and DOI networks.

Discussion - After completing the Exhibit 300 study of the hardware and software required to run current and future wildland fire applications (e.g., ROSS, CAD, Data Warehouse, End-to-End Reports Generator, etc.) operating through an Enterprise Architecture and Enterprise Service Bus, replace the PCs, Servers, and Software that need updating in the Tier 1 through 3 federally-funded centers. Centrally fund this procurement so that all new IT units purchased will be internally consistent.

- All wildland fire agencies will utilize standard hardware packages to eliminate hardware disparities within offices.
- All wildland fire agencies will utilize standard software packages to eliminate file incompatibility issues.

6.12.2 Potential Benefits of a Wildland Fire Specific Network

Recommendation - FEC will request their respective fire acquisition offices to facilitate an Exhibit 300 study of pursuing a cost analysis and potential implementation of a separate independent network (e.g., a FIRE-net) for NICC, the GACC and Dispatch Centers and Fire Support units in lieu of continuing operations on the two USDA and DOI networks.

Discussion - A secure interagency network support that does not limit the capabilities for incident support will support the dispatch/coordination system. Once new wildland fire-specific network is implemented policies change to permit computers in the centers to access multiple agency systems resulting in a decreased number of computers. Coordinate implementation of this option with the CIO office to ensure changes align with ongoing agency changes.

- Develop service level agreements to support each office's network infrastructure. This will require the development of service level agreements to address the varying levels of services to the centers. These service level agreements may be performed by the government or private sector.
- Maintain acceptable levels of on-site Desktop Support for the Wildland Fire Dispatch function.
 - The dispatch community recommends support of the proposal to have agencies fund the placement of a permanent full-time Desktop Support position at each of the remaining (post-optimization) Tier 2 GACCs to provide support to the GACC and a limited number of other field offices.
 - To enhance the IT support to the Interagency Dispatch community, the Dispatch Centers at all levels will have access to a GACC level "on site" Desktop Support person to provide immediate response to systems and communications interruptions year-round. Having on-site Desktop Support personnel for both IT and communications at the GACCs, as well as on-site Desktop Support at some large Tier 3 centers, is critical during active periods to ensure the safety of field personnel, firefighters and public.
 - Implement the the intent of the Request for Change (RFC) to provide this support (RFC-2006-0002) on an interagency basis. A slightly different version was submitted to: Joan Golden and Jack Arthur (USFS)" in a process change format.
 - A formal escalation process for Fire-IT related Help Desk Tickets for all agencies. (Develop a new policy for escalation of Fire-IT related Help Desk tickets to the Washington Office ISO Duty Officer after the first Tier Help Desk cannot solve the issue or respond in a timely manner.)
 - The Tier 1 through 3 federally-funded centers will be interconnected through a functional, secure, and incident-response dedicated network.

6.12.3 Elimination of IT System Access Barriers and the Ban on Dual Networked PCs

Recommendation - FEC through their respective agency (USDA / DOI) Chief Information Officer request an exception to system security policy to Permit Tiers 1 through 3 coordination/ dispatch center computers to access both networks.

Discussion - The Forest Service and DOI require a standard security protocol to allow for interagency dispatch offices to conduct seamless network interactions within their specific office.

Policies require changes to permit one agency's IT desktop support personnel to manage and administer USFS and DOI equipment located at the facility at which they are assigned. Policy changes will permit integration of dual agency emails for interagency center employees. Center employees will be required to complete IT security training through one (USFS/DOI) agency's CIO program and will receive credit by the other agencies within USFS and DOI. There will be a reduction in employee time processing multiple inboxes and time spent on training to meet multiple agency requirements.

- DOI and USFS security managers will have examined and addressed operational issues commonly found in interagency offices. The solutions will allow one agency to connect to other agency's networks, cross agency acceptance of basic IT security training for individuals in interagency offices who complete annual security training; grant different levels of access for different users in dispatch offices
- Examine hardware/software configurations to allow for Predictive Services fuller utilization of scripts and batch files that run on either Agency's network/system.

6.12.4 Changed Policies for Help Desk Escalation for Priority 1 and 2 Trouble Tickets

Previous Option Component - The USFS ISO and the various DOI IRM components within the Bureaus will establish not just a system for expediting resolution of Priority 1 and 2 tickets, but also identify a specific management level representative in each service provider to contact when the priority system fails. Currently, the average resolution time for Priority 1 and 2 Trouble Tickets not resolved within the prescribed four-hour window is 38 hours. In the future, the ISO and IRM units will have a designated and publicized list of key contacts to call day or night when IT support is not being provided to Dispatch and Coordination Centers during emergency situations. By having a designated, accountable point of contact to reach out to, the Center Managers will receive improved services when struck by unplanned system outages or equipment failures.

6.12.5 Fire-Funded On-Site IT Desktop/Database Application Support Personnel at Tier 2 and Some Tier 3 Centers

Previous Option Component - IT support remains an issue due to the criticality of the mission and the hardware/software repair/install time frames at Centers. IT support will be reviewed for contract augmentation through the CIO for key operational command sites during specific times of the year.

In the future, Fire Management funds the IT community to provide contracted on-site IT support personnel to the Tier 2 GACCs year-round and to some Tier 3 Dispatch Centers on a seasonal basis. The contract will be for one IT support person at each location to provide desktop and minor database applications support. The primary work of the contract IT support position will be to expedite resolution of problems with emergency response-related systems, hardware, applications, and networks.

6.12.6 Center of Expertise for Wildland Fire Dispatch IT Applications and Improvements

Recommendation - FEC will Initiate a five year pilot program for a 3-person IT Applications and Improvements Think Tank for the Wildland Fire Dispatch program and in support of NIMO, NICC and National Dispatcher Training.

Discussion - The wildland fire dispatching community will fund the establishment of a three-person "Dispatch Systems" think-tank at NICC to develop recommendation for new and improved

applications, review and evaluate new products, serve as SMEs to NWFEA and NFEAB on dispatch-specific systems issues and prioritization. (This is not a programming/coding group. The group will develop requirements documents for contracted support or for task orders to ISO or IRM for new applications.) This group will assist the Wildland Fire Dispatch community to identify process improvement or database needs, find technical solutions, evaluate best value options, and make procurement recommendations to senior leadership of USFS and DOI on what is needed by Dispatch and Coordination Centers over the next three-year horizon to begin budgeting for those solutions. Members of this group will be available to assist the NMAC, NIMO and the NICC during surge periods in activity and avail themselves to national dispatch training efforts and program managers.

6.12.7 Reengineered Wildland Fire Reporting Process – Implementation of an End-to-End Reporting Application

Recommendation - FEC will recommend to Agency Administrators to jointly task their portfolio managers to (within 36 months) develop new End-to-End Reports (defining all data required to produce required and ad-hoc Fire reports with one-time data entry into Centralized Data Warehouse, CAD, or ROSS) and to define the needs of a unified report generator to support them.

Discussion - The current dispatch/coordination system is heavily dependent on different data systems and programs requiring manual re-entry of the same data. The future dispatch/coordination system will have interagency data systems that are designed with common data standards, can be shared by various programs, and can be accessed by a multitude of users. Interagency systems share data with the specific intent of decreasing manual entry and consequently decreasing probability of human error. The realized efficiencies to all wildland agencies having data entered once, corrected as needed, used by multiple users, and finalized for historical record will be the formula for consistent data/reporting.

The programs and data management mechanism supporting the dispatch/coordination system will include a data warehouse, resource statusing and ordering application, initial attack computer automated dispatch application, and end-to-end reporting capability. These may be independent or combined programs.

The development of a unified reporting system will incorporate all of the current wildland fire dispatch reporting tools used. The reporting system will capitalize on the benefits provided by each of the current systems to provide the wildland fire dispatch community with the most powerful and effective tools available for the future. The new system will enable the dispatch community to meet fire management priorities by removing software limitations, boundary constraints and inconsistent reporting tools.

The implementation of a centralized data sharing systems that provides real-time data will empower the unified system to enter data one time for many reports.

An “end-to-end” reporting system where all reporting is drawn from the initial CAD input, supported through a resource ordering system, with the ability to produce Incident Status Reports (ICS-209) and Incident Management Situation Reports, and to finalize the official fire report will be implemented. Information will be input into the system once and multiple users have access to update the information. These users may include incident management teams, fuels specialists, IMETs, expanded dispatch, contracting officers, payments centers, FOIA/congressional specialists, fire management at all levels, and information officers. Multiple programs/interfaces for will feed information for specialized reports or processes. The completion of the FORS study will be given support and funding, which will provide the business analysis and reporting requirements that will be the foundation for development of an end-to-end reporting system. The end-to-end reporting system will provide the foundation for the preparedness level project and enhanced decision support.

6.12.8 Centralized Data Warehouse Implemented to Support New Fire Applications

Recommendation - FEC will request their respective fire acquisition offices to facilitate an Exhibit 300 study and then Develop or Purchase a Central Data Warehouse database for all Fire Data.

Discussion - During the October 2007 southern California fires, there were numerous inconsistencies in information distributed by several sources to the dismay of FEMA, the White House, the state of California and the federal wildland agencies. This example justifies the need to develop a data warehouse management system capable of holding dynamic data about fires and to pull data from various other sources. This system will be available to all levels of dispatch, fire management, information officers and Agency Administrators.

Note: If fire report data is incorrectly entered into FireStat (a USFS fire report program), it impacts the outputs from other fire management programs such as FPA, FACTS, and WFSA programs.

A centralized data warehouse will be developed to maintain all current fire reporting data, and will have the ability to interact with all other wildland fire system applications. The implementation of a centralized data warehouse will enable the wildland fire dispatch community to obtain accurate and consistent information in real-time. The availability of fire reporting data from one central system will provide a number of gained efficiencies, and will benefit the Wildland Fire Dispatch function in a variety of ways.

Local Dispatch Centers will enter incident data once and the data warehouse system will feed other programs for situational reports, fiscal tracking, and historical records. There will be a cost savings in dispatch personnel time.

The programs utilized by dispatch will be integrated to reduce the data input repetition. This results in accurate information for all stakeholders to obtain in real-time. Systems will notify users/stakeholders of incidents updates. All of the wildland fire agencies will benefit from consistent reporting during critical fire situations.

When data is initially entered into the centralized database, standard fire reporting data will be pre-populated into each of the standardized (canned) fire reports – (CAD, ICS 209, Incident Management Situation Report (IMSR), BLM 1202's and FS 5109 FireStat reports, FireCode, ROSS, ISUITE). This method allows for a single point of entry, which reduces the probability of human error.

The implementation of the data warehouse will also have an impact on the amount of time that a dispatcher spends entering fire reporting data. For example, an initial attack dispatcher uses 20 minutes to gather all necessary data and set up an incident in ROSS. Once an incident is set up in the ROSS system, an order takes approximately one minute to process.

The dispatcher enters the same primary intelligence-type information into other systems including WildCAD or Altaris CAD, Firecode, IMSR and ICS 209, FireStat and BLM 1202 systems, which requires a minimum of 5 minutes to set up an incident in each additional system. In total, setting up an incident in the fire reporting systems currently requires an average of 40 minutes. There were 96,385 incidents in 2006 which required over 64,200 hours of dispatcher time to set up the incidents in the required systems ($96,385 \times (40/60) = 64,256$ hours). If a data warehouse system was available to pre-populate this information, the amount of dispatcher time required to set up an incident will be reduced by approximately 50%.

The average fully loaded hourly cost for a full-time federal dispatcher at a Tier 3 Dispatch Center is currently at \$30.79/hour, which is derived from the typical GS-05 though GS-09 graded dispatchers on-board today. A centralized data warehouse system has the potential to save \$702,406 per year by reducing redundant entry of the same incident data in multiple fire-related applications currently based in independent, non-cooperating databases. The Team has provided a short example below of the type of analysis at the national level to show potential savings of a centralized data warehouse

system. The savings is accrued through the elimination of staff time spent on entering the same data into multiple systems.

In 2006, there were 96,385 fires on federal and state property (NICC data). A centralized data warehouse that reduces five minutes of double data entry from three different reports and/or alerts results in savings of labor hours per year of $96,385 \times 5 \text{ minutes} \times 3 \text{ reports} / 60 \text{ mins/hour} = 24,096$ hours. At a rate of \$30.79 per hour, the cost avoidance per year will be \$742,923 or \$3,709,615 for five years.

The implementation of a centralized database for all interagency incident information and a rigorous set of business rules for naming conventions (e.g., a mandatory data dictionary) will provide the wildland fire agencies with accurate and consistent data. This will save the agencies valuable time currently spent reconciling data in their fire databases. When fire data is entered once and used for all reports, all data will be consistent. In this example, a centralized data warehouse has the potential to save an estimated total of 1,400 hours per Tier 3 Dispatch Center correcting inconsistent incident information at an estimated savings of \$43,100 at an average fully-loaded hourly cost to the Government of \$30.79.

Agencies will save on maintenance costs as a result of maintaining fewer systems over time. A single data warehouse fed by fewer systems allows Agencies to capitalize on emerging technologies and translate those technologies to all other wildland fire system applications.

6.12.9 Remaining ROSS Enhancements Completed Mid-2010

Recommendation - Respective Fire Budget coordinators task the Federal Wildland Fire Budget & Planning Team to review the business funding process and recommend allocation of adequate funding for the ROSS Schedule of Changes, Updates, & Upgrades.

Discussion - The effort will modify the business rules of dispatching to include the processes, procedures and policies. This will maximize the utilization of automation.

