FIRESCOPE

DEVELOPMENT AND IMPLEMENTATION CHARTER


(Revised July 1980)


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## I.  INTRODUCTION

FIRESCOPE ("Firefighting Resources of Southern California Organized for
Potential Emergencies") is a Development and Implementation program
within the Forest Service, USDA, administered by State and Private Forestry
in the Pacific Southwest Region.

The Program began after the Southern California fire disaster of 1970.
Following Congressional action in 1971 which authorized funding for initial
research, the Chief of the Forest Service approved a formal Research,
Development and Application (RD&A) Charter to develop a system that would
assist Southern California fire agencies to improve coordination and
effectiveness on multijurisdictional fires or other emergencies.  A 5-year
Research effort ensued, actively supported by the California Department of
Forestry and Office of Emergency Services, Los Angeles City and County
Fire Departments, and Ventura and Santa Barbara County Fire Departments.

The formal Research charter expired in 1977, with the completion of the
"System Design."  Since 1978, initial development and implementation has
been funded as a "line item" in annual appropriations.  During these
years, significant progress was made in bringing design elements into
operational use.  The Forest Service and its State and local partners have
evaluated and adopted several Program elements.  Most of the design concepts
show promise for many areas of the United States.

Those years also brought modifications to the Design, changes in implemen-
tation scheduling, involvement by other agencies, and a host of other
technical and practical influences.  Those changes make it advisable to
redefine the FIRESCOPE Program as it exists today, and to provide a guide
for its future management.  This document is intended to serve those
purposes.

## II.  MISSION AND GOALS

The mission of the FIRESCOPE Program is:

--To develop and implement the technologies and systems that will
   significantly improve the effectiveness of fire protection agencies
   in major fire and other multiagency emergency situations.

Two primary goals must be accomplished to complete the mission.  They are:

--To establish a modern, integrated system ("FIRESCOPE") that will
   enable Southern California fire services to make a quantum jump in
   their coordination and effectiveness.

--To serve as a Development model and test-bed for technologies and procedures that may have national application and value.

Authorities for the Program mission and goals are contained in:

--"Hearings before a Subcommittee of the Committee on Appropriations, House of Representatives, 92nd Congress, Second Session, P. 595."

--The Cooperative Forestry Assistance Act of 1978, Section 8(c).

III. PROGRAM DESCRIPTION

A. Components:

1. The Incident Command System (ICS)

An emergency management organizational structure designed to provide common and more effective procedures to diverse agencies who must work together under crisis conditions. The ICS includes standard terminology, uniform procedures, and improved communications techniques that can be adopted by urban and wildland fire agencies and other emergency services practitioners.

2. The Multiagency Coordination System (MACS)

A system to improve multiagency coordination at top management levels. MACS integrates the collection, processing, and dissemination of information pertinent to crisis management of multi-agency proportions, and provides for the rapid allocation of proper emergency forces on problem incidents.

MACS is supported by Component numbers 3 and 4 (below), and is basically operated from a multiagency facility called the Operations Coordination Center (OCC) which is designed to operate continuously.

3. FIRESCOPE Information Management System (FIMS)

A sophisticated computer system which consists of hardware, software, and comprehensive dynamic data bases. FIMS is designed to provide:

a. "Real-time" status of multiagency emergency forces

b. "Real-time" predictions of fire behavior

c. Cost-accounting and other historical records

d. Planning information for multijurisdictional emergencies

e. Management communications

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4. Technological Support

The following subsystems provide the basic intelligence, data, and integrating processes necessary to support all other systems:

a. Infrared (IR) sensing and telemetery to provide accurate and timely fire intelligence for decision makers.

b. Orthophoto Mapping Programs to establish and maintain a single, comprehensive map process.

c. Communications hardware (microwave/satellite systems, synthesized radios, computer terminals, telephone systems, and transporting vehicles) to insure rapid and complete transfer of data and other information during emergencies.

d. Automated weather sensing and transfer systems to provide reliable meteorological data for fire behavior predictions and general wind patterns over critical areas.

e. Comprehensive data bases and data base management programs to store and retrieve information necessary to support decision makers during emergencies.

Each of these systems and subsystems is more fully described in the "FIRESCOPE Implementation Plan, January, 1977-USDA Forest Service," the "Multiagency Coordination System (MACS) Goals and Objectives," and the "Recommend System Design in the FIRESCOPE Economic Effectiveness Study."

B. Phases of Program Implementation:

The four interrelated, frequently-reiterative, phases in Program activities are:

1. Program Management

The planning, budgeting, and administrative function includes the Program Office organization, Regional personnel dedicated to the Program, and contractors.

Funding--Forest Service responsibility.

2. Research Validation

Those processes that are necessary to move the Research design of Program components (III, A, above) from prototypical or theoretical stages into an operational testing condition. This phase is guided by the Program Office, but requires significant involvement of general systems engineering contractors and consultants.

Funding--Forest Service responsibility.

