Product and Management Scope Statement

Project Name: Fire Program Analysis (FPA)

Department: USDA-USFS

Co-Sponsor: DOI-OWF

Focus Area: Project Initiation

Product/Process: Planning

Document Control

This release is effective on the latest date in the Revision History table. Always refer to the on-line version of this document to ensure you are using the latest approved release. The current on-line version of this document can be found in the FPA Project Resource Library.

Prepared By

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Product and Management Scope Statement Version Control

Version	Date	Author	Change Description
1.0	2005	John Noneman	Creation of Document
2.0	08/2007	Dan Keller	Revised Document Due to change in product requirements
3.0	09/2011	Faisal Ahmed	Team revision of Document
3.1	10/2011	Faisal Ahmed	Final revision post Executive Director Comments
3.2	01/2012	Joe Frost	Team revision of Document
3.3	02/2012	Joe Frost	Team Revision based on OG comments
3.4	02/2012	Joe Frost	Team Revision Based on Group Edit Session

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1. Product Scope Statement

The scope of Fire Program Analysis (FPA) is to identify the inputs, data sources, and modeling components necessary in order for the project to be successful.

FPA shall support decision making for National Level budget development and implementation.

<u>Deliverables</u>

The application reports information that supports the Departments' budget formulation and presentation to OMB and Congress.

Reports, charts, graphs, displays and maps of the tradeoff analysis of performance measures by national budget levels along with the field level alternatives analyzed and the associated estimated costs.

1.1 Project Business Need

The FPA application shall support analysis of interagency wildland fire management programs for a range of budget levels. The range of budget levels identifies the interactions among wildland fire program components, such as the preparedness staffing, fuels treatments, and wildland fires. The programs analyzed will then be evaluated to identify a range of effective program options.

The results of this analysis shall provide information to assist Federal Wildland Fire agency managers in developing out-year budget submissions and evaluating allocation scenarios.

1.2 Project Objectives

The FPA application will provide managers with information to support national level strategic planning and budgeting for a comprehensive, interagency wildland fire management program.

FPA will help decision makers evaluate the effectiveness of modeled alternative wildland fire management strategies for meeting wildland fire and land management goals and objectives by providing opportunity for trade off analysis of various scenarios of cross program funding options.

Many wildland fire program objectives (e.g. reducing landscape-scale wildland fire threats by changing the structure and amount of vegetation and fuels) require many years to accomplish. FPA will model long-term program effectiveness of alternative strategies.

1.3 Product Overview

The purpose of the FPA application is to provide managers with a common interagency analysis tool for strategic wildland fire management planning and budgeting. It will support the evaluation of the effectiveness of alternative wildland fire management strategies to support wildland fire program goals and objectives. In FPA, "effectiveness" is assessed in terms of multiple modeled performance measures that are consistent with these wildland fire program goals and objectives. The application will support the analysis of up to 10 performance measures, e.g. reducing the probability of occurrence of costly fires, reducing the probability of occurrence of fire in the Wildland Urban Interface (WUI), and increasing lands meeting or trending towards the attainment of land management objectives including protecting highly valued resources. Performance measures may be revalidated for future analyses, at which time they could be modified or replaced by new measures based on agencies' goals and policies. This baseline scope definition is managed under project configuration control.

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1.4 Product Lifecycle Deliverables

1.4.1 Design Deliverables

Provide an application that:

- Models and quantifies effectiveness, efficiency and performance for alternative wildland fire programs.

- Uses appropriate theory, process, and measures to model the interaction of wildland fire program components.

- Provides information to support a strategic analysis for long-term program outcomes and wildland fire management objectives at different budget levels.

- Provides data to support trade-off analysis among wildland fire management components in order to understand the consequences of alternative allocations of resources.

- Provides information to support a tradeoff analysis of local wildland fire program alternatives in order to address national wildland fire and land management objectives

- Provides tools to assist budget development and to support allocation decisions for the national wildland fire budgets

- Provides outputs that support strategic short and long-term national level budget planning.

- Provides outputs and information that allow decision makers to analyze impacts of Federal Fire policy and direction where applicable

- The FPA application will provide information to support multiple-objective decisions

1.4.2 Development Deliverables

FPA project requirement is to develop an application to support the business and application requirements.

The high level deliverables include an application that takes the following into consideration:

Modeled Performance Measures

Modeled performance measures are indicators of effectiveness based on simulation models of initial response and large wildland fire consequences.

Wildland Fire Response Costs

Cost estimates can be displayed by combinations of program component at the field level, state/regions, bureaus/agencies, and departments/levels.