Long standing high priority dispatcher-related changes to the ROSS application will be funded, completed, and implemented. As a result, deficiencies associated with resource status information will be upgraded. Some of the ROSS updates expedited by the approved dispatch-centric reprioritization of the ROSS Update Schedule (and related funding) to include items such as:

- Improve the two-way interface between IQS and ROSS, provides link to most up-to-date qualifications information for State / Local Government / DoD employees for populating ROSS. Currently, fire assignment history in ROSS does not transfer back into IQS to update each employees IQS record. Incident job experience is manually entered into IQS after each incident.
- Improve the two-way interface between IQCS and ROSS, provides link to most up-to-date qualifications information for all other federal (USFS and DOI) employees for populating ROSS. Currently, fire assignment history in ROSS does not transfer back into IQCS to update each employees IQCS record. Incident job experience is manually entered into IQCS after each incident. This occurs throughout the year.
- Install an interface between ROSS and FireCode to eliminate redundant data entry need to obtain a FireCode Number for an incident.
- Complete the resource item reengineering (.e.g., drop down menus for data entry, improved naming fields and classification systems for better sorting, etc.) resulting in improvements in the speed of incident data entry and enhanced data quality during the data entry process. This improvement enables the dispatch community to more easily sort and identify resources in ROSS.
- Complete the resource catalog reengineering (e.g., codifying the ownership of resources into specific catalogs that can be displayed selectively), resulting in improved systems operations due to streamlining the data. Not all users will need to wade through resources pertaining to specific, specialized missions or specialized resource owners. This results in shorter sort times, and can reduce data maintenance.
- The ROSS Change Board provides the annual list of recommended ROSS fixes to NICC/GACC managers, with estimates of development costs and development time, so that they can provide the ROSS Change Board a validation of the Change Board's recommended course of action.

The revised ROSS will have functionality similar to the recommended CAD system, in terms of identifying the closest available resource for incidents. ROSS will show overhead status per qualification, capability and real numbers of overhead. Time spent looking for available overhead and moving orders around the nation will be reduced.

6.12.10 Next Generation of a Resource Ordering and Statusing Application is implemented in all Centers by Late 2012

Recommendation - FEC will request their respective fire acquisition offices to facilitate an Exhibit 300 for ROSS-type System and Develop the RFP for its Development or a COTS purchase by May FY09.

Discussion - A new resource ordering and statusing application, representing the next generation in resource data visibility, manipulation, retrieval, reporting, and sharing, is fielded to meet the requirements of initial attack and long-term and large incident support, and reduces data entry requirements by interfacing with a new centralized data warehouse system. The new resource ordering and statusing application requirements development team will include, in addition to IT personnel, current (Tier 1-3 centers) users and future users (e.g., incident management teams). These user groups will be fully represented on the new Change Board for this application.

This new generation application is compatible with the Enterprise Architecture and is fielded to the post-optimization Dispatch and Coordination Centers. At a minimum, this system will be able to:

- Interface with any other components of a multifunction suite of applications, e.g., CAD, end-to-end reporting Systems, data warehouse, etc. through the proposed Enterprise Service Bus (ESB). (The new system will also support the advancement of the total Enterprise Architecture program across the dispatch community, reduces redundant data entry and redundant system maintenance.)
- Use boundary-less dispatch rules with built-in flow-control rules that permit GACCs and NICC to serve as gate-keepers with a more national focus. (System enhances the visibility and use of closest resources by local Dispatch Centers and GACCs.)
- Calculate lists of potential available resources by distance, travel time, best value, or least cost. (Supports use of best applicable Business Rules depending on incident type and size, and on whether resources are agency or contractor owned.)
- Orders go to the most appropriate resource automatically. At certain PL levels or situations, however, orders will be directed to the GACC or NICC.
- Display all available resources to support incidents and orders for view by all authorized users.
- Projects enhanced and improved report-writing capabilities, such as displaying a “dashboard” presentation of summarized resource status and/or producing a set of easy to read graphical presentations of the status of resource across a user-defined geographic area.
- Send orders directly to a PDA or wi-fi/cell-enabled communications devices of a resource provider via multiple transmission modes to expedite mobilization of resources.
- Use an application to monitor state-of-the art GPS-tagging system to track National Shared Resources to expedite reports on availability and travel time projections. Having real-time visual tracking (via GPS Tracking System) of all resources expedites critical diversions to new starts through out the whole system
- Alert the user and auto-document when a center has placed an order for a resource that is shown as “not available” in the dispatch system.
- Permit assignment of priority codes (Local, GACC, or NICC codes) to incidents and use a prioritization (rather than first-come/first served) method to process orders.
- Have a high data quality standard and a process for scheduled data quality reviews and scrubbing.
- Be reliable, capable of conducting transactions and processing information with no down time and within 10 seconds.

6.12.11 Standardized CAD System Purchased/Developed for All Tier 1-3 Centers

Recommendation - FEC will request their respective fire acquisition offices to facilitate an Exhibit 300 for CAD System and Develop the RFP for CAD Development or COTS purchase.

Discussion - As recommended by the eGOV report (*Report of the eGov Disaster Management Task Group to the National Fire and Aviation Executive Board*, dated MARCH 31, 2006), the Fire Management Community should:

***“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.*”**

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. “Components of this application will 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*
- *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*

One CAD system nation wide will improve consistent training methods for dispatch employees nationwide and the implementation of initial attack dispatch performance measures within the system. A consistently trained workforce of initial attack dispatchers will be more mobile to meet exigency needs across the country resulting in less employee overtime and decreased dependency on militia and AD workforce. Actions by trained, professional initial attack dispatchers result in sound implementation of fire management plans and reduction in errors. Errors in emergency management response are potentially dangerous to the public and firefighters and cost financially and politically for the agencies.

One CAD system will enable the optimized Tier 3 Dispatch Centers to incorporate the multiple land management plans into a synthesized area of response with initial response parameters at their fingertips. This is a building block for the success of any future consolidation of centers.

A new standardized CAD will provide dispatchers with enhanced abilities and will require less time spent entering and pulling data into and from multiple systems, locations, utilities, documents and sources. The following items are some of the minimum capabilities that a new national CAD system will provide to the dispatch community:

- Has the capacity and capability to be used for multiple ignitions (e.g., 65 fires from a single lightning event).

- A single point of entry for all data, with two-way links to the centralized data warehouse and other systems.
- Identify and monitor resource drawdown levels.
- Interfaces with FSPPro (or other fire behavior tool) to become a more robust decision support system by developing predictions of fire behavior over a specific time period. Results will be used to expedite prioritization of initial attacks for multiple incidents occurring simultaneously, and to improve effectiveness of resource allocation decisions. The system will provide GIS overlays containing transportation and utility infrastructures, stakeholders, natural resources, topography, grazing/timber rights, airspace issues, current and predicted weather, and fuel conditions.
- Contains embedded data from land use and fire management plans that influence the decisions on fire response. Ideally, information is displayed immediately upon entry of key fire data elements such as fire location.
- Provides revised list of AMR plans (potential responses) based on “what-if” scenarios of different levels and types of resource applications.
- Graphical displays and products that can be scaled to user-defined geographic areas.

6.12.12 Web-Based AD Personal Data Update Portal

Recommendation - FEC will request their respective fire acquisition offices to facilitate an AD Management Center at Albuquerque and/or Denver, which will include electronic filing of personnel information.

Discussion: To support a more efficient system of entering AD personnel data and to permit ADs direct access to these data elements, the Interagency Wildland Fire community will have a new AD Data Entry and Reporting Application developed similar to VIPR (for EERA vendors). The system will require ADs to maintain their own information such as name, address, bank account data, SSN, preferred hiring location, I-9 data, W-4, Incident Behavior form, etc. The AD Personnel Data Management application will simply be a data review/data change interface that shows data that is currently in the proposed Centralized Fire Data Warehouse database and allows them to see changed data if they make an update. The AD Personnel Data Management application will not be a separate database or a system deployed to Centers. It will simply be a web-portal access point to the proposed Centralized Fire Data Warehouse, the data changes made by the ADs will then be available to be used by all the other systems that pull data from that section of the Warehouse for use in various reports and in reporting statuses through the new ROSS-type application.

The application will be an interface to the Data Warehouse, and will communicate seamlessly with all other Interagency Wildland Fire community applications (e.g., a SuperCAD system, a new ROSS-type system, all the fire report applets, etc.). The application will operate on and between both the DOI and USFS networks using standardized (common) protocols and interfaces. The updated data will feed to ROSS and I-Suite, and then be used to update the Casual Pay application at DOI-NBC. This application will reduce the support required at local units, and can be designed to make casual employee information available geographically and/or nationally and to all federal wildland agencies.

6.13 COOP Documentation and Backup Generators

Recommendation - FEC will task The National Coordinators Group oversee the completion of Continuity of Operations Plan (COOP) documents for all Tier 3 Dispatch Centers by May FY09.

Recommendation - FEC will request an external agency to review backup systems capabilities for dispatch centers during national threats / disasters to make recommendations for power generation with report back to committee by May FY09.

Discussion: A standard COOP for each Tier with minimum requirements identified to ensure continuity of operations for wildland fire and all-hazard support to meet national direction will be updated and reviewed annually with periodic drills to ensure plan remains effective.

All Dispatch and Coordination Centers will develop and maintain a COOP. At a minimum, the COOP will identify network capabilities and back up plans, emergency radio communications, back up for field personnel, alternative work sites, and both short term and long-term, and identified back up centers. Centers will have back up network capability identified and in place. Back up generators will be installed at all Dispatch Centers and Coordination Centers. COOP will be inspected annually during agency readiness reviews.

To ensure standardization of a COOP an interagency task group of dispatchers representing all Tiers will be formed to develop an interagency COOP template with minimum standards and elements identified.

This COOP will ensure continuity of operations in the dispatch and coordination system to meet the requirements of the National Response Plan and presidential directives to the federal executive agencies and ensure the mobilization system remains intact and functional during natural disasters and other incidents.

- Develop an interagency standards, template and requirements for COOP plans for all Dispatch Centers (Tier 1, 2, 3) and their interaction with Agency(s) COOP that includes alternative work site locations, short and long-term continuity of operations, back up source of power, and alternative network and system connections. Identify an interagency task group of dispatchers representing all Tiers to develop an interagency COOP template with minimum standards identified.
- All Dispatch Centers (Tier 1 through Tier 3) shall be required to develop and maintain a COOP for continuity of operations (USFS and DOI). This plan shall require that all centers provide copies of their COOP to alternate pre-identified centers & agency line officers for a back up plan in case of total devastation or loss of a facility.
- Copies of the Dispatch Center COOP shall also be located at the center's identified GACC, alternate designated back up center location, and agency(s) office locations. The GACC shall provide a copy to NICC and state office and regional office locations). NICC shall provide a copy of their COOP to a pre- identified GACC for backup, as well as the agencies directors.

All Tier 3 and remaining state-funded Tier 4 Dispatch Centers with a mission to maintain radio communications with field personnel shall be required to have a back up source of power (generator) to maintain radio communications with the field for continuous uninterrupted operations.

6.14 Equipment Improvements

6.14.1 Radio Compatibility Inventory and Analysis

Recommendation - FEC will request their respective fire acquisition offices to facilitate an Exhibit 300 Analysis of Replacement / Redistribution of Radios Not Compliant with New Boundary Radio Coverage Requirements.

Discussion - Creating a comprehensive interagency radio management program requires the establishment of clearly defined responsibilities, authorities, and expectations. The ability to work together to reduce redundancy and conflicting standards and communicate actions to the field is critical. CIOs from both Departments and agencies along with executive level management, project managers, radio program managers, security managers, and IT specialists met in Boise, ID in 2007 to discuss the needs of the interagency wildland fire program.

Issues identified to improve the current system are:

- Develop clear, concise policy and standards developed nationally and condensed into one document to provide direction and consistency across the interagency community.
- Need to better engage cooperating agencies to ensuring effective communications and/or develop communications plans. A template needs devised for cooperating agencies within Geographic Areas to establish communications agreements for use on incidents.
- Clear, comprehensive planning is needed to address future narrowband transitions, including the move from analog to digital systems, moving from unsecured transmissions to AES encryption, and more.
- Rectifying the current situation and creating a radio system for the future presents a complex and significant funding requirement. Costs associated with repairing, upgrading and/or maintaining our existing equipment is prohibitive without significantly impacting other priorities and programs.
- A centrally funded line item will allow timely and efficient replacement of mobile and hand-held radios and accessories, as well as the replacement of necessary infrastructure such as towers, repeaters, and dispatch consoles.
- Expansion of the radio system infrastructure and meet other recurring costs, such as inspections, maintenance, and possibly fund radio specialist positions. Most states are not funded to provide minimal upgrades for existing radio equipment or "P25" and AES encryption capability.

A method will be devised for the creation, testing, and implementation of a systematic mechanism for implementing new technology that ensures safety, reliability, acceptability, and performance.

- New technologies such as radio or voice over internet protocols (VOIP) will be studied for feasibility before being implemented.
- It is important to understand that the wildland fire radio communication system is a stand-alone system, and should not be connected to main systems that can result in massive system wide communication blackout.

New radios allow for advanced configuration programming. Agency cooperators will establish standard radio configurations so all (same brand) radios work the same way (program buttons/operations are consistent).

- Investigation into new technologies that allow the present equipment to function more efficiently and interface with other systems. The Analog system has served the Dispatch Centers well for many years and although not "state of the art", it is not obsolete and may have a specific role in supporting a national communication strategy (for example in remote locations where power supplies are limited).
- Develop and implement a nationally managed annual training with consistent standards for users and technicians to maintain currency and up-to-date efficiency.

At the Tier 2 GACCs, there are 15 radio consoles located at three locations. (Most of the Tier 2 GACCs operate without the need for a radio system.) Within the Tier 3 and federal Tier 4 Dispatch Centers included in a recent data call, there are 479 radio consoles in use across 133 locations. The current National Radio Replacement schedule runs through 2015. Using only models that are interoperable with interagency sponsors', local cooperators', and Dept. of Homeland Security / FEMA's radio systems, the average cost of the systems replaced by during 2006 and early 2007 was \$160,000 per location.

Table 90 - Average Cost Tier 3 Center Radio Console Set Installed in 2006/2007

From 2006 and 2007 Actual Costs	Radio Unit and Antenna
Based on Completed Installations	\$160,000

6.14.2 GPS Tracking Units for Agency-Owned Assets

Recommendation - FEC will task the Fire Equipment Working Team to develop a plan to purchase and to implement applying GPS Tags on items such as all federal-owned and designated Initial Attack rolling stock, vehicles and trailers, heavy equipment, generators, catering units, and shower units for implementation in May FY09.