3. Development

Elements that have been validated are accepted for field trials
and/or interim implementation. Operating procedures are developed
during the one-to-three years involved in this process. Components
are evaluated and those with problems may be returned to the
validation phase, or "redeveloped."

Funding--Primarily by the Forest Service, with significant con-
tribution from cooperating agencies.

4. Implementation

Components which successfully pass through phases 2 and 3 move to
adoption by users. Proven components are activated and integrated
into standard operating procedures. When components reach this
phase, they can also be made available to other interested users.

Funding--Primarily by using agencies.

C. The FIRESCOPE Decision Process

Progress through the Phases of Program Implementation is guided by
representatives from the cooperating agencies. The process is described
in the "FIRESCOPE Decision Teams and Specialist Group Charters."

This process is heavily oriented toward involvement and "ownership" of
Program elements by using agencies. Except for the very basic fiscal
and legal constraints on the Forest Service, decisions and actions
within the Program are made by multiagency, multigovernment groups.
This process will provide valuable models for other multiagency
groups across the country.

D. Program Funding

Funding to the Program has been:

| 1978 | 1979 | 1980 | 1981 | Total (X thousands) |
|------|------|------|------|---------------------|
| $1.2 | $1.2 | $2.4 | $2.4 | $7.4 |

Estimated funding required to complete Development and Implementation (X thousand dollars):

Fiscal Years

| Program Phase | 81 | 82 | 83 | 84 | 85 | Totals |
|---|---|---|---|---|---|---|
| 1. Program Mgt. | 300 | 300 | 300 | 300 | 200 | $1,400 |
| 2. Validation | 250 | 250 | 250 | -0- | -0- | 750 |
| 3. Development | | | | | | |
|   -Training | 250 | 250 | 250 | 100 | 100 | 950 |
|   -MACS | 200 | 200 | 200 | 200 | 200 | 1,000 |
|   -OCC | 50 | 50 | 200* | 1,500* | 300 | 2,100 |
|   -FIMS | 500 | 500 | 350 | 250 | 200 | 1,800 |
|   -Tech. Supp. | | | | | | |
|     Systems | 750 | 750 | 750 | 450 | -0- | 2,700 |
| 4. Implementation | 100 | 100 | 100 | 100 | 100 | 500 |
| | 2,400 | 2,400 | 2,400 | 2,900 | 1,100 | $11,200 |

* Requires separate appropriations ("line-item") authorizing construction funds.

These funds are for developing and implementing components and processes directly connected with Federal, State, and local agencies. There will be a continuing need to adjust funds within the Program, primarily in the phases of validation and development. Therefore, Program funding allocations from "General Forestry Assistance" (GFA) are highly desirable and should be submitted as a "Line-item" budget element.

E.  State and Local Funding

From 1978 through 1980, the State and local cooperators have expended an estimated $4.3 million in support of the Program. Their 1981 contributions are expected to exceed $2.0 million.

State and local commitments in southern California will continue through the Development and Implementation phases, and then the using agencies will operate and maintain the completed systems into the future.

The support is contributed in two categories:

1.  Direct funding. These are budgeted dollars, primarily from the State, to hire personnel, pay facility costs, and provide the cash outlays required to operate and maintain the systems.

These dollar contributions will increase over time until the full Program has been implemented. They should then remain relatively constant.

2.   In-kind Contributions.  These are the resources, facilities, and
     equipments of the cooperators that are dedicated to making the
     Program function.  "In-kind" contributions include training
     efforts, data base collection, component testing, software
     development, and special facilities.  Many local agencies are
     purchasing their own hardwares to complement those provided by
     the Program.

     These contributions will remain at a high level for several years
     while the agencies put forth the efforts required to change from
     separate operational procedures into the common FIRESCOPE system.
     As more of the Program components become integrated into "normal
     operating procedures," the costs will be substantially reduced.

Estimated State and local contributions to FIRESCOPE Development and
Implementation (X thousand dollars):

### Fiscal Years

| Type of Support | 81 | 82 | 83 | 84 | 85 | Totals |
|---|---|---|---|---|---|---|
| Direct funding | 300 | 400 | 500 | 600 | 600 | $2,400 |
| In-kind | 2,000 | 2,000 | 2,000 | 2,000 | 1,000 | 9,000 |
|  | $2,300 | $2,400 | $2,500 | $2,600 | $1,600 | $11,400 |

F.   Program Interfaces and Coordination

The multiagency data bases, information systems, and processes developed
for the Program are attracting national attention, not only from fire
agencies, but also from a wide variety of emergency service practi-
tioners.

Among others, agencies responsible for emergency law enforcement,
disaster response planning, and medical services have investigated
various Program systems.

These interests will continue, and the Program will need to respond
to, and coordinate with many public service agencies to avoid duplica-
tions.  Approximately 10 percent of Program Management time and
energy will be spent in coordination with parallel efforts such as:

   --Fire prevention programs

   --Land management planning

   --"All-risk" applications (flood, earthquake, storm, etc.)

   --Urban conflagration and fire-spread predictions

   --National FIRESCOPE Technology Transfer