FPA will estimate costs of alternative wildland fire programs in terms of:

- Program costs for wildland fire preparedness and initial response

- Program costs for hazardous fuels reduction

- Program costs for prevention

Initial Response Simulator (IRS)

The application will incorporate FIELD LEVEL predefined preparedness organizations and "dispatch logic". Wildland fire resources will then be applied to the fire scenarios according to the dispatch requirements. All initial response strategies will be represented in the IRS module

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A stochastic method will be used to combine historic wildland fire occurrence locations with weather data to provide multiple wildland fire scenarios that provide a feasible projection of how future wildland fire seasons could affect workload and resource use. Wildland fire scenarios include ignitions and behavior, so the scenario module will interact with prevention and fuels alternatives.

Simulated wildland fire occurrences that are not captured in the initial response module will be passed to the large fire module.

Large Fire Module

The large fire module will provide:

- Probabilities of wildland fire impact

- Size of wildland fires

- Costs of large wildland fires

- Effects of fuel treatment on large wildland fires

The effects of fuels treatments will be captured by changes in fuel model for the Fire Planning Unit (FPU), which will ultimately change the final wildland fire size and/or fire intensity. Changes in fire behavior resulting from fuels treatments (such as changes in flame length) will be captured in the FPA analysis.

National Trade-Off Analysis

The FPA application supports multiple-objective decision support. These multiple objectives are inter-related such that emphasis on one performance measure may result in lower performance in other measures. At the national level, tradeoffs between field level alternatives may result in funding and accomplishment increases in some FPUs and decreases in other FPUs. The FPA analysis is intended to support understanding of the tradeoffs in multiple, competing objectives for alternative wildland fire programs across the nation.

FPA will use models to assess tradeoffs in multiple objectives expressed in terms of modeled performance measures.

The tradeoff analysis may use relative values to describe a preferred tradeoff or utility of a management alternative.

The model provides information that allows for comparison of alternative budget levels and performance strategies.

Fuels Treatments and Temporal Considerations

The Initial Response Simulator and the Large Fire Module will reference the changed fuels conditions represented by the fuels strategies, and intrinsically reflect the impacts of the strategies on the resulting modeled performance measures.

Prevention Program

The prevention model relates prevention actions with changes in the number of human caused ignitions. FPA will use concepts used in existing models and studies.

Budget Development and Implementation

FPA will provide tables, reports, maps, and other information to support the department/agency budget development and allocation decisions.

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1.4.3 Test and Validation Deliverables

- Test all deliverables against identified design and business requirements
- Validate all deliverables meet the design requirements and business needs

1.4.4 Implementation Deliverables

- Provide a user guide to support implementation of the FPA application
- Provide information to support national budget requests
- Provides information to support wildland fire planning to inform management priorities and planning decisions
- Provide a platform to perform tradeoff analysis amongst wildland fire programs that allows for appropriate, risk informed, and effective wildland fire response

1.4.5 Product Scope Deliverables

- Ensure the product is designed and implemented within the scope of the project
- If the scope is reduced or expanded, the proper documentation shall be maintained in the project documentation files to ensure that:
    - The scope variance has been approved by the system owner
    - The scope variance is required to meet the intended business needs
    - The impact of the scope variance on the project in relation to the cost and timeline is documented.
    - The impacts are understood and agreed upon by the system owner
    - This document will be kept up to date to reflect any changes in the scope of the product

1.4.6 Acceptance Criteria Deliverables

Successful implementation of the FPA application includes:

- Development and deployment of operational software
- Development and delivery of user and application documentation
- All application components are ready to transition to operations and maintenance
- FPA modules are all hosted on suitable hardware and software
- Provide opportunities to incorporate state, tribal and local governments in the analysis.
- Deliver and transition to the system owner for long-term implementation, operations and maintenance

2. Management Scope Statement

The process for controlling changes to the scope of the project is described in the FPA Scope Management Plan.

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3. Boundaries, Assumptions, Constraints, Exclusions

Boundaries

FPA will:

- Be designed with an architecture that allows for future changes and enhancements for the life of the application

- Be completed within the budget agreed to by all participating bureaus (See Ex 300)

- Be designed and developed with a minimum life cycle of 15 years. (2027)

- Be compliant with applicable Department of Agriculture and DOI enterprise architectures

- Be science-based and peer reviewed

Assumptions

FPA will provide a suite of alternatives to meet national wildland fire management strategies.

Conceptual architecture decisions that impact the scope of FPA include:

- The application will use geospatial technology to the extent practical.

- The field user application will be an enterprise application, with centralized application and data, user management, security, installation/deployment, business rules, monitoring, and integrated access to enterprise data sources.