Discussion: - The Acquisition Management Community will have analyzed the efficacies of implementing a GPS Tracking System program for Agency-owned assets. Upon implementation of the tagging of interagency fire resource equipment and, on a pilot basis, some crew equipment items, these elements will become more visible through a satellite-linked, web-based application made available to Dispatch and Coordination Centers. Monitoring of these items by local, regional, and national centers through GPS technology will permit better tracking of assets both at the storage location and during field events (i.e., when resources/crews are working incidents). It will make Initial attack dispatching more efficient and streamlined by allowing dispatchers to identify and reassign high dollar items prior to returning back to their home location.

Local centers will use the GPS display to support the dispatching of the closest available resources and monitoring the status and location of all resources. The local Dispatch Center will have complete visibility of these resources and be able track their progress on a mobilization or demobilization from the incident. With this program, the centers will be able to divert resources to new starts and higher priority incidents. This system will also provide a safety link to the field going resources.

The Tier 2 GACC will be able to view all the geographic and national resources. The system will be able to change the resources color to show if the resource it is available or committed. The GACC will have a visual map to see what is available or committed in their area and will be able to divert resources accordingly to geographic or national priorities.

The Tier 1 NICC will use this technology for the management of National Resources such as mobile showers, mobile caterers and national shared resources. The GPS Program will show the exact location of all resources that will be important in developing mobilization and contingency strategies.

The GPS system, if possible, will interface with the recommended new CAD system in order to be able to view resources in different views (Committed, Enroute to incident, Unavailable). Like a GIS system, the GPS program enables users to turn resource type layers on and off to reduce screen clutter. Ideally, the display data on the screen will also indicate the remaining days on assignment for each resource item.

Within the scope of this issue, these equipment items are considered deployable resources within the Interagency Wildland Fire community. They represent critical and costly equipment items needed for incident support. The ability to improve situational awareness by knowing where these items are located (at an incident, near or enroute to an incident or on a national standby basis) has become a desired goal for the dispatchers and coordinators.

Table 91 - Summary of Deployable Resources

Agency Engines	Agency Water Tenders	Agency Units	Contract Engines	Contract Water Tenders	Contract Units
3254	438	Approx 3700	2321	1909	Approx 4300

**Depending on Equipment replacement philosophies, the number of contracted equipment may increase in proportion to agency-owned equipment as agency items reach the end of useful life.*

6.15 Areas of Inconsistency between Components of the Wildland Fire Community

6.15.1 Cooperative Agreements

Recommendation – FEC will request their respective acquisition offices to work together to provide additional grants and agreements personnel to support fire management at the geographic and state levels.

Discussion - The current cost of managing and processing local cooperative agreements through the staff of the Tier 1 through Tier 4 centers was approximately \$624,783 in 2006. This estimated cost is for the combined 6.97 FTE nationwide reported this as a part of their annual responsibilities. This equates to an average of 0.046 FTE per center (based on 151 centers).

As order processing work can be shifted to the Tier 2 GACCs from the Tier 1 NICC, pulling non-dispatch work (e.g., drafting agreements by persons not trained in the law) from the other Tiers could be a cost effective change in mission. Establishment of a core group of personnel in the Fire Management group of each USFS Region and DOI State Office to work on agreements will make the agreements consistent across the country, and increase efficiency of working with the local cooperators.

6.15.2 Interagency Consistency in Use and Hiring of AD Personnel

Recommendation – FEC will request their respective acquisition offices to work together to provide structural and policy changes to eliminate interagency inconsistencies regarding AD personnel between DOI and the Forest Service.

Discussion: The practice of hiring state employees as ADs differs nationally. The west coast generally orders state employees as state employees and the cost of those resources are different between agencies. These resources are much easier and faster for the dispatch community to dispatch to an active incident. In contrast, the east coast Dispatch Centers hire state employees as ADs. This adds workload to the sponsoring Dispatch Center due to the AD hire forms and the travel vouchers processed by the sponsoring Dispatch Center. Confusion exists because the state employees choose whether they go out as state employees or as an AD. As a result, their official status is difficult to show in ROSS.

There needs to be one standard a between the states and the federally agencies to eliminate cost, time, and confusion. Currently DOI can use ADs on a Prescribed Fire, while Forest Service cannot use ADs for this purpose. In FY 2006, the DOI held 2,285 prescribed burns in the United States, while the USFS conducted 5,138 without the assistance of AD staff.

Table 92 - Number of Prescribed Fires in 2006

Year		BIA	BLM	FWS	NPS	Total DOI	Total USFS
2006	Fires	254	484	1,314	233	2,285	5,138
	Acres	86,519	87,169	291,821	84,524	550,033	1,091,714

Source: NICC website.

A FEC study reviewing policies on AD usage and management will assist in the development of consistent deployment of AD personnel nationally. As an example, establishing a consistent interagency policy, the Forest Service will hire AD staff to work with Prescribed fire, resulting in a reduction of overtime.

6.15.3 Interagency Consistency in the Mobilization of Incident Management Teams

Recommendation - FEC (as part of the previous tasking of the Governance Study Team) will review national and geographic inconsistencies in Governance policies and make recommendations to FEC for the standardization of Mobilization of IMTs by May FY09.

Discussion - The number of personnel mobilized with IMT teams varies greatly across Geographical Areas. Nationally, the number of positions mobilized is limited to 27 plus 13 positions negotiated with the ordering unit. The national control over the number of overhead that mobilize with the team is the guidance in the National Mobilization Guide (section 63.1.1). The policy in the Mobilization Guide is currently not followed by most of the teams.

Upon completion of the recommended review, NWCG will issue new standardized policies for the management, ordering, and mobilization of Type 1, Type 2, NIMO, Area Command, NPS All-Risk Team and FUMT resources, including qualifications and performance metrics. The policy will be written for cross-agency consistency and the GACCs will be asked to provide additional monitoring and reporting of follow-up implementation by Teams and Dispatch Centers.

7 Civil Rights Impact Assessment

A Civil Rights Impact Assessment (CRIA) is required to identify and categorize the civil rights impacts of implementing any realignment initiative that will potentially affect employees. A CRIA for Forest Service employees will be developed if the Fire Executive Council recommends changes to staffing during their follow on studies.

8 Systems

This section provides an overview of the applications and systems used to complete interagency dispatch tasks and activities reviewed by this assessment. Table 92 - Number of Prescribed Fires in 2006 lists the software application used by the dispatch community and their frequency of use, as reported in the data call.

Table 93 - Summary of Application Usage Reported by Dispatch Employees

Software Application	Center Employees	Militia Employees	AD/ Contractor	Totals
ROSS - Resource Ordering and Status System	697	437	100	1234
LotusNotes - eMail	582	234	28	844
FAMWEB - Fire and Aviation Management Web Applications	564	107	46	717
AFF - Automated Flight Following System	564	135	0	699
WIMS - Weather Information Management System	532	102	51	685
FireCode	531	92	42	665
ICS-209 - Daily Incident Report	489	107	62	658
DMS - Dispatch Messaging System	449	78	35	562
IQCS - Incident Qualifications Certification System	400	100	26	526
AgLearn - Computer based training	399	116	2	517
WildCAD - Computer Aided Dispatch	322	79	45	446
SAFECOM - Aviation Safety Communiqué Database	352	43	35	430
SITREP - Daily Situation Reporting	309	53	36	398
InciWeb - Incident Information System	274	78	37	389
IAMS - Stand-alone aviation application	315	38	34	387
ALMS - Automated Lightning Mapping System	300	57	7	364
ROMAN - Real-time Observation Monitoring and Analysis Network	286	41	20	347
DOI Learn - Computer based training	263	41	16	320
USFS FTP - FTP site	249	46	15	310
KCFAST - Kansas City Access	263	23	12	298
SAFENET - Wildland Fire Safety and Health Reporting Network	243	31	18	292
FireStat - Fire Statistics System	257	19	12	288
FFP - FireFamily Plus	245	26	15	286

Software Application	Center Employees	Militia Employees	AD/ Contractor	Totals
I-Suite - Incident Business	155	102	18	275
ARC*Info - GIS mapping	186	56	10	252
EaTIS - Equipment and Training Inventory System	211	23	11	245
WFMI Lightning - Lightning information	183	51	10	244
NIFC FTP - FTP site	139	31	13	183
FS-5109 - USFS Incident Reporting	145	18	9	172
MODIS - Active Fire Mapping Program	126	17	16	159
WFMI Weather - Weather information	99	24	13	136
DI-1202 - DOI Incident Reporting	111	19	5	135
FireOrg - Dispatch Workload/Staffing	125	6	3	134
IQS - Incident Qualifications System	76	29	23	128
GeoMAC - Geospatial Multi-Agency Coordination	81	22	12	115
WINCAN - Windows Computer Aided Navigation	95	10	9	114
WFAS - Wildland Fire Assessment System	75	24	10	109
ABS - Aviation Business System	89	13	0	102
SHIPS - Safety and Health Integrated Personnel System	76	24	2	102
WFMI Reporting - Fire Reporting Application	74	15	6	95
WRCC - Western Regional Climate Center applications	62	16	4	82
AlturusCAD - Computer Aided Dispatch	51	16	11	78
NFIRS - National Fire Incident Reporting System	53	13	8	74
BlueSky - Airshed / Smoke management	59	5	1	65
CHS - Comprehensive Health Services	43	11	0	54
FMIS - Fire Management Information System	36	12	6	54
PCHA - Personal Computer Historical Analysis	45	6	1	52
FEIS - Fire Effects Information System	30	12	4	46
NFPORS - National Fire Plan Operations and Reporting System	30	14	1	45
SMIS - Safety Information Management System	31	7	1	39
FACTS - USFS Activity Tracking System	22	13	1	36
AWSR - Annual Wildfire Summary Reporting	27	2	4	33
FIRES - Fire Integrated Recruitment Employment System	24	5	0	29
ICBS - Interagency Cache Business System	17	8	4	29
ARS - Aviation Resource System	15	4	9	28
FX-Net - Advanced weather graphics	26	2	0	28

Software Application	Center Employees	Militia Employees	AD/ Contractor	Totals
FIMT - Fire Incident Mapping Tool	16	7	3	26
CONSUME - Fuel consumption	15	9	0	24
Cheetah - Computerized Harmonic Evaluation of Episodes and Tools for Assessment and Help	20	1	2	23
FOFEM - First Order Fire Effects Model	17	6	0	23
IIAA - Interagency Initial Attack Assessment	17	4	2	23
AIIC-FWD - Alaska Interagency Coordination Center Fire Weather Database	19	3	0	22
Gridded FX-Net - Advanced weather graphics	21	0	0	21
Firesite - Fire Area Simulator	16	3	0	19
RAMS - Risk Assessment and Mitigation Strategies	15	2	2	19
FRAMES - Fire Research and Management Exchange System	11	6	0	17
FCAMMS - Fire Consortia for Advanced Modeling of Meteorology and Smoke	14	1	1	16
FSPRO - Fire Spread Probability	11	4	1	16
FLAMMAP - Fire Behavior Mapping and Analysis	12	2	0	14
PFIRS - Prescribed Fire Reporting System	9	3	2	14
FCCS - Fuel Characteristic Classification System	7	4	1	12
FIREMON - Fire Effects Monitoring and Inventory System	7	4	1	12
FFE-FVS - Fire and Fuels Extension to Forest Vegetation Simulator	6	4	1	11
SASEM - Simple Approach Smoke Estimation Model	9	2	0	11
APROP - USDA Property Management System	8	2	0	10
FEPMIS - Federal Excess Property Management Information System	9	1	0	10
FHX2 - Fire History Software	5	2	1	8
NWIPS - Northwest MAC Incident Priority Application	8	0	0	8
FirePRO - Fire Program Budget Analysis System	4	2	0	6
VIPR - Virtual Incident Procurement System	4	2	0	6
NWPLPA - Northwest Preparedness Level Prediction Application	5	0	0	5
CALMET	4	0	0	4
CALPUFF	4	0	0	4
FEAT - Fire Ecology Assessment Tools	4	0	0	4
MAGIS - Multi-Resource Analysis and Geographic Information	1	2	1	4
NIFTT Tools - National Interagency Fuels Technology Team Tools	4	0	0	4
VCIS - Ventilation Climate Information System	4	0	0	4

Software Application	Center Employees	Militia Employees	AD/ Contractor	Totals
CALPOST	3	0	0	3
TSARS - Tiered Smoke Air Resource System	2	1	0	3
VDDT - Vegetation Dynamics Development Tool	2	1	0	3
CFES2 - California Fire Economics Simulator	2	0	0	2
SWRA - Southern Wildfire Risk Assessment	1	0	1	2
LANDSUM - Landscape Simulation Model	1	0	0	1
SAM - Sensitive Area Model	1	0	0	1
ASCADS - Automated Sorting Conversion & Distribution System	0	0	0	0

A brief description of each application used by the Wildland Fire Dispatch function is provided below under the heading of the functional area it supports.

Aviation Services

ABS - Aviation Business System: A web based application that has been implemented in all regions by the Forest Service to electronically document and process all contract aviation costs currently documented on FS-6500-122 Flight Use Invoice (invoice). A disconnected client, non-web limited component version, of the application is available for remote use. This new system requires that data be entered electronically into ABS from the source location (Helibase, Tanker Base, etc) by aircraft managers or other designated persons. From there the following workflow will be followed:

- The appropriate Contracting Officer (CO) or designated Contracting Officer's Representative (COR) will review and approve each invoice.
- The CO or COR will electronically select approved invoices to be packaged for payment and approve the package using a Personal Identification Number (PIN) to indicate approval.
- After approval by the CO or COR, the vendor will receive notification that a package is ready for approval.
- After successful review, and application of a PIN by the Vendor, the package will be submitted to the Albuquerque Service Center (ASC) Incident Database (IBDB) for final processing of the payment.
- If the vendor requests any changes to the payment package the changes will be reviewed by the CO/COR, the changes accepted or rejected, and notification of the results sent to the vendor. The package is then submitted directly to the ASC IBDB for payment.

Access to the system will require an individual USDA eAuthentication account and password for all users. In addition, a secure PIN number will be provided to Contracting Officers (COs) and Contracting Officer Representatives (CORs). Contractors will be issued a PIN number by the CO who administers their contracts. The pin will be required for electronic approval of payment packages. In addition, each user registers in ABS the first time they log on. Currently, some BLM employees are experiencing difficulty accessing the system. BLM is aware of this and working to resolve the issue.

AFF - Automated Flight Following System: A system that automatically tracks the location and velocity of specially-equipped aircraft and other mobile assets, providing this information in near-real-time to dispatchers, aviation managers, and other authorized users. The equipment includes geo-location and data communications devices that use satellite-based technology. AFF does not track

resources without this specialized equipment. The system is used by all federal agencies and some states.

The Project is currently in its first phase of implementation, the focus of which is refining operational requirements and increasing situational awareness in the aviation community through implementation of an initial system with limited aircraft and users.

ARS - Aviation Resource System: Database maintained by the Forest Service that contains a list of approved aircraft and pilots. The database was recommended in 2003 to become the sole aviation database used by the Forest Service. Users of this system will include Aircraft Dispatchers, Regional Aviation Officers, Regional Aviation Safety Managers, Contracting Officer's Representatives, Forest Aviation Officers and other agencies.

IAMS - Stand-alone aviation application: IAMS provides frequently used aviation functions to expedite field operations. The functions display aviation data as text. Graphical display of some of this information is also provided by the IAMS Maps application. IAMS provides the aviation utilities in a stand-alone mode. There are some limitations to the stand-alone mode, chiefly the dynamic data link Temporary Flight Restriction is not shared automatically between field units.

SAFECOM - Aviation Safety Communiqué Database: System used by all federal agencies and most states to fulfill the Aviation Mishap Information System (AMIS) requirements for aviation mishap reporting for the Department of Interior agencies and the US Forest Service. Categories of reports include incidents, hazards, maintenance, and airspace. The system uses the SAFECOM Form AMD-34/FS-5700-14 to report any condition, observation, act, maintenance problem, or circumstance with personnel or the aircraft that has the potential to cause an aviation-related mishap. It is a tool used to identify, document, track, and correct safety related issues. SAFECOM does not replace the requirement for initiating an accident or incident report.

Collaborative Sites

AgLearn - Computer based training: The Agriculture Learning (AgLearn) system is USDA's department-wide system for managing training records and activity at USDA. AgLearn is one of the USDA eGovernment strategic initiatives and directly supports the Presidential eGovernment initiative for e-Training. USDA employees and USDA partners will use AgLearn to search, access, enroll in, and record all training opportunities through the web, any time, any place. Training opportunities on AgLearn will include both online courses as well as instructor-led training. USDA employees will have a record of their training on AgLearn and also can plan their future career development in the system. By using AgLearn, USDA employees will have access 24x7, anytime, and anyplace.

DOI Learn - Computer based training: A learning management system managed by DOI, this system provides a single area in which to find learning opportunities offered by all training programs within DOI. The system also provides a means to electronically approve and track training events that are hosted by third-party vendors, outside of the DOI training network. More than just a learning tool, DOI LEARN will help DOI managers and their employees work together to set career development paths and Individual Development Plans. The system offers instructor-managed discussion boards, distance learning opportunities, and online training, all through a single login, and provides employees with a tool to track and manage all aspects of learning events—from reading an important document to participating in a mentoring program.

FCAMMS - Fire Consortia for Advanced Modeling of Meteorology and Smoke: FCAMMS was developed by the Forest Service to provide information to Fire Managers on a real-time basis using the capabilities of the World Wide Web. The Consortia relies on global scale weather information from NOAA, NASA, the military, universities, and national laboratories. The FCAMMS study the atmospheric component of the fire environment across space and time scales, and its interaction with other components, using a balance of basic and applied science to provide tools to the field now, and to create a basis for future science applications. They bring scientists and land managers together to create a focused research program and promote science delivery. FCAMMS is divided into five

regions. The regional structure of the FCAMMS allows better coordination with land management needs and locally unique fire problems, but the science developed by the FCAMMS is globally relevant and shared among the regions as needed and appropriate.

FireOrg - Dispatch Workload/Staffing: Nonprofit website offering public domain software for the Interagency Wildland Fire community.

FRAMES - Fire Research and Management Exchange System: The Fire Research and Management Exchange System or FRAMES is a systematic method of exchanging information and transferring technology between wildland fire researchers, managers, and other stakeholders. In partnership with the US Geological Survey's National Biological Information Infrastructure (NBII) Program, FRAMES is implementing web-based technologies that can help bridge the gap between science and management. The goal is to make wildland fire data, metadata, tools, and other information resources easy to find, access, distribute, compare, and use. In collaboration, the wildland fire research and management communities can use these technologies to help eliminate redundancy, reduce costs, and promote increased productivity and efficiency. FRAMES is utilizing cutting-edge informatics technologies to create a kind of marketplace for information and tools to service the operational needs of fire and fuels management. To help bridge the gap between wildland fire research and management FRAMES is striving to provide a single secure access point to critical information and primary applications. Such content includes datasets, databases, and publications, as well as research transformed into decision-support systems, simulation models, interactive CD-ROMs, videos, and other tools.

USFS FTP - FTP site: File Transfer Protocol managed by the Forest Service that allows data to be transferred across the internet.

LotusNotes – eMail: Client-Server collaborative application used for email, calendars, and scheduling.

NIFC FTP - FTP site: File Transfer Protocol managed by the National Interagency Fire Center that allows data transfer across the internet.

Historical and Reporting Services

AWSR - Annual Wildfire Summary Reporting: The Cooperative Forestry Assistance Act of 1978 requires the U.S. Department of Agriculture (USDA), Forest Service to collect information about wildfire suppression efforts by state and local fire fighting agencies to ensure that Congress has adequate information to implement its oversight responsibilities and to provide accountability for expenditures and activities under the Act. The Forest Service works cooperatively with state and local fire fighting agencies and provides supplemental funding to these agencies to support their fire suppression efforts through the Forest Service State and Private Forestry Cooperative Fire Program.

The Annual Wildfire Summary Report, FS-3100-8 form, is used to record and report state reportable wildfires and all qualifying non-Federal acreages burned. The Annual Wildfire Summary Report application (AWSR) enables state foresters to maintain electronically the required data on the Annual Wildfire Summary Report (FS-3100-8 form). The data is stored in an Oracle database that resides on an AIX database server at the National Interagency Technology Center (NITC). The Annual Wildfire Summary Report module allows you to create, view, search for, and prints Annual Wildfire Summary reports. As of April of 2007, the form is an official OMB form.

FACTS - USFS Activity Tracking System: FACTS is an activity tracking system for the Forest Service. It supports timber sales in conjunction with TIM Contracts and Permits; tracks and monitors NEPA decisions; tracks KV trust fund plans at the timber sale level, reporting at the National level; and, it generates National, Regional, Forest, and/or District Reports. FACTS is a nationally supported application that tracks land based activities through the NEPA, Layout, and Accomplished stages of a project. The agency utilizes FACTS to track accomplishments across all levels of the Forest Service. The program has expanded the use of the internet to reduce program delivery costs while providing information that can help the public participate in invasive species control, such as Exotic Forest Pest

Information System (EXFOR), the Mortality Risk Map (now in the final stages of revision), and the new Sirex risk map.

FHX2 - Fire History Software: Commercial Product used by the Forest Service and some states that helps analyze fire history using fire scars and other fire-related injuries found in the annual growth rings of trees. FHX2 provides a means for entering, archiving, storing, editing, and manipulating fire history information from tree rings, which in turn, provides a more efficient mechanism for data storage and exchange. FHX2 creates master fire charts displaying fire chronologies for individual trees or for individual sites. FHX2 has powerful statistical functions for analyzing the seasonality of past fires, temporal changes in fire regimes, or spatial differences in fire occurrence between sites. The software is capable of statistically analyzing and modeling fire interval distributions using the Weibull distribution. FHX2 also provides access to a superposed epoch analysis program for analyzing the relationship between past fire and climate.

FireStat - Fire Statistics System: Identified as a core system by NWFEA, FIRESTAT is a USDA, Forest Service application used to electronically enter information from the Individual Fire Report (form FS-5100-29) and store it in the application on FAMWEB at the National Information Technology Center (NITC) in Kansas City, Missouri. FIRESTAT is used to enter, update, and delete the required data on the Individual Fire Report, FS-5100-29 form. The Individual Fire Report provides timely statistical data and information for both administrative purposes and managers to use in making land and resource management decisions. The report is a record of fire occurrence, related fire behavior conditions, and the suppression actions taken by management. Data collected from fire reports can enable management to monitor the program performance and plan the most cost-effective Fire Management Organization.

FIRESTAT is used by:

- Regional Foresters - Responsible for establishing appropriate local reporting and review requirements to ensure that national reporting objectives are continually met and to ensure that the Regional fire record is complete and accurate in the national fire occurrence database.
- Forest Supervisors - Responsible for ensuring that fire reports for the calendar year are entered into the national fire occurrence database within the reporting time frame and ensuring that the forest fire record is complete and accurate in the national fire occurrence database.
- District Rangers - Responsible for preparing a complete and accurate report on each statistical wildfire on Form FS-5100-29, Individual Fire Report, within the reporting time frame.
- Reporting Unit Manager - Responsible for providing a report to all affected Forest Service units included in the Form FS-5100-29, Individual Fire Report, within the reporting time frame.
- National Interagency Fire Center staff in Boise, Idaho - Responsible for software user testing, installation, and software support.

As of December 2007, work is underway to develop an enterable electronic version of the FS-5100-29 form using FORMATTA. This will allow users to enter fire records without being logged into FIRESTAT or connected to the network. The data entered through the form can then be uploaded into FIRESTAT.

FMIS - Fire Management Information System: FMIS is a service-wide fire database that the Fire Management Branch of the U.S. Fish and Wildlife Service administers. FMIS contains fire information about the following:

- Fire Occurrence: Contains individual wildland fire and prescribed fire reports (DI-1202). Our Fire Management Handbook and Fire Management Home page contain specific information and completion instructions.
- FIREBASE: Contains fire management budget planning and programming.
- Incident Qualifications: Contains fire training and experience information and red card qualifications for individuals.
- Multi-Agency Training Schedule (MATS): Contains all agencies' training scheduled for each month.

InciWeb - Incident Information System: InciWeb is an interagency wildland fire incident information management system. The system was developed with two primary missions: The first was to provide a standardized reporting tool for the Public Affairs community during the course of wildland fire incidents. The second was to provide the public a single source of information related to active wildland fire information. A number of supporting systems automate the delivery of incident information to remote sources. This ensures that the information on active wildland fire is consistent, and the delivery is timely. Currently InciWeb is being tested within the U.S. Forest Service, and will be used nationally in 2007 Fire Season.

KCFAST - Kansas City Access: Identified as a core system by NWFEA used by all federal agencies and most states, KCFAST is a web-based computer application that simplifies data retrieval from NIFMID (National Interagency Fire Management Integrated Database). KCFAST builds the JCL (Job Control Language) required to query NIFMID for fire and weather data. The application is used for national or regional fire planning, identifying trends in fire cause, identifying trends in number of fires, and identifying trends in size of fires

The application is used by national or regional budget officials, fire planners, and Fire Management Offices.

NFIRS - National Fire Incident Reporting System: System maintained by FEMA and used in several states. The current NFIRS 5.0 collects information on a full range of fire department activity, and is fire-based. The NFIRS 5.0 system is modular in design. Data is collected for all incident types in a basic module. Additional modules for fires, structure fires, firefighter casualties, civilian casualties, EMS, hazardous materials, Wildland fires, apparatus and personnel are completed as necessary. The Apparatus/Personnel, EMS, Hazmat and Wildland fire modules are optional.

NFPORS - National Fire Plan Operations and Reporting System: A core system managed by BLM, NFPORS is the interdepartmental wildland fire system for reporting National Fire Plan accomplishments, including those agencies involved in hazardous-fuel reduction. The interdepartmental functionality of NFPORS is critical because the HFRA applies to both the DOI BLM and the USDA Forest Service. Data consistency between agencies is important.

The NFPORS database has been updated for reporting HFRA accomplishments. Field units will need to report fire regime and condition class determinations before and after treatments for all projects using the HFRA and HFI authorities, as well as for those funded by the National Fire Plan. Field units reporting accomplishments using the HFRA and HFI authorities will follow their agency's NFPORS reporting schedules and data-quality standards.

WFMI Reporting - Fire Reporting Application: This core fire reporting system hosted by the BLM the National Interagency Fire Center is part of the WFMI suite of applications originally designed for dispatchers. The application serves as the interagency computer database for the BIA, Bureau of Land Management (BLM), and National Park Service (NPS). When fire reports are archived in WFMI, the information from the reports is used to quantify and otherwise characterize the unit's workload for formal planning and reporting efforts. This data provides the basis for budget and resource planning

and allocation decisions. It is also used to for other critical purposes, such as measuring compliance with performance elements, developing statistical summaries, etc.

Incident Management

DI-1202 - DOI Incident Reporting: The DI-1202 is the Bureau of Land Management's official reporting document for all wildland fire activities. The Office of Fire and Aviation (OF&A) will use the information in the DI-1202s to make entries into National Fire Plan Operating and Reporting System (NFORS) as required by the Office of Wildland Fire Coordination (OWFC). At the end of each fiscal year (FY), the OF&A will summarize the data and submit it for inclusion in the National Fire Plan Annual Performance Report.

FIMT - Fire Incident Mapping Tool: Interagency resource managed by the Forest Service that was released as a prototype application and distributed for testing during the 2004 fire season. FIMT is an ArcMap 8.3 extension developed by the ESRI-Denver Professional Services Group that provides all the tools necessary to manage GIS fire incident data using a standardized geodatabase model and map symbology for fire incident mapping. The purpose of the extension is to support wildland fire incidents. Data standards and symbology are extremely important due to the chance that many people from different locations and agencies could be using the maps and information. In 2006, the National Wildfire Coordinating Group (NWCG) released GIS standards for standard operating guidelines. Within those guidelines were minimum data, map content, symbology, and export requirements. The FIMT tools meet those requirements.

The FIMT is greatly based on the Incident Command System (ICS). This method of managing a fire incident goes back for decades and the use of terms, processes, and symbols have been developed and used by many organizations to standardize the bringing of personnel from many different locations and have them be able to operate efficiently together. Any deviation from the ICS system will cause the use of this program to be questionable.

ICS-209 - Daily Incident Report: The Incident Status Summary, Form ICS-209, is used for reporting information on incidents of significance. This Program is based on the ICS-209 Form approved by the National Wildfire Coordinating Group (NWCG) in June 2003. The Incident Status Summary, also known as a "209", should be completed according to the Geographic Area's Mobilization Guide. The information collected on the ICS-209 includes over 40 discrete data elements. Accurate and timely completion of the Incident Status Summary is necessary to determine appropriate resource allocation during multiple incident occurrences. The information included on the form often determines the priority of a given incident, and thus its share of the resources available. A Web-based program called the 209 Program has been developed to allow for more efficient processing of the ICS-209 form. The intent is for the information to be entered at the level closest to the incident—at an incident when possible, then at Dispatch Center, etc. Once information has been submitted, it can then be accessed and utilized at the local, geographic, and national levels. This Internet-based program can be accessed from the World Wide Web, and does not require any special type of connection other than internet access. To utilize this program, a user receives a username and appropriate access.

I-Suite - Incident Business: Interagency application managed by the Forest Service that consists of the Incident Resource Status System (IRSS), Incident Cost Accounting and Reporting System (ICARS), Incident Time System (ITS), and the Incident Action Plan (IAP). Together, these applications are called the "I-Suite". These applications are integrated, which means that they have a similar user interface, and share a common database. Data need only be entered once to be available to all the applications. Each application can still be used independently. As of December 2007, the current release is 7.01.05.

MODIS - Active Fire Mapping Program: A collection of maps compiled at the USDA Forest Service (USFS) Remote Sensing Applications Center in cooperation with NASA Goddard Space Flight Center (GSFC), the University of Maryland, the National Interagency Fire Center, the University of Alaska-Fairbanks, the University of Wisconsin Space Science Engineering Center, and the USFS Missoula Fire Sciences Lab. The fire locations are mapped using imagery collected by the Moderate Resolution

Imaging Spectroradiometer (MODIS). The MODIS instrument is on board the Terra and Aqua satellite platforms. Each MODIS sensor provides daily image coverage of the entire surface of the Earth in the mid to high latitudes every day. Thermal information is collected at 1000-meter spatial resolution and is collected twice daily by each sensor providing up to four thermal observations daily. The MODIS Active Fire Maps provide coverage for each of the eleven Geographic Areas of the United States in addition to an overview map for the eastern and western United States. A map is compiled for each Geographic Area at least once daily. For Geographic Areas experiencing significant fire activity, maps are published up to four times daily following MODIS overpasses. The primary objective of the MODIS Active Fire Maps is to provide a current overview of the regional and national wildland fire situation. This information is utilized by Fire Managers to assess the current fire situation and serve as a decision support tool in strategic decisions regarding fire suppression resource allocation. These maps and data are not intended for tactical planning or assessment at the local level.

NWIPS - Northwest MAC Incident Priority Application: To assist with the task of prioritizing incidents, allocating scarce firefighting resources, and meeting reporting requirements of the National MAC Group (NMAC), the NW MAC has developed an Incident Prioritization Worksheet (IPW). The IPW is to be completed for each incident and must be submitted daily if no communities or critical infrastructures are threatened.

Logistics Management

AltarisCAD - Computer Aided Dispatch: A commercial product used by the California Department of Forestry. It automates "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. 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. The system has 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, and fire number are recorded along with a running log of communication with the responders on the fire or other parties.

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. The result is that this system was not linked to ROSS until version 2.7 was deployed. In older versions of ROSS, core data such as fire location, date, number, size, etc. are manually re-entered into ROSS in order to place the resource orders. Additionally, this system is not linked to all other information systems, so any of the information entered into the CAD must sometimes be re-entered later into other systems (such as for submitting situation reports).

APROP - USDA Property Management System: A legacy program that will be shut down after the Corporate Property Automated Information System (CPAIS) is expanded to include a personal property module.

DMS - Dispatch Messaging System: Identified as a core system by NWFEA used by all federal agencies and most states, DMS is an alternative e-mail system for transmission of mission critical information supporting the needs of the emergency dispatch community. DMS can be used by any wildland dispatch office and is a web-based application. It is not any one agency's administrative mail system. There are no personal profiles, only generic profiles related to dispatching. DMS is used between dispatch offices and caches for .mob, commit messages, document exchange, team rotation schedules, and other mission critical information. It has the ability to expand to incidents at the direction of the dispatch business community.

FEPMIS - Federal Excess Property Management Information System: Identified as a core system by NWFEA used by the Forest Service and state agencies, FEPP is a program under which authority the USDA Forest Service, Fire and Aviation Management Staff may acquire excess property from other Federal agencies for use in their rural and wildland fire programs. Once acquired by the Forest

Service, it is loaned to state cooperators for fire fighting purposes. The State Forester makes the initial decision that a FEPP item is appropriate for use, and the USDA Forest Service must concur. The property is then loaned to the State Forester, who may then place it with local departments to improve local fire programs. Approximately 70% of the property involved in the Forest Service FEPP program is sub-loaned to local fire departments.

State Foresters and the USDA Forest Service have mutually participated in the FEPP program since 1956. Program authorities include the Federal Property and Administrative Services Act of 1949 and the Cooperative Forestry Assistance Act of 1978. Recipients of FEPP need only have a wildland or rural fire responsibility that satisfies the State Forester.

A redesign of FEPMIS was scheduled to be completed in the fall of 2007. The system is a web-based application running on Oracle 9ias connecting to an Oracle 8i database.

ICBS - Interagency Cache Business System: Identified as a core system by NWFEA, ICBS is the automated cache inventory system designed to assist in inventory control and cost accounting for all items stocked in the National Fire Equipment System (NFES). The application is intended for use by the USDA, Forest Service (USFS) and USDI, Bureau of Land Management (BLM) National Interagency Support Caches. ICBS is a legacy system that will be replaced in spring of 2008 by Interagency Cache Business System - Re-Engineering (ICBS-R) being developed by Manugistics.

ROSS - Resource Ordering and Status System: Identified as a core system by NWFEA used by all federal agencies and most states, the ROSS project is a National Wildfire Coordinating Group (NWCG) sponsored information systems development project. ROSS is a computer software program that automates the resource ordering, status, and reporting process. Established in 1997 and chartered by the NWCG in June 1998, the scope of the project focuses on automating current processes enabling dispatch offices to electronically exchange and track information in near real-time. ROSS tracks all tactical, logistical, service, and support resources mobilized by the incident dispatch community.

ROSS operates in an estimated 400 interagency Dispatch and Coordination Centers throughout the Nation. The ROSS Project Team is comprised of representatives from the Bureau of Indian Affairs, Bureau of Land Management, Department of the Interior, US Fish & Wildlife Service, National Park Service, National Information Technology Center, US Forest Service, state representatives, and supporting contractors.

The system is a java client that communicates with a central server located at the National Information Technology Center. Development work on version 2.8 is in process. Deployment is estimated to begin in late spring of 2008. Major components will include: ICBS-R Data Exchange for Catalog, Incidents; Cognos Query Studio, and solutions to many Change Requests

WildCAD - Computer Aided Dispatch: A commercial product used principally in Bureau of Land Management managed dispatch offices and in some Forest Service offices. Identified as a core application to conducting Wildland fire business, it automates "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. 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. The system has 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, and fire number are recorded along with a running log of communication with the responders on the fire or other parties.

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. The result is that WildCAD is not currently 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. Additionally, this system is 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).

Integrating the current WildCAD system with ROSS will require continual mapping and conversion among between the applications. Further, until all technical and security issues with WildCAD are resolved, an interface with ROSS is not possible and will not be funded. Despite being the most frequently used CAD system, technical support is limited.

WINCAN - Windows Computer Aided Navigation: A program used by the Forest Service that converts a Public Land Survey System (PLSS) to latitude and longitude and UTM (Universal Transverse Mercator). The software was developed for fire and EMS dispatchers for emergency aircraft. It also gives bearing and distance from airports and heliports in ascending distance order (you can create and add your own points).

Planning and Budget Services

CFES2 - California Fire Economics Simulator: Software used by the California Department of Forestry (CDF) to evaluate the department's initial attack fire protection organization. CFES2 facilitates a wide range of "what if" analyses to help managers anticipate the consequences of organizational changes by measuring the capability of initial attack forces to contain wildfires before they can become large and damaging. CFES2 gets many of its key simulation parameters from probability distributions. These distributions provide a realistic simulation of fire starts, fire behavior and institutional response and productivity over time. CDF managers can include various constraints on the availability of fire suppression resources and use sophisticated methods for modeling containment strategies and tactics. The California Fire Plan uses CFES2 to determine the Level of Service (LOS) rating provided by the state-funded initial attack organization. The LOS rating is the ratio of successful fire suppression efforts to the total fire workload, and measures initial attack success and failure rates throughout California wildlands. This analysis will provide information to the Board of Forestry so that it may evaluate performance of the department in meeting its statutory mandate to provide "equal protection to lands of similar type."

EaTIS - Equipment and Training Inventory System: Used by the Forest Service, EaTIS is an automated, web-based application that is being used by federal agencies to execute, manage, and report on pre-season incident procurements. EaTIS is a pilot system in three Forest Service Regions (Northern, Pacific Southwest, and Pacific Northwest) for select Emergency Equipment Rental Agreements (EERAs). EaTIS also provides access to an aviation data entry system for sending information to the Aviation Business System for electronic payment data collection.

FireCode: Identified as a core system by NWFEA for planning that is used by all federal agencies and most states, the FireCode System is intended to be a stand-alone web-based system designed to provide functionality that allows users to generate standard fire incident codes. The FireCode System generates a four-character fire incident code (or FireCode) that is used to track and compile cost information for fires. In particular, the system is expected to assist the National Fire Plan Agencies in tracking costs for multi-jurisdictional fire suppression incidents. It is expected that the system will prevent the establishment of multiple FireCodes for the same incident.

The five (5) Federal agencies with Wildland Fire Management funds (BLM, BIA, NPS, FWS, and USFS) have an Interagency Agreement for Fire Management that provides a basis for cooperation on all aspects of wildland fire activities. Included in this agreement is the direction to NOT bill for services rendered for emergency fire suppression, including severity activities. All fire suppression orders are to have an interagency FireCode assigned by the ordering office. The BLM, FWS, NPS and BIA will use a four (4) digit interagency FireCode to track and compile costs for all severity activities.

FirePRO - Fire Program Budget Analysis System: Budgeting and planning application used by the NPS as part of Shared Application Computer System (SACS) that has now been replaced by the Fire Program Analysis (FPA) System.

IIAA - Interagency Initial Attack Assessment: Identified as a core system by NWFEA used by BLM, USFS, and BIA, the IIAA99 is a tool used to develop budget requests as part of the National Fire Management Analysis System (NFMAS) process. IIAA99 is intended to help the fire planner analyze different scenarios, or "Program Options", which describe mixes of fire-fighting resources and other budget items. This analysis will primarily focus on finding MEL - the "Most Efficient Level" of funding. Should be replaced by the FPA System.

PCHA - Personal Computer Historical Analysis: Identified as a core system by NWFEA used by all federal agencies and most states that allows the user to analyze historical wildland fire occurrence for wildland fire planning. The program allows review and edit of data, generates fire scenarios for import into FPA, creates summaries for further fire planning, and data use in various other ways. PCHA provides analytical capability to demonstrate when the staffing of preparedness fire resources should occur based upon historical fire occurrence records and National Fire Danger Rating System (NFDRS) indices.

RAMS - Risk Assessment and Mitigation Strategies: Identified as a core system by NWFEA used by BLM and BIA, RAMS provides a consistent process for developing prevention and fuels management programs. RAMS allows users to prioritize areas within their planning unit, consider various prevention and/or fuels treatment alternatives, and develop a budget. RAMS includes three components:

- Assessment: intended to identify the highest priority areas in which to consider fuels and/or prevention work.
- Prevention: users develop one or more fire prevention options, with costs and work details
- Fuels: identifies potential fuels treatment strategies and projects.

A final report printed from RAMS shows any or all of the Assessment, Prevention, or Fuels work. It is expected that RAMS will be replaced by the FPA System.

SWRA - Southern Wildfire Risk Assessment: The purpose of the SWRA was to identify the potential for serious fires within the thirteen states that make up the Southern Region and to prioritize areas where mitigation options may be desirable. The final SWRA report was published in November of 2006. The initial goal of the project was to describe the historical problem of fire in the south to establish a baseline dataset. The collected data is to assist in wildland fire risk analysis. A project web site is used to facilitate distribution of data and reports.

VIPR - Virtual Incident Procurement System: VIPR will be the new application that will replace EaTis. Expected to be fully operational for 2009 season.

Portals and Gateways

GeoMAC - Geospatial Multi-Agency Coordination: A system available to all federal agencies, GeoMAC is an internet-based mapping application designed for Fire Managers to access online maps of current fire locations and perimeters in the conterminous 48 states and Alaska. Using a standard web browser, fire personnel can view this information to pinpoint the affected areas. The GeoMAC web site allows users in remote locations to manipulate map information displays, zoom in and out to display fire information at various scales and detail, and print hard copy maps for use in fire information and media briefings, dispatch offices and Coordination Centers. The fire maps also have relational databases in which the user can display information on individual fires such as name of the fire, current acreage and other fire status information.

The GeoMAC team is a multi-agency group with technical and subject matter experts from the Department of Interior's fire management agencies - the Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, and the Bureau of Indian Affairs, and the United States Forest Service of the Department of Agriculture. As the sole science agency for the Department of the Interior the U.S. Geological Survey also plays a pivotal role by hosting and maintaining the GeoMAC website. Other partners include the National Interagency Fire Center, U.S. Department of the Interior -

Office of Wildland Fire Coordination, U.S. Department of Agriculture, and the National Oceanic & Atmospheric Administration.

FAMWEB - Fire and Aviation Management Web Applications: The FAMWEB web site brings together a variety of applications, tools, and services related to interagency fire and aviation management managed by the National Wildfire Coordinating Group (NWCG) and participating agencies. The website provides detailed information, data access, and application entry points for system users, interagency partners, providers, and the public.

In the future, the FAMWEB web site will provide access to the FAMWEB Data Warehouse (FDW). In support of the basic goal of providing more efficient and cost effective fire suppression are research efforts and prescribed fire programs, which rely on the ability to analyze current, historical, and other related fire data. The FDW will provide users with a Web interface to flexible reporting tools integrating data from a variety of fire, weather, and aviation databases. The FDW will integrate fire and weather related data from the Fire Statistics (FIRESTAT) system, Weather Information Management System (WIMS), National Interagency Situation Report (SIT/209), and Annual Wildfire Summary Report (AWSR). It will also provide access to Federal Excess Property Management System (FEPMIS) information. Information resources within the warehouse will be accessed through a web-based user interface allowing users, based on security roles, to view and print standard reports, create their own queries and reports, and conduct advanced analysis.

Predictive Modeling Services

BlueSky - Airshed / Smoke Management: BlueSky is a product developed by the USDA Forest Service that links computer models of fuel consumption and emissions, fire, weather, and smoke dispersion into one system for predicting the cumulative impacts of smoke from: prescribed fire, wildland fire, agricultural fire (from the ClearSky agricultural burn simulation system operated by Washington State University).

Every night BlueSky obtains a regional meteorological forecast and burn information from state and federal agency burn reporting systems. The merging of these data with models of fuel consumption and emission, and dispersion and trajectory models results in a regional forecast of smoke concentrations for the next two days.

CALMET: Commercial product used for smoke management. CALMET is a meteorological processor that was modified to enable use of vertical profiles of wind and temperature as characterized by the MM4-FDDA (Mesoscale Model-4 with Four-Dimensional Data Assimilation) meteorological model. CALMET is a component of the CALPUFF modeling system.

CALPOST: As a component of the CALPUFF modeling system, CALPOST is a post-processor program that has been modified for ease of use and interpretation. CALPOST was modified to include a light extinction algorithm for use in regional visibility impact assessments.

CALPUFF: An advanced non-steady-state meteorological and air quality modeling system developed to simulate the effects of time and space and varying meteorological conditions on pollution transport, transformation, and removal. CALPUFF can be applied on scales of tens to hundreds of kilometers. It includes algorithms for subgrid scale effects (such as terrain impingement), as well as, longer range effects (such as pollutant removal due to wet scavenging and dry deposition, chemical transformation, and visibility effects of particulate matter concentrations). The model has been adopted by the U.S. Environmental Protection Agency (U.S. EPA) in its Guideline on Air Quality Models as the preferred model for assessing long range transport of pollutants and their impacts on Federal Class I areas ... and on a case-by-case basis for certain near-field applications involving complex meteorological conditions. The modeling system consists of three main components and a set of preprocessing and post-processing programs. The main components of the modeling system are CALMET (a diagnostic 3-dimensional meteorological model), CALPUFF (an air quality dispersion model), and CALPOST (a post-processing package). Each of these programs has a graphical user interface (GUI). In addition to these components, there are numerous other processors that may be used to prepare geophysical

(land use and terrain) data in many standard formats, meteorological data (surface, upper air, precipitation, and buoy data), and interfaces to other models such as the Penn State/NCAR Mesoscale Model (MM5), the National Centers for Environmental Prediction (NCEP) model and the RAMS meteorological model.

Cheetah - Computerized Harmonic Evaluation of Episodes and Tools for Assessment and Help:

Commercial product developed to support examination of fire occurrence patterns and fire suppression resource requirements at the National and Geographic Area level. Questions are frequently asked on the expected fire suppression resource needs by the National and Geographic Area decision-makers and managers need to assess fire occurrence patterns to predict future fire suppression resource requirements. The fire occurrence data used by Cheetah 2 is contained in a Microsoft Access database (mdb). The mdb is located in the directory where the Cheetah 2 program is installed.

Two programs are used in Cheetah. These are Cheetah 2 Data Manager and Cheetah 2 Analyzer.

- The purpose and function of the Cheetah 2 Data Manager program is to manage the organizational units and fire occurrence records in the fires database. This function is normally performed at the National level with support from the Geographic Area Coordination Centers (GACCs).
- The purpose and function of the Cheetah 2 Analyzer program is the analysis of fire occurrence data to support decision-making. Analysis is done on Analysis Sets containing fires by year, by agency and by GACC(s), state(s) or unit(s). Particular attention is available to analyze fire occurrence episodes as they relate to large fire occurrence.

CONSUME - Fuel consumption: Identified as a core system by NWFEA used by the Forest Service, CONSUME is a user-friendly software application designed for resource managers and scientists with some working knowledge of Microsoft Windows applications. Land managers and researchers input fuel characteristics, lighting patterns, fuel conditions, and meteorological attributes, then CONSUME outputs fuel consumption and emissions by combustion phase. The latest version, CONSUME 3.0 is designed to import data directly from the Fuel Characteristic Classification System (FCCS), and the output is formatted to feed other models and provide usable outputs for burn plan preparation and smoke management requirements. CONSUME can be used for most forest, shrub and grasslands in North America.

FCCS - Fuel Characteristic Classification System: Identified as a core system by NWFEA used by the Forest Service, FCCS offers Fire Managers, air quality managers, researchers, and carbon modelers across the United States a comprehensive, nationally consistent, and durable system of fuelbed classification that captures the structural complexity and geographical diversity of fuelbeds. The FCCS is an alternative to stylized fuel models. It is designed to provide the best possible calculations of fuelbed characteristics and potential fire behavior and effects, given as much or as little site-specific information as is available. It provides fuels data along with inputs necessary for fire effects, fire behavior, dynamic vegetation, smoke emission and carbon sequestration models. It also provides fire potentials, specifically, indices representing the intrinsic capacity of a fuelbed for surface fire behavior, crowning potential, and fuel consumption. The fire potentials can then be used to assess fire potential hazards and support fuel treatment decisions at local, regional and national scales. The FCCS facilitates mapping of fuels and fire hazard, and simplifies communication of the degree of fire hazard.

FEAT - Fire Ecology Assessment Tools: A system used by the Forest Service and the National Park Service, FEAT is a comprehensive, relational database management system that was developed to support immediate and long-term monitoring and reporting of fire effects in the National Park Service units. The system will make monitoring data readily available at the Park level, with the long-term goal of having Internet-accessible databases at the local, regional, and national level in order to disseminate results to land managers (fire and resource professionals) and other scientists. FEAT's data structure and design will facilitate data sharing between the NPS Wildland Fire Management

Program, natural resource programs, and other agencies, resulting in broader and more comprehensive landscape scale assessments.

Spatial data is used to define monitoring or sampling strata based on fire history as well as any combination of other spatial resource data, such as hydrology, vegetation cover, elevation, facilities, road networks, or management plans. The system supports the generation of located sample plots, allows collection of field sampling data using digital PDAs, automated database updating, statistical data analysis, and reporting of sampling results.

FEAT is now being combined with the NPS funded Fire Ecology Assessment Tool into a new monitoring tool called FFI (FEAT/FIREMON Integrated). Data migration will occur between December 2007 and February 2007.

FEIS - Fire Effects Information System: Identified as a core system by NWFEA used by all federal agencies and most states, FEIS provides up-to-date information about fire effects on plants and animals. The FEIS database contains literature reviews, taken from current English-language literature of about 900 plant species, 7 lichen species, about 100 wildlife species, 17 Research Project Summaries, and 16 Kuchler plant communities of North America. The emphasis of each review and summary is fire and how it affects species. Background information on taxonomy, distribution, basic biology, and ecology of each species is also included. Reviews are thoroughly documented, and each contains a complete bibliography. Managers from several land management agencies (Forest Service, Bureau of Indian Affairs, Bureau of Land Management, Fish and Wildlife Service, and National Park Service) choose the species included in the database. Those agencies funded the original work and continue to support maintenance and updating of the database.

FFE-FVS - Fire and Fuels Extension to Forest Vegetation Simulator: A system used by the Forest Service, The Fire and Fuels Extension to the Forest Vegetation Simulator (FFE-FVS) links FVS with models of fire behavior, fire effects, fuel loading, and snag dynamics. Model outputs include predictions of potential fire behavior and effects and estimates of snag levels and fuel loading over time. Because FFE is linked to the FVS growth model, it can help assess both the short and long-term effects of fuel treatments and other management activities.

FFP - FireFamily Plus: Identified as a core system by NWFEA used by all federal agencies and most states, FFP is a Windows program that combines the fire climatology and occurrence analysis capabilities of the PCFIRDAT, PCSEASON, FIRES, and CLIMATOLOGY programs into a single package with a graphical user interface. FireFamily Plus operates against a database of fire weather and fire occurrence. It is used for summarizing and analyzing daily weather observations and computing fire danger indices based on the National Fire Danger Rating System (NFDRS). Local fire occurrence data can be integrated in most analysis functions. FireFamily Plus allows definitions and computations based on Special Interest Groups (SIGS) and can generate NFDRS FireFighter Pocket Cards. **FIREMON - Fire Effects Monitoring and Inventory System:** A system used by the Forest Service and the National Parks Service, FIREMON is an agency independent plot level sampling system designed to characterize changes in ecosystem attributes over time. The system consists of a sampling strategy manual, standardized sampling methods, field forms, Access database, and a data analysis program. The system was developed by the U.S. Forest Service.

FIREMON is now being combined with the NPS funded Fire Ecology Assessment Tool into a new monitoring tool called FFI (FEAT/FIREMON Integrated). FIREMON will still be supported but further development and updates may be suspended. Data migration will occur between December 2007 and February 2007.

Farsite - Fire Area Simulator: FARSITE is a fire behavior and growth simulator for use on Windows computers. It is core system used by Fire Behavior Analysts from the USFS, NPS, BLM, and BIA. FARSITE is designed for use by trained, professional wildland fire planners and managers familiar with fuels, weather, topography, wildfire situations, and the associated concepts and terminology. It uses spatial information on topography and fuels along with weather and wind files. FARSITE also

incorporates the existing models for surface fire, crown fire, spotting, post-frontal combustion, and fire acceleration into a 2-dimensional fire growth model.

FARSITE users must have the support of a geographic information system (GIS) to use FARSITE because it requires spatial landscape information to run. Because of its complexity, only users with the proper fire behavior training and experience should use FARSITE where the outputs are to be used for making fire and land management decisions.

FLAMMAP - Fire Behavior Mapping and Analysis: Identified as a core system by NWFEA used by the Forest Service and the National Parks Service, FlamMap is a fire behavior mapping and analysis program that computes potential fire behavior characteristics (spread rate, flame length, fireline intensity, etc.) over an entire FARSITE landscape for constant weather and fuel moisture conditions. FlamMap software creates raster maps of potential fire behavior characteristics (spread rate, flame length, crown fire activity, etc.) and environmental conditions (dead fuel moistures, mid-flame wind speeds, & solar irradiance) over an entire FARSITE landscape. These raster maps can be viewed in FlamMap or exported for use in a GIS, image, or word processor. It uses the same spatial and tabular data as FARSITE, but FlamMap is not a replacement for FARSITE or a complete fire growth simulation model. There is no temporal component in FlamMap. It uses spatial information on topography and fuels to calculate fire behavior characteristics at one instant.

Users may need the support of a geographic information system (GIS) analyst to use FlamMap because it requires spatial coincident landscape raster information to run.

FOFEM - First Order Fire Effects Model: Identified as a core system by NWFEA used by USFS, NPS, and FWS, FOFEM is a computer program developed to meet the needs of resource managers, planners, and analysts in predicting and planning for fire effects. It is used for predicting tree mortality, fuel consumption, smoke production, and soil heating caused by prescribed fire or wildfire.

FOFEM will be useful in a variety of situations. Examples include:

- setting acceptable upper and lower fuel moistures for conducting prescribed burns
- determining the number of acres that may be burned on a given day without exceeding particulate emission limits
- assessing effects of wildfire
- developing timber salvage guidelines following wildfire
- comparing expected outcomes of alternative actions.

FOFEM is national in scope. It uses four geographical regions: Pacific West, Interior West, North East, and South East. Forest cover types provide an additional level of resolution within each region. Geographic regions and cover types are used both as part of the algorithm selection key, and also as a key to default input values.

FSPPro - Fire Spread Probability: Used by the Forest Service, FSPPro calculates the probability of fire spread from a known perimeter or point in an absence of suppression efforts; a combination of RERAP and FARSITE. It is designed to be part of the Wildland Fire Decision Support System (WFDSS) and provides long-term and strategic decision support. FSPPro works by simulating thousands of fires with different weather scenarios using a minimum travel time (MTT) fire spread method. FSPPro helps managers prioritize firefighting resources based on probabilities of fire spread. The model helps to assess a fire's growth potential. Managers can then match up appropriate strategy, tactics and resource allocations.

LANDSUM - Landscape Simulation Model: A system used by the Forest Service, LANDSUM and its predecessor CRBSUM were developed as research tools to investigate landscape fire succession modeling, but the models can be used as management tools. The processes modeled are succession, harvest, disease, and fire; the classification system used is structural stages and cover types within potential vegetation types. In addition to classified vegetation, outputs can include summaries of land area affected by processes by year, harvest area, and if accompanied by a user-supplied volume table, harvest volume. LANDSUM is stochastic and spatial.

MAGIS - Multi-Resource Analysis and Geographic Information: MAGIS is a Spatial Decision Support System used by the Forest Service for scheduling a variety of vegetation treatments and road-related activities including construction, reconstruction, and obliteration. MAGIS uses optimization to select the spatial arrangement and timing of treatments that fits user-determined objectives and constraints. MAGIS users can also specify the location and timing for specific treatments to test 'what-if' scenarios. <http://www.fs.fed.us/rm/econ/magis/express1.shtml>MAGIS includes a wide variety of options for analysis and is designed for spatial watershed analysis with wide objectives and issues. A variety of resource effects, management targets, and economic costs or benefits can be used to specify the objective and constraints for scheduling both vegetation treatments and road activities. Solutions are represented as maps and in tables. MAGIS can be used by GIS experts and by GIS novices.

NIFTT Tools - National Interagency Fuels Technology Team Tools: NIFTT is sponsored by National Interagency Fuels Coordination Group (NIFCG) to coordinate, develop, and transfer consistent, efficient, and science-based fuel and fire ecology assessment technologies. Specifically, NIFTT will - through development of a strategic approach - provide guidance, training, and application tools for the implementation of these technologies. Tools can be downloaded from the web.

PFIRS - Prescribed Fire Reporting System: PFIRS serves as an interface between air quality managers, land management agencies, and individuals that conduct prescribed burning in California. It is intended to facilitate communications by providing access to a database containing information on burn planning, burn approvals, and emissions information. PFIRS will enable individuals involved in prescribed burning the ability to view this information on a statewide level.

PFIRS is a joint project of the California Air Resources Board, federal land management agencies, local air districts, and various fire agencies.

SAM - Sensitive Area Model: SAM is a spatial analysis tool that allows multiple-theme overlays, theme buffering, and weighting of input themes to analyze sensitive resource areas within National Park Service units. The model was previously known as the Quiet Places initiative during its prototype development. The Quiet Places effort intended to support three related yet independent topics of concern to the NPS Soundscape Management program:

- Air Tour Management Planning (ATMP)
- Implementation of soundscape management per Director's Order 47
- The delineation of Military Operation Areas (MOA)

While SAM has been developed with soundscape management issues in mind, this tool has utility beyond soundscape-related issues. Spatial and temporal modeling is made relatively easy through the model interface and park managers should as a result find opportunities to address other resource management questions using this tool.

SASEM - Simple Approach Smoke Estimation Model: Identified as a core system by NWFEA, this program used by the NPS calculates the consumption of fuel, emission of particles, and dispersion of pollutants produced by prescribed burning of forest and range vegetation. It is used as a screening and planning model designed to predict ground level dispersion of particulate matter and visibility impacts from single sources in relative flat terrain in the western United States. SASEM utilizes internally calculated plume rise and emission rates based on specified fuel types and configurations. SASEM is part of the Tiered Smoke Air Resource System (TSARS).

TSARS - Tiered Smoke Air Resource System: A system used by the Forest Service, TSARS allows fire management field officers to test fire prescriptions for smoke management problems. Models with a high degree of rigor can be used to solve problems that are more complex, however, higher user proficiency is required.

It is intended that TSARS be available on the second generation IAMS system, and also on IBM compatible personal computers.

VCIS - Ventilation Climate Information System: Funded by the USDOI-USDA Joint Fire Science Program, the VCIS allows users to assess risks to values of air quality and visibility from historical patterns of ventilation conditions. It is available through an interactive, Internet map server that allows maps of ventilation potential to be overlain with sensitive receptors, terrain features, or political boundaries. The ventilation index data apply to local, regional, or national scales, for use by local, state, tribal, and federal managers of smoke or other pollutants. Maps and graphs of historical ventilation conditions can be included in fire- or smoke-management plans, used to illustrate concerns in public meetings, and overlain with other values at risk. The data can be used to help develop plans for avoiding smoke impacts and optimizing the use of prescribed fire at specific places or certain times of year. Spatial patterns of risks to air quality and visibility are illustrated in maps of monthly averaged values. Frequency statistics at selected points show temporal dimension of risk. Values at risk can be assessed for specific airsheds and compared over time or with other airsheds.

VDDT - Vegetation Dynamics Development Tool: Identified as a core system by NWFEA used by the Forest Service, VDDT examines the impact of landscape scale disturbances while evaluating alternative management treatment levels. VDDT simulates changes in vegetative composition and structure in response to both management treatments and natural disturbances. Vegetation is classified into discrete states and pathway diagrams portray the succession between states. Disturbance probabilities for factors such as wildfires, insects, and fuel treatments are defined and also cause transitions between states. The sensitivities of the system to changes in assumptions are easily evaluated. VDDT is a stochastic model and can perform and summarize up to 300 simulations in one run. VDDT can be used as the primary analytical tool for Forest Plan revisions, or can be used to support other models.

WFAS - Wildland Fire Assessment System: Identified as a core system by NWFEA managed by the Forest Service and used by all federal agencies, WFAS is an internet-based information system. The current implementation provides a national view of weather and fire potential, including national fire danger and weather maps and satellite-derived "Greenness" maps. It also provides an on-line archive of its map products. WFAS was redesigned in 2002 to provide easier access to products and vastly improve the archival process. The archives now provide real-time access to past map images including fire danger, heavy fuel moisture, Haines Index, and greenness.

Safety, Workforce, Workflow, and Staffing

CHS - Comprehensive Health Services: CHS is a commercial product used by the Forest Service to provide service to the Interagency Medical Standards group.

FIRES - Fire Integrated Recruitment Employment System: FIRES is a secure web-based recruitment system managed by the Department of the Interior that allows you to apply for temporary fire positions within the Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), US Fish and Wildlife Service (USFWS), and the National Park Service (NPS) online. FIRES is also integrated with USAJOBS to provide a faster and easier application process.

IQCS - Incident Qualifications Certification System: IQCS is an information system that tracks training and certifications for Wildland Firefighters. As an interagency application, it allows the sharing of Wildland Firefighter training and certification data across all involved agencies (BLM, NPS, BIA, FWS, and the USFS). IQCS also provides All Risk (i.e. oil spills, HAZMAT, hurricane response, etc.) tracking functionality to personnel that perform emergency response duties. This project combined the legacy Federal qualification systems into a single interagency application. IQCS migrated data from the Department of the Interior Mainframe Shared Applications Computer System (SACS) that managed qualifications for the four DOI Bureaus associated with Wildland Fire and it integrated 160+ separate qualification databases managed by individual Forests in the US Forest Service. The system also provides the ability in the future to incorporate data from each of the 50 state maintained qualification systems. The four major functions that IQCS performs are as follows:

- Certification Standards Management: IQCS contains the Wildland fire incident response position performance standards and their respective qualification and certification requirements.
- Training Management: IQCS can interface with LMS's or provide stand-alone abilities for course/offering descriptions, learning objectives, pre-course requirements, class schedules, student registration and class participation information.
- Workforce Analysis: IQCS can report and forecast the disposition, status and deficiencies of all tracked positions from any agency in the incident response community; using a snapshot up to a 3-5 year projection.
- Incident Responder Management: IQCS tracks personnel information related to qualifications and incident history that includes information such as: positions, position performance, training, physical fitness status, and external warrants.

A new web server is scheduled to be on-line in early January 2008.

IQS - Incident Qualifications System: Identified as a core system by NWFEA used by state agencies, IQS offers a training records management system. Being PC based, it offers flexibility in hardware system specifications and an economical operating environment. Some of the features of IQS include:

- Tracking of training, experience, fitness, and incident data
- The ability to add agency specific courses to the database
- Training needs analysis
- Task book tracking, including addition of state developed task books
- Tracking availability of individuals for dispatch
- Provision of differing security levels for those using the system
- A wide variety of reports that agencies and supervisors can use, including individual record sheets, individual needs tracking, and listing of all individuals qualified for a specific position
- The capability to export data directly to the other IQS users

Training program managers will be able to provide fire program administrators with critical management information by documenting all qualifying training experience for each individual. Such information is vital in staffing incidents, documenting employee safety briefings, and qualifying training for individual employees. IQS will allow program managers to compare on-incident performance to training activity, enabling an assessment of the cost effectiveness of training programs. States and agencies employing this system in a stand alone PC, or networked environment would maintain system security and integrity as a normal part of in-agency workforce management, but could share data electronically when they chose to do so.

SAFENET - Wildland Fire Safety and Health Reporting Network: Identified as a core system by NWFEA used by all federal agencies, SAFENET is a form and process that has been in demand by firefighters. It's a method for reporting and resolving safety concerns encountered in wildland fire, prescribed fire, or any other risk operation. The information provided on the form helps collect important, safety-related data at the National Interagency Fire Center to determine long-term trends and problem areas. Its objective is to provide a forum for firefighters to voice their safety concerns, facilitate problem solving, and to aid in identifying trends as they relate to firefighter safety.

SHIPS - Safety and Health Integrated Personnel System: A Service wide safety and health reporting accident/incident data base system employed by the USFS. Similar to SAFENET.

SMIS - Safety Information Management System: SMIS is an automated system for reporting accidents, which involve all DOI employees, volunteers, contractors or visitors to DOI facilities. The application can only be used by authorized DOI Employees, Supervisors and Safety Managers. Other components of SMIS include the following:

- Safety Smart - A collection of hundreds of safety talks, posters, management articles, case studies, and more.
- A reference library that contains reference materials for SMIS users.
- DOI Safety Statistics: Contains bureau safety performance charts, tables, and costs by fiscal year

Weather Data Services

AIIC-FWD - Alaska Interagency Coordination Center Fire Weather Database: Website maintained by AIIC that compiles and utilizes fifty two weeks of data from the Remote Automated Weather Stations (RAWS), Automated Surface Observing System (ASOS), and the Automated Weather Observing System (AWOS). Data from the past fifty two weeks can be retrieved for 166 stations. The data available includes air temperature, relative humidity, wind speed precipitation, wind speed peaks, wind direction, wind direction peak, fuel temperature, barometric pressure, solar radiation, and fuel moisture.

ALMS - Automated Lightning Mapping System: Used by all federal agencies, this application allows the user to download near real-time lightning location information from the Bureau of Land Management data server, via the internet.

ASCADS - Automated Sorting Conversion & Distribution System: Identified as a core system by NWFEA used by all federal agencies and most states, remains one of the most consistent applications used by the Weather Services Function. ASCADS has three primary functions:

- Retrieve data from the Geostationary Operational Environmental Satellite (GOES), convert it to a format compatible with various national systems and forward the data to those systems.
- Track entire Remote Automated Weather Station (RAWS) network, regardless of agency or telemetry method. This database includes comprehensive metadata about the stations.
- Per NWCG NFDRS Weather Station Standards, provide an online shared database containing documentation of annual calibration and maintenance of each automated weather station operated by the Interagency Wildland Fire community.

FX-Net - Advanced weather graphics: Identified as a core system by NWFEA used by BLM, FX-Net is a meteorological PC workstation that provides access to the basic display capability of an AWIPS (Advanced Weather Interactive Processing System) workstation via the Internet. A variety of new functionalities and products were added to FX-Net with the goal to make FX-Net usable for fire weather forecasters working out of offices and working in the field. One of the more outstanding new data sets is a complete text browser, which allows for the display of a large number of National Weather Service forecasts and discussion text products. Additional new tools allow for the export of products displayed in the primary window and for change of contour intervals for displayed model products. FX-Net also added special display scales for the viewing of high-resolution satellite imagery in areas with wildfires. New high-density surface observation data sets and wind profiler data became part of the product menu.

Each GACC office has two meteorologists using FX-Net. A workstation has been in use in Boise NIFC headquarters and the eleven GACC offices since November, 2001. FX-Net has also been tested extensively in the field by the NWS Western Region.

Gridded FX-Net - Advanced weather graphics: Many of the forecasters in the GACC offices familiar with the AWIPS workstation found certain aspects of the FX-Net system were not as flexible as those found in AWIPS. As a result, the Gridded FX-Net prototype system project was started with support from the BLM and the USDA Forest Service. The Gridded FX-Net system is an extended version of the National Weather Services' AWIPS. The system uses AWIPS data and applications servers, and the D2D display system.

ROMAN - Real-time Observation Monitoring and Analysis Network: Managed at the University of Utah, ROMAN has been developed to provide real-time surface weather data to meteorologists and

land managers in the United States of America who deal with wildland fire. ROMAN is a web-based system designed to provide access to weather observations from a large number of networks across the United States. The interface is intuitive, interactive, and dynamic. The software is designed to be accessible to the wide range of fire professionals requiring observational data, from the top level managers using high speed networks to the fire behavior analysts in the field using a slow dial-up connection.

WFMI Lightning - Lightning information: This core system used by all federal agencies is hosted by the BLM at the National Interagency Fire Center and is part of the WFMI suite of applications. WFMI houses data on lightning strikes, provides weather data, and documents the “who, what, when, and how” of a fire. This system serves as a portal for predictive information and is the definitive website for data critical to initial response to a fire. One function of the WFMI is to serve as the portal to the lightning data provided by Vaisala. The lightning information provided on this network is proprietary information. It is purchased and presented only to qualified federal users under contract from Vaisala.

WFMI Weather - Weather information: This core system used by all federal agencies is hosted by the BLM at the National Interagency Fire Center and is part of the WFMI suite of applications. WFMI houses data on lightning strikes, provides weather data, and documents the “who, what, when, and how” of a fire. This system serves as a portal for predictive information and is the definitive website for data critical to initial response to a fire. The Weather information includes:

- A display of where the stations are located
- Metadata
- The ability to group stations

WIMS - Weather Information Management System: WIMS is a comprehensive system that helps manage weather information. WIMS replaced the Administrative Forest Fire Information Retrieval and Management System (AFFIRMS) as the host for the National Fire Danger Rating System (NFDRS), incorporating both the 1978 and 1988 fuel models. WIMS accesses the National Interagency Fire Management Integrated Database (NIFMID). NIFMID contains historic fire weather and historic fire record information. WIMS and NIFMID run on the IBM mainframe computer at the USDA National Information Technology Center (NITC) in Kansas City, and are available on a twenty-four hour basis. WIMS allows you to retrieve weather information by providing:

- Timely access to many weather information sources
- Efficient tools for managing data
- Data manipulation and display functions
- An interactive communications environment

WRCC - Western Regional Climate Center applications: The WRCC provides users access to monitoring stations within the region, as well as a library of software applications and data.