- In order to accommodate the evolution of wildland fire policy, science, the application architecture and design must be modular. This includes services oriented architectures, the use of common tools and robust database design.

- Application and database design must accommodate evolution of the business and science supporting FPA, e.g., database normalization.

- Security-The application will use role based security and Transport Layer Security

- Usability-The application design supports flexible user experience alternatives by separating the presentation, model, and logic architectural layers.

    o   Reduce workload on users by leveraging existing or proposed enterprise applications, services, and data

- Manageability-The application must be deployable and manageable across the five federal wildland fire management organizations.

- Persistence-The application must support records retention guidelines for planning documents.

- Sizing-The application must support the anticipated number and types of users, with directory services, bandwidth, processing, and storage.

Exclusions

The following is a non-exhaustive list of activities that are specifically outside the scope of the FPA project and are not included in the development of the FPA application:

- Facilities and Construction projects

- Fuels project plan details

- Replacement of any department or individual agency financial applications

- Automated interfaces to any existing federal financial application

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- Non-federal budget development tool. However, may provide non-federal partners with useful information for managing their wildland fire programs

4. Initial Considerations

The FPA is a classic "decision support system" (DSS), relying on data from scientific models. The general decision process occurs at both the field and national level

4.1 Decision Process Elements

1. **Assess situation**. National aggregation of field level data allows national managers to understand and display information describing the current situation at a national scale.

2. **Develop budget alternatives.** National managers define a range of national budgets to be considered.

3. **Assess Impacts.** National managers assess the impacts of alternative mixes of programs in terms of national goals and objectives.

4. **Tradeoff and Decision.** National managers consider tradeoffs to determine the mix of programs that meet national wildland fire performance strategies.

5. **Implement.** Implementation of the decision is through the normal budget submission and execution process. Implementation is completed with the passage of a Congressional budget bill.

The FPA application will be designed to provide information to support national managers in the budget allocation decision process.

4.2 Operations and Maintenance Elements

Within the scope of the project, operations and maintenance (O&M) of the FPA application will be provided. O&M includes:

- Helpdesk

- Identification and prioritization of application defects and user interface issues

- Repair defects and user interface issues

- Identification, approval, and prioritization of application enhancements

- Implementation of program change requests (PCR) approved by the configuration control board (CCB)

- Maintaining and upgrading hardware and software licenses and components

- Maintain application documentation and user guide

- Functionality – The application addresses current business requirements and business requirements that may be identified and approved in the future

- Reliability – The application produces consistent results and operates with minimal user impacts due to failure

- Reasonable estimates of modeled performance measures and cost – Modeled performance measures and associated costs are considered 'reasonable'

- User acceptance – application provides information and outputs that are acceptable to national managers to support budget development and allocation decisions

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- Ability to inform the budget process – FPA results shall be used to inform and support bureau/agency and department budget requests and execution

4.3 Organizational Breakdown Structure

The Organizational Breakdown Structure (OBS) represents the organization and governance as outlined in the FPA Project Charter.
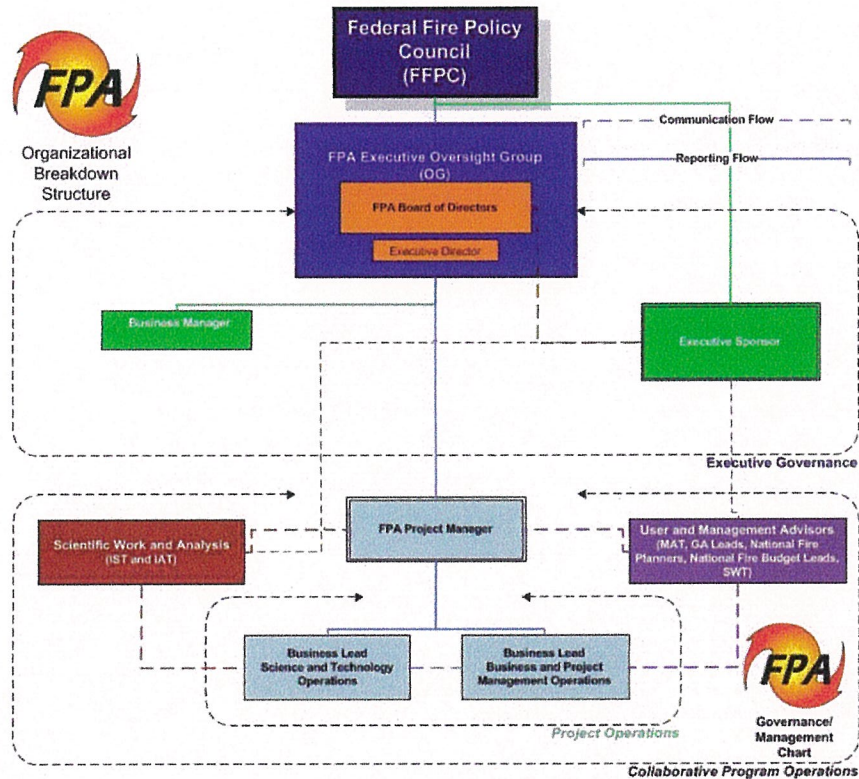