Other Applications

ARC*Info - GIS mapping: Geographic Information Systems (GIS) software that allows the user to manage a complete, intelligent GIS including maps and globes, data, metadata, geodatasets, and workflow models. The software allows multiple users access to detailed mapping and cartography resources to manage large datasets and conduct spatial analyses.

SITREP - Daily Situation Reporting: SITS permits daily situation reporting by field user to describe emergency situation progress, availability of emergency response resources, and other information relating to emergency response. Current SITS revision tie-in with Occurrence reporting to ensure data integrity between the two systems. The following reports generated by SITS consist of all situation activity that occurred during the proceeding 24 hours: the National Interagency Coordination Center Daily Situation Report, Daily Situation Report (7:30 am), and Daily Situation Report (11:30 am).

http://www.nifc.gov/fire_info/nfn.htm

9 Acquisition Strategy

Retain a consultant who specializes in restructuring and similar analyses to support the follow-on studies. The USFS currently has a blanket purchase agreement in place that could be used to retain these services. There are also a large number of qualified firms available through the General Services Administration MOBIS contract process.

Strategy related to major investment acquisition is discussed in subsequent sections of this report. For the Exhibit 300 Studies, the team recommends the following timelines for the referenced capital projects:

- a. Conduct an Exhibit 300 Study to evaluate and recommend, if appropriate, the development of an independent nationwide LAN to support the National Wildland Fire Interagency Dispatch and Coordination Centers in order to operate new Enterprise Architecture-based software, new database applications, and any new fire-focused network systems in a more reliable and timely manner.
 - 6-month Exhibit 300 review to determine if current agency networks can be brought up to needed specifications and performance. If not, includes development of Statement of Requirements for an RFP to private sector.
 - 2-month Advertisement of RFP for Vendor, Installer, and Maintainer.
 - 2-month Acq. Review and Award Phase.
 - 8-month Roll-Out of New LAN to key Centers nationwide.
- b. Conduct an Exhibit 300 Study to evaluate and recommend, if appropriate, the replacement of the entire National Wildland Fire Interagency Dispatch and Coordination Center computer systems (standard hardware/software packages) needed to meet new Enterprise Architecture-based software, new database applications, and any new fire-focused network systems.
 - 6-month Exhibit 300 review to determine if current agency computers can meet or be upgraded to meet the specifications and performance needed for improved emergency center operations, including single PCs capable of logging onto FS and DOI systems. If not, includes development of Statement of Requirements for an RFP to private sector.
 - 2-month Advertisement of RFP for Vendor, Installer, and Maintainer.
 - 2-month Acq. Review and Award Phase.
 - 8-month Roll-Out of New Hardware to key Centers nationwide.
- c. Conduct an Exhibit 300 study to evaluate options for the development of a Centralized Data Warehouse for all fire/incident reporting data that has the ability to interact with new and future dispatch reporting applications. The new system needs to interact with CAD and other fire systems/applications capabilities can link to a new and/or revised ordering and statusing system through the Enterprise Service Bus and operate on the Enterprise Architecture.
 - 4-month Exhibit 300 review to develop the specifications and performance needed to eliminate multiple data entry of fire data, resources, personnel, points of contact, and financial data that supports end-to-end reporting. Includes development of Statement of Requirements for an RFP to private sector.
 - 3-month Advertisement of RFP for Vendor, Installer, Trainers, and Maintainer.
 - 2-month Acq. Review and Award Phase.
 - 6 to 12 month Integration and Interface of the warehouse system into legacy applications nationwide and any new applications.
- d. Conduct an Exhibit 300 study for new resource ordering and statusing systems application that can link to a new integrated Data Warehouse and CAD system.
 - 6-month Exhibit 300 review to develop the specifications and performance for a new resource ordering and statusing system as an integral module of a new Data Warehouse/CAD system. This

recommended Exhibit 300 Study adds the requirement for the Data Warehouse to include a ROSS-type Module as an integral sub-application. Includes development of Statement of Requirements for an RFP to private sector.

- 3-month Advertisement of RFP for Vendor, Installer, Trainers, and Maintainer.
 - 2-month Acq. Review and Award Phase.
 - 4-month Roll-Out of New Application to Centers nationwide upon completion in 2010.
- e. Conduct an Exhibit 300 Study to evaluate and recommend, if appropriate, the expedited replacement of BLM/FS base radios consoles for Wildland Fire Interagency Dispatch and Coordination Centers to support the COOP.
- 6-month Exhibit 300 review to determine if current agency radios can meet or be upgraded to meet the specifications and performance needed for improved emergency center operations, including single radio consoles capable of frequency changes to communicate with DHS, FS, DOI, and State systems. If not, includes development of Statement of Requirements for an RFP to private sector.
 - 2-month Advertisement of RFP for Vendor, Installer, and Maintainer.
 - 2-month Acq. Review and Award Phase.
 - 8-month Roll-Out of New Hardware to key Centers nationwide upon implementation of the Tier 1-Tier 3 optimizations.
- f. Conduct an Exhibit 300 Study to evaluate and recommend, if appropriate, the purchase of Back-up Generators for Wildland Fire Interagency Dispatch and Coordination Centers computer systems to support the COOP.
- 6-month Exhibit 300 review to determine where Back-Up Generators should be installed to meet the radio communications specifications and performance needed for improved emergency center operations in the event of a manmade or natural disaster. If not, includes development of Statement of Requirements for an RFP to private sector.
 - 2-month Advertisement of RFP for Vendor, Installer, and Maintainer.
 - 2-month Acq. Review and Award Phase.
 - 8-month Roll-Out of New Hardware to key Tier 3 Centers nationwide in accordance with the Tier 3 optimization.

10 Project Lifecycle Schedule

The following tables and discussion provide the recommended Milestone Estimates for follow-on studies and Exhibit 300 Studies.

10.1 Standard Six-Month Milestone Chart

Table 94 - Six-Month Milestones

Item #	Description	Delivery Date
1	Kickoff Meeting	Start Date
2	Plan of Action and Assignments	5 days after start date
3	Complete initial data requests	30 days after start date
4	Complete initial interviews	45 days after start date
5	Identify requirements for industry data	60 days after start date
6	Identify requirements for cost data	75 days after start date
7	Begin drafting initial report section	80 days after start date
8	Review draft sections	90 days after start date
9	Submit Draft Report and Conduct Briefing to Management	100 days after start date
10	Complete remaining data collection and analysis	115 days after start date
11	Complete Follow-up Interviews	130 days after start date
12	Address all comments received from Draft Report	150 days after start date
13	Begin finalizing report sections and exhibits/appendices	160 days after start date
14	Submit Final Report and Conduct Briefing to Management	180 days after start date

10.2 Standard Six Month Exhibit 300 Study Milestone Chart

An Exhibit 300 (E-300) is required for all major investments in accordance with Part 7 (Section 300) of OMB Circular No. A-11. The E-300 is designed to coordinate OMB's collection of agency information for its reports to the Congress -- to ensure the business case for investments are made and tied to the mission statements, long-term goals and objectives, and annual performance plans. For IT, E-300s are designed to be used as one-stop documents for many of IT management issues such as business cases for investments, IT security reporting, agency's modernization efforts, and overall project (investment) management.

It will take about two weeks to complete and polish an E-300 after all the required background materials are completed. Development of the required background materials could take from six months to one year -- depending on how much is already done and how many knowledgeable USFS / DOI staff are involved. The Team recommends a USFS / DOI Team of three to four, available on a part-time basis, to work with a team of consultants. Where investments are IT-related, the teams will include participants from agency IT specialists.

There is also the question of whether this is for IT or other major investments like airplanes or buildings. There are not many agencies involved in non-IT E-300s.

The items that need to be completed include:

- Project Definition - This might take some time. What do you want to do and how does it fix a current problem by being cheaper, better, and/or faster?
- Project Requirements. - This might also take some time. What are you going to buy?
- Alternatives Analysis and Cost Benefit Study - What are the possible ways of acquiring the investment you want in a manner that is both feasible and the best deal for the government?
- Risk Analysis - What can go wrong with the alternatives and how much has to be put aside to fix it?
- Spending Table - How do you want to get the money—in one year, over a number of years?
- Acquisition Management Plan - If you get the money, how are you going to acquire the investment in a way that protects the interests of the government?
- Earned Value Management / Work Breakdown Structure - How are you going to spend the money (i.e., tasks and times)?
- Performance Measures - Once you are spending the money, how do you know if your outputs are achieving what you defined as your objective in the project definition?

There are also the various internal reviews and approvals that affect the E-300 process. USFS and DOI have to get executive committee approval, have a qualified project manager, adhere to USDA Capital Planning Investment Control (CPIC) procedures, the applicable DOI Capital Planning process, and get OMB approval.

An estimated Milestone Chart for development of required background materials and the subsequent E-300 is provided below.

Table 95 - Acquisition Milestones

Exhibit 300 Acquisition Milestones	Weeks after Start Date
1. Develop Project Definition.	8
2. USDA Capital Planning Investment Control (CPIC) review and approval. Future review milestones specified.	10
3. Develop Project Requirements.	12
4. Develop Alternatives Analysis and Cost Benefit Study.	14
5. Develop Risk Analysis.	16
6. Develop Spending Table.	18
7. Develop Acquisition Plan.	20
8. Develop Earned Value Management / Work Breakdown Structure.	22
9. Develop Performance Measures.	24
10. Complete E-300 and Submit.	26
11. E-300 review and approval.	30

10.3 System Design /Application Development Lifecycle Overview

10.3.1 Recommendations to which this Process is Applicable

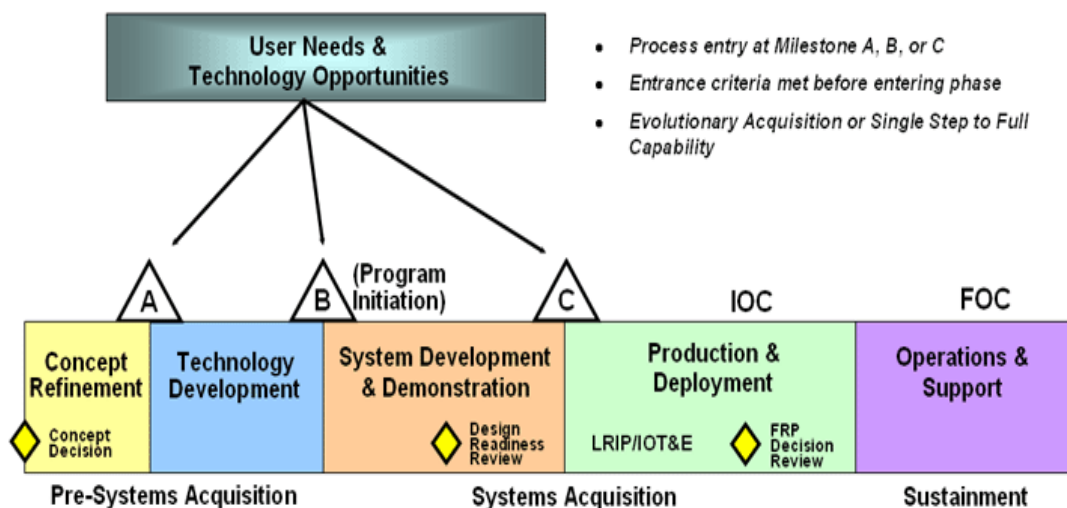
- Develop or purchase a COTS centralized fire data warehouse system.
- Develop or purchase a COTS Computer Aided Dispatch system.
- Develop or purchase a COTS resource order statusing system.
- Develop or purchase a COTS end-to-end integrated fire reports generator application that can pull data from the centralized fire data warehouse and create all the current Fire and Incident Reports automatically with canned and ad-hoc reports features.

10.3.2 Descriptions of Milestones for Fire-Related Applications Development

The following is an adaptation of the Defense Acquisition Guidebook, DODI 5000.2, May 12, 2003, to the Wildland Fire Community systems development and equipment acquisition strategy.

The Acquisition Strategy results from extensive planning and preparation and a thorough understanding of both the specific acquisition program and the general Interagency Wildland Fire sponsors' acquisition environment. Development of the acquisition strategy requires collaboration between the Milestone Decision Authority (MDA), program manager (PM), and the functional communities engaged in and supporting Interagency (USFS and/or DOI) acquisition. A well-developed strategy minimizes the time and cost required to satisfy approved capability needs, and maximizes affordability throughout the program life-cycle. Consistent with the purchasing Agency's acquisition guidelines, the program manager shall be the single point of accountability for accomplishing program objectives for total life-cycle systems management, including sustainment. The charge of Interagency Wildland Fire executive leadership is to use common sense and sound business practice in developing the acquisition strategy and executing the program. The program manager should organize an Integrated Product Team to assist in development and coordination of the Acquisition Strategy.

Figure 96 - Acquisition Strategy for for Application Development



11 Requirements

If the Forest Service and DOI decide to conduct separate studies on these activities, it will be necessary to form interagency teams and secure consultant support to the efforts.

12 Recommendations

The team recommends appointment of an Executive Lead or Co-Interagency Officers to coordinate the staffing, timing, content, boundaries, budgets, milestones, deliverables, and consultant support for the proposed actions. Having one or two individuals with a cohesive perspective of these studies and Exhibit 300 studies will benefit the senior leadership of all cooperating agencies. The selected oversight entity can provide leadership in consolidating some studies for economy of scale or due to the interrelationships of the topics to be reviewed.