Figure 4-1. FPA Summary-Level OBS

4.4 Defined/Known Risks

- Resistance to change for an Inter-Department implementation;

- Adequate resources and funding for application operation and maintenance, including appropriate personnel and bureaus participating in the initiative;

- Infrastructure's capability to meet application requirements, including availability and performance;

- Ability to access updated and accurate corporate data e.g. wildland fire occurrence, weather, WUI, Highly Valued Resources (HVR), etc.

- The availability of non-federal data; and

- Potential problems associated with integrating a multiple vendor and research solutions

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4.5 Milestones

The high level milestones for the FPA project are:

- Business Needs Assessment
- Project and Product Scoping
- Requirements Definition
- Application Design
- Application Development – October 2001 – November 2009
- Application Deployment – November 2009
- Application Enhancements – October 2010
- Application at Steady State – October 2011
- Application moved to O&M – June 2012

4.6 Rough Order Of Magnitude (ROM) Cost Estimate

The Rough Order of Magnitude cost estimate can be found in "Fire Program Analysis Phase-2 Cost Benefit Analysis."
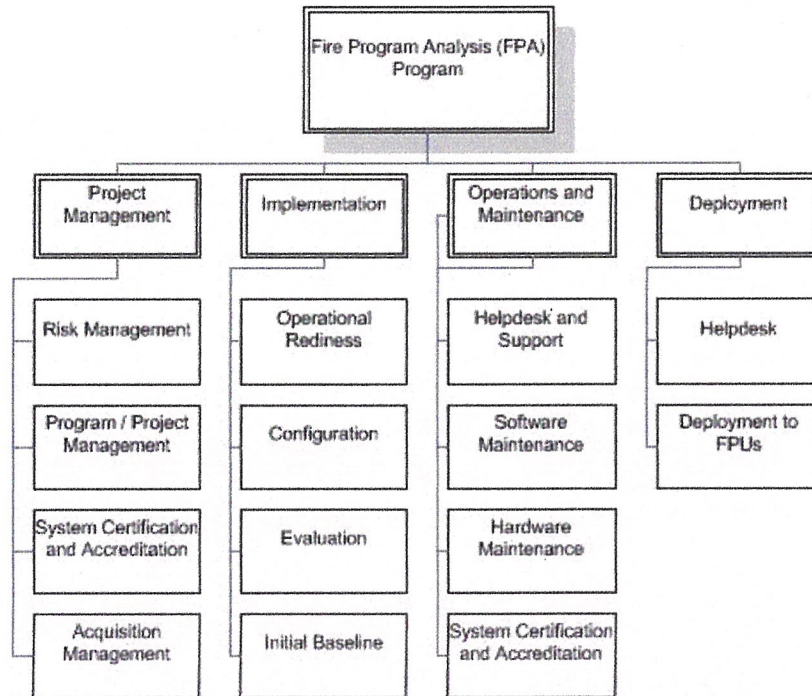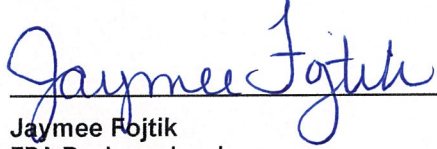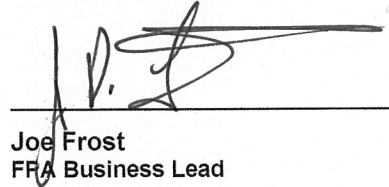
4.7 High Level Work Breakdown Structure
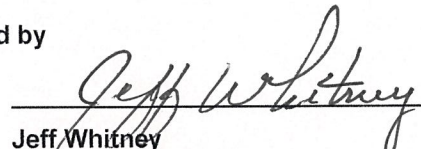

Figure 4-2. FPA Summary-Level WBS

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5. Approvals

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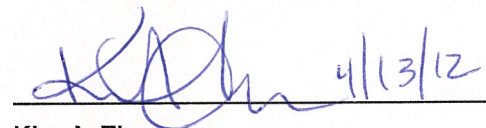Jaymee Fojtik